

Integrating Environmental Approval into Mining Business Licensing: Corporate Accountability and Ecological Risk

Febrian Chandra*¹, Rabbii Qalbi²

^{1,2}Faculty of Law, Universitas Merangin

*Correspondence: febrian@universitasmerangin.ac.id

Received: 27 May 2026

Accepted: 30 June 2026

Published: 27 July 2026

Abstrak

Artikel ini menganalisis integrasi persetujuan lingkungan ke dalam perizinan berusaha sektor pertambangan setelah konsolidasi rezim perizinan berbasis risiko. Penelitian menggunakan metode hukum normatif dengan pendekatan perundang-undangan, konseptual, dan kritik kebijakan, melalui inventarisasi serta interpretasi sistematis bahan hukum primer dan literatur mutakhir. Hasil penelitian menunjukkan bahwa integrasi dapat meningkatkan kepastian prosedural, tetapi juga menimbulkan empat indikator risiko akuntabilitas: kaburnya pemisahan antara penilaian lingkungan dan penerbitan izin, jejak keputusan yang tidak selalu terbuka, asimetri kewenangan pengawasan pusat-daerah, dan lemahnya hubungan langsung antara pelanggaran lingkungan dengan status perizinan berusaha. Risiko tersebut lebih serius pada pertambangan karena dampaknya bersifat spasial, kumulatif, dan berjangka panjang. Artikel ini menawarkan model akuntabilitas ekologis lima tahap yang mencakup praperizinan, penerbitan izin, pengawasan, sanksi, dan pemulihan. Model tersebut mensyaratkan partisipasi publik bermakna, data lingkungan yang dapat diakses, verifikasi lapangan, tanggung jawab pemegang izin dan pengendali manfaat, serta jaminan pemulihan yang efektif agar kemudahan investasi tidak mengurangi fungsi preventif hukum lingkungan.

Keywords: persetujuan lingkungan; perizinan berusaha; pertambangan; perizinan berbasis risiko; akuntabilitas korporasi

Abstract

This article examines the integration of environmental approval into mining business licensing following the consolidation of Indonesia's risk-based licensing regime. It employs normative legal research using statutory, conceptual, and critical policy approaches, supported by an inventory and systematic interpretation of primary legal materials and recent scholarship. The study finds that integration can improve procedural certainty, but it also produces four accountability-risk indicators: blurred separation between environmental assessment and license issuance, incomplete public decision trails, asymmetric central-regional supervisory authority, and a weak operational link between environmental violations and the status of business licenses. These risks are particularly significant in mining because ecological impacts are spatial, cumulative, and long term. The article proposes a five-stage ecological accountability framework covering pre-licensing, license issuance, supervision, sanctions, and restoration. The framework requires meaningful public participation, accessible environmental data, field verification, responsibility of permit holders and beneficial controllers, and enforceable reclamation and post-mining guarantees. The

central argument is that procedural simplification is legally acceptable only when it does not become substantive deregulation of environmental control.

Keywords: *environmental approval; business licensing; mining; risk-based licensing; corporate accountability*

INTRODUCTION

Indonesia's business-licensing reform has increasingly treated investment facilitation, regulatory certainty, and digital integration as central objectives of economic law. In the mining sector, however, administrative acceleration cannot be assessed independently from environmental control. Mining decisions authorize activities that may alter land cover, hydrological systems, forest functions, biodiversity, community access to natural resources, and long-term ecological carrying capacity. The normative gap examined in this article therefore arises from a structural tension: the licensing regime is designed to shorten and integrate administrative procedures, while environmental law requires careful ex ante assessment, continuing supervision, public participation, and restoration. Where speed becomes the dominant measure of licensing quality, a system may produce formally valid business legality without an equivalent increase in substantive ecological accountability.

The preventive character of Indonesian environmental law can be traced to Law No. 32 of 2009 on Environmental Protection and Management (Environmental Law). Article 22(1) requires an environmental impact assessment (AMDAL) for businesses and/or activities with significant environmental impacts, while Article 34(1) requires environmental management and monitoring efforts (UKL-UPL) for activities not subject to AMDAL. Under the pre-Job Creation structure, Articles 36 and 40 positioned the environmental permit as a distinct administrative instrument and as a prerequisite for a business and/or activity permit. That structure made the environmental decision more visible as a separate object of administrative control. The central legal question after regulatory reform is not merely whether the name of the instrument changed, but whether its preventive, reviewable, and enforceable functions remain sufficiently strong after integration into business licensing.

The Job Creation framework replaced the former environmental permit with environmental approval. Government Regulation No. 22 of 2021 defines environmental approval through an environmental feasibility decision or a statement of environmental management capability and makes it a prerequisite for business licensing or government approval. In formal terms, environmental assessment therefore remains legally relevant. The conceptual concern is institutional: once environmental approval becomes embedded in a broader licensing architecture, the boundary between environmental feasibility review and service-oriented business licensing can become less visible. If the environmental component is treated primarily as a box to be completed in the Online Single Submission (OSS) workflow, the legal system risks converting a preventive control

instrument into an administrative condition whose substantive reasoning is difficult for the public to trace or contest.¹

The current regulatory position also requires clarification because the risk-based business-licensing regime changed again in 2025. Government Regulation No. 28 of 2025 on Risk-Based Business Licensing replaced Government Regulation No. 5 of 2021. Its transitional architecture is material to legal analysis: Article 547 preserves the processing of specified basic requirements, business licenses, and supporting business licenses that were already in process until the adjusted OSS system operates, while Article 550(b) revokes Government Regulation No. 5 of 2021. The 2025 regulation therefore does not merely supplement the earlier regime; it becomes the operative general framework for risk-based business licensing while preserving transitional continuity for pending processes. This distinction matters because a normative assessment that treats Government Regulation No. 5 of 2021 as concurrently governing the present system would misstate the legal hierarchy and temporal operation of the rules.

Government Regulation No. 28 of 2025 retains risk classification, digital processing, supervision, evaluation, and sanctions as integral elements of business licensing. Articles 124-134 regulate risk analysis and classification, while later chapters regulate supervision and administrative sanctions. This design potentially strengthens regulatory coherence because licensing and supervision are no longer conceived as completely separate administrative phases. Yet integration alone does not ensure environmental quality. In mining, risk cannot be reduced to a business classification or Indonesian Standard Industrial Classification (KBLI) code. Risk is also location-specific and must account for ecosystem vulnerability, hydrological connectivity, proximity to settlements, forest or coastal status, cumulative impacts, technology, production scale, and the practical feasibility of restoration.

Mining is a particularly important sector for testing this tension because licensing is the legal gateway to irreversible or difficult-to-reverse physical intervention. Exploration, extraction, processing, hauling, infrastructure construction, waste management, reclamation, and post-mining activities form an interconnected impact chain. Helmi's study of environmental licensing supervision in forestry and mining shows why legality should not be equated with ecological compliance: a permit establishes administrative authorization, but compliance depends on continuing supervision and enforceable environmental obligations. Nirboyo similarly identifies governance risks in an OSS-centered licensing environment when administrative simplification is not matched by strong accountability mechanisms.²³

¹Z. Lahabu, R. Mina, A. U. Marzuki, and D. Sucipto, "Kedudukan Persetujuan Lingkungan Terhadap Perizinan Berusaha Dalam Perlindungan dan Pengelolaan Lingkungan Hidup," *Jurnal Yustisiabel* 6, no. 1 (2022): 70–88, <https://doi.org/10.32529/yustisiabel.v6i1.1595>.

