

The Urgency of Law Enforcement in Anticipating Pollution Caused by Corporate Offshore Exploration

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Abstract

Introduction to the Problem: Offshore oil and gas exploration in Indonesia has expanded significantly to meet rising domestic and global energy demands. However, these activities pose serious risks of marine environmental pollution, and the existing legal framework proves inadequate for effective oversight and enforcement.

Purpose/Study Objectives: This article aims to identify and evaluate regulatory deficiencies in offshore exploration governance and to propose targeted legal reforms to enhance environmental protection and enforcement.

Design/Methodology/Approach: Adopting a normative legal methodology, this study critically examines current legislation and institutional practices, benchmarking them against stringent liability doctrines and international regulatory standards.

Findings: The analysis reveals three principal regulatory shortcomings: (i) failure to apply strict liability principles; (ii) absence of mandatory environmental guarantee mechanisms; and (iii) institutional overlaps undermining coherent governance. In response, the study advocates (a) adopting unified sectoral legal instruments; (b) strengthening environmental oversight bodies; and (c) integrating progressive international regulatory frameworks. Legal reform is imperative to secure marine environmental protection, facilitate ecological restoration, and uphold justice for coastal communities, consistent with constitutional mandates and sustainable development principles.

Paper Type: Research Article

Keywords: Offshore; Exploration; Environmental Protection; Legal Reform; Marine Governance.



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Introduction

Oil and gas commodities are one of the strategic commodities that play a vital role in the national and global economy. The world's increasing energy needs make oil and gas a commodity that has high commercial value and is the main object of exploration by many countries, including Indonesia. One of the most common forms of exploration is offshore exploration, which has intensified in recent decades.

The trend of offshore oil and gas exploration in Indonesia shows a fluctuating but still significant movement. Based on data from SKKMIGAS and the Ministry of Energy and Mineral Resources, in 2025 there was an increase in oil production of 616.34 thousand barrels per day, up 15.1% compared to the previous month. Gas production also showed an increase of 18.95%, reaching 6,125.18 MMBTU. Furthermore, Indonesia's proven reserves of oil are estimated at 2.4 billion barrels, while natural gas reserves reach 43-45 trillion standard cubic feet (TSCF), with average daily production reaching 6,000-6,500 MMBTU.

Seafloor minerals are formed by geological and biological activity that has taken place on the ocean floor over millions of years. Seafloor minerals come from various geological and biological processes that take place over millions of years on the ocean floor. One of the main sources is undersea volcanic activity, where marine volcanic eruptions produce hydrothermal fluids that carry metals such as copper, zinc, silver and gold. When these hot fluids encounter cold seawater, the metals precipitate and form polymetallic sulphide deposits, as seen in the black smokers phenomenon. In addition, seafloor minerals also form through the process of direct precipitation from seawater. As over very long periods of time, elements such as manganese, nickel and cobalt can precipitate into manganese nodules and manganese crusts on the surface of seabed rocks. Rivers flowing into the sea also contribute sediments and minerals from land, forming heavy mineral sand deposits in coastal areas and on the continental shelf. On the other hand, the biological activities of marine organisms such as plankton and corals also contribute to the deposition of calcium carbonate and silica, forming limestone and kisel deposits. These processes produce economically important minerals such as copper, gold, silver, nickel, cobalt, manganese, and rare earth elements that are now being targeted for technology development and renewable energy.

Currently, the International Seabed Authority (ISA) has conducted numerous studies and identified three main types of mineral commodities with potential for exploration on the seabed: polymetallic nodules, cobalt-rich crusts and polymetallic massive sulphides. Polymetallic nodules are small, rounded lumps scattered on the seafloor, containing high-value metals such as manganese, nickel, cobalt and copper. Meanwhile, cobalt-rich crusts form as hard mineral layers attached to the surface of deep-sea rocks, especially on seamount slopes, and are rich in cobalt, iron and rare earth elements. Polymetallic massive sulphides form around active hydrothermal vents, where submarine volcanic activity produces deposits of metals such as

copper, gold, zinc and silver. These three types of minerals not only have great economic value, but also play an important role in fulfilling the needs of the global technology industry, especially in the development of clean energy, electric vehicles, and modern electronic devices (Putuhena, 2019).

Referring to the normative aspect, the international provisions contained in the 1982 United Nations Convention on the Law of the Sea (hereinafter referred to as UNCLOS 1982) have generally divided the authority to manage natural resources in 3 (three) parts, namely sovereignty, jurisdiction and international sea areas. Based on the 1982 UNCLOS as ratified into Law No. 17 of 1985 on the Ratification of the United Nations Convention on the Law of the Sea (hereinafter referred to as the UNCLOS Ratification Law), Indonesia has the position to manage and exploit energy resources under the sea (seabed). This activity in the international normative level is regulated and controlled by the International Seabed Authority (hereinafter referred to as ISA)(Birnie et al., 2009).

To date, ISA has identified three main seabed commodities with high economic value: polymetallic nodules, cobalt-rich crusts and polymetallic massive sulphides. These three commodities have great potential to be a source of state revenue, especially in supporting the technology and clean energy industries.(Putuhena, 2019) However, to be able to manage and utilise this natural energy, the Government of Indonesia needs to structure regulative instruments that can serve as the basis and guidelines in establishing bilateral relations between countries and multinational corporations. This is intended to provide clear legal corridors or preventive measures related to the consequences or adverse impacts that will arise from subsea exploration activities.

