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The influence of Sino-US geopolitical competition in green supply chains and climate finance on Indonesia's energy transition

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Abstract. As China increasingly dominates global clean energy supply chains and critical mineral processing, it continually strives with established powers, particularly the USA, for greater international influence in shaping the emerging green economic order. Indonesia, as a regional power and the most crucial player in Southeast Asia's energy landscape, must balance these competing foreign influences during its complex energy transition. This paper analyzes the influencing mechanisms of Sino-US strategic competition—specifically through the lenses of critical mineral investments (such as nickel down streaming) and international climate finance (such as the Just Energy Transition Partnership, JETP). By examining relevant policies and case studies, this research investigates how this geopolitical rivalry exerts dual influences on Indonesia's project selection, domestic structural reforms, and strategic policymaking. Ultimately, this analysis provides insights into how developing "middle powers" can navigate great power competition to secure an autonomous, just, and sustainable path for energy transition.

Keywords: clean energy supply chains, Sino-US competition, Indonesian energy transition, critical minerals, geopolitics

1. Introduction

Amid the accelerating trend of the global energy transition, Indonesia faces multiple strategic challenges as a regional power and a developing nation. Its strategic position has become increasingly pivotal as the Sino-US geopolitical game in Southeast Asia intensifies. Indonesia possesses abundant renewable energy potential—particularly in solar, geothermal, and hydropower—as well as the world's largest reserves of nickel, a critical mineral indispensable for the global Electric Vehicle (EV) battery supply chain [1]. However, translating this vast natural wealth into a sustainable and decarbonized economy is severely constrained by domestic structural barriers, including a profound historical reliance on coal revenues and a lack of advanced technological and financial capacity [2].

As the urgency to combat global warming drives a worldwide shift away from fossil fuels, the transition is no longer merely an environmental or technological issue; it has become a core arena for great power

competition. The crux of this dispute lies in who will control the green supply chains, dictate investment norms, and dominate the future energy landscape. China has rapidly expanded its influence in Indonesia through massive Foreign Direct Investment (FDI) in critical mineral processing and clean energy infrastructure, leveraging its capital, speed, and technological efficiency [3]. Conversely, the United States and its Western allies are attempting to counterbalance this influence through multilateral climate finance mechanisms, such as the Just Energy Transition Partnership (JETP) [4], which emphasize stricter Environmental, Social, and Governance (ESG) standards and aim to accelerate the phase-out of coal.

For Indonesia, this Sino-US competition presents both unprecedented opportunities and profound dilemmas. On one hand, foreign capital and technology are desperately needed to realize its ambitious target of Net-Zero Emissions (NZE) by 2060. On the other hand, over-reliance on a single power risks geopolitical vulnerability, while navigating conflicting international standards and financing conditions complicates domestic policymaking.

This paper will briefly analyze how the Sino-US competition over green supply chains and climate finance affects Indonesia's energy policies, international cooperation projects, and its domestic technological path. It will explore how these foreign influences create both challenges and opportunities for realizing Indonesia's carbon neutrality goals. By doing so, this research aims to enrich the study of the interaction between green geopolitics and domestic political economy, providing a decision-making reference for Indonesia and other developing nations seeking to balance foreign cooperation while enacting an autonomous and just energy transition strategy.

2. Literature review

The energy transition in Indonesia is characterized by a profound tension between ambitious national climate targets and deeply entrenched structural dependencies on fossil fuels. Multiple studies highlight that despite commitments to achieve Net-Zero Emissions (NZE) by 2060 and increase the share of renewable energy [5]; Indonesia's power sector remains heavily locked into coal [6]. This lock-in is driven by a combination of domestic political economy factors, including the fiscal reliance on coal revenues, pervasive fossil fuel subsidies, and the monopolistic structure of the state utility PLN, which structurally disadvantages renewable energy competitiveness. Research utilizing energy system modeling (such as LEAP-OSeMOSYS) demonstrates that without aggressive policy interventions—such as a moratorium on new coal plants, substantial carbon pricing, and comprehensive market reforms—the country will fail to meet its decarbonization goals [7]. While scenarios indicate that a rapid scale-up of renewables (particularly solar) is technically and economically feasible, the transition is hindered by fragmented policy implementation, regulatory uncertainty, and a lack of alignment between high-level political promises and actionable, transparent planning [8].