²A. Juang Nirboyo, "Potensi Korupsi Dalam Perizinan Lingkungan Melalui Sistem Online Single Submission Pasca Peraturan Pemerintah Nomor 5 Tahun 2021 Tentang Penyelenggaraan Perizinan Berusaha Berbasis Risiko," *Jatiswara* 36, no. 2 (2021): 219–228, <https://doi.org/10.29303/jtsw.v36i2.316>.

³Helmi, "Sistem Pengawasan Perizinan Bidang Lingkungan Hidup Terhadap Perizinan Berusaha Bidang Kehutanan dan Pertambangan di Indonesia," *Jurnal Sains Sosio Humaniora* 6, no. 1 (2022): 15–30, <https://doi.org/10.22437/jssh.v6i1.19391>.

Existing literature can be mapped into four clusters. First, Lahabu, Mina, Marzuki, and Sucipto examine the legal position of environmental approval in relation to business licensing and emphasize the need for normative certainty concerning its function within environmental protection. Second, Sanduan and Helmi focus on the redistribution and recentralization of licensing authority following the Job Creation reforms, drawing attention to central-regional institutional relations. Third, Erni and Jaya, as well as studies of OSS implementation, discuss the effectiveness and facilitative orientation of risk-based licensing. Fourth, sectoral scholarship on spatial planning, forest areas, investment, downstream mining, and ecological degradation demonstrates that extractive licensing produces consequences that extend beyond administrative efficiency.⁴⁵⁶⁷

Those strands are valuable but tend to analyze the legal status of environmental approval, OSS effectiveness, decentralization, spatial planning, or mining impacts as separate questions. Less attention has been given to the connecting mechanism: how the integration of environmental approval into risk-based mining licensing can alter the architecture of corporate environmental accountability throughout the full life cycle of a mine. This article fills that gap by using corporate accountability as the analytical bridge between licensing design and ecological risk. It asks whether the post-integration regime preserves substantive environmental control, and it operationalizes accountability through five indicators: prevention, continuing compliance, restoration, transparency, and responsibility across the chain of business actors.

The institutional dimension is equally important. Law No. 3 of 2020 strengthened central control over mineral and coal governance, while Law No. 2 of 2025, as the fourth amendment to Law No. 4 of 2009, is now part of the current statutory framework. Government Regulation No. 96 of 2021, most recently amended by Government Regulation No. 39 of 2025, provides the implementing framework for mineral and coal business activities. At the same time, Presidential Regulation No. 55 of 2022 delegates specified mining licensing, guidance, supervision, and reporting functions to provincial governments while prohibiting further subdelegation to regency or municipal governments. The resulting structure can promote standardization, but it also creates a practical accountability problem: ecological harm occurs locally, while important regulatory authority and licensing data may be organized at another level of government.

⁴A. S. Ra'uf, Imamulhadi, and Y. Adharani, "Mechanism for Spatial Utilization Activity Compliance in Mining Business Licensing and Its Implications for Environmental Preservation," *Journal of Law, Politic and Humanities* 6, no. 3 (2026): 1585–1596, <https://doi.org/10.38035/jlph.v6i3.3031>; H. Hartati, F. Chandra, and A. Diar, "Spatial Planning for Mining Exploitation Rights in Forest Area," *ADLIYA: Jurnal Hukum dan Kemanusiaan* 17, no. 1 (2024): 19–34, <https://doi.org/10.15575/adliya.v17i1.22747>.

⁵E. Erni and F. Jaya, "Efektifitas Perizinan Berusaha Berbasis Risiko dalam Rangka Kemudahan Berusaha," *Wajah Hukum* 6, no. 2 (2022): 248–257, <https://doi.org/10.33087/wjh.v6i2.927>.

⁶A. P. Sanduan, "Resentralisasi Perizinan Berusaha Pertambangan Mineral Dalam Undang-Undang Nomor 11 Tahun 2020 Tentang Cipta Kerja," *Jurnal Hukum Bisnis Bonum Commune* 5, no. 1 (2022): 142–160, <https://doi.org/10.30996/jhbbc.v5i1.6098>; H. H. Helmi, "Kewenangan Daerah Dalam Perizinan Berusaha Dalam Undang-Undang Cipta Kerja," *Simbur Cahaya* 28, no. 2 (2021): 15–39, <https://doi.org/10.28946/sc.v28i2.1170>.

⁷Lahabu et al., "Kedudukan Persetujuan Lingkungan," 70–88.

This article does not argue for the wholesale restoration of the former environmental-permit regime. Administrative duplication, inconsistent procedures, and uncertain processing times can impose real transaction costs and weaken regulatory legitimacy. The issue is whether procedural simplification has been accompanied by equivalent substantive safeguards. In environmental administration, a shorter process is normatively defensible only if the assessment remains evidence-based, the decision trail remains reviewable, affected communities retain meaningful participation, supervision is adequately resourced, and violations can affect the legal status of the business authorization. Otherwise, simplification risks becoming substantive deregulation.

On that basis, the study addresses two research questions. First, how has the integration of environmental approval into mining business licensing changed the legal function of environmental control under Indonesia's risk-based licensing regime? Second, what institutional and corporate-accountability safeguards are required to prevent procedural integration from increasing ecological degradation risks? The article's contribution is a five-stage ecological accountability framework that connects pre-licensing assessment, license issuance, post-licensing supervision, sanctions, and restoration within a single accountability chain.

RESEARCH METHOD

This study uses normative legal research because the principal object of inquiry is the coherence, function, and implications of legal norms governing environmental approval, risk-based business licensing, and mineral and coal mining. The primary legal materials include Law No. 32 of 2009 on Environmental Protection and Management as amended through the Job Creation framework; Law No. 4 of 2009 on Mineral and Coal Mining and its amendments, including Law No. 2 of 2025; Government Regulation No. 22 of 2021; Government Regulation No. 28 of 2025; Government Regulation No. 96 of 2021 as most recently amended by Government Regulation No. 39 of 2025; Presidential Regulation No. 55 of 2022; and other regulations relevant to administrative procedure, beneficial ownership, reclamation, post-mining obligations, and public information.

Legal materials were collected through document study and regulatory inventory. Selection followed three criteria: direct relevance to the legal status or procedure of environmental approval and mining licensing; normative authority within the applicable hierarchy of Indonesian law; and temporal relevance to the post-Job Creation and current risk-based licensing regime. Secondary materials were selected from peer-reviewed legal and interdisciplinary journals discussing environmental approval, OSS, risk-based licensing, central-regional authority, spatial planning, mining environmental impacts, corporate responsibility, and restoration. Recent publications were prioritized to reflect the rapidly changing regulatory environment, while older materials were retained when necessary to explain the pre-reform legal structure.

The study combines a statutory approach, a conceptual approach, and critical legal-policy analysis. The statutory approach is used to identify the legal relationship among environmental approval, basic requirements, mining business licensing, supervision, sanctions, and restoration. The conceptual approach distinguishes administrative legality from substantive environmental

accountability and develops measurable accountability indicators. Critical policy analysis evaluates whether the design of licensing simplification remains consistent with precaution, prevention, meaningful participation, polluter responsibility, public access to environmental information, and restoration. Interpretation is conducted systematically by reading provisions in relation to the broader regulatory structure rather than as isolated clauses.

