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Anticipating Indonesia's Lithium Mining and Electric Vehicle Industry: Legal and Policy Insights from Australia's Regulatory Framework

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Abstract
The international shift toward lithium-based battery technologies poses significant challenges to Indonesia's long-term competitiveness. Drawing on the country's experience with environmental degradation in nickel mining, this study underscores the need for Indonesia to strengthen its legal and institutional frameworks to sustainably govern future lithium extraction. This research analyzes Indonesia's strategic positioning in the global electric vehicle (EV) industry, primarily driven by its abundant nickel reserves. A comparative legal analysis is conducted against Australia's regulatory regime, which features strong enforcement, environmental safeguards, and post-mining rehabilitation obligations. While structural global asymmetries may limit Indonesia's capacity to pursue ideal reforms, the country must proactively enhance its domestic governance mechanisms. This research employs a normative juridical approach, relying on statutes, policy documents, and academic commentary. The findings highlight gaps in licensing enforcement, public participation rights, and mine closure governance. Based on Australia's best practices, this article proposes targeted policy reforms that aim to improve Indonesia's legal capacity to govern its critical mineral resources sustainably and equitably in the EV era.

Keywords: Financial Technology; Nickel Mining; Environmental Governance

A. Introduction

Indonesia's rapid expansion of nickel production, spurred by its ambition to dominate the global electric vehicle (EV) battery supply chain, has generated significant environmental and institutional challenges. Although nickel is critical for EV battery cathodes, particularly in high-energy-density applications such as Nickel-Manganese-Cobalt (NMC) and Nickel-

Cobalt-Aluminum (NCA) chemistries, the extraction processes employed in Indonesia, primarily through laterite ore mining, have produced extensive adverse ecological impacts.[1]

While the state has prioritized downstream nickel development through regulatory incentives and industrial policy, including the formal designation of key nickel processing zones as *Proyek Strategis Nasional* (PSN) under Presidential Regulation Number 109 of 2020, legal oversight has not kept pace with industrial expansion. Among the PSN-designated sites, the Indonesia Morowali Industrial Park (IMIP) in Central Sulawesi, the Indonesia Konawe Industrial Park (IKIP) in Southeast Sulawesi, and the Obi Island Industrial Park in North Maluku serve primarily as refining and smelting hubs for nickel ore processing into ferronickel, nickel matte, and battery-grade mixed hydroxide precipitate (MHP).[2] Only the Weda Bay Industrial Park (IWIP) in North Maluku integrates both on-site nickel mining and downstream processing through high-pressure acid leach (HPAL) and pyrometallurgy, illustrating a vertically integrated operational model.[3] Despite their national strategic status, these zones have faced criticism for marginalizing public consultation and contributing to ecological degradation in mining-affected areas.

Despite possessing comprehensive statutory instruments, Indonesia's environmental governance in the mining sector is marred by chronic enforcement weaknesses, insufficient financial accountability, and restricted public participation.[4] These deficiencies have contributed to widespread ecological degradation, and diminished community trust. Systemic institutional fragilities continue to undermine meaningful reform, particularly in the nickel sector. The expansion of mining activities into ecologically sensitive regions without corresponding legal safeguards or inclusive consultation mechanisms raises concerns about Indonesia's readiness to meet international environmental, social, and governance (ESG) standards.

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[1] "Kebijakan Dan Regulasi: Memastikan Kepatuhan Terhadap Standar Lingkungan Dalam Pertambangan Nikel – Neoenergy," accessed April 30, 2025, https://neoenergy.co.id/kebijakan-dan-regulasi-memastikan-kepatuhan-terhadap-standar-lingkungan-dalam-pertambangan-nikel/.

[2] PT Indonesia Morowali Industrial Park. "Home." accessed May 2, 2025. https://imip.co.id/; PT Virtue Dragon Nickel Industry. "Home." accessed May 2, 2025. https://vdni.co.id/; PT Ceria Nugraha Indotama. "Home." accessed May 2, 2025. https://cerindocorp.com/.