Natural energy exploitation activities in deep-sea areas, including the international seabed, have the potential to bring great risks to the marine environment if not closely monitored. In Indonesia, despite the existence of Law No. 4/2009 on Mineral and Coal Mining (hereinafter referred to as the Minerba Law) and Law No. 32/2014 on Maritime Affairs (hereinafter referred to as the Maritime Law), regulations regarding the supervision of offshore exploration activities by corporations - especially outside national jurisdiction - are still very limited and unspecific. The Minerba Law tends to focus on mining activities in land areas and national jurisdiction (territorial), without clearly covering offshore areas or exclusive economic zones (EEZ) let alone the International Seabed Area (the Area) as regulated in UNCLOS 1982. Meanwhile, the Marine Law does provide space for the government to establish international cooperation, as stipulated in Article 12, but it does not contain technical provisions related to monitoring mechanisms, corporate environmental responsibility, marine environmental audits, or sanctions for pollution that occurs due to deep-sea exploration activities.

In addition, there are no derivative or implementing regulations in the form of government regulations (PP), ministerial regulations, or technical guidelines that specifically regulate:

- a. Operational standards for deep-sea exploration by corporations;
- b. Reporting and auditing obligations for the marine environment;
- c. Corporate legal liability for transboundary environmental impacts;
- d. Administrative, civil and criminal sanctions for pollution resulting from subsea exploration;
- e. Coordination of supervision between ministries/agencies such as the Ministry of Energy and Mineral Resources, KKP, and KLHK.

The absence of legal norms creates a grey area as corporations have the benefit of avoiding environmental responsibility. On the other hand, there is no national supervisory institution that has explicit authority to control and evaluate mineral exploration activities in offshore areas and international seas. Furthermore, in the context of international law, Indonesia as a state party to UNCLOS 1982 is obliged to comply with the provisions of marine environmental protection as stipulated in Article 192 to Article 196, including the obligation to prevent, reduce and control pollution from exploration activities. However, without adequate national legal instruments to implement these obligations, Indonesia does not have a strong legal basis to enforce compliance and impose sanctions on business actors. (Maulana et al., 2022)

By paying attention to the background above, the focus of the problem is defined as follows:

"How is the weakness of supervision and law enforcement against corporations in offshore exploration activities, as well as the urgency of renewing regulations on offshore exploration activities?"

This research is aimed at analysing the urgency of actualising regulations in anticipating the potential for marine environmental pollution caused by exploration for reserves and extraction of natural minerals in offshore areas by corporations, both foreign and domestic. This research also aims to identify legal gaps in the national legislative product system included in the scope of supervision and legal responsibility for environmental impacts of deep-sea mining activities. This study is expected to produce constructive recommendations for the formation of national policies and regulations that are not only responsive to the development of the deep-sea extractive industry, but also in line with the precautionary principle, environmental preservation, and commitment to international cooperation with the principles of justice and sustainability in the governance of marine resources in the extra-jurisdictional area of the state.

Methodology

This study adopts a normative legal research methodology, primarily based on a comprehensive review of written legal norms and principles through doctrinal analysis.(Marzuki, 2016) It employs both a statutory approach, aimed at examining binding legislative instruments, and a conceptual approach, intended to explore underlying legal doctrines and theoretical frameworks.(Marzuki, 2016) The legal sources analyzed include primary materials, such as national legislation and international legal instruments, as well as secondary sources comprising scholarly literature. Data are gathered from authoritative and credible sources, and subsequently subjected to deductive analysis to construct a coherent and well-substantiated legal argumentation.

Results and Discussion***Weaknesses of Law Enforcement against Corporations in Offshore Exploration Activities in Indonesia***

Mining activities in the Indonesian region have experienced a significant surge in recent decades. The increase extends beyond mining activities and is not limited to onshore areas, but has also developed in offshore areas. This surge occurred due to the high national energy demand and potential oil and gas reserves in Indonesian waters. Exploration activities in offshore areas not only have an impact on economic aspects and national energy security, but also raise complex legal and environmental issues. For this reason, a holistic and constitutionally-based regulatory framework is needed to ensure that the implementation of these activities remains within the framework of national interests, environmental protection, and respect for community rights. Based on the framework of constitutional law, this requires an examination of the provisions of Article 33 of the 1945 Constitution of the Republic of Indonesia (hereinafter referred to as the 1945 Constitution), along with its juridical interpretation by the Constitutional Court, as a normative basis for the state in carrying out the function of managing and supervising the utilisation of natural energy, including those in marine areas and offshore zones.

The Constitutional Court has made an important contribution in strengthening the constitutional basis for administrative governance of energy resources and natural resources in Indonesia. Through Decision No. 36/PUU-X/2012 (hereinafter referred to as PMK 36/2012) in a case challenging Law No. 22/2001 on Oil and Gas (hereinafter referred to as the Oil and Gas Law), the Court conducted a progressive interpretation of the provisions of Article 33 paragraph (2) and paragraph (3) of the 1945 Constitution. The interpretation confirms that production management sectors with a strategic character that touches the basic needs of society need to be under the control of the state, and their management must be aimed absolutely at the prosperity of the people(Wicaksono, 2017).