Interpretive validity is strengthened through three forms of cross-checking. First, provisions are compared across statutes and implementing regulations to avoid conclusions based on a single rule. Second, historical comparison is used to distinguish the legal function of the former environmental permit from the current environmental approval. Third, doctrinal propositions are tested against multiple scholarly sources and, where relevant, official government information illustrating implementation concerns. The analysis proceeds through legal inventory, systematic interpretation, comparative functional assessment, and prescriptive evaluation. The outcome is not an empirical causal claim but a normative model of how accountability should be structured within integrated licensing.

The study has limitations. It does not examine a specific administrative dispute, judicial review case concerning a particular mining permit, or a representative empirical dataset of mining-related environmental damage. The Raja Ampat material used later is an official illustration of the regulatory and supervision problem, not a statistical basis for generalizing the performance of all Indonesian mining operations. The article therefore confines its conclusions to normative design, institutional risk, and accountability requirements that can subsequently be tested through empirical or case-based research.

RESULTS AND DISCUSSION

Environmental Approval and the Transformation of Mining Business Licensing

Under the pre-Job Creation regime, the environmental permit functioned as a relatively distinct administrative decision issued before a business and/or activity permit. That legal separation mattered because it made the environmental decision, its responsible authority, its conditions, and its possible cancellation more identifiable. In a system of administrative law, institutional visibility is not a formal luxury: it determines who must provide reasons, what decision can be challenged, which conditions can be enforced, and how an environmental violation affects the continuation of the underlying activity. The integration of environmental approval into business licensing therefore requires a functional test: whether the same degree of preventive control, transparency, reviewability, and enforceability survives even though the administrative form has changed.

Government Regulation No. 22 of 2021 maintains environmental approval as a prerequisite for business licensing or government approval and recognizes AMDAL, UKL-UPL, and SPPL as environmental instruments appropriate to different categories of activity. This confirms that environmental law has not disappeared from the licensing architecture. The vulnerability lies in the relationship between the substantive environmental assessment and the broader OSS process. If the decision trail does not clearly show the environmental documents reviewed, the experts or authority responsible for assessment, the substantive objections

considered, the conditions imposed, and the link between those conditions and the business license, the integrated system may become more efficient for administration while becoming less intelligible for external accountability.

The shift is therefore more than terminological. The former environmental permit signaled that environmental feasibility was itself an administrative gate. Environmental approval in the current regime is structurally embedded as a prerequisite in an integrated licensing system. Integration is not inherently weaker, but its legitimacy depends on safeguards capable of reproducing the functions previously achieved through legal separation. Lahabu and colleagues are particularly relevant on this point because they show that the legal position of environmental approval must be understood through its relationship with business licensing, not merely through nomenclature.⁸

Mining intensifies this concern because authorization can immediately facilitate land clearing, construction of access roads, excavation, overburden removal, hauling, processing, and other activities that generate cumulative impacts. Government Regulation No. 96 of 2021, as amended, places mining activities within a business-licensing framework, but the legal existence of a license cannot substitute for environmental feasibility. Where *ex ante* control is weak, *ex post* supervision becomes disproportionately corrective: regulators must attempt to manage impacts after physical intervention has already occurred. For ecological systems that are slow to recover or cannot be fully restored, prevention remains legally and economically preferable to remediation.

Risk-based licensing is defensible in principle because regulatory intensity should be proportionate to the hazards generated by an activity. The difficulty is how "risk" is operationalized. In mining, substantive risk must combine the nature of the commodity and process with site-specific variables: forest and coastal status, watershed connections, biodiversity values, disaster vulnerability, existing community uses, cumulative permits in the same landscape, technology, waste characteristics, and the realistic capacity to restore environmental functions. A classification that is driven mainly by business type may be administratively convenient but ecologically incomplete.

Government Regulation No. 28 of 2025 creates an opportunity to correct that weakness because supervision, evaluation, and sanctions are included within the general architecture of risk-based licensing. The regulation should therefore be read as requiring an accountability continuum rather than as a statute concerned only with license issuance. This interpretation is consistent with the logic of environmental law: a license is a continuing legal relationship whose conditions must be monitored and can be revised, suspended, or revoked when the legal basis for continued operation no longer exists.

⁸Lahabu et al., "Kedudukan Persetujuan Lingkungan," 70–88.

Table 1. Functional Shift from Environmental Permit to Environmental Approval

Aspect	Former Environmental Permit	Environmental Approval in the Integrated Regime	Normative Basis / Accountability Test
Legal position	A distinct administrative instrument preceding the business/activity permit.	A prerequisite embedded in business licensing or government approval.	Environmental Law (pre-Job Creation Arts. 36 and 40); Government Regulation No. 22/2021 Arts. 3-4. The integrated decision must remain identifiable and reviewable.
Primary function	Ex ante environmental control before business authorization.	Environmental control linked to risk-based licensing and continuing supervision.	Government Regulation No. 22/2021; Government Regulation No. 28/2025. Procedural integration must not reduce substantive feasibility review.
Decision trail	Environmental decision and business permit were more visibly separated.	Documents, assessment, conditions, and business-license status are connected electronically.	Accountability requires a traceable record of environmental reasoning, conditions, objections, and licensing consequences.
Public control	Objections and legal challenges could focus on a distinct environmental administrative decision.	Public scrutiny depends on access to the integrated environmental-licensing record.	Environmental Law Art. 65; Government Regulation No. 22/2021 Arts. 28-29. Meaningful participation must influence decision making.
Enforcement focus	Feasibility, permit conditions, and cancellation of environmental and business authorizations.	Post-licensing supervision, administrative sanctions, and restoration must be connected to the business license.	Government Regulation No. 22/2021 Art. 508; Government Regulation No. 28/2025 sanctions framework. Repeated or serious violations must have licensing consequences.

Source: Authors' analysis based on Law No. 32 of 2009, Law No. 6 of 2023, Government Regulation No. 22 of 2021, and Government Regulation No. 28 of 2025.

Table 1 shows that the key issue is functional equivalence. An integrated regime can remain protective if the environmental component is sufficiently autonomous in substance even when it is connected procedurally. The minimum requirements are a documented feasibility assessment, a clear set of environmental obligations, an accessible decision trail, continuing supervision, and legal consequences that reach the business license itself. Without those elements, integration creates a structural risk that environmental approval becomes

administrative metadata attached to a business authorization rather than an enforceable instrument of environmental governance.

