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Reformulation Of The Policy On The Placement Of Reclamation And Post-Mining Guarantee Funds Based On The Polluter Pays Principle

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Abstract

This study aims to describe and analyze the placement of reclamation and post-mining guarantee funds in mining activities. These funds serve as an economic instrument that compels license holders to carry out post-mining recovery. However, compliance among license holders in placing reclamation and post-mining guarantee funds remains problematic. In addition, this research seeks to analyze the reformulation of policies regarding the placement of reclamation and/or post-mining guarantee funds as an environmental economic instrument. The research method employed is normative juridical research with a descriptive analysis model. The findings show that after licenses are issued, many license holders fail to fulfill their obligation to place guarantee funds, resulting in disrupted environmental recovery activities. Under the prevailing regulations, the obligation to place reclamation and post-mining guarantee funds is imposed on IUP/IUPK holders after obtaining a license. With such a regulatory model, many IUP/IUPK holders neglect and fail to deposit the required funds. The current concept of placing reclamation and post-mining guarantee funds, which requires submission after license is issued by government, has led to non-compliance by license holders. Therefore, the concept of guarantee fund placement must be reformulated.
Keywords: *Reclamation Guarantee Fund, Post-Mining, Polluter Pays Principle, Economic Instrument, Environment.*

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan dan menganalisis penempatan dana jaminan reklamasi dan pascatambang dalam aktivitas pertambangan. Dana tersebut menjadi instrumen ekonomi yang memaksa kepada pemegang izin untuk melakukan pemulihan pascatambang. Namun, kepatuhan para pemegang izin untuk menempatkan dana jaminan reklamasi dan pascatambang masih menjadi masalah. Selain itu, penelitian ini juga bertujuan untuk menganalisis formulasi ulang kebijakan penempatan dana jaminan reklamasi dan/atau pasca tambang sebagai instrumen ekonomi lingkungan hidup. Metode penelitian yang digunakan adalah penelitian yuridis normatif dengan model analisis deskriptif. Hasil penelitian menunjukkan bahwa pasca izin diterbitkan, banyak pemegang izin yang tidak menunaikan kewajibannya dalam menempatkan dana jaminan, sehingga berdampak pada terganggunya aktivitas pemulihan lingkungan. Aturan yang berlaku saat ini, kewajiban menempatkan dana jaminan reklamasi dan pascatambang dilakukan oleh pemegang IUP/IUPK pasca memperoleh izin. Dengan aturan seperti ini, masih banyak pemegang IUP/IUPK yang lalai dan tidak menempatkan dana tersebut. Konsep penempatan

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dana jaminan reklamasi dan pascatambang saat ini diwajibkan untuk diserahkan pasca izin diterbitkan oleh pemerintah. Model penempatan yang seperti ini menyebabkan pemegang IUP/IUPK lalai menunaikan kewajibannya dalam menempatkan dana jaminan. Oleh sebab itu, konsep penempatan dana tersebut harus direformulasi.
Kata Kunci: Dana Jaminan Reklamasi, Pascatambang, Asas Pencemar Membayar, Instrumen Ekonomi, Lingkungan.

INTRODUCTION

Coal mining is one of the economic sectors that requires forest areas, both those classified as Forest Cultivation Zones (KBK) and Non-Forest Cultivation Zones (KBNK).[1] The presence of mining companies in Indonesia is increasingly questioned by various groups,[2] as numerous problems arise from mining activities, ranging from diseases caused by uncontrolled waste, environmental pollution that reduces environmental quality, to the extinction of local flora and fauna.[3] Environmental problems that may arise from mining activities have various forms and characteristics.[4]

In the mining sector, effective environmental management methods requires continuous and integrated processes. Various processes, including general investigation, exploration, feasibility studies, construction, mining, processing and refining, transportation and sales, as well as post-mining activities, must be carried out to complete mining operation. Proper planning and implementation constitute sustainable and responsible mining management aimed at reducing the negative impacts of mining activities.[5]

Currently, mining companies' responsibility to implement reclamation and post-mining programs is considered insufficient to restore the environment. As a result, mining companies continue to leave behind large areas of abandoned mine land across various regions of Indonesia. In fact, many laws and regulations related to mining clearly regulate the responsibilities of mining companies to repair environmental damage caused by reclamation route and post-mining activities.[6]