The Constitutional Court affirmed that the phrase "controlled by the state" in Article 33 of the 1945 Constitution should not be narrowly interpreted as limited to the regulatory function (*reguler*). Although the regulatory function is inherently attached to the state, such control includes a much broader role, namely as a policy maker (*regulator*), operational executor (*operator*), and manager (*beheerder*) of strategic natural resources (Elvis & Suparman, 2023). As such, the state has a constitutional responsibility to ensure that natural resource management is carried out with the principles of justice and sustainability, and does not only prioritise economic profit, but also protects the sustainability of the ecosystem.

As in the framework of environmental law, the principle in question is in line with the ideas of ecological justice and sustainable development as set out in Article 2 of Law No. 32/2009 on Environmental Protection and Management (hereinafter PPLH Law). The relevant provisions emphasise the importance of environmental management fundamentals based on state responsibility, sustainability and justice. This concept places the state as the central actor in maintaining the balance between exploitation and preservation. Maria S.W. Sumardjono asserts that the concept of "control by the state" is not a form of ownership over natural energy, but rather a manifestation of public trusteeship, where the state acts as a trustee for the benefit of the people and the environment (Purwendah, 2019). Thus, the management of biological and mineral resources must reflect intergenerational responsibility and guarantee the right to a healthy environment for future generations. In line with PMK 36/2012, state control as referred to in Article 33 of the 1945 Constitution is a collective mandate from the people, based on the principle of popular sovereignty over national natural resources. This conception is further strengthened by the provisions in the Stockholm Declaration Article 2, which positions the state as the entity that holds the primary responsibility in preserving natural resources and preventing arbitrary exploitation, especially by the private sector or foreign entities.

Therefore, the state is not only authorised to regulate, but is also required to perform five strategic functions: (Nizamudin, 2016)

- 1) Policy function (*beleid*) - formulating the direction and objectives of natural resource management;
- 2) Administrative function (*bestuursdaad*) - governmental actions such as granting or revoking licences and concessions;
- 3) Legislative and regulatory functions (*regelendaad*) - the formation of regulations by the Parliament and government as well as policies by the executive;
- 4) Management function (*beheersdaad*) - direct or indirect involvement of the state through SOEs (*sim. BUMN*) or shareholdings; and
- 5) Supervisory function (*toezichthoudensdaad*) - to ensure that all resource management is carried out for the prosperity of the people.

The five main roles of the state - policy formulation (*beleid*), government administration (*bestuursdaad*), normative regulation (*regelendaad*), technical management (*beheersdaad*), and supervision (*toezichthoudensdaad*) are an integral unit that must be carried out synergistically and complement each other. In natural resource management, the implementation of one function separately, such as only carrying out the regulatory function, does not reflect the fulfilment of the principle of "controlled by the state" as stipulated in Article 33 paragraphs (2) and (3) of the 1945 Constitution. This is because the regulatory function, although important, is a common characteristic found even in state systems with a liberal economic approach. Therefore, control by the state must be interpreted comprehensively with the application of the five functions so that natural resource management is truly directed towards the prosperity of the people.

Natural assets within the sovereign territory of the Republic of Indonesia are legally the object of a state mandate that must be managed fairly, sustainably and sustainably, not as a commodity. In this case, the state acts as the executor of the people's mandate to ensure that natural resource management is carried out for the collective benefit of all citizens. One of the concrete forms of this mandate is the management of offshore exploration activities, namely the search for and utilisation of natural energy, especially oil and gas, located in the national sea area, both in the territorial sea and the Exclusive Economic Zone (EEZ). For Indonesia, this activity has strategic significance due to the vast national sea area that holds great energy potential. However, this exploration also poses various legal, environmental and sovereignty challenges.

Offshore exploration, theoretically and normatively, is a basic element of non-renewable natural resource management that requires a multidisciplinary approach, particularly from the perspectives of environmental law, marine law and energy law. Therefore, the precautionary principle, sustainability, and ecological justice become very important to be used as a foothold in its formulation. Legal regulation of exploration cannot be viewed as a mere administrative procedure, but rather as a manifestation of constitutional responsibility.

The urgency of regulating offshore exploration can be described in four main aspects:

1. Environmental Aspects

Ocean exploration can result in pollution, ecosystem damage, and disturbance to marine biota. Without strict regulations, the long-term risks to the environment and the sustainability of coastal communities will increase. Activities such as oil drilling carry great potential for oil spills, industrial waste, and seismic disturbances to marine habitats.

2. Aspects of Sovereignty

Exploration in marine areas is directly related to state sovereignty over jurisdictional areas, such as the EEZ and continental shelf, as regulated in UNCLOS 1982. The state must ensure that exploration activities - especially those involving foreign parties - do not violate national sovereignty over natural resources.

3. National Economic and Energy Aspects

Energy potential from the high seas is a vital element in supporting national energy security. Effective regulations will ensure transparency, efficiency and accountability in the governance of the energy sector, while preventing the dominance of foreign corporations over national exploration results.