[3] PT Indonesia Weda Bay Industrial Park. "Home." accessed May 2, 2025. https://iwip.co.id/en/home/.

[4] Muhammad Jufri Dewa, Muhammad Sabaruddin Sinapoy, and Nurnashriady Jufri, "Penegakan Hukum dalam Tata Kelola Pertambangan Berkelanjutan Berwawasan Lingkungan" 5, no. 1 (2023): 66–74.

By contrast, Australia offers a compelling model of sustainable mining governance. Its regulatory architecture anchored in instruments such as the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), the Mining Rehabilitation Fund Act 2012 (WA), and the Environmental Protection Act 1986 (WA) demonstrates how legal clarity, enforceable obligations, and public accountability can be integrated to balance economic development with ecological protection. Australia's institutionalized use of rehabilitation bonds, independent environmental authorities, and expansive participatory rights illustrates a best-practice framework from which Indonesia can derive actionable insights.

This research aims to critically analyze Indonesia's current legal and policy frameworks for nickel mining and EV material governance, conduct a comparative assessment with Australia's lithium mining regulations, and develop reform-oriented policy recommendations tailored to Indonesia's institutional context. Core issues examined include the adequacy of environmental enforcement, the design and implementation of mine closure regimes, and the scope of public participation in licensing decisions. The study further explores the legal and administrative reforms necessary for Indonesia to align its mining sector with emerging global sustainability standards, especially as it anticipates the exploration and exploitation of domestic lithium reserves.

To address these objectives, the article applies a normative juridical method, employing both statute-based and conceptual approaches. Primary materials include national and subnational laws, government policies, and international normative instruments, while secondary sources comprise peer-reviewed journal articles, case law, and institutional reports. Comparative analysis is used to identify the operational features of Australia's regulatory system that may be adapted to Indonesia's socio-environmental context. Through this approach, the research seeks to bridge the gap between Indonesia's formal legal commitments and its operational realities by proposing concrete, evidence-based reforms to strengthen environmental enforcement, licensing integrity, and community rights in the mining sector.

Indonesia holds the world's largest reserves of lateritic nickel and has positioned this resource as the cornerstone of its national electric vehicle (EV) development strategy. The government's downstream policy—particularly the ban on raw nickel ore exports under Regulation of the Minister of Energy and Mineral Resources Number 11 of 2019—has accelerated domestic investment in smelting and refining facilities, with a focus on high-

pressure acid leach (HPAL) technology to produce mixed hydroxide precipitate (MHP). MHP is a critical intermediate for manufacturing nickel-rich cathodes in EV batteries, specifically NMC (nickel–manganese–cobalt) variants, which dominate high-energy-density battery chemistries used in long-range electric vehicles.

This industrial policy is further supported by the formal designation of several nickel refining zones—such as the Indonesia Morowali Industrial Park (IMIP), Indonesia Konawe Industrial Park (IKIP), Weda Bay Industrial Park (IWIP), and Obi Island Industrial Park—as *Proyek Strategis Nasional* (PSN) under Presidential Regulation Number 109 of 2020, which grants strategic projects expedited licensing and investment facilitation. These zones host vertically integrated operations combining smelters, HPAL plants, and industrial logistics infrastructure dedicated to EV material production.

The scale of Indonesia's ambition is reflected in its production targets. According to data compiled by the Institute for Energy Economics and Financial Analysis (IEEFA), Indonesia's top four nickel producers—Antam, MBMA, TBP (Harita), and Vale—plan to increase combined nickel output by 197% between 2023 and 2028, from 352,844 tonnes to over 1 million tonnes annually. Notably, MHP production alone is projected to surge by over 550%, from 63,655 tonnes in 2023 to 420,000 tonnes by 2028, making it the fastest-growing segment in the nation's nickel value chain. This aggressive expansion signals Indonesia's intent to capture greater value in the EV battery supply chain and reduce dependency on foreign processing.