[1] M Muhdar, et al, "Impilkasi Hukum Terhadap Praktik Pinjam Pakai Kawasan Hutan Untuk Kegiatan Pertambangan Batu Bara", *Jurnal Hasanuddin Law Review,* Volume 1, Number 3, December 2015. page. 431.
[2] Salim HS, *Hukum Pertambangan Indonesia,* Jakarta: PT Raja Grafindo Persada, 2005, page. 5.
[3] Misbakhul Munir and Rr Diah Nugraheni Setyowati, "Kajian Reklamasi Lahan Pasca Tambang di Jambi, Bangka, dan Kalimantan Selatan", *Jurnal Ilmu Biologi dan Terapan: KLOROFIL,* Volume 1, Number 1, 2017, page. 11.
[4] Abrar Saleng, *Hukum pertambangan*, Yogyakarta: UII Pres Yogyakarta, 2004, page. 117.
[5] Suprapto, "Aspek Hukum Tentang Reklamasi Pertambangan Batu Bara Studi Di Kecamatan Satui Tanah Bumbu", *Jurnal Syiar Hukum,* Volume 13, Number 3, November 2011, page. 190.
[6] Ayu Linanda and Hudali Mukti, "Kewajiban Perusahaan Pertambangan Dalam Melaksanakan Reklamasi Dan Pascatambang di Kota Samarinda," *Jurnal Ilmiah Hukum YURISKA,* Volume 8, Number. 2, August 2016, page. 67.

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The environmental impacts generated by the mining industry remain one of the most complex problems. Many areas are degraded due to irresponsible mining practices. Mining activities cause a wide range of environmental impacts, including reduced soil productivity, soil compaction, erosion and sedimentation, land movement or landslides, damage to flora and fauna, threats to community safety and health, and changes in microclimate. The environmental losses caused by mining activities must be reduced. Reclamation should be carried out as early as possible and does not need to wait until mining operations are completed.[7]

Technically, mining activities leave pits in the ground at former mining sites. Therefore, reclamation and post-mining activities should be carried out alongside mining operations. Reclamation is an effort to restore the post-mining environment, for example through reforestation or replanting on post-mining land. Mining companies are responsible for restoring environments damaged by mining activities so that the land can be used again, for instance by converting former excavation areas into wet agricultural land. In this way, companies indirectly support the government in improving public welfare by creating new employment opportunities. Reclamation should begin immediately after the mining process is completed. A number of mining-related laws and regulations set out strict and clear rules on how mining companies must repair environmental damage caused by reclamation route and post-mining activities.[8]

According to Article 100 of Law No. 3 of 2020 on Minerals and Coal, holders of an IUP or IUPK are required to provide and place reclamation and/or post-mining guarantee funds. However, many parties have obtained an IUP or IUPK but do not comply and have not transferred the guarantee funds to the government. Sri Raharjo, Director of Engineering and Environment at the Directorate General of Minerals and Coal, stated that only about 44% of business actors have placed reclamation and post-mining guarantee funds.[9]

This figure is alarming, given that reclamation and post-mining guarantee funds play a pivotal role in environmental recovery. The reclamation and environmental restoration of former mining sites constitute the corporate responsibility following coal extraction. However, to date, the obligation to reclaim has remained a persistent issue. Mining practices are identified as a primary driver

[7] Oheo Kaimuddin Haris, et al, "Pertanggungjawaban Pidana Terhadap Dana Jaminan Reklamasi Pascatambang", *Halu Oleo Legal Research,* Volume 6, Number 2, August 2024, page. 419.
[8] *Ibid.* page. 419
[9] This data was presented at the Reconciliation of Reclamation Guarantee and Post-Mining Guarantee Data event held by the Ministry of Energy and Mineral Resources on April 9, 2019 and attended by the ESDM Services of all Provinces in Indonesia, this data is accessed via https://www.minerba.esdm.go.id/berita/minerba/detil/20190409-rekonsiliasi-data-jaminan-reklamasi-dan-jaminan-pascatambang-serta-sosialisasi-sinkronisasi-data-penempatan-jaminan-reklamasi-dan-jaminan-pascatambang-dengan-sistem-e-pnbp , accessed on 16 September 2025 18.13 WIB

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of deforestation, largely stemming from the absence of vegetation in mined-out areas. Non-compliance by holders of Mining Business Licenses (IUP) or Special Mining Business Licenses (IUPK) regarding the provision and placement of guarantee funds stands as a common cause of reclamation failure. Consequently, significant land degradation resulting from mining activities remains unrepaired.

In the process of issuing IUP and IUPK, prospective license holders must fulfill numerous requirements. Notably, applicants are required to submit a reclamation and/or post-mining plan, accompanied by a declaration of commitment to place guarantee funds concurrently with the application. During the application phase, applicants are not obligated to deposit these funds. Conversely, the guarantee funds must be placed only after the license is issued. The deposited guarantee corresponds to the reclamation value determined by the Director General acting on behalf of the Minister, Governor, Regent, or Mayor.

The author observes that IUP/IUPK holders have exploited a regulatory loophole to evade the placement of reclamation and/or post-mining guarantee funds. While holders possess the legal authority to conduct mining activities immediately upon licensure, they frequently disregard the guarantee fund obligation, which ought to be a paramount priority. Consequently, a new mechanism must be formulated regarding the funds that were originally intended to exist upon the corporation's receipt of the IUP/IUPK. This study argues that guarantee funds should be deposited during the application process. In addition to submitting a reclamation plan and a statement of commitment, applicants must place the guarantee funds at the time of filing the IUP/IUPK application. This measure is intended to ensure that environmental damage resulting from mining activities will be remediated, thereby preserving environmental health and preventing disruption to human and animal ecosystems.