4. Legal Aspects and Social Justice

Natural energy management in reference to Article 33 of the 1945 Constitution must be orientated towards the prosperity of the people. Therefore, exploration must be subject to regulations that guarantee social justice, including the protection of vulnerable groups such as coastal communities, traditional fishermen and indigenous communities. They are often the hidden victims of exploration practices without adequate legal protection.

Thus, regulation of offshore exploration is not just an administrative legal instrument, but part of the constitutional mandate that requires the state to maintain harmony between economic aspects and conservation of marine ecosystems. This step is not just about meeting current energy needs, but also a form of intergenerational responsibility in preserving Indonesia's natural resources.

One of the crucial weaknesses in Indonesia's environmental legal framework lies in the normative vacuum. The state is currently in a state of *recht vacuum* explicitly towards offshore mining. This vacuum has implications for the mechanism of mining work both from downstream to upstream areas. Thus, there is a lack of legal specifications that strictly regulate strict liability for corporations, especially in the context of marine pollution due to offshore exploration activities.

The Environmental Law does recognise the concept of strict liability in Article 88, which states that:

"every person whose business activities cause pollution and/or damage to the environment is obliged to bear the costs of restoration."

However, the relevant norms are general and do not specifically cover the complexity of oil and gas exploration activities in the high seas, which have high-risk and cross-jurisdictional characteristics. Meanwhile, the Oil and Gas Law also does not explicitly integrate the principle of strict liability in the environmental liability regime, particularly in the context of marine pollution. This law focuses more on aspects of licensing and business governance, but does not provide an absolute

environmental liability mechanism for management corporations. As a result of the absence of explicit and comprehensive arrangements, corporations conducting oil and gas exploration and production in Indonesia's marine areas often cannot be held strictly legally responsible when marine pollution occurs. Many pollution cases end without appropriate legal sanctions, or even make it difficult for the state and the victim community to file a lawsuit because the burden of proof remains on the victim, contrary to the spirit of strict liability which should eliminate the element of fault as the main requirement for liability(Asnawi, 2019).

The absence of this provision has an impact on:

- a) Weak legal position of coastal communities and the environment as aggrieved subjects.
- b) Lack of incentives for corporations to implement preventive technology and strict risk mitigation systems.
- c) Delayed recovery of marine ecosystems, as corporations are not automatically obliged to bear all post-incident recovery costs.

In the discourse of natural energy management in deep water, there are fundamental problems stemming from the weak supervisory system and the rule of law by the competent authority. This weakness reflects institutional inefficiency, both in terms of institutional capacity and normative aspects that regulate the functions and authority of supervisory bodies. Structurally, supervisory bodies such as SKK Migas and KLHK still face limitations in carrying out supervisory functions over exploration and utilisation of natural resources in deep-sea areas(Haris, 2015). These limitations include the lack of competent human resources, limited operational budgets, and the lack of effective remote monitoring technology. On the other hand, existing regulations have not given these institutions strong and firm authority to take direct repressive action against violations that occur in the field.

Weak oversight mechanisms for deep-sea exploration activities have a significant impact on increasing the potential for environmental law violations. When exploration and utilisation of natural resources in deep-sea waters is not accompanied by strict supervision, the risk of hazardous and toxic waste disposal, oil leakage incidents, and permanent damage to marine ecosystems is higher. This phenomenon not only reflects administrative failure, but also marks the absence of the state in ensuring effective ecological protection. Ironically, various forms of violations are often not accurately identified or even ignored by law enforcement officials, which is basically due to the weak environmental reporting system, the lack of transparency of public information, and the absence of an accountability system that can guarantee the prosecution of violations objectively and proportionally. This situation shows that there is a regulatory gap between the applicable environmental legal norms and their implementation in the field.

Juridically, this condition can be categorised as a form of state negligence in fulfilling the constitutional obligation to guarantee the right of every citizen to a good and healthy environment as stipulated in Article 28H paragraph (1) of the 1945 Constitution of the Republic of Indonesia. Furthermore, Article 33 paragraph (4) of the 1945 Constitution also affirms that economic development must be sustainable and environmentally sound, so that if the state fails to optimally carry out its supervisory and law enforcement functions, then it can be considered contrary to the principle of sustainable development. On the other hand, the inability of the authorities to take action against violations of environmental law can set a negative precedent in the national law enforcement system. The absence of strict and consistent sanctions not only weakens the deterrent effect, but also creates legal uncertainty, which in turn can erode public confidence in the effectiveness of legal instruments that have been established. This has the potential to encourage environmental impunity, a condition in which perpetrators of environmental destruction are free from legal accountability.(Qurbani, 2012)

One of the structural problems in managing and monitoring natural resource exploration activities in the deep sea, particularly in the EEZ, is the conflict of authority between state agencies and the overlapping regulations governing the field. This conflict of authority mainly occurs between the central government - in this case the Ministry of Energy and Mineral Resources, the Ministry of Environment and Forestry, and other technical agencies - and provincial or district/city governments that have administrative authority over coastal areas and parts of the territorial sea. The lack of clarity between the central government and local governments in terms of monitoring and licensing exploration activities in the EEZ creates legal ambiguity. This is exacerbated by the lack of integration of various sectoral laws and regulations, such as the Local Government Law, Law 23/2014 (especially after the changes regarding marine management authority), the Environmental Law, and the EEZ Law. These regulations have not been integrated vertically (in terms of hierarchy of norms) or horizontally (in terms of sectoral harmonisation), leading to inconsistencies in norms and delegation of responsibilities between institutions(Ginting, 2014).