Primary Nickel Product	2023 (tonnes)	2028 (tonnes)	% Change
Antam ferronickel output	21,473	40,500	88.6
MBMA ferronickel	65,117	88,000	35.1
MBMA matte	30,333	50,000	64.8
MBMA MHP		120,000	
TBP ferronickel	101,538	305,000	200.4
TBP MHP	63,655	120,000	88.5
Vale matte	70,728	70,000	
Vale ferronickel		73,000	
Vale MHP		180,000	
Total from the 4 companies			
Total ferronickel	188,128	506,500	169.2
Total matte	101,061	120,000	18.7
Total MHP	63,655	420,000	559.8
Total nickel	352,844	1,046,500	196.6

Table 1. Indonesian Nickel Output and Target Output 2023 and 2028 from Three Big Nickel Companies (Source: Company public financial reports: IEEFA estimates)

As detailed by the Nickel Institute, the High Pressure Acid Leach (HPAL) process has become a key technological route in Indonesia's nickel downstream strategy, allowing for the extraction of battery-grade nickel from laterite ores through high-temperature and high-pressure leaching using concentrated sulfuric acid.[5] While this method enables the production of intermediate products such as mixed hydroxide precipitate (MHP) and mixed sulphide precipitate (MSP), it simultaneously generates significant volumes of residual effluents and tailings containing toxic and corrosive substances, including nickel, cobalt, manganese, chromium, zinc, copper, as well as sulfates, magnesium, aluminum, and iron. These residuals meet the legal classification of Bahan Berbahaya dan Beracun (B3) under Article 5 paragraph (2) of Government Regulation Number 101 of 2014, which categorizes waste as hazardous if it exhibits corrosive and/or toxic characteristics.[6] While these figures underscore the country's economic ambitions to position itself as a global supplier of EV battery materials, they also amplify legal and environmental risks. HPAL facilities are known for their chemical intensity, elevated emissions, and complex waste profiles, making them particularly vulnerable to governance failures and regulatory non-compliance. In this context, Indonesia's legal framework for licensing and environmental approval—particularly the procedural enforcement of public participation under Article 26 of Law Number 32 of 2009 on Environmental Protection and Management—will be critical in ensuring that industrial expansion proceeds in a manner that is both sustainable and legally accountable.[7] Without strict enforcement of these safeguards, the long-term legitimacy of Indonesia's nickel-based industrial policy may be undermined by persistent ecological harm and weakened regulatory oversight.

B. Discussion

B. 1. Licensing and Environmental Approval Mechanisms

Under Law Number 3 of 2020, mining activities require the acquisition of Mining Business License (*Izin Usaha Pertambangan* or IUP) or Special Mining Business License (*Izin*

[5] Nickel Institute, "Nickel Industry – Part 3: Processing Nickel Laterites, High Pressure Acid Leaching," Nickel Magazine, March 7, 2025, https://nickelinstitute.org/en/blog/2025/march/nickel-industry-part-3-processing-nickel-laterites-high-pressure-acid-leaching.

[6] Government Regulation of the Republic of Indonesia No. 101 of 2014 on the Management of Hazardous and Toxic Waste, art. 5(2)..

[7] Law No. 32 of 2009 on Environmental Protection and Management, art. 26.

Usaha Pertambangan Khusus or IUPK). These licenses are conditional upon the submission and approval of an Environmental Impact Assessment (*Analisis Mengenai Dampak Lingkungan* or AMDAL) under Law Number 32 of 2009. In theory, this dual-licensing system is designed to ensure that mining projects incorporate environmental considerations from inception. Nevertheless, in practice, the AMDAL process is often criticized for its procedural deficiencies. Reports indicate that environmental impact assessments are frequently superficial, lack independent scientific review, and are sometimes approved without meaningful public consultation. Furthermore, coordination between licensing authorities and environmental agencies remains weak, resulting in fragmented oversight and overlapping regulatory approvals. The absence of a centralized, transparent database for mining and environmental permits compounds the risk of regulatory capture and illicit licensing practices.