This study distinguishes itself from existing research, specifically the work conducted by Sri Rahayu and Bunga Permatasari titled 'Implementation of the Polluter Pays Principle on Environmental Damage Due to Mining.' Their research asserts that Indonesia does not apply the Polluter Pays Principle in accordance with the Rio Declaration and Principle 16 of CERCLA. Instead, the concept is implemented through environmental recovery, pollution control, and prevention, demonstrated via cost internalization and funding for environmental restoration. The concept of environmental cost internalization is evident in several requirements imposed on business actors. Law Number 3 of 2020 concerning Mineral and Coal Mining (UU Minerba) stipulates the obligation for reclamation and post-mining activities; this obligation represents an application of such cost internalization. In contrast, the author introduces a new concept regarding the reformulation of the policy on the placement of reclamation and post-mining guarantee funds as a prerequisite for obtaining an IUP/IUPK.

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Furthermore, when compared with the research of Muhammad Yaasiin Raya and Irwansyah titled 'Analysis of Deposit Obligations as Reclamation and Post-Mining Guarantees,' which states that a deposit system is required for every mining business license to protect the environment, this study serves as a complement. The author shares the view that mining business owners must provide reclamation and post-mining guarantee funds; however, this must occur specifically prior to obtaining the IUP/IUPK.

RESEARCH METHODOLOGY

The research method employed in this study is normative juridical research. Normative juridical research is defined as a legal research method that examines law as a system of norms, focusing on legal principles, rules, and the regulations themselves. This study utilizes statutory, conceptual, and case approaches. The statutory approach is applied to analyze various written regulations hierarchically in order to address the legal issues under investigation. Data collection is derived from primary legal materials, specifically legislation, including: Law No. 32 of 2009 concerning Environmental Protection and Management; Law No. 4 of 2009 concerning Mineral and Coal Mining; Law No. 3 of 2020 concerning Amendments to Law No. 4 of 2009; Government Regulation No. 78 of 2010 concerning Reclamation and Post-Mining; Regulation of the Minister of Energy and Mineral Resources No. 07 of 2014 concerning the Implementation of Reclamation and Post-Mining in Mineral and Coal Mining Business Activities; and Regulation of the Minister of Energy and Mineral Resources No. 26 of 2018 concerning the Implementation of Good Mining Practices and Supervision of Mineral and Coal Mining. Furthermore, the study incorporates secondary legal materials such as books, academic journals, research reports, and other relevant sources. The analysis is conducted descriptively.

RESULTS AND DISCUSSION

Regulation of Reclamation and Post-Mining Guarantee Funds and IUP/IUPK Holder Compliance in Fund Placement

The environmental impacts of mining typically comprise reduced land productivity, increased soil compaction, erosion and sedimentation, land movement or landslides, public health disturbances, and microclimatic changes. However, post-mining impacts specifically encompass alterations to land morphology and topography, as well as changes to the landscape. Post-mining landscapes are typically irregular, characterized by steep voids and soil mounds resulting from

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heavy equipment operations, rendering the land unproductive and prone to landslides.[10]

In Indonesia, the regulatory provisions governing reclamation and post-mining include: Law Number 4 of 2009 concerning Mineral and Coal Mining; Law Number 3 of 2020 concerning Amendments to Law Number 4 of 2009; Government Regulation Number 78 of 2010 concerning Reclamation and Post-Mining; Regulation of the Minister of Energy and Mineral Resources Number 07 of 2014 concerning the Implementation of Reclamation and Post-Mining in Mineral and Coal Mining Business Activities; and Regulation of the Minister of Energy and Mineral Resources Number 26 of 2018 concerning the Implementation of Good Mining Practices and Supervision of Mineral and Coal Mining.

In an effort to amend Law No. 4 of 2009, the Government has enacted Law Number 3 of 2020, which aims to strictly regulate mining reclamation activities by Mining Business License (IUP) holders, with the objective of achieving an optimal success rate. The Act also explicitly governs the imposition of sanctions on concession holders who violate the provisions established in Law Number 3 of 2020. The applicable sanctions are commensurate with the degree of reclamation success achieved.