This conflict of authority and regulatory disharmony has hampered coordination in the implementation of environmental monitoring and law enforcement. In practice, the lack of clarity over which authority has jurisdiction in the EEZ leads to a regulatory vacuum, where violations such as environmental pollution, business licence violations or illegal exploration do not receive a firm enforcement response because each agency feels it does not have a definitive legal mandate. This phenomenon in turn creates a legal loophole, which can be utilised by business actors to avoid legal obligations or even continue exploitative exploration activities without adequate supervision. The lack of coordination between sectors also hinders the implementation of integrated coastal and ocean management principles, which should be the main approach in marine resource governance,

especially in areas with cross-sectoral and cross-jurisdictional authorities such as EEZs(R. R. Chruchill & Lowe, 1999).

Normatively, this situation contradicts the principles of clarity of norms and legal certainty in the national legal system. These principles are an integral part of the principles of good governance (*algemene beginelen van behoorlijk bestuur*) and are fundamental guarantees in a state of law (*rechtsstaat*), as contained in Article 1 paragraph (3) of the 1945 Constitution. From the perspective of constitutional law and government administration, this lack of clarity indicates the need for systemic regulatory harmonisation measures. Therefore, it is recommended that the BPHN government or the omnibus law mechanism harmonise the laws and regulations governing institutional authority in the supervision of deep-sea exploration activities. In addition, it is necessary to establish a coordination framework across sectors and across levels of government through a national policy based on marine ecoregions. The policy should emphasise a collaborative approach between the central government, local governments, environmental watchdogs and local stakeholders to ensure integrated oversight and effective law enforcement in national marine areas, including EEZs.

In practice, the state often faces a dilemma between the need to maintain economic stability and the constitutional obligation to protect the environment. The government's dependence on the oil and gas sector as one of the main contributors to state revenue-both through taxes, royalties, and oil and gas revenue sharing-has created a tendency towards permissiveness towards large corporations engaged in this sector. This has led to a conflict of interest between the goals of economic development and environmental protection, where oversight of oil and gas industry activities, particularly in the deep sea and EEZs, is often undermined by political economy considerations. When oil and gas exploration and exploitation become national fiscal pillars, legal controls tend to soften, and law enforcement approaches are more compromised than repressive(Ginting, 2014).

A major impact of economic dependence on oil and gas corporations is the declining independence and effectiveness of law enforcement officers and environmental regulatory authorities in carrying out their legal mandates. Administrative, civil and criminal sanctions that should be imposed for environmental violations, such as marine pollution or violations of exploration licences, are often reduced in substance or even ignored altogether in order to maintain the investment climate.

This phenomenon has led to the formation of regulatory capture, a condition in which regulatory agencies no longer function as guardians of the public interest, but instead are subject to pressure or influence from the industrial sector they oversee. In this context, oil and gas corporations have the potential to receive preferential treatment that is not in line with the principle of equality before the

law, as guaranteed in Article 27 paragraph (1) of the 1945 Constitution. In addition, lenient law enforcement against oil and gas industry players also has the potential to ignore the polluter pays principle - a principle of international environmental law that requires polluters to be responsible for the damage they cause. When this principle is ignored, the state fails to uphold the principles of ecological justice and environmental accountability.

Juridically, the state's dependence on the oil and gas sector shows indications of violations of the principle of due process of law and the principle of environmental justice. When economic considerations are prioritised over the principle of the rule of law, the integrity of the legal system as a social control mechanism and protector of environmental interests is eroded. Within the framework of the rule of law (*rechtsstaat*), the law should stand as an objective norm that is not subject to economic power or political power (Efendi, n.d.).

Economic power owned by large oil and gas corporations can obscure the law enforcement process that should be carried out fairly and transparently. The reduction or removal of sanctions for environmental violations in order to maintain investment stability reflects the practice of regulatory favouritism, which normatively contradicts the principle of equality before the law as guaranteed in Article 27 paragraph (1) of the 1945 Constitution. Moreover, the state also fails to fulfil its constitutional responsibility to maintain the balance and sustainability of the environment, which is a basic right of every citizen, as affirmed in Article 28H paragraph (1) of the 1945 Constitution. This situation reinforces the state's failure to protect the right to a good and healthy environment as part of human rights (Listiyani et al., 2018).

The state is obliged to place economic development within the framework of sustainable development, as stipulated in Article 33 paragraph (4) of the 1945 Constitution, which states that the economy is organised based on the principles of sustainability and justice. In this context, environmental protection should no longer be considered as an obstacle to investment, but rather as a central element in the planning and implementation of development policies. Thus, future public policy formulation must internalise ecological values into economic logic through green governance, eco-based planning, and eco-justice policy (Santosa, 2001). These principles must be realised at the regulatory and operational levels so that Indonesia can build an environmental legal system that is not only normatively strong, but also responsive, accountable and intergenerational.