B. 1. 1. Public Participation and Access to Justice

Indonesia's environmental governance framework formally recognizes the role of public participation through community involvement during the AMDAL process. However, the legal standing to challenge mining projects in court remains narrowly interpreted.[8] Affected communities and NGOs must demonstrate direct, personal harm to file environmental lawsuits, a standard that excludes broader public interest litigation commonly recognized in other jurisdictions, including Australia.

Moreover, community consultations are often tokenistic rather than substantive, with limited efforts to engage Indigenous populations and marginalized groups. This exclusion not only undermines the legitimacy of environmental decision-making but also heightens the risk of social conflict, particularly in regions heavily affected by mining activities.

B. 2. Comparative Study of Australia's Lithium Mining Regulations

Effective environmental governance is a fundamental prerequisite for achieving sustainable and equitable management of natural resources, particularly in high-impact sectors such as mining, where ecological degradation and intergenerational risks are prevalent. Central

[8] Rexy, "Peran Masyarakat Dalam AMDAL: Penerapan Regulasi Dan Keberlanjutan Lingkungan," *Indonesia Environment & Energy Center* (blog), November 25, 2024, https://environment-indonesia.com/peran-masyarakat-dalam-amdal-penerapan-regulasi-dan-keberlanjutan-lingkungan/.

to this governance are the principles of transparency, accountability, legal enforceability, and participatory oversight—values embedded in international normative instruments such as the Aarhus Convention. Although neither Australia nor Indonesia is a party to the Aarhus Convention, this journal contends that Australia represents a more developed and institutionally coherent model of environmental regulation. Through the integration of participatory mechanisms, stringent enforcement protocols, and mandatory post-mining rehabilitation obligations, Australia provides a legally structured and substantively operational framework for safeguarding environmental interests. In contrast, Indonesia continues to face structural limitations rooted in conflicting policy priorities, limited enforcement capacity, and a regulatory landscape often dominated by economic expediency.[9] Despite Australia's non-accession to the Aarhus Convention, its legal architecture may nevertheless serve as a normative and institutional reference point for Indonesia in reforming its environmental governance regime and ensuring greater legal protection in the approval and oversight of mining projects.

B.2.1 Environmental Enforcement and Penalties

The disparity in environmental enforcement mechanisms between Australia and Indonesia highlights a deeper structural divide in how both jurisdictions manage ecological risks associated with mineral extraction, particularly in the context of nickel mining. Australia demonstrates a well-institutionalized enforcement regime characterized by legal coherence, financial accountability, and participatory governance. This framework is supported by a dual-level legal infrastructure comprising the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) at the federal level and the Environmental Protection Act 1986 (Western Australia) at the state level, both of which create binding obligations for mining companies to avoid, minimize, and remediate environmental damage.[10]

Enforcement responsibilities are shared between the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and state-level agencies such as the Environmental Protection Authority of Western Australia (EPA WA) and the Department of

[9] Mulyono, Andreas T., and R. K. Karo. "Questioning a Fair Settlement as The Legal Resolution of Global Interests." *IOP Conference Series: Earth and Environmental Science* 1270, no. 1 (2023): 012025. https://doi.org/10.1088/1755-1315/1270/1/012025.
[10] *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia).

Water and Environmental Regulation (DWER), creating a multilayered regulatory landscape.[11] Violations of environmental provisions may result in civil penalties exceeding AUD 1.11 million per offense, and in egregious cases, corporate officers may be held personally liable and subjected to criminal prosecution, including imprisonment.[12] More importantly, Australia requires all mining companies to submit financial guarantees in the form of rehabilitation bonds prior to the commencement of operations. These bonds ensure that sufficient funds are secured for environmental restoration, even in cases of corporate insolvency, thereby internalizing the long-term costs of environmental degradation.[13]