A related issue is the role of technical standards. Erni and Jaya show that risk-based licensing was designed to facilitate business and simplify administrative processes. Facilitation is legitimate when it eliminates duplication or uncertainty, but technical standards should be treated as minimum obligations rather than substitutes for site-specific environmental assessment. Mining projects with the same business classification may generate very different risks because one is located in a degraded industrial landscape while another is situated in a forested island, a sensitive watershed, or a densely inhabited area. The legal architecture must therefore permit the environmental assessment to impose conditions that are more demanding than generic business standards when local ecological risk requires it.⁹

The positive-fictitious mechanism (*fiktif positif*) also requires careful legal positioning. Article 53 of Law No. 30 of 2014 on Government Administration, as amended through the Job Creation framework, recognizes a mechanism under which an application may be deemed granted by law when the competent authority fails to act within the applicable time limit, and it also contemplates electronic processing where requirements have been fulfilled. Constitutional Court Decision No. 10/PUU-XX/2022 discussed the transformation of that mechanism after the Job Creation amendment. The important point for environmental approval is not to claim that every environmental decision is automatically subject to deemed approval. Rather, the general administrative logic of silence-as-approval should not be allowed to replace the affirmative expert judgment required to establish environmental feasibility for high-risk mining. Ecological suitability is an evaluative conclusion, not a consequence that can safely arise only from administrative lapse.¹⁰

Meaningful public participation is another safeguard against the reduction of environmental approval to a formal requirement. Government Regulation No. 22 of 2021 requires public involvement in the preparation of AMDAL and identifies directly affected communities and other relevant participants. For mining, participation should be evaluated through at least four indicators. First, affected communities must have timely access to intelligible environmental documents, maps, baseline data, and proposed mitigation. Second, the period for objections must be adequate for communities to understand technical information and obtain assistance. Third, the authority and project proponent should provide written responses explaining whether and how objections changed the project design or conditions. Fourth, participation must have a real possibility of influencing the decision, including the possibility that a plan is modified, subjected to stricter conditions, postponed, or rejected. A hearing that cannot affect the outcome is consultation in form but not meaningful participation in substance.

Central-regional relations should be assessed using the same functional approach. Presidential Regulation No. 55 of 2022 delegates specified mining licensing functions and associated guidance, supervision, and reporting to

⁹Erni and Jaya, "Efektifitas Perizinan Berusaha Berbasis Risiko," 248–257.

¹⁰Republic of Indonesia, Constitutional Court Decision No. 10/PUU-XX/2022, March 29, 2022, discussing the post-Job Creation amendment of Article 53 of Law No. 30 of 2014 on Government Administration.

provincial governments, while Article 2(10) prevents further subdelegation to regency or municipal governments. The delegation can improve proximity for categories of mining affairs assigned to the province, including parts of non-metallic mineral and rock licensing and related supervision. Yet the operational problem remains coordination: local environmental offices and communities may possess information about water quality, road impacts, land conflict, or damaged ecosystems that is not immediately reflected in the central licensing dataset. Delegation therefore requires shared access to OSS data, common inspection protocols, clear escalation of sanctions, and rapid transmission of field findings to the authority that controls the status of the license.¹¹

Spatial planning is inseparable from this accountability problem. Ra'uf, Imamulhadi, and Adharani demonstrate that spatial-utilization compliance in mining licensing has direct implications for environmental preservation. Hartati, Chandra, and Diar similarly emphasize the importance of careful spatial planning for mining exploitation in forest areas. Environmental approval should therefore be analytically linked to spatial suitability, forest or coastal status, cumulative activities in the landscape, and the ecological functions of the area. A project should not become environmentally acceptable merely because a separate administrative system has produced a formally valid spatial or business document.¹²¹³

The quality of integrated licensing is ultimately visible in its decision trail. For each mining project, the public record should allow an informed reader to identify the applicable environmental document; the baseline and risk assessment; the authority that assessed it; major objections and responses; technical recommendations; conditions imposed; monitoring parameters; the status of reclamation and post-mining guarantees; inspection results; sanctions; and the current status of the business license. Such a record differentiates a reasoned environmental decision from a workflow outcome. It also makes judicial or administrative review more meaningful because the reasons for the decision can be tested rather than reconstructed after a dispute arises.

Environmental documents must also function as living regulatory instruments. Government Regulation No. 22 of 2021 provides a framework for supervision of compliance by business and activity operators. Changes in mining method, production volume, processing technology, transport routes, waste characteristics, hydrology, or surrounding land use may alter the risk profile during operation. The legal system should therefore require environmental obligations to be updated when material conditions change. Treating AMDAL or UKL-UPL as documents that "expire" in regulatory relevance once the license has been issued defeats the logic of risk-based supervision.

This also clarifies the balance between *ex ante* and *ex post* control. The move toward integrated licensing may increase reliance on supervision after

¹¹M. Darman and I. Riyanti, "Effectiveness of Regional Government Authority Regarding Mining Business Permits Post Presidential Decree Number 55 of 2022 Concerning Mineral and Coal Mining Management," *Journal of Law Science* 6, no. 3 (2024): 407–413, <https://doi.org/10.35335/jls.v6i3.5235>.

¹²Hartati, Chandra, and Diar, "Spatial Planning for Mining Exploitation Rights," 19–34.

¹³Ra'uf, Imamulhadi, and Adharani, "Mechanism for Spatial Utilization Activity Compliance," 1585–1596.

authorization, but post-licensing monitoring cannot substitute for rigorous initial assessment where impacts are severe or difficult to reverse. Ex ante review determines whether mining should occur at the location at all, what technology and scale are acceptable, and what conditions must be satisfied before disturbance. Ex post supervision determines whether those conditions remain effective and whether the operator complies. A credible risk-based system needs both; shifting the burden almost entirely to post-licensing enforcement would transform precaution into damage management.

Accordingly, the performance of mining licensing should not be measured primarily by processing time. More substantive indicators include the proportion of environmental decisions with publicly accessible reasons; the percentage of material public objections receiving written responses; the frequency and risk targeting of inspections; timeliness and completeness of environmental reporting; changes in risk classification after violations; enforcement follow-up rates; reclamation progress; and the proportion of sanctions that result in verified corrective action. These indicators align administrative efficiency with regulatory outcomes rather than allowing speed to become the dominant definition of success.¹⁴

Corporate Accountability and Ecological Degradation Risk

Corporate accountability in environmental law must be defined before it can be used to evaluate licensing. This article uses five indicators. Prevention concerns the operator's duty to avoid or minimize environmental harm before and during operations. Continuing compliance concerns adherence to measurable permit conditions, monitoring obligations, reporting, and lawful operational limits. Restoration concerns reclamation, post-mining rehabilitation, compensation, and financing sufficient to restore environmental functions. Transparency concerns disclosure of environmental obligations, performance, ownership, inspections, and sanctions. Chain-of-business responsibility concerns the capacity of law to prevent permit holders, controlling shareholders, contractors, or related entities from using corporate structure to externalize environmental costs.

The integration of environmental approval creates accountability risk when companies understand environmental obligations as entry requirements rather than continuing legal duties. Government Regulation No. 22 of 2021 provides administrative sanctions including written warnings, government coercion, administrative fines, suspension, and revocation of business licensing. These sanctions are important precisely because environmental approval must remain connected to the right to continue operating. If serious or repeated violations of environmental conditions do not affect business-license status, the integrated structure produces an asymmetry: environmental requirements are mandatory at entry but weak in their consequences during operation.