Concurrently, Indonesia's energy transition is deeply embedded in the complex geopolitics of critical minerals, particularly nickel, which is essential for the global Electric Vehicle (EV) supply chain. some literatures critically examine Indonesia's "downstreaming" policies and resource nationalism, which have successfully attracted massive foreign direct investment, predominantly from China [9]. However, scholars argue that this boom has created "nationalist enclaves" characterized by severe environmental degradation, labor exploitation, and unequal wealth distribution that primarily benefits a narrow coalition of domestic politico-business oligarchs and foreign capital [10]. Furthermore, this dynamic has drawn Indonesia into the center of US-China strategic competition. While Indonesia attempts to practice "active alignment" or hedging to maximize economic gains, its deep integration into Chinese-dominated supply chains exposes it to

geopolitical risks and complicates its relations with Western partners who impose stricter Environmental, Social, and Governance (ESG) standards [11]. The US and other Western nations face significant strategic dilemmas in navigating this landscape, often finding their diversification efforts constrained by their own regulatory frameworks and the entrenched efficiency of Chinese operations in Indonesia.

International cooperation and climate finance play a pivotal role in bridging the gap between Indonesia's transition ambitions and its domestic constraints. Mechanisms such as the Just Energy Transition Partnership (JETP) [12] and the Energy Transition Mechanism (ETM) [13] are frequently analyzed as critical levers for mobilizing the billions of dollars required to accelerate coal retirement and scale up renewable infrastructure. Studies emphasizing the role of international agencies, like USAID, illustrate how targeted technical assistance can improve regulatory frameworks and build institutional capacity [14]. However, the literature also points out significant shortcomings in these international financing schemes. Much of the promised international capital comes in the form of loans rather than grants, which, combined with Indonesia's rigid Power Purchase Agreements (PPAs) and subsidized electricity tariffs, makes the financial viability of early coal phase-outs highly challenging [15]. Consequently, while international partnerships are essential, their success is contingent upon Indonesia undertaking deep domestic structural reforms to create a more attractive and predictable investment climate.

In conclusion, the synthesized literature underscores that Indonesia's path to net-zero is not merely a technical or economic challenge, but a deeply political one shaped by both domestic oligarchic interests and global geopolitical rivalries. To move from performative progress to substantive decarbonization, Indonesia must reconcile its economic growth imperatives with sustainable practices. This requires dismantling fossil fuel subsidies, reforming power sector procurement, and ensuring that the exploitation of transition minerals does not replicate historical patterns of resource extraction. Furthermore, as a "middle power", Indonesia must strategically leverage its critical mineral wealth and geopolitical position to foster constructive international cooperation [16], ensuring that global competition accelerates rather than hinders its transition to a clean, secure, and equitable energy future.

3. Methodology

This study investigates how the geopolitical competition between China and the United States, manifested through their distinct approaches to green supply chains and climate finance, influences Indonesia's energy transition. To unravel the complex causal mechanisms and interactive processes at the heart of this inquiry, the research employs a quantitatively-informed qualitative design. This approach is centered on an embedded comparative case study, supplemented by the analytical techniques of process tracing and discourse analysis of multi-source textual data.

3.1. Research design: an embedded comparative case study

The research is structured as an embedded single-case study, a design well-suited for in-depth investigation of a contemporary phenomenon within its real-world context. Indonesia is selected as a crucial case, as it stands at the confluence of the global reconfiguration of critical mineral supply chains and the international politics of climate finance, making it a critical arena for observing great power competition. Within the macro-case of Indonesia, two highly representative and contrasting sub-cases are embedded as the primary units of analysis. The first sub-case examines the Chinese-led downstreaming of Indonesia's nickel industry, representing a "developmentalist" intervention model centered on Foreign Direct Investment (FDI) and industrial capacity cooperation. The second sub-case focuses on the U.S. and European-led Just Energy Transition Partnership

(JETP), which epitomizes a "normativist" approach that utilizes multilateral climate finance and policy conditionality as its core instruments. By conducting a structured, focused comparison of these two sub-cases, this study effectively controls for country-level variables, thereby enabling a precise analysis of the differential impacts that Chinese and Western intervention tools have on domestic actors and policy outcomes in Indonesia.