The Australian regime also provides expansive legal standing to public interest groups, including environmental NGOs and Indigenous communities, allowing them to initiate judicial review proceedings against both state and corporate actors. This participatory model, reinforced in Australian Conservation Foundation v. Commonwealth (2016), strengthens environmental accountability by enabling community-driven litigation that acts as a check on governmental discretion and private sector malfeasance.[14]

In contrast, Indonesia's environmental enforcement framework, while formally governed by Law Number 32 of 2009, suffers from significant institutional weaknesses that limit its deterrent capacity and undermine effective governance.[15] The Ministry of Environment and Forestry serves as the principal enforcement authority at the national level, with enforcement functions delegated to regional agencies (*Dinas Lingkungan Hidup dan Kebersihan* or DLHK) at the provincial and regency levels. However, these agencies are frequently under-resourced, lack technical expertise, and face political interference, resulting in inconsistent application of environmental law.

Sanctions for non-compliance are primarily administrative, typically issued through sequential warning letters (SP1, SP2, SP3), and while the statute does provide for criminal fines ranging from Rp 3 billion to Rp 10 billion (approximately USD 200,000–700,000), these penalties remain markedly lower than those imposed in jurisdictions such as Australia.[16]

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[11] *Environmental Protection Act 1986* (WA) Australia.
[12] Department of Climate Change, Energy, the Environment and Water. *Mine Rehabilitation in Australia: Policy and Practice Overview*. (Canberra: Department of Climate Change, Energy, the Environment and Water, 2024).
[13] *Ibid*.
[14] *Australian Conservation Foundation v. Commonwealth* [2016] FCAFC 104 (Federal Court of Australia, Full Court).
[15] *Law of the Republic of Indonesia No. 32 of 2009 on Environmental Protection and Management.*
[16] Article 97–99 of *Law No. 32 of 2009 on Environmental Protection and Management*.

Furthermore, inspection practices in Indonesia are sporadic and largely dependent on self-reporting mechanisms by mining companies. This opens the door for regulatory capture, data manipulation, and weak field supervision, particularly in remote areas where state oversight is limited.[17]

Indonesia also lacks a robust and enforceable financial assurance mechanism for mine rehabilitation. Although regulatory provisions nominally require post-mining restoration, there is no systematic bonding framework akin to Australia's rehabilitation bond system. As a result, many former mining sites in Indonesia are abandoned without remediation, causing long-term environmental damage and loss of community livelihoods.[18] Public participation in environmental decision-making is similarly constrained. While the law mandates community involvement during the Environmental Impact Assessment (AMDAL) process, standing to challenge government approvals or corporate actions in court is narrowly interpreted. NGOs and affected communities must prove direct and personal harm, an evidentiary burden that often excludes legitimate stakeholders and weakens legal accountability.[19]

Taken together, the contrast between Australia and Indonesia reveals that sustainable mining governance depends not only on the existence of statutory provisions, but also on the operational integrity of enforcement institutions, the availability of financial safeguards, and the accessibility of environmental justice. Australia's integrated and proactive enforcement system, backed by credible penalties, legal standing, and financial assurance, offers a valuable model for Indonesia as it seeks to position itself as a global supplier of nickel for electric vehicle (EV) batteries. Without significant reform to strengthen penalties, mandate rehabilitation bonds, and remove barriers to public litigation, Indonesia risks perpetuating a cycle of ecological harm and legal impunity that undermines both environmental sustainability and investor confidence.