IUP holders who neglect their reclamation and post-mining obligations are subject to imprisonment for up to five years and a fine of IDR 100 billion. It is anticipated that mining companies will fulfill their reclamation obligations following the implementation of these sanctions. Furthermore, the legislation stipulates that companies must deposit a guarantee fund prior to the commencement of mining operations. In the event that a company fails to conduct environmental remediation in the respective mining area, this guarantee fund serves as an anticipatory safeguard.[11]

Holders of Mining Business Licenses (IUP) and Special Mining Business Licenses (IUPK) bear the responsibility for providing guarantees for post-mining and reclamation activities. For the exploration stage, reclamation guarantees are placed in government banks in the form of time deposits. Conversely, for the production operation stage, guarantees are held in government banks in the form of joint accounts, time deposits, bank guarantees, or accounting reserves. The work plan and budget for the exploration stage must be approved by the Minister, Governor, Regent, or Mayor in accordance with their respective authorities, and the guarantee must be furnished within a period of 30 (thirty) calendar days. Even if the

[10] Nurul Listiyani, "Dampak Pertambangan Terhadap Lingkungan Hidup Di Kalimantan Selatan Dan Implikasinya Bagi Hak-Hak Warga Negara", *Jurnal Al'adl*, Volume 9, Number 1, Januari 2017, page. 77.
[11] See Article 161B of Law Number 3 of 2020 concerning Mineral and Coal Mining

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reclamation guarantee has been provided, IUP/IUPK holders remain obligated to conduct reclamation activities.[12]

Holders of IUP Operation Production and IUPK Operation Production utilizing accounting reserves as guarantees are required to submit a statement of guarantee placement, legalized by a notary, to the Minister via the Director General or Governor. Annual financial statements must be accompanied by said statement. Furthermore, IUP and IUPK Operation Production holders may request a modification to the form of the reclamation guarantee to the Minister via the Director General or Governor, contingent upon the consideration of the holder's performance and financial capability. In the event of changes to the reclamation plan or the implementation costs, the Director General possesses the authority to mandate an adjustment to the amount or form of the reclamation guarantee.

The guarantee funds are deposited at locations designated by the competent authorities. The provision of these funds aims to encourage business actors to engage in and take responsibility for actions that affect the environment. Furthermore, such funds may be provided in various forms, including post-mining guarantees, B3 (Hazardous and Toxic Material) waste management insurance, reclamation guarantees, and other types regulated by relevant technical sector regulations. These funds are prepared in accordance with statutory regulations and are stipulated in the Environmental Feasibility Decision (Surat Keputusan Kelayakan Lingkungan Hidup) regarding the obligations of the business person responsible. Additionally, the Statement of Environmental Management Capability (Pernyataan Kesanggupan Pengelolaan Lingkungan Hidup) states that the funds will be utilized by the entity responsible for said business and/or activity.[13]

Proof of fund ownership is a prerequisite for obtaining Technical Approval for B3 Waste Management for B3 Waste Collection activities. Moreover, this proof must be submitted in writing to the Minister to ultimately secure a recommendation for B3 Waste Transportation. Individuals intending to conduct B3 Waste Utilization, Processing, and Landfilling must also fulfill this requirement. Subsequently, the funds are utilized to conduct water quality recovery efforts within 30 (thirty) days following the detection of water pollution.[14]

Indonesia is renowned for possessing vast mineral reserves. This potential triggers extensive mining activities within the region. Although these mining activities contribute significantly to state revenue, they also entail detrimental consequences. The mining process typically involves the use of chemicals and land excavation, which in turn can cause environmental pollution and soil structure

[12] See Articles 29-32 of Government Regulation Number 78 of 2010 concerning Reclamation and Post-Mining.
[13] Annisa Fianni Sisma and Rahayu Subekti. Konsep Pertanggungjawaban Penggunaan Dana Penjaminan Pemulihan Lingkungan Hidup Oleh Pemerintah dan Pelaku Usaha dan/atau Kegiatan. *Jurnal Ilmu Sosial dan Humaniora,* Volume 6, Number. 4. August 2023, page. 825.
[14] *Ibid.*

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degradation. According to data collected by JATAM (Mining Advocacy Network), in 2020, there were approximately 3,092 unreclaimed mining voids in Indonesia.[15]

Table 1. Distribution of Mining Voids in Indonesia

No	Province	Number of Voids
1.	Aceh	6
2.	Sumatera Barat	22
3.	Riau	19
4.	Bengkulu	54
5.	Jambi	59
6.	Sumatera Selatan	163
7.	Lampung	9
8.	Banten	2
9.	Kalimantan Tengah	163
10.	Kalimantan Selatan	814
11.	Kalimantan Utara	44
12.	Kalimantan Timur	1735
13.	Sulawesi Selatan	2

Source: Jatam (2018)[16]

Prior to the commencement of mining, reclamation and post-mining activities must be planned. This includes the placement of reclamation and post-mining guarantee funds via a joint account between the business actor and the government (central or regional) as the licensor. These guarantee funds demonstrate the corporate commitment to managing and mitigating environmental impacts, both terrestrial and marine.