Accountability can weaken through three pathways. The first is normative, where the legal and policy discourse emphasizes service certainty and facilitation more strongly than environmental enforceability. The second is institutional, where the bodies responsible for environmental assessment, mining authorization, spatial

¹⁴R. S. Samudera, "Implementasi Kebijakan UU Cipta Kerja Dalam Tata Kelola Ketenagakerjaan, Lingkungan, dan Perizinan Berusaha Berbasis Risiko di Indonesia Pasca-Pandemi," *Development Policy and Management Review* 5, no. 1 (2025): 68–80, <https://doi.org/10.61731/dpmr.v5i1.44206>.

planning, and supervision do not share equivalent data or enforcement authority. The third is practical, where inspection capacity, laboratory access, monitoring technology, or local field presence is not commensurate with the number, location, and complexity of licensed mining operations. Together these pathways can convert integrated legality into a formal compliance system without equivalent ecological performance.¹⁵

The ecological stakes are substantial because mining alters the physical structure of landscapes. Potential impacts include loss of vegetation, changes in surface and groundwater flows, sedimentation, acid mine drainage, dust and air pollution, habitat fragmentation, waste risks, and land-use conflict. Setiawan notes the simultaneous economic contribution and environmental implications of the mining sector, underscoring the need to evaluate benefits and ecological costs within the same policy frame. The impacts may also extend beyond the mine pit through watersheds, haul roads, ports, processing facilities, and cumulative interaction with other permits.¹⁶

An official 2025 supervision episode in Raja Ampat illustrates why legal authorization and environmental accountability must be evaluated separately. The Ministry of Energy and Mineral Resources reported five licensed mining companies in the area and stated that PT Gag Nikel had a 13,136-hectare contract-of-work area; by 2025, its mine openings totaled 187.87 hectares and 135.45 hectares had been reclaimed. The ministry also reported that one company holding a regional mining license remained at the exploration stage without an environmental document or environmental approval, while inspectors were deployed to evaluate mining areas and environmental compliance. The example is not used here to conclude that the integrated licensing regime caused specific damage. It demonstrates instead that even where mining rights exist, environmental-document status, actual disturbance, reclamation performance, and field verification remain distinct accountability questions that require continuing supervision.¹⁷

Ecological degradation should also be understood at landscape scale. Hydrological change upstream can alter water quality downstream; forest clearing can increase erosion and reduce infiltration; transport corridors can spread dust, noise, and social disruption; and waste management failures can affect ecosystems far from the extraction point. Hartati, Chandra, and Diar's spatial analysis is therefore relevant beyond formal zoning: environmental assessment must follow ecological connectivity rather than only cadastral or permit boundaries. A narrow project footprint can understate cumulative risks produced by the entire chain of mining activities.¹⁸

¹⁵Helmi, "Sistem Pengawasan Perizinan Bidang Lingkungan Hidup," 15–30; Nirboyo, "Potensi Korupsi Dalam Perizinan Lingkungan," 219–228.

¹⁶I. Setiawan, "Peranan Sektor Pertambangan dalam Pembangunan Ekonomi Implikasinya pada Lingkungan," *BUDGETING: Journal of Business, Management and Accounting* 5, no. 2 (2024): 651–661, <https://doi.org/10.31539/budgeting.v5i2.8551>.

¹⁷Ministry of Energy and Mineral Resources, Republic of Indonesia, "Pemerintah Perketat Pengawasan Lima Perusahaan Tambang di Raja Ampat," June 8, 2025, <https://www.esdm.go.id/id/media-center/arsip-berita/pemerintah-perketat-pengawasan-lima-perusahaan-tambang-di-raja-ampat> (accessed August 17, 2026).

¹⁸Hartati, Chandra, and Diar, "Spatial Planning for Mining Exploitation Rights," 19–34.

Research on mangrove degradation by Evitasari and Sukendah, although focused on a different ecosystem, reinforces a broader principle: protection should be based on ecological function and not only on rehabilitation after damage occurs. Pakaya and colleagues similarly stress the intrinsic value of nature and caution against reducing environmental value to economic compensation. These perspectives are relevant to mining because reclamation cannot be treated as a universal substitute for prevention. A reconstructed surface may satisfy technical indicators without reproducing the biodiversity, hydrology, cultural value, or ecosystem services that existed before extraction.¹⁹²⁰

Investment and downstream-processing policy further complicate accountability. Scholarship on foreign direct investment and mining downstreaming shows that investment facilitation and mineral-processing expansion can progress faster than the institutions responsible for environmental monitoring and restoration. The legal response should not be to reject investment but to make environmental obligations financially and legally resilient. Restoration commitments should be established before operations, backed by guarantees, and structured so that corporate restructuring, insolvency, transfer of shares, or changes in contractors do not leave the state and affected communities with unfunded liabilities.²¹

Corporate organization deserves particular attention. Mining operations are frequently performed through subsidiaries, contractors, subcontractors, transport providers, and service companies. Article 87(1) of the Environmental Law requires responsible business/activity operators causing pollution or environmental damage to pay compensation and/or perform certain actions, while Article 88 provides strict liability for specified activities involving serious environmental threats. Within licensing, the permit holder should remain the primary accountable entity for compliance with environmental obligations even where operational tasks are contracted to third parties. Contracting can allocate internal costs, but it should not fragment public-law responsibility toward the state, communities, and the environment.

Beneficial ownership adds a transparency dimension. Presidential Regulation No. 13 of 2018 created a framework for identifying beneficial owners of corporations, and Minister of Law Regulation No. 2 of 2025 reinforces corporate beneficial-ownership reporting. These rules originate principally from corporate-transparency and anti-money-laundering policy; they do not themselves create environmental liability. Nevertheless, environmental and mining regulators can use

¹⁹P. Pakaya, M. H. Prasetyo, S. Syamsudin, M. H. Baruadi, and Hasim, "Nilai Intrinsi Alam Dalam Konservasi Kajian Pustaka Degradasi Ekosistem Mangrove di Grontalo," *Journal of Scientech Research and Development* 6, no. 2 (2024): 478–485, <https://doi.org/10.56670/jsrd.v6i2.623>.

²⁰D. Evitasari and S. Sukendah, "Dampak Degradasi dan Strategi Hutan Mangrove dalam Menjaga Ekosistem," *Jurnal Ilmu Pertanian dan Perkebunan* 5, no. 1 (2023): 39–46, <https://doi.org/10.55542/jipp.v5i1.505>.

²¹A. Taqiyaah, "Regulasi Foreign Direct Investment dalam Perizinan dan Pemulihan Sektor Lingkungan Pertambangan Batubara Era UU Minerba 2020," *Law Research Review Quarterly* 10, no. 2 (2025), <https://doi.org/10.15294/llrq.v10i2.4368>; L. Mbuna and F. Rahmadani, "Hilirisasi Pertambangan Sebagai Instrumen Investasi Berkelanjutan Dalam Perpanjangan Wilayah Izin Usaha Pertambangan Khusus (WIUPK)," *Indonesian Journal of Multidisciplinary on Social and Technology* 4, no. 2 (2026): 52–59, <https://doi.org/10.69693/ijmst.v4i2.8241>.

beneficial-ownership information as a cross-reference to identify persons exercising effective control or receiving substantial economic benefit from the corporate structure. This is especially important where repeated environmental non-compliance is distributed across subsidiaries or where a thinly capitalized operational entity holds the permit while strategic control and benefit lie elsewhere.²²

The legal design should therefore distinguish three layers of accountability. The permit holder bears direct public-law responsibility for compliance with environmental approval and mining obligations. Contractors and subcontractors bear contractual and legal responsibility for their own unlawful acts without displacing the permit holder's regulatory obligations. Controlling or beneficial actors become relevant where the facts and applicable law justify attributing responsibility, preventing abuse of corporate form, or tracing economic benefit. This layered approach is more precise than treating every group company as automatically liable, while still reducing the possibility that corporate structure becomes a mechanism for evading restoration costs.

Environmental approval must translate broad commitments into verifiable operational parameters. These may include water-quality limits, emissions, hazardous and non-hazardous waste management, erosion and sediment controls, biodiversity measures, rehabilitation schedules, emergency response, community-complaint mechanisms, monitoring frequency, reporting, reclamation guarantees, and post-mining guarantees. Where obligations are vague, enforcement becomes difficult because regulators cannot establish a clear compliance benchmark. Accountability therefore depends on conditions that are specific enough to monitor and proportionate enough to reflect the actual risk of the project.