B.2.2 Comparative Analysis on the Enforcement of Public Participation Rights in Mining Approvals in Australia and Indonesia

The right to public participation in environmental governance—particularly within the context of mining approvals—is increasingly acknowledged as a basic principle in advancing

[17] Article 69, 76 of *Law No. 32 of 2009 on Environmental Protection and Management*.
[18] Abdul Mudassir, "Tambang Terbengkalai," 92.
[19] Rahmat Asnawi, "Access to Environmental Justice in Indonesia: A Structural Barrier for Public Participation," *Jurnal Ilmu Hukum* 27, no. 1 (January 2019): 112–129.

transparency, accountability, and environmental justice.[20] Although Indonesia is not a party to the Aarhus Convention, the principle of inclusive public engagement reflected in its framework parallels the values promoted by international environmental law discourse.[21] As emphasized by Mulyono and Karo, sustainable development efforts in developing countries must be grounded in equitable participatory mechanisms that ensure the voices of affected communities and civil society are genuinely considered.[22] Although neither Australia nor Indonesia is a party to the Aarhus Convention, this journal posits that Australia represents a comparatively more robust model of environmental governance. Through its institutionalization of public participation, strengthened penalty enforcement mechanisms, and legally mandated post-mining rehabilitation obligations, Australia demonstrates a comprehensive legal approach from which Indonesia could draw normative and structural insights to enhance the sustainability and justiciability of its own environmental legal framework.

B.2.3 Bilateral Cooperation Between Western Australia Government and Australian Federal Government

Western Australia operates under a formal Assessment Bilateral Agreement with the Commonwealth Government, established under Section 45 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth). This agreement, effective since 1 January 2015, authorizes Western Australia to conduct environmental assessments on behalf of the federal government for actions likely to significantly impact Matters of National Environmental Significance (MNES). While the assessment is carried out by state authorities—particularly under Part V Division 2 of the Environmental Protection Act 1986 (WA)—the final approval power remains with the Commonwealth Minister for the Environment. This arrangement aims to eliminate duplicative assessment processes while preserving the integrity of dual environmental oversight. The bilateral process has been applied in resource projects such as lithium mining expansions, where clearing permit applications must first be referred federally

[20] Mulyono, A. T., and R. K. Karo. "Questioning a Fair Settlement as the Legal Resolution of Global Interests." *IOP Conference Series: Earth and Environmental Science* 1270, no. 1 (2023): 012025. https://doi.org/10.1088/1755-1315/1270/1/012025.
[21] *Ibid*.
[22] *Ibid*.

before being assessed by the state, based on detailed documentation of impacts, alternatives, and mitigation strategies.[23]

B.2.3.1 Public Participation in Environmental Assessment of Western Australia

Western Australia (WA), which serves as the epicenter of Australia's lithium mining industry with operations such as Greenbushes, Pilgangoora and Mt Holland, [24] has progressively codified its public participation framework through amendments to the Environmental Protection Act 1986 (WA), under this act, environmental assessments of mining proposals are governed by a referral-based system that integrates public participation at multiple stages. Section 38 allows proponents, public authorities, or the Minister to refer proposals likely to have a significant environmental effect to the Environmental Protection Authority (EPA). Once a proposal is referred, the EPA must determine whether to assess it and at what level. Section 40 empowers the EPA to require the proponent to conduct an environmental review and submit a report addressing the project's likely environmental impacts. [25] These assessment procedures are structured in the Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2021, issued pursuant to Section 122 of the Act.[26] The procedures formally define assessment types, including the Public Environmental Review (PER), which is typically applied to projects with complex or significant environmental risks.[27]

When a PER is required, the proponent must prepare an Environmental Review Document (ERD) in accordance with a scoping document issued by the EPA.[28] The ERD is then made available for public review, typically for four to twelve weeks, during which any

[23] Government of Western Australia, "Assessment Bilateral Agreement," last updated May 19, 2023, https://www.wa.gov.au/service/environment/environment-information-services/assessment-bilateral-agreement.
[24] Bond, Tim. "The World's New Largest Lithium Mine." *Australian Resources & Investment*, August 8, 2023. https://www.australianresourcesandinvestment.com.au/2023/08/08/the-worlds-new-largest-lithium-mine/.
[25] Environmental Protection Act 1986 (WA). Government Gazette of Western Australia, version [09-u0-01], 2023, sec. 40, 64-67. https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_46881.pdf/$FILE/Environmental%20Protection%20Act%201986%20-%20%5B09-u0-01%5D.pdf?OpenElement.
[26] *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2021*. Environmental Protection Authority of Western Australia, published under sec. 122 of the *Environmental Protection Act 1986*, page 4799, https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Environmental%20Impact%20Assessment%20Administrative%20Procedures%202021.pdf.
[27] Ibid., Section 2.3.1, 4805.
[28] Ibid., sec. 3.1.2, 4809.