Holders of Mining Business Licenses (IUP) continue to demonstrate a very low level of compliance regarding the placement of reclamation and post-mining guarantee funds. For instance, of the 2,579 IUPs registered across 33 provinces, 1,569 (approximately 60% of the total) have not met the requirements to place reclamation guarantee funds. This indicates that only 1,010 of the 2,579 IUPs have deposited the reclamation guarantee.[17]

[15] https://perkim.id/permukiman/penanganan-lahan-pasca-tambang-dan-dampaknya-pada-lingkungan/ accessed on 16 September 2024 19.34 WIB.
[16] Image adapted from the publication of Muh. Jamil, S.H. and Teo Reffelsen, S.H., Kertas Kebijakan Reklamasi Lubang Tambang, Jaringan Advokasi Tambang (JATAM), 2020, page. 19.
[17] Andri Prasetiyo and Liza Mashita Ramadhania, Kepatuhan Penempatan Dana Jaminan Reklamasi dan Pascatambang di Indonesia, *Policy Brief Public What You Pay Indonesia*. HTTPS://PWYP-INDONESIA.ORG page. 3

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Table 2.
IUPs Non-Compliant with Reclamation Guarantee Obligations

Province	Total IUPs Non-Compliant with Reclamation Guarantee Obligations		Province	Total IUPs Non-Compliant with Reclamation Guarantee Obligations
Aceh	13		Maluku	6
Banten	4		Maluku Utara	103
Bengkulu	9		Nusa Tenggara Barat	16
DI Yogyakarta	1		Nusa Tenggara Timur	85
Gorontalo	14		Papua	17
Jambi	40		Papua Barat	15
Jawa Barat	27		Riau	13
Jawa Tengah	4		Sulawesi Barat	3
Jawa Timur	4		Sulawesi Selatan	29
Kalimantan Barat	75		Sulawesi Tengah	102
Kalimantan Selatan	62		Sulawesi Tenggara	176
Kalimantan Tengah	118		Sulawesi Utara	8
Kalimantan Timur	147		Sulawesi Barat	40

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Kalimantan Utara	10		Sumatera Selatan - Bengkulu	1
Bangka Belitung	337			
Kepulauan Riau	27		Sumatera Utara	6
Lampung	13			

Source: Ministry of Energy and Mineral Resources (Processed Data)

Nearly 8 million hectares of mining voids remained unreclaimed in 2018, and this non-compliance has the potential to cause significant state losses. For example, in North Kalimantan, state losses were estimated to reach IDR 201 billion because 45 companies had not deposited post-mining guarantees. Furthermore, these 45 companies had not met the requirements to pay Non-Tax State Revenue (PNBP). This situation also occurred in Aceh, where approximately 4 hectares of mining voids in Nagan Raya Regency have remained unreclaimed since 2012.[18]

Table 3. Realization of Forest Reclamation and RHL in IPPKH Areas (2009–2018)

No	Reclamation Description	Period	Area in Hectares (Ha)	Notes
1	Total IPPKH Area	2009 - June 2018	150.604	Assumed reclamation target is 30% of total IPPKH area (45.181 ha)
2	Total IPPKH Area Reclaimed	-	1.757,26	Only approximately 4% of the area to be reclaimed
3	Assessed Reclamation Areas	-	491,28	Less than 30% of the total area already reclaimed
4	Area Designated for Watershed (DAS) Rehabilitation	2012 - 2018	88.210	Less than 60% of total IPPKH
5	Realization of	Since 2014-	28.081	Only approximately 32%

[18] *Ibid.* page. 4

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	Watershed (DAS) Rehabilitation Planting	2018		of the designated area
6	Handed-Over Watershed (DAS) Rehabilitation Areas	-	2.528	Less than 10% of the rehabilitated area

Source : BPDAS Makaham-Berau (2018) (Processed Data)

The compliance rate of IUP/IUPK holders in placing reclamation guarantee funds remains low. These funds are intended to ensure that authorized mining parties are held responsible for environmental restoration; consequently, the impact of unreclaimed mining activities poses a danger to the sustainability of ecosystems and the environment.

Although intended to guarantee environmental recovery, the reclamation guarantee fund still exhibits serious implementation issues. Many companies fail to allocate funds in accordance with regulations, thereby neglecting their environmental responsibilities. Consequently, mining activities result in unremediated land degradation. Undoubtedly, this holds the potential to exacerbate existing ecosystem damage and generate long-term environmental problems.

Therefore, there is a pressing need to reform the regulatory framework governing reclamation and post-mining guarantee funds. This reform is essential to ensure that authorized mining parties assume full responsibility for environmental recovery.

Reformulation of the Policy on the Placement of Reclamation and/or Post-Mining Guarantee Funds as an Environmental Economic Instrument

In the realm of environmental management, economic instruments encompass reclamation and post-mining guarantees. The utilization of these instruments is grounded in the substantial criticism directed at direct regulation, which is perceived as incapable of effectively controlling pollution. Consequently, economic instruments serve as an alternative mechanism for environmental protection efforts.