The Urgency of Regulatory Reform in Mitigating Pollution Risks Due to Offshore Exploration

Offshore exploration, especially in the oil and gas sector, carries high environmental risks, especially the potential for marine pollution due to oil spills, hazardous waste disposal, and permanent damage to marine ecosystems. Ecosystem

exploration activities are experiencing a surge in intensity, a situation that is not supported by adequate regulation. Normatively, Indonesia already has a legal framework that regulates oil and gas exploration and exploitation activities, among others through the Oil and Gas Law, as well as its implementing regulations issued by the Ministry of Energy and Mineral Resources. The law regulates the governance of the oil and gas industry, including corporate obligations towards operational safety and environmental protection. However, when environmental pollution occurs as a direct result of oil and gas exploration or drilling activities, the normative handling does not specifically refer to the oil and gas sectoral law, but is returned to the provisions of administrative, civil and criminal sanctions contained in the Environmental Law.

In the author's analysis, this has several significant juridical implications:

1. Regulatory Fragmentation

Although the oil and gas industry is a strategic sector with a high risk of environmental pollution, the Oil and Gas Law does not explicitly regulate sanction mechanisms or environmental liability schemes in detail. In practice, when a pollution incident occurs, law enforcement officials must refer to the PPLH Law. This leads to regulatory fragmentation, because the provisions in the Oil and Gas Law and the PPLH Law are not systemically integrated, both in terms of norms, authority, and implementation mechanisms.

2. Potential Lack of Specific Norms (Normative Gap)

The Environmental Law does adopt important principles such as strict liability, polluter pays principle (PPP), and environmental restoration obligations. However, the absence of sectoral technical norms in oil and gas regulations - for example related to post-exploration responsibilities, special environmental audit obligations in offshore areas, and procedures for monitoring marine pollution risks - results in these principles not being optimally implemented. Without the support of technical and binding sectoral norms, monitoring and sanction mechanisms are weak and non-operational. In environmental law doctrine, this is known as normative deficiency.

3. Obscured Accountability

The submission of law enforcement entirely to the PPLH Law risks obscuring the form of sectoral responsibility of oil and gas corporations. In fact, in the context of highly complex and high-risk offshore oil and gas exploration and exploitation, accountability is not sufficiently approached through general norms, but must be strengthened through rigid and specific sectoral regulations, including provisions on strict liability, compensation to affected communities, and environmental risk insurance obligations.

4. Difficulties in Sanction Implementation (Enforcement Deadlock)

The separation of authority between the Ministry of Energy and Mineral Resources and the MoEF complicates the implementation of sanctions. KLHK has jurisdiction in enforcing the PPLH Law, but does not have the technical authority to intervene in the operational activities of the oil and gas industry. Conversely, the Ministry of Energy and Mineral Resources as a sectoral agency has no legal basis to impose environmental sanctions. This creates a vacuum of enforcement, where environmental violations do not receive adequate response due to the absence of a single agency with cross-sectoral authority.

While the Environmental Law has normatively adopted the Polluter Pays Principle (PPP) and the Strict Liability principle, the implementation of these two principles still faces various structural and cultural obstacles, especially in the context of exploration and exploitation of offshore natural resources. When analysed in depth in the relevant legal provisions, the principles and principles set out in the PPLH Law will be found, among others:

- a. Polluter Pays Principle (PPP) is an environmental law principle that asserts that the polluter is financially responsible for the environmental damage it causes. This principle is stated in Article 2 letter i of the Environmental Law, which states that environmental protection and management are organised based on the polluter pays principle.
- b. Strict Liability or absolute responsibility is regulated in Article 88 of the Environmental Law, which states that every person in charge of a business and/or activity is obliged to bear losses due to environmental pollution and/or damage, without the need to prove the element of fault (no fault liability). This principle aims to make it easier for the public or the government to claim legal responsibility for the perpetrators of pollution.

Although the Environmental Law has explicitly adopted the Polluter Pays Principle (PPP) and Strict Liability, in practice the implementation of both principles still faces serious obstacles, especially in the context of oil and gas exploration and exploitation activities in marine and offshore areas. The problems that occur are systemic, covering institutional aspects, procedural law, and the structure of access to environmental justice for affected communities. This will be explained in detail in the explanation below:(Muhdar, 2019)

- a) Polluter Pays Principle (PPP) enforcement issues

The Polluter Pays Principle (PPP) is a fundamental principle in modern environmental law that has also been accommodated in the Indonesian legal system, specifically through:

- i. Article 2 letter i of the Environmental Law, which states that environmental management is carried out based on the polluter pays principle.
- ii. Article 43 paragraph (1), which emphasises the obligation of corporations to carry out and finance environmental restoration in the event of pollution.

Unfortunately, there is no standardised mechanism that regulates how to calculate ecological losses, such as:

- (1) The economic value of damage to marine ecosystems (e.g. coral reefs, seagrasses, or endemic species),
- (2) Long-term impacts on the livelihoods of fishers and coastal communities,
- (3) Loss of ecosystem services due to pollution.