Post-licensing supervision becomes the core mechanism that converts these conditions into practice. Helmi's analysis supports the proposition that environmental supervision in forestry and mining must remain capable of testing compliance after authorization. In a risk-based regime, supervision should be dynamic rather than fixed at the risk classification assigned on the licensing date. Inspection results, complaints, satellite images, laboratory tests, recurring incidents, changes in production, and corporate compliance history should be capable of increasing inspection frequency or regulatory intensity. A company that repeatedly violates environmental conditions should not continue to receive the same supervisory treatment as a compliant operator.²³

Transparency is indispensable because regulators alone cannot observe every environmental change. At a minimum, the public-facing system should disclose: the status and date of environmental approval; an intelligible summary of AMDAL or UKL-UPL and relevant maps; key environmental obligations and monitoring parameters; the current mining-license status; reclamation and post-mining guarantee status; inspection dates and non-confidential findings; administrative sanctions and corrective-action deadlines; restoration progress; and a record of public complaints and official responses. Data should be interoperable among the

²²Republic of Indonesia, Presidential Regulation No. 13 of 2018 on the Application of the Principle of Recognizing Beneficial Owners of Corporations; Republic of Indonesia, Minister of Law Regulation No. 2 of 2025 concerning verification and supervision of corporate beneficial ownership.

²³Helmi, "Sistem Pengawasan Perizinan Bidang Lingkungan Hidup," 15–30.

OSS system administered within the investment-licensing framework, the Environmental Information System under Government Regulation No. 22 of 2021, and mining information systems administered by the Ministry of Energy and Mineral Resources. Public access should be provided through searchable portals and downloadable documents, subject only to lawful restrictions for protected information. The objective is not indiscriminate disclosure, but an auditable regulatory record.

The institutions managing those datasets should also adopt a common identifier for each project and permit holder so that environmental approvals, mining licenses, ownership data, inspections, sanctions, and restoration guarantees can be matched. Without interoperability, "transparency" may consist of multiple portals that each disclose fragments of a project but do not allow the public or an inspector to reconstruct its compliance history. An integrated licensing regime should produce integrated accountability data. The same digital architecture that simplifies applications can therefore be used to expose non-compliance and support coordinated enforcement.

Administrative sanctions must be capable of changing behavior. Government Regulation No. 22 of 2021 recognizes escalating sanctions, while Government Regulation No. 28 of 2025 places sanctions within the risk-based licensing system. The appropriate response depends on severity, duration, recurrence, environmental consequence, willingness to correct, and the risk of continued operation. Written warnings are insufficient where a violation is serious and ongoing; government coercion, fines, suspension, or revocation may be necessary. Most importantly, a violation of environmental approval should not remain isolated in the environmental subsystem if the operator's right to conduct business depends on continuing compliance with that approval.

Restoration finance is the other side of enforceability. Reclamation and post-mining guarantees should be treated as core accountability instruments rather than attachments to licensing. Their amount and form should be periodically assessed against realistic restoration costs, project scale, location, inflation, and the risk of operator default. Government Regulation No. 96 of 2021, as amended, regulates reclamation and post-mining obligations, while Government Regulation No. 22 of 2021 also recognizes environmental restoration-funding mechanisms. The state must be able to access or enforce the relevant guarantee when the operator fails, rather than depending on voluntary expenditure after damage has occurred.

Civil and criminal responsibility may also become relevant when administrative measures are insufficient. Article 87 of the Environmental Law provides for compensation and/or certain actions, Article 88 regulates strict liability in specified circumstances, and Articles 98 and 99 establish criminal liability for conduct causing exceedance of environmental-quality or environmental-damage criteria under the conditions prescribed by law. Administrative sanctions are essential for rapid compliance and restoration, but they should not become a ceiling that shields economically beneficial environmental violations from other forms of legal responsibility.

Finally, ecological accountability includes the state's obligation to refuse authorization where a location cannot sustainably support mining. Chandra's discussion of green constitutionalism and community-based forest governance is

relevant because environmental protection operates as a limit on governmental and economic power, not merely as a post-damage compensation regime. Areas with critical ecological functions, low carrying capacity, high disaster vulnerability, legally protected status, or irreplaceable social-ecological value require heightened scrutiny and, where the applicable law so requires, exclusion from mining. Corporate accountability begins with a lawful and ecologically reasoned licensing decision; no enforcement system can fully correct a fundamentally unsuitable location after extraction has begun.²⁴

A Five-Stage Ecological Accountability Framework

The analysis above suggests that the appropriate reform is not a return to administrative fragmentation, but a model of integrated licensing with an explicit ecological accountability sequence. The sequence prevents a common weakness in digital licensing reform: concentrating institutional attention on the moment of issuance while treating supervision, sanctions, and restoration as later and disconnected functions. A mining authorization should instead be understood as a conditional regulatory relationship extending from site selection through closure and post-mining recovery.

Table 2. Five-Stage Ecological Accountability Framework for Integrated Mining Licensing

Stage	Regulatory Focus	Corporate Accountability Indicators	Minimum Public / Institutional Safeguards
1. Pre-licensing	Site suitability, AMDAL/UKL-UPL, cumulative risk, baseline data, alternatives.	Prevention; complete disclosure; adequate restoration planning.	Meaningful participation; access to documents and maps; field verification; independent technical review where necessary.
2. License issuance	Reasoned environmental approval linked to business-license conditions.	Clear measurable obligations; permit-holder responsibility; guarantee placement.	Public decision trail; written response to material objections; interoperable project identifier across OSS, environmental, and mining systems.
3. Supervision	Risk-based inspections, monitoring, complaints, data updates.	Continuing compliance; transparent reporting; dynamic risk classification.	Shared central-regional access; satellite imagery, laboratory results, and field evidence; published non-confidential inspection outcomes.

²⁴F. Chandra, "Pengelolaan Kehutanan Berbasis Masyarakat Hukum Adat dalam Kerangka Konstitusi Hijau di Indonesia," *Adagium: Jurnal Ilmiah Hukum* 3, no. 1 (2025): 104–119, <https://doi.org/10.70308/adagium.v3i1.67>.

Stage	Regulatory Focus	Corporate Accountability Indicators	Minimum Public / Institutional Safeguards
4. Sanctions	Corrective orders, fines, suspension or revocation, and escalation for recurrence or serious harm.	Responsibility for violations across the operating chain; no dilution through contracting.	Direct linkage between environmental violations and business-license status; reasoned enforcement decisions.
5. Restoration and closure	Reclamation, post-mining recovery, compensation, long-term monitoring.	Restoration performance; enforceable financial guarantees; responsibility despite restructuring or exit.	Transparent guarantee status; independent verification of restoration; civil and criminal pathways where legally applicable.

Source: Authors' prescriptive synthesis of the Environmental Law, Government Regulation No. 22 of 2021, the mineral and coal mining regime, and Government Regulation No. 28 of 2025.

At the pre-licensing stage, the central question is not how quickly a project can enter the OSS workflow but whether the proposed site and design are environmentally acceptable. Environmental assessment should integrate spatial data, cumulative permits, watershed and biodiversity information, local knowledge, disaster vulnerability, and realistic restoration scenarios. Meaningful participation should begin before key design choices become practically irreversible. Affected communities must receive accessible information, adequate time, and a reasoned response to material objections. Where the evidence shows unacceptable or unmanageable risk, the legally correct outcome may be modification or refusal rather than faster approval.