Fundamentally, economic instruments constitute a system wherein the government provides incentives to mitigate actions and activities detrimental to the environment. In the context of environmental management, economic instruments are grounded in the 'carrot-and-stick' approach, which implies that sources of pollution must pay to pollute or reduce said pollution. These instruments assist in integrating environmental considerations into economic policy, which subsequently

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impacts sustainable development and the enhancement of the quality of life as consumers and producers alter their consumption behaviors. [19]

Economic instruments aim to bridge the gap between private costs and social costs by internalizing all external costs, including the costs associated with resource depletion and pollution, for both producers and consumers. The objective is to establish a price that encompasses the full cost, incorporating payments for increasing resource scarcity as well as the costs for the environmental degradation that occurs.[20]

The second generation of environmental law enforcement approaches is the market-based approach, implemented through the utilization of economic instruments. These economic instruments aim to artificially influence the market so that every actor is incentivized to consider the costs of pollution. [21] Furthermore, economic instruments constitute a pivotal component within the reflexive approach—representing the subsequent evolution of compliance governance—alongside other components such as voluntary instruments, public information disclosure, third-party certification, environmental management participation by interest groups, and procedures for the institutionalization of reflection and self-criticism.[22]

Economic instruments are a manifestation of the implementation of the Polluter Pays Principle, which constitutes an economic policy designed to internalize pollution costs or environmental degradation (externalities). To effectively implement economic instruments, government intervention remains essential, specifically because market failure[23] has occurred in the form of a divergence between the marginal costs of private production and the marginal costs of social externalities. Externalities occur when the market fails to consider the total costs of the production process—which include pollution costs and losses that must be borne by the environment and society (social costs)—and instead only accounts for the producer's private costs.

[19] Joko Tri Haryanto and Luhur Fajar Martha, "Kerangka Hukum Instrumen Ekonomi Lingkungan dalam Upaya Penurunan Emisi Gas Rumah Kaca", *Jurnal Konstitusi,* Volume 14, Number 2, June 2017, page. 276-277.
[20] Nur Huda Sulaeman and Agus Widyantoro, "Tanggung Jawab Konsorsium Asuransi Penyingkiran Kerangka Kapal", *Notaire,* Volume 1, Number 2, April 2019, page. 334.
[21] Eric W. Orts, *Reflexive Environmental Law, "Northwestern University Law Review*", Volume 89, 1995a, hlm. 1242. Sebagaimana dikutip dari Andri Wibisana, *Prinsip-Prinsip Hukum Lingkungan*, Depok: Fakultas Hukum Universitas Indonesia, 2014.
[22] Eric W. Orts, *A Reflexive Model of Environmental Regulation, "Business Ethics Quarterly*", Volume 5, Number 4, October 1995, page. 788. As quoted by Andri Wibisana, *Prinsip-Prinsip Hukum Lingkungan*, Depok: Fakultas Hukum Universitas Indonesia, 2014.
[23] Andri G. Wibisana, "Campur Tangan Pemerintah Dalam Pengelolaan Lingkungan: Sebuah Penelusuran Teoretis Berdasarkan Analisis Ekonomi atas Hukum (*Economic Analysis of Law*)", *Jurnal Hukum & Pembangunan,* Volume 47, Nomor 2, Juni 2017, hlm. 15.

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Various forms of these economic instruments reflect empirical experiences applied in numerous countries; in Indonesia, the existence of economic instruments is normatively recognized in Law No. 32 of 2009 concerning Environmental Protection and Management, as regulated in Articles 42 through 43. Specifically, Article 42 Paragraph 1 explicitly states that, in order to preserve environmental functions, the Central and Regional Governments are mandated to develop and apply environmental economic instruments. These instruments encompass development planning and economic activities, environmental funding, and incentives and/or disincentives. One specific form of environmental economic instrument (in the form of an environmental funding instrument) that has begun to be implemented is the reclamation and post-mining guarantee fund.

From an economic perspective, pollution is defined as an externality—a quantum of costs not calculated or considered in individual decision-making processes, which constitutes a cost to society. The law facilitates the internalization of these externalities, functioning as social engineering. This implies that the party conducting the activity causing pollution—whether a corporation or an individual—must bear responsibility for the costs generated by said activity.

Conceptually, a guarantee fund is simply defined as a reimbursement system, often referred to as a refundable cost. This fund is charged to the buyer at the time of purchase and is subsequently refunded when the buyer returns the used item. [24] In the mining sector, holders of Exploration IUP and Exploration IUPK are required to maintain reclamation and post-mining guarantee funds, which serve as an example of this guarantee fund application. Historically, one form of guarantee fund was the Reforestation Guarantee Fund (Dana Jaminan Reboisasi); however, this was converted into the Reforestation Fund (Dana Reboisasi), thereby changing its nature into a levy rather than a guarantee. Unlike a guarantee, funds paid to the government as a levy cannot be reclaimed.[25]

Reclamation and post-mining funds, which must be deposited by parties licensed to manage land for mining, possess characteristics analogous to a deposit-refund system. Under this system, an individual or corporate entity is required to pay a sum of money upfront as a guarantee that they will not engage in pollution or will perform the mandated activities. The security deposit is returned to the depositor upon the completion of the work.