3.2. Data collection: triangulation of multi-source data

To ensure analytical rigor and construct a robust evidentiary foundation, this study employs a data triangulation strategy. This method systematically cross-references quantitative datasets, official policy documents, and authoritative third-party reports, with all data sourced from publicly available and reputable channels to ensure transparency and replicability. Quantitative data streams are utilized to establish macroeconomic trends and scale. The analysis is further grounded in core policy documents, such as Indonesia's legal texts on its nickel export bans and the comprehensive text of the JETP's Comprehensive Investment and Policy Plan (CIPP). Finally, to reconstruct the process of strategic interaction, the study draws on corporate disclosures from key firms and in-depth assessment reports from authoritative think tanks like the Center for Strategic and International Studies (CSIS) and the Institute for Energy Economics and Financial Analysis (IEEFA), which serve as crucial secondary process data.

3.3. Data analysis methods

The study employs process tracing to open the "black box" of causality between great power influence and domestic policy shifts. This is achieved by constructing a detailed chronology of events that links key inflection points in quantitative data, such as surges in FDI, with the timing of specific policy enactments. For instance, in the nickel case, the analysis traces the dynamic feedback loop from Indonesia's export ban to the influx of Chinese capital and the subsequent adjustments in Indonesian regulatory standards. In the JETP case, the method tracks the bargaining process from the initial funding pledge to the emergence of inter-ministerial conflicts and the eventual compromise reflected in the final CIPP document. As a complement to this, the research conducts textual and discourse analysis of collected policy documents, public speeches by officials, and media statements. This analysis focuses on how different actors frame their "green transition" narratives. By comparing the discourse used by Indonesian officials when discussing Chinese investments—often emphasizing terms like "value-added" and "industrialization"—with the language used in response to JETP conditionalities—such as "sovereignty" and "equitable burden-sharing"—the study infers the Indonesian government's strategic preferences and coping mechanisms when navigating different forms of external pressure.

3.4. Limitations and mitigation strategies

The primary limitation of this research is the absence of primary interviews with senior Indonesian officials or corporate executives, which may result in a lack of insight into certain closed-door negotiation details. To mitigate this limitation, the study adopts a stringent cross-verification strategy. Any inference regarding motivations or decision-making processes is not based on a single source, but must be substantiated by a chain of evidence that is mutually reinforcing across official policy texts, quantifiable investment or trade data, and the analytical reports of at least two independent think tanks. This desk-based research approach, founded on the triangulation of multi-source objective data, ensures the objectivity of the conclusions and establishes a high degree of scholarly replicability for the findings.

4. The dual influence of Sino-US competition

4.1. Case study 1: the Chinese "developmentalist" model – driving nickel downstreaming

This section analyzes the first embedded case study: the Chinese-led investment in Indonesia's nickel downstreaming industry. It demonstrates how China's "developmentalist" model, characterized by massive Foreign Direct Investment (FDI) and industrial capacity cooperation, has profoundly shaped Indonesia's energy transition trajectory. This model's success hinges on a unique strategic alignment between Indonesia's assertive resource nationalism and China's urgent need to secure its global Electric Vehicle (EV) supply chain. By applying process tracing and discourse analysis, we can unpack the genesis, implementation, and inherent contradictions of this symbiotic relationship.

4.1.1. The genesis: Indonesia's resource nationalism and China's strategic alignment

The explosive growth of Chinese investment in Indonesia's nickel sector was not a spontaneous market phenomenon but the direct outcome of a calculated convergence of national strategies. Indonesia's path toward this outcome was paved by a deliberate, decade-long policy progression. The legal foundation was laid by Law No. 4 of 2009 on *Mineral and Coal Mining* (the "Minerba Law"), which, in its Article 103, mandated that all mining commodities be processed and refined domestically before export [17]. This marked the birth of the state-led downstreaming (*hilirisasi*) agenda. After a period of policy adjustments, including a preliminary ban in 2014 and a partial relaxation in 2017, the decisive moment came with *ESDM Regulation* No. 11 of 2019. This regulation brought forward a comprehensive ban on all nickel ore exports to January 1, 2020, effectively closing the door on raw material exports and creating a powerful incentive structure that compelled foreign investors to build processing facilities within Indonesia [18].