At the issuance stage, environmental approval should retain a distinct legal identity within the integrated system. The decision should contain or clearly link to the environmental reasoning, conditions, monitoring requirements, reclamation obligations, and consequences of breach. The mining business license should incorporate those obligations by reference so that serious non-compliance can affect the operator's continuing authorization. Reclamation and post-mining guarantees should be verified before the operator reaches the stage at which significant disturbance occurs. The public-facing decision trail should also show which authority approved the project and how significant objections were addressed.

At the supervision stage, risk must be dynamic. Inspection frequency and depth should change when production expands, environmental conditions deteriorate, complaints recur, monitoring data show anomalies, or corporate compliance history worsens. Central and provincial authorities should share licensing and monitoring data, while local environmental institutions should have a clear route for uploading field information and triggering regulatory review. Technology can support supervision through satellite imagery, drones, sensors, and geospatial databases, but technological monitoring should be combined with field inspection and community evidence because many environmental and social impacts cannot be identified remotely.

At the sanctions stage, enforcement should be graduated but credible. The aim is not punishment for its own sake, but rapid cessation of unlawful conditions, restoration, deterrence, and protection against repeated harm. Administrative warnings should not become a repetitive ritual when violations continue. Serious or recurrent breaches of environmental approval should trigger stronger sanctions, including government coercion, fines, suspension, or revocation where the legal criteria are satisfied. Enforcement data should be visible across the environmental, mining, and OSS systems so that a company cannot appear compliant in one subsystem while being sanctioned in another.

At the restoration and closure stage, responsibility should survive the end of profitable extraction. Reclamation and post-mining obligations must be supported by adequate financial guarantees and verified through measurable ecological outcomes, not only completion of physical works. Where a permit holder lacks sufficient assets, regulators should examine legally relevant contractual, ownership, and beneficial-control information rather than assuming that corporate separation automatically resolves responsibility. Civil or criminal avenues remain available where the statutory elements are met. Long-term monitoring may be necessary for acid mine drainage, water quality, slope stability, or other risks that persist after closure.

The five-stage model also clarifies institutional roles. The environmental authority safeguards environmental feasibility and compliance; mining authorities regulate mining rights, technical operations, reclamation, and post-mining duties; investment-licensing institutions maintain integrated business-licensing processes and data; provincial governments exercise delegated authority and field supervision within their legal competence; and law-enforcement bodies become relevant where administrative non-compliance develops into civil or criminal liability. The objective is not to create additional bureaucratic layers, but to ensure that information and enforcement consequences flow across existing layers.

A practical reform agenda should therefore prioritize interoperable data over additional paperwork. Each project should have a common digital identity linking the business entity, beneficial ownership information where lawfully available, environmental approval, spatial requirements, mining license, inspection history, sanctions, and restoration guarantees. Public access can be tiered: general users should see non-confidential environmental and licensing information, while authorized inspectors should have access to more detailed compliance and corporate data. Such integration would make OSS not only an entry portal for investment but also an accountability infrastructure for the entire life cycle of mining operations.

This approach preserves the legitimate objective of investment facilitation. It accepts that duplicated submissions, uncertain competence, and unnecessary administrative delay should be reduced. The limiting principle is that simplification must be procedural rather than substantive. Environmental feasibility, meaningful participation, field verification, enforceable conditions, transparent supervision, and restoration finance are not duplicative bureaucracy; they are the substantive legal mechanisms that justify allowing a high-risk activity to operate. An efficient system that omits them would be fast but legally and ecologically fragile.

CONCLUSION

The integration of environmental approval into mining business licensing can improve procedural coherence, digital service delivery, and regulatory certainty, but it changes the architecture through which environmental control is made visible and enforceable. Under the current regime, Government Regulation No. 28 of 2025 has replaced Government Regulation No. 5 of 2021 while preserving specified transitional processes, and environmental approval under Government Regulation No. 22 of 2021 remains a prerequisite for business licensing or government approval. The principal risk is therefore not the formal disappearance of environmental requirements. It is the possibility that integration blurs the environmental decision trail, weakens meaningful public scrutiny, separates local ecological knowledge from licensing authority, and fails to connect environmental violations directly to the status of the business license.

Corporate accountability must consequently be measured through prevention, continuing compliance, restoration, transparency, and responsibility across the chain of business actors. Mining makes these indicators particularly important because its impacts are spatial, cumulative, and often difficult to reverse. The five-stage framework developed in this article links pre-licensing assessment, issuance, supervision, sanctions, and restoration into a continuous regulatory relationship. In that model, environmental approval remains substantively reviewable; risk classification is dynamic; data are interoperable and publicly accessible; permit holders remain responsible despite contracting arrangements; beneficial-ownership information can support regulatory transparency without being mistaken for an automatic environmental-liability rule; and reclamation and post-mining guarantees are treated as enforceable financial safeguards.

Policy implementation should prioritize four measures. First, the OSS, environmental-information, and mining-information systems should use interoperable project identifiers and disclose minimum environmental and compliance data in a searchable public format. Second, central and provincial regulators should establish shared inspection and escalation protocols so that local findings can influence licensing status without institutional delay. Third, meaningful participation should be operationalized through timely document access, adequate objection periods, written responses, and demonstrable influence on decision making. Fourth, serious or repeated environmental violations should have clear consequences for business-license status and restoration guarantees should be calibrated to realistic recovery costs.

Future research should test the framework empirically through permit-level studies in different mining landscapes, including forest areas, small islands, watersheds, and regions with overlapping concessions. Comparative studies should also examine whether integrated data and risk-based supervision actually improve compliance outcomes, shorten enforcement response times, and reduce unfunded restoration liabilities. Such research would complement the normative analysis developed here and provide evidence for refining Indonesia's post-2025 risk-based licensing regime.