An example of a case that can then be used as evidence for this legal issue, namely the case of the oil spill by PTTEP Australasia (Montara) in the Timor Sea, has never been rewarded with sanctions or adequate ecological compensation, because Indonesia does not have the legal tools to conduct scientific environmental valuation and can be prosecuted legally. The Indonesian government relies solely on diplomacy without substantive regulatory power.

b) Problems with the application of Strict Liability

Article 88 of the Environmental Law adopts the principle of strict liability:

"Every person whose business causes a major impact on the environment is absolutely responsible for the harm caused."

The problem with the application of strict liability in Article 88 of the Environmental Law is that the phrase "major impact" is subjective and often disputed in judicial forums. Judges or prosecutors may interpret that a damage has not met the "major" threshold, so claims based on strict liability are often unsuccessful. An example of such a case occurred in the Lapindo Brantas case (2006). As the leak of a gas well owned by PT Lapindo Brantas that resulted in a hot mudflow was never resolved through the strict liability route. Objectively, this case did not occur in offshore exploration activities, but the government's decision to address it can be used as a basis for evaluation in the study of restitution for damage. The government chose a non-litigation approach, which then set a bad precedent that even major damage can be "considered resolved" only by administrative and political mechanisms, not law.

c) Weakness of Sanction Enforcement

However, the majority of the criminal provisions regulated are still based on the principle of fault-based liability, where law enforcement

officials must prove the element of intent (*dolus*) or negligence (*culpa*) of the perpetrator to impose penalties. This approach poses a serious challenge in the context of environmental pollution due to offshore oil and gas exploration, which has very complex technical and operational characteristics (Soemarwoto, 2001).

Damage to the marine environment due to subsea pipeline leaks, well control failures, or the fault of third-party operators is difficult to ascertain technically who is directly responsible and at what stage the fault occurred. In addition, the corporate structure in the oil and gas industry involving contractors, subcontractors, and joint operations between state-owned companies and multinational private companies complicates the process of proving the elements of fault. This complexity makes the application of criminal sanctions very limited and less effective. A clear example of this problem can be seen in the case of the oil spill in Balikpapan Bay in 2018, where the leak of an undersea pipeline owned by PT Pertamina (Persero) resulted in massive pollution of marine ecosystems such as coral reefs and mangroves, death of marine biota, and even impacted the health and economy of coastal communities. Although the damage was extensive and costly, the legal response was weak. PT Pertamina was only subjected to administrative sanctions by the Ministry of Environment and Forestry (KLHK) without any serious criminal charges. In addition, there is no clear mechanism for compensation or ecological restitution for affected communities. This situation shows the fundamental weakness of the fault-based criminal sanction system in handling offshore oil and gas pollution cases, where proving negligence or intent is the main obstacle. This calls for the revision or strengthening of regulations that allow the application of strict liability so that legal accountability can be enforced more effectively, regardless of proving the element of the perpetrator's guilt. This approach will also provide a stronger deterrent effect while protecting community rights and environmental sustainability more optimally.

d) Absence of Special Provisions for Offshore Exploration

First, to date, neither the Oil and Gas Law nor the Environmental Law has explicitly regulated the obligation of oil and gas companies to provide environmental bonds before carrying out exploration and production activities in offshore areas. This fund is crucial as a financial guarantee that can be used to cover the cost of environmental restoration in the event of damage or pollution due to oil and gas activities. The absence of this provision has the potential to make the government and society bear the burden of large remediation costs, while business actors do not have a definite financial commitment.

Second, Indonesia has also not established an obligation for oil and gas companies to have mandatory environmental insurance. This insurance serves as financial protection to ensure ecological restoration and

compensation to communities affected by marine pollution incidents. Without this mechanism, the risk of costs due to major pollution will only burden the state and society, thus encouraging injustice and potential inefficiency in handling environmental damage (Nidasari, 2014).

Third, oil and gas exploration and production in EEZs and deepwater areas have very high ecological risks compared to industrial activities on land. Pollution impacts such as oil spills, damage to underwater habitats and contamination of marine ecosystems can cause long-term losses that are difficult to recover from and threaten the sustainability of the livelihoods of coastal communities that depend on marine resources.

Referring to the explanation above, we come to the end of the discussion which then when summarised there are several problems related to the current legal provisions of offshore exploration. These problems include:

a. Lack of Law Enforcement (Weak Enforcement)

One of the fundamental obstacles is the weak law enforcement by the state apparatus. Law enforcement agencies such as the MoEF, the Attorney General's Office, and the Police often do not have enough independence or courage to take action against large corporations that are perpetrators of marine environmental pollution. This is influenced by conflicts of interest as well as political and economic pressures, especially when the perpetrators are foreign investors or strategic state-owned enterprises. The 2009 Montara oil spill in the Timor Sea is a clear example of how the process of legal accountability has been very slow, even causing uncertainty about the restoration of the rights of coastal communities. As a result, the function of law as a tool of social control over business actors has lost its deterrent effect.