The deposit-refund system—also referred to as a deposit-return scheme—constitutes a financial instrument wherein a party must pay a sum in advance to ensure they do not commit violations or breach an obligation. The objective of this

[24] Laode M. Syarif dan Andri G. Wibisana, eds, *Hukum Lingkungan Teori, Legislasi dan Studi Kasus*, Jakarta: Raja Grafindo Persada, 2010, hlm. 127.
[25] Kania Jennifer Wiryadi and Bayu Novendra. Sistem Pendanaan Pemulihan Lingkungan Hidup: Teori, Peraturan dan Praktik. *Padjadjaran Law Review*, Volume 8, Number 2, April 2020, page. 4.

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system is to facilitate product recovery; [26] the deposit is refunded if the obligation is fulfilled. This system enables a high recovery rate of product materials with the potential to pollute the environment, such as plastics, while maintaining material quality. Consequently, this facilitates recycling and reduces the necessity for raw material extraction from natural resources. By implementing this system, it is anticipated that the recovery and recycling rates of plastic products will increase. Ultimately, plastic pollution in aquatic environments can be mitigated through the orderly implementation of this deposit-refund system.[27]

The Polluter Pays Principle mandates that the party causing pollution must pay for the consequences of the activity causing damage through the use of economic instruments. This principle is regulated within environmental law.[28] environmental management and protection are grounded in the Polluter Pays Principle. The principle signifies that any entity whose business or activity causes pollution or environmental degradation must pay the costs of environmental recovery. Historically, in 1972, the Organization for Economic Cooperation and Development (OECD) issued recommendations titled 'Guiding Principles Concerning the International Economic Aspects of Environmental Polluter Pay Principles,' which introduced the Polluter Pays Principle for the first time.[29]

Furthermore, Principle 16 of the 1992 Rio Declaration on Environment and Development states that the polluter should bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment, based on environmental cost standards that must be developed by the competent authorities. The costs associated with pollution are defined as the costs to prevent and control said pollution.[30]

Regarding the Polluter Pays Principle, a new argument has emerged suggesting that the implementation of this principle is akin to purchasing a 'ticket' to pollute and damage the environment. However, this principle was not adopted uncritically ('swallowed raw') into national law. In order to foster development without

[26] Yasuhiko Hotta, et.al., eds., *Extended Producer Responsibility Policy in East Asia: in Consideration of International Resource Circulation*, Japan:Institute for Global Environmental Strategies, 2009, page. 5.
[27] Irawati Puteri, et al, "Penerapan Plastic Deposit Refund System Sebagai Instrumen Penanggulangan Pencemaran Limbah Plastik Di Wilayah Perairan Indonesia", *Jurnal Hukum Lingkungan*, Volume 4, Number 2, July 2018, page. 136.
[28] Kana Kurnia, et al, "Penerapan Polluter Pays Principle dalam Perkara Tumpahan Minyak di Teluk Kota Balikpapan", *Jurnal Hukum Ius Quia Iustum,* Volume 30, Number 3, September 2023, page. 564
[29] OECD (Organisation for Economic Co-operation and Development),Recommendation of the Council on Guiding Principles concerning Internasional Economics Aspects of Environmental Policies, OECD/LEGAL/0102, https://legalinstruments.oecd.org/public/doc/4/4.en.pdf, accessed 09 November 2024, Annex, Introduction 1.
[30] Aryanto Renaldi Sahala and Fatma Ulfatun Najicha, "Penerapan Asas Pencemar Membayar", *Jurnal Hukum Tora*, Volume 8, Number 2, 2022, page. 211.

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neglecting environmental aspects, this concern is addressed by the explanation of Article 87 Paragraph 1 of the UUPPLH. It can be concluded that, in addition to being required to pay compensation, the polluter may also be mandated by the judge to undertake specific actions, such as:

1. Installing or repairing waste treatment units so that waste complies with the determined environmental quality standards;
2. Restoring environmental functions; and/or
3. Eliminating or destroying the causes of environmental pollution and/or damage.[31]

From the perspective of the Polluter Pays Principle, every instance of pollution must be accounted for. This principle affirms that license holders are liable for environmental pollution caused by their business activities, whether arising from negligence or under the doctrine of strict liability. The tin mining license serves as a pertinent example in this context.[32]

Mining is characterized as a 'double-sided coin': it acts as a source of prosperity but simultaneously serves as a potential agent of environmental destruction. As a source of prosperity, this sector has provided employment and increased state revenue for many years. Conversely, open-pit mining degrades the environment by removing the topsoil layer above mineral deposits. Consequently, the functions of forests as water regulators, erosion and flood controllers, carbon sinks, oxygen suppliers, and temperature regulators are diminished in the absence of vegetation.[33]

According to a study conducted by Greenpeace Indonesia, approximately 45,000 rivers in South Kalimantan flow through coal mining areas, where hazardous waste from coal mines has the potential to contaminate the water. Of the 29 samples analyzed by Greenpeace, 22 samples taken from tailing ponds and former mining pits across five coal mining concessions in South Kalimantan exhibited extremely low acidity (pH) levels—far below the standards established by the government. Furthermore, almost all samples from tailing storage ponds and extraction wells had a pH below four.[34]