member of the public may submit written comments. Under Section 40(6)(b), the EPA may require the proponent to formally respond to public submissions.[29] The EPA considers both the ERD and public feedback before issuing its final report and recommendations to the Minister. In less complex cases, the EPA may determine that an Assessment on Proponent Information Category A (API-A) is sufficient, which relies on existing data and may bypass public exhibition unless deemed necessary.[30]

Public transparency is further reinforced through the EPA's duty to maintain a public record under Section 39, which includes the level of assessment and other procedural milestones.[31] Section 40(5) authorizes the EPA to publish environmental reports for public comment and determine the period and format of submissions.[32] Taken together, this framework reflects a structured and legally binding commitment to procedural environmental democracy at the state level, ensuring that public participation meaningfully influences the environmental assessment and approval process for mining projects.

B.2.4. Public Participation in Indonesia's Mining Assessment

Indonesia's environmental governance framework exhibits clear procedural recognition of public participation through the Environmental Impact Assessment (AMDAL) regime. Under Law Number 32 of 2009, any business or activity with significant environmental impact is required to prepare an AMDAL document as a precondition for environmental feasibility and subsequent business licensing.[33] Article 24 formally establishes the AMDAL as the legal foundation for issuing an Environmental Feasibility Decision (*Keputusan Kelayakan Lingkungan Hidup*). However, the amendment introduced by Law Number 6 of 2023 significantly restructured this framework by centralizing the assessment process under a feasibility testing team (*tim uji kelayakan lingkungan hidup*) appointed by the central government.[34] While this centralization may standardize national environmental oversight, it

[29] *Environmental Protection Act 1986* (WA), sec. 40(6)(b), 66.
[30] *Ibid., sec. 2.3.1, 4805.*
[31] *Environmental Protection Act 1986* (WA), sec. 39, 64.
[32] Ibid., sec. 40(5), 65.
[33] Law No. 32 of 2009 on Environmental Protection and Management, *State Gazette of the Republic of Indonesia* Year 2009 No. 140, Supplement to the State Gazette No. 5059. https://peraturan.bpk.go.id/details/38771/uu-no-32-tahun-2009
[34] Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation as Law.

arguably reduces the proximity and responsiveness of decision-making to local environmental conditions and affected communities, thereby limiting the scope for meaningful public influence.

Article 25 of the amended law, which defines the substantive content of the AMDAL, further illustrates a weakening of participatory norms. The original provision required proponents to include broad community input and public responses. The amended version now limits this requirement to "relevant input from directly affected communities,"thereby excluding observers such as environmental NGOs, researchers, and the general public who may possess technical knowledge or represent broader public interests. Article 26 follows the same logic of restriction by affirming that public involvement must be limited to those "directly affected" ("*terkena dampak langsung*"), shifting away from the original formulation that included environmental observers and indirectly affected parties.[35] This narrowing of stakeholder eligibility undermines the inclusivity and representativeness of public participation and significantly curtails the democratic character of AMDAL processes.

Additionally, Article 27 permits project proponents to outsource the preparation of AMDAL documents to third parties. This is reinforced by Article 28, which mandates that all AMDAL preparers hold government-issued competence certifications.[36] While professionalization is desirable, the reality that AMDAL consultants are funded and selected by the very project proponents they are tasked to evaluate introduces an inherent conflict of interest. This not only casts doubt on the independence of impact assessments but also reinforces a transactional compliance culture wherein AMDAL become mere administrative checkboxes rather than substantive tools for safeguarding environmental and community interests.