b. Difficulty in Proving Environmental Losses

Although the principle of strict liability frees victims from the obligation to prove fault, in practice, plaintiffs - especially coastal communities or fishermen groups - are still faced with the burden of proving the causal link between industrial activities and the pollution that occurs. This is a juridical paradox that hinders effective environmental protection. Technical issues such as the lack of laboratory testing equipment, environmental baseline data, and the incompatibility of civil law evidentiary methods with the characteristics of ecological damage, put plaintiffs in a weak position. This shows the gap between normative principles and the judicial reality faced in the field.

c. Institutional Capacity Gap

The next problem lies in the institutionalisation of environmental supervisors. At both the central and local levels, institutions such as the MoEF and environmental agencies often lack the technical and

financial capacity to conduct proactive oversight and thorough investigations into pollution in the deep sea or Exclusive Economic Zones (EEZs). The lack of budget, limited expertise, and suboptimal monitoring technology (such as satellites, drones, or underwater sensors) mean that oversight officers are unable to quickly and accurately detect and prosecute environmental violations in offshore oil and gas exploration areas.

d. Unequal Access to Environmental Justice Gap

Local communities, including traditional fishers and coastal communities, are often the most affected by marine environmental pollution. However, they rarely have access to legal assistance, technical information or the means to voice their rights. This structural inequality reflects the lack of protection of the right to a healthy and sustainable environment as guaranteed in Article 28H paragraph (1) of the 1945 Constitution.

In addition, the absence of adequate mechanisms for class action, citizen lawsuit, or strategic litigation support also makes the rights prosecution process ineffective. As a result, perpetrators of pollution often escape responsibility, while affected communities are left to bear ecological and economic losses independently.

To overcome various problems in the regulation and implementation of environmental management in the offshore oil and gas sector in Indonesia, it is necessary to strengthen the legal framework that touches two complementary strategic dimensions. First, strengthening the independence of supervisory institutions and law enforcement officers is crucial. Institutions such as the MoEF, along with external oversight institutions such as the Public Information Commission and the Ombudsman, must be guaranteed freedom from political-economic pressures and interventions that have the potential to reduce the effectiveness of oversight. This strengthening can be realised through regulatory and institutional reforms that prioritise easily accessible public complaint mechanisms, clear transparency of supervisory budgets, and strict legal protection for supervisory officials who carry out their duties independently and professionally. Thus, the supervisory function can run without obstacles, ensuring that environmental violations by oil and gas corporations do not escape firm and fair action.

Second, the strict application of the principle of corporate accountability needs to be made a binding legal instrument and can be implemented effectively in the oil and gas industry. The principle of Corporate Environmental Liability must be enforced, where corporations are not only responsible for environmental damage in general, but are also obliged to carry out ecological restoration and provide fair compensation to affected communities. Furthermore, the obligation of Mandatory Environmental Compliance Auditing by independent auditors on a regular basis

must be a non-negotiable standard. The results of these audits must be made public, so that the principle of transparency by disclosure can increase social and political pressure for companies to truly comply with established environmental standards. This mechanism not only strengthens the company's internal oversight, but also involves the wider community as a legitimate external watchdog.

Reflecting on other countries' regulations, Norway's regulatory model offers important lessons that are highly relevant to Indonesia. Norway requires all offshore oil and gas companies to apply the principle of full strict liability, as stipulated in Petroleum Act § 7-1, where the company is absolutely responsible for environmental damage without the need to prove fault or negligence. This encourages companies to manage environmental risks more seriously and proactively. (R. Chruchill & Elferink, 2020) In addition, Norway requires companies to provide a compulsory environmental compensation fund prior to obtaining an exploration licence, which serves as a ready financial guarantee for remediation in the event of pollution. Additionally, environmental performance is independently audited and overseen by a cross-sector body that ensures compliance and transparency, while increasing accountability for environmental risk management. By adopting these principles, Indonesia can strengthen its weak sectoral legal framework, clarify and emphasise the responsibilities of oil and gas corporations, and ensure optimal protection of the environment and the rights of coastal communities through independent and accountable oversight. This approach will not only improve the quality of environmental law enforcement, but also build public confidence in sustainable and responsible natural resource management.

Conclusion

First, regarding the weaknesses of law enforcement against corporations in offshore exploration activities in Indonesia, it can be concluded that weak regulations, overlapping authorities, and the absence of effective accountability mechanisms have hindered optimal law enforcement. The Polluter Pays Principle and Strict Liability as regulated in the Environmental Protection and Management Law (PPLH Law) have not provided maximum environmental protection due to the lack of supporting technical and institutional instruments. This situation creates opportunities for corporations to evade responsibility, leading to a vacuum of responsibility in environmental supervision.

Second, concerning the urgency of regulatory reform in mitigating pollution risks from offshore exploration, it can be concluded that legal reform is necessary through the establishment of special regulations for offshore exploration, the strengthening of independent supervisory institutions, and the implementation of environmental guarantee funds and mandatory insurance. Such reforms should also adopt successful international practices, such as the regulatory model in Norway, in order to ensure marine environmental protection, ecological restoration, and justice

for affected communities, in line with the constitutional mandate and the principles of sustainable development.

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Regulation

The 1945 Constitution of the Republic of Indonesia

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Law of the Republic of Indonesia Number 32 of 2014 concerning Marine Affairs

United Nations Convention on the Law of the Sea (UNCLOS) 198