[31] Genoveva Puspitasari Larasati, "Penerapan Prinsip Pencemar Membayar Terhadap Pencemaran Limbah Bahan Berbahaya Dan Beracun (B3)", *Jurnal Pacta Sunt Servanda,* Volume 3, Number 2, 2022, page. 188.
[32] Sri Rahayu and Bunga Permatasari, "Implementasi Prinsip Pencemar Membayar Atas Kerusakan Lingkungan Akibat Pertambangan", *Datin Law Jurnal,* Volume 3, Number 1, February-July 2022. page. 110.
[33] Fatmawati, et al, "Dampak Lingkungan Galian Tambang Batubara Pt. Kaltim Prima Coal Bagi Kesehatan Masyarakat Di Kecamatan Sangatta Utara Kabupaten Kutai Timur", *eJournal Ilmu Pemerintahan* Volume 6, Number 2 , 2017, page. 554.
[34] Ahmad Habibi, "Pencemaran Lingkungan Akibat Tambang Batu Bara di Desa Serongga Kabupaten Kotabaru", Seri *Publikasi Pembelajaran Pendidikan Lingkungan Hidup,* Volume 1, Number 1 , 2022, page. 4

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The environmental damage resulting from mining activities, as illustrated by the data above, indicates that many IUP/IUPK holders fail to conduct post-mining activities. These license holders neglect their responsibility toward the mining lands they have managed. Post-mining activities, specifically land restoration, are not performed by the IUP/IUPK holders. Legally, if the IUP/IUPK holder has deposited the reclamation and post-mining guarantee funds, the government is empowered to disburse said funds for the purpose of restoration. However, the critical issue arises when the IUP/IUPK holder fails to deposit these guarantee funds; in such cases, the government is rendered unable to execute land restoration activities.

Holders of IUP/IUPK who do not place reclamation and post-mining guarantee funds are subject to criminal and administrative sanctions. While such penalties may serve as a deterrent to compel IUP/IUPK holders to pay the guarantee funds, a critical issue remains: if the funds are not paid and the holder has already been sanctioned criminally or administratively, the condition of the explored and mined land remains degraded. The government does not possess a specific budget allocation from IUP/IUPK holders—who are obligated to pay the guarantee—to cover these costs, as they are the polluting entities. Based on the Polluter Pays Principle, the party obligated to pay is the entity conducting the pollution, not the government. Consequently, the legal instrument currently required is a provision that compels prospective land managers for mining to pay the guarantee fund.

Based on data regarding the prevalence of IUP/IUPK holders failing to place reclamation and post-mining guarantee funds, the policy regarding the placement of such funds requires reformulation. The current applicable policy dictates that funds are placed subsequent to an individual obtaining the IUP/IUPK. Under such a policy, a significant number of IUP/IUPK holders fail to place the reclamation and post-mining guarantee funds. Ideally, the reclamation guarantee should be established as a prerequisite for obtaining the IUP/IUPK. This ensures that there are no longer any IUP/IUPK holders who fail to deposit the guarantee funds.

Mining licenses fall into a special category; therefore, any individual seeking to obtain such a license must be prepared to accept responsibility for environmental restoration. The manifestation of responsibility for individuals granted the right to conduct mining activities is the capability to be responsible for environmental recovery. This process of environmental restoration responsibility must be realized in the form of reclamation and post-mining guarantee funds. If the license applicant has submitted the guarantee fund, only then may the applicant be granted the IUP/IUPK. Conversely, if the applicant cannot submit the guarantee fund, the IUP/IUPK cannot be granted. This approach aligns with the guarantee principle, which functions to ensure that mining business actors (mining companies) bear full responsibility for the environmental impacts generated during and after mining activities. Therefore, to maintain environmental sustainability, the placement of

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environmental guarantee funds must occur during the IUP/IUPK application process, not after the IUP/IUPK has been obtained.

CONCLUSION

Mining activities have resulted in significant environmental pollution due to the low accountability and compliance of Mining Business License (IUP) or Special Mining Business License (IUPK) holders. Despite mandatory requirements, many license holders have failed to place reclamation and post-mining guarantee funds, which function as economic instruments based on the Polluter Pays Principle. The primary issue lies in the current policy, which stipulates that guarantee funds be submitted after the license is issued. This model has proven ineffective, leading to negligence by IUP/IUPK holders; consequently, former mining sites remain degraded and unremediated, while the government lacks the budgetary allocation to address the issue. Therefore, this study recommends a policy reformulation. The placement of reclamation and post-mining guarantee funds must be established as a mandatory prerequisite submitted during the license application process, rather than after the license is obtained. If the applicant fails to submit the guarantee fund, the IUP/IUPK cannot be issued.

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