Moreover, while the legal text mandates transparency (as seen in Article 39) and links environmental permits to business permits (Article 40), enforcement in practice is highly inconsistent. Environmental permits are often issued before AMDAL assessments are properly scrutinized, and affected communities are left with little recourse even when procedural irregularities are evident. Legal objections under Article 26(4) allowing the public to file

[35] Ibid., arts. 25–26.
[36] Ibid., arts. 27–28.

objections against an AMDAL are rarely successful and suffer from administrative delays, limited legal standing, and lack of accessible remedies.

B. 3. Policy Recommendations

Based on the comparative analysis of environmental governance in Australia and Indonesia, several practical policy improvements can enhance Indonesia's public participation and environmental oversight mechanisms in mining approvals:

Firstly, Indonesia should clearly establish a legally enforceable framework for public participation. Expanding the AMDAL process to formally include environmental NGOs, academics, and indirectly impacted communities would encourage broader stakeholder engagement, resulting in more comprehensive and credible environmental assessments.

Secondly, addressing conflicts of interest in AMDAL document preparation is crucial. The Indonesian government could introduce an independent oversight body responsible for appointing qualified environmental consultants, thus ensuring assessments remain unbiased and genuinely focused on environmental protection rather than merely satisfying procedural requirements.

Thirdly, Indonesia would benefit from introducing flexible governance provisions similar to Australia's adaptive management approach under Section 143 of the EPBC Act. Allowing authorities to update or adjust approval conditions based on new ecological data or compliance issues would greatly improve the ongoing environmental management of mining projects.

Fourthly, promoting transparency through public accessibility of environmental assessment documentation and decision-making processes is essential. Indonesia could create publicly available online registries that detail project evaluations, public comments, and environmental impact reports, enhancing trust and accountability in governance.

Lastly, enforcing stricter legal and regulatory sequences—ensuring AMDAL evaluations are completed before issuing any environmental or business permits—would significantly reduce procedural irregularities. Clear legal safeguards and consistent implementation would provide affected communities and stakeholders with reliable avenues for seeking redress or raising concerns.

Adopting these recommendations will help align Indonesia's environmental governance practices with recognized international standards, improving sustainability outcomes and public trust.

C. Conclusion

Indonesia's aspiration to become a leading global hub for electric vehicle (EV) production is underpinned by its abundant nickel reserves. However, this ambition is increasingly challenged by both the global transition toward lithium-based battery chemistries and Indonesia's persistent weaknesses in environmental governance. The comparative analysis presented in this article demonstrates that while Indonesia possesses a comprehensive legal framework for mining regulation, it lacks the institutional enforcement capacity, financial safeguards, and participatory mechanisms necessary to ensure sustainable outcomes. In contrast, Australia's regulatory regime characterized by robust enforcement institutions, mandatory rehabilitation bonding, and inclusive public participation offers a credible model for balancing mineral development with environmental protection. The study finds that Indonesia's current environmental laws are insufficiently deterrent, fragmented in execution, and poorly enforced across decentralized jurisdictions. The absence of a centralized rehabilitation fund, weak post-mining oversight, and narrow legal standing for environmental litigation contribute to long-term ecological degradation and undermine public trust. Furthermore, recent legislative amendments that restrict public consultation and limit access to environmental information signal a troubling shift away from participatory governance.

To address these deficiencies, this research proposes a set of reform strategies, including the escalation of administrative and criminal sanctions, the establishment of a national rehabilitation bond mechanism, the creation of an independent environmental supervisory body, and the expansion of legal standing for public interest litigation. In addition, reforms to Indonesia's licensing procedures, oversight platforms, and participatory rights are essential to align with global ESG standards and investor expectations. By adopting these measures, Indonesia can move toward a governance model that is not only legally coherent but also socially legitimate and environmentally resilient. As the country explores the potential of its lithium resources, it has the opportunity to avoid repeating the governance failures of its

nickel sector and instead position itself as a sustainable, trusted supplier within the future global EV value chain.

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