REFERENCES

- Chandra, F. "Pengelolaan Kehutanan Berbasis Masyarakat Hukum Adat dalam Kerangka Konstitusi Hijau di Indonesia." *Adagium: Jurnal Ilmiah Hukum* 3, no. 1 (2025): 104–119. <https://doi.org/10.70308/adagium.v3i1.67>.
- Darman, M., and I. Riyanti. "Effectiveness of Regional Government Authority Regarding Mining Business Permits Post Presidential Decree Number 55 of 2022 Concerning Mineral and Coal Mining Management." *Journal of Law Science* 6, no. 3 (2024): 407–413. <https://doi.org/10.35335/jls.v6i3.5235>.
- Erni, E., and F. Jaya. "Efektifitas Perizinan Berusaha Berbasis Risiko dalam Rangka Kemudahan Berusaha." *Wajah Hukum* 6, no. 2 (2022): 248–257. <https://doi.org/10.33087/wjh.v6i2.927>.
- Evitasari, D., and S. Sukendah. "Dampak Degradasi dan Strategi Hutan Mangrove dalam Menjaga Ekosistem." *Jurnal Ilmu Pertanian dan Perkebunan* 5, no. 1 (2023): 39–46. <https://doi.org/10.55542/jipp.v5i1.505>.
- Hartati, H., F. Chandra, and A. Diar. "Spatial Planning for Mining Exploitation Rights in Forest Area." *ADLIYA: Jurnal Hukum dan Kemanusiaan* 17, no. 1 (2024): 19–34. <https://doi.org/10.15575/adliya.v17i1.22747>.
- Helmi. "Sistem Pengawasan Perizinan Bidang Lingkungan Hidup Terhadap Perizinan Berusaha Bidang Kehutanan dan Pertambangan di Indonesia." *Jurnal Sains Sosio Humaniora* 6, no. 1 (2022): 15–30. <https://doi.org/10.22437/jssh.v6i1.19391>.
- Helmi, H. H. "Kewenangan Daerah Dalam Perizinan Berusaha Dalam Undang-Undang Cipta Kerja." *Simbur Cahaya* 28, no. 2 (2021): 15–39. <https://doi.org/10.28946/sc.v28i2.1170>.
- Juang Nirboyo, A. "Potensi Korupsi Dalam Perizinan Lingkungan Melalui Sistem Online Single Submission Pasca Peraturan Pemerintah Nomor 5 Tahun 2021 Tentang Penyelenggaraan Perizinan Berusaha Berbasis Risiko." *Jatiswara* 36, no. 2 (2021): 219–228. <https://doi.org/10.29303/jtsw.v36i2.316>.
- Lahabu, Z., R. Mina, A. U. Marzuki, and D. Sucipto. "Kedudukan Persetujuan Lingkungan Terhadap Perizinan Berusaha Dalam Perlindungan dan Pengelolaan Lingkungan Hidup." *Jurnal Yustisiabel* 6, no. 1 (2022): 70–88. <https://doi.org/10.32529/yustisiabel.v6i1.1595>.
- Mbuna, L., and F. Rahmadani. "Hilirisasi Pertambangan Sebagai Instrumen Investasi Berkelanjutan Dalam Perpanjangan Wilayah Izin Usaha Pertambangan Khusus (WIUPK)." *Indonesian Journal of Multidisciplinary on Social and Technology* 4, no. 2 (2026): 52–59. <https://doi.org/10.69693/ijmst.v4i2.8241>.
- Ministry of Energy and Mineral Resources, Republic of Indonesia. "Pemerintah Perketat Pengawasan Lima Perusahaan Tambang di Raja Ampat." June 8, 2025. <https://www.esdm.go.id/id/media-center/arsip-berita/pemerintah-perketat-pengawasan-lima-perusahaan-tambang-di-raja-ampat>. Accessed August 17, 2026.

- Pakaya, P., M. H. Prasetyo, S. Syamsudin, M. H. Baruadi, and Hasim. "Nilai Intrinsi Alam Dalam Konservasi Kajian Pustaka Degradasi Ekosistem Mangrove di Grontalo." *Journal of Scientech Research and Development* 6, no. 2 (2024): 478–485. <https://doi.org/10.56670/jsrd.v6i2.623>.
- Ra'uf, A. S., Imamulhadi, and Y. Adharani. "Mechanism for Spatial Utilization Activity Compliance in Mining Business Licensing and Its Implications for Environmental Preservation." *Journal of Law, Politic and Humanities* 6, no. 3 (2026): 1585–1596. <https://doi.org/10.38035/jlph.v6i3.3031>.
- Republic of Indonesia. Constitutional Court Decision No. 10/PUU-XX/2022, March 29, 2022.
- Republic of Indonesia. Government Regulation No. 22 of 2021 on the Implementation of Environmental Protection and Management. *State Gazette of the Republic of Indonesia* 2021 No. 32, Supplement to the State Gazette No. 6634.
- Republic of Indonesia. Government Regulation No. 28 of 2025 on Risk-Based Business Licensing. *State Gazette of the Republic of Indonesia* 2025 No. 98.
- Republic of Indonesia. Government Regulation No. 39 of 2025 on the Second Amendment to Government Regulation No. 96 of 2021 on the Implementation of Mineral and Coal Mining Business Activities.
- Republic of Indonesia. Government Regulation No. 96 of 2021 on the Implementation of Mineral and Coal Mining Business Activities. *State Gazette of the Republic of Indonesia* 2021 No. 208, Supplement to the State Gazette No. 6721.
- Republic of Indonesia. Law No. 2 of 2025 on the Fourth Amendment to Law No. 4 of 2009 on Mineral and Coal Mining.
- Republic of Indonesia. Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law. *State Gazette of the Republic of Indonesia* 2023 No. 41, Supplement to the State Gazette No. 6856.
- Republic of Indonesia. Law No. 30 of 2014 on Government Administration, as amended.
- Republic of Indonesia. Law No. 32 of 2009 on Environmental Protection and Management. *State Gazette of the Republic of Indonesia* 2009 No. 140, Supplement to the State Gazette No. 5059.
- Republic of Indonesia. Minister of Law Regulation No. 2 of 2025 concerning Verification and Supervision of Corporate Beneficial Ownership.
- Republic of Indonesia. Presidential Regulation No. 13 of 2018 on the Application of the Principle of Recognizing Beneficial Owners of Corporations in the Context of Preventing and Eradicating Money Laundering and Terrorism Financing.
- Republic of Indonesia. Presidential Regulation No. 55 of 2022 on Delegation of Business Licensing in the Mineral and Coal Mining Sector. *State Gazette of the Republic of Indonesia* 2022 No. 91.

- Samudera, R. S. "Implementasi Kebijakan UU Cipta Kerja Dalam Tata Kelola Ketenagakerjaan, Lingkungan, dan Perizinan Berusaha Berbasis Risiko di Indonesia Pasca-Pandemi." *Development Policy and Management Review* 5, no. 1 (2025): 68–80. <https://doi.org/10.61731/dpmr.v5i1.44206>.
- Sanduan, A. P. "Resentralisasi Perizinan Berusaha Pertambangan Mineral Dalam Undang-Undang Nomor 11 Tahun 2020 Tentang Cipta Kerja." *Jurnal Hukum Bisnis Bonum Commune* 5, no. 1 (2022): 142–160. <https://doi.org/10.30996/jhbhc.v5i1.6098>.
- Setiawan, I. "Peranan Sektor Pertambangan dalam Pembangunan Ekonomi Implikasinya pada Lingkungan." *BUDGETING: Journal of Business, Management and Accounting* 5, no. 2 (2024): 651–661. <https://doi.org/10.31539/budgeting.v5i2.8551>.
- Setyadi, D. S., and M. E. Yuniza. "Perizinan Berusaha di Sektor Hulu Minyak dan Gas Bumi: Evaluasi Sistem Terintegrasi Secara Elektronik." *Jurnal Ius Constituendum* 6, no. 2 (2021): 381–406. <https://doi.org/10.26623/jic.v6i2.4146>.
- Suhadi, M., A. R. Erzal Wahyudi, and P. F. Garpy. "Kebijakan Penerbitan Perizinan Berusaha Dalam Sektor Pariwisata Beresiko Setelah Berlakunya UU Cipta Kerja di Kabupaten Jember." *Pubmedia Social Sciences and Humanities* 1, no. 1 (2023): 24–30. <https://doi.org/10.47134/pssh.v1i1.14>.
- Taqiyaah, A. "Regulasi Foreign Direct Investment dalam Perizinan dan Pemulihan Sektor Lingkungan Pertambangan Batubara Era UU Minerba 2020." *Law Research Review Quarterly* 10, no. 2 (2025). <https://doi.org/10.15294/llrq.v10i2.4368>.