The impact of this policy was immediate and dramatic, as illustrated by trade data from the UN Comtrade database (shown in Table 1). Following the 2020 ban, Indonesia's exports of nickel ores and concentrates (HS Code 2604) plummeted to virtually zero [19]. In stark contrast, exports of processed nickel products, primarily ferro-nickel (HS Code 720260), surged exponentially. This radical inversion of trade patterns provides quantitative evidence of the export ban's success in fundamentally restructuring Indonesia's role in the global nickel value chain—from a mere supplier of raw materials to a major producer of intermediate and refined products.

This policy-driven industrial shift created the fertile ground for a perfect strategic symbiosis with China. Indonesia's motivations were deeply rooted in a nationalist economic vision, consistently articulated by its top leadership. President Joko Widodo framed the policy as a cornerstone of "economic transformation", declaring in 2020, "We must put an end to [raw material] exports... otherwise, we will be played by the market", and invoking the nationalist ideal of being "self-reliant in economy" [20] (*berdikari di bidang ekonomi*). Similarly, Coordinating Minister Luhut Pandjaitan emphasized the goal to "generate added value in our own country by building a strong downstream industry" [21]. As scholar Eve Warburton argues, this discourse reflects a political economy where domestic politico-business elites leverage resource nationalism to consolidate control and capture greater value from the nation's natural wealth [22].

Simultaneously, China's strategic objectives perfectly complemented Indonesia's ambitions. *China's New Energy Vehicle Industry Development Plan (2021–2035)* positions the EV sector as a "strategic cornerstone" for becoming a "globally competitive automotive power" [23], creating immense pressure for Chinese firms to secure stable, long-term supplies of critical inputs like nickel. Furthermore, under the umbrella of the Belt and Road Initiative (BRI), China actively promotes "international production capacity cooperation" [24], linking its industrial and financial advantages with the development needs of host countries. Consequently, Chinese companies like Tsingshan and Huayou Cobalt [25], backed by state policy and capital, were perfectly

positioned to provide the technology, financing, and speed needed to build the smelters and industrial parks that Indonesia's policy demanded. In conclusion, the genesis of China's advantages in Indonesia's nickel industry was a powerful symbiosis: Indonesia's resource nationalism created the demand for massive industrial investment, while China's strategic need for supply chain security provided the supply of capital and technology, fundamentally reshaping the global nickel landscape [26].

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Figure 1. Indonesia's nickel strategy

Table 1. The transformative impact of Indonesia's nickel ore export ban on trade structure

Year	Raw Material: Nickel Ore (HS 2604)	Processed Product: Ferro-nickel (HS 720260)
	Export Value (USD)	Export Value (USD)
2014	$85,913,010	$292,133,409
2015	Data not available	$330,332,112
2016	Data not available	$571,298,623
2017	$155,189,439	$1,331,356,652
2018	$628,026,535	$1,360,996,320
2019	$1,097,012,524 (Peak)	$2,595,556,909
2020 (Ban takes effect)	$117 (Collapses)	$4,738,860,405 (Begins to surge)
2021	$43	$7,087,354,344
2022	$29	$13,621,349,383
2023	$239	$15,290,347,076
2024*	$14,906	$14,061,458,714
2025*	$274	$16,385,066,732

4.1.2. From policy to practice: Chinese firms as engines of Indonesia's downstreaming agenda

The strategic alignment between Indonesia's resource nationalism and China's global supply chain ambitions was not merely a top-level diplomatic agreement; it was operationalized on the ground by a cohort of leading Chinese corporations. These firms acted as the primary engines, translating high-level national policy into tangible industrial reality. A detailed examination of key players, particularly Tsingshan Holding Group and Huayou Cobalt, reveals a consistent pattern of deep, symbiotic integration. Their corporate investment strategies were meticulously designed not only to align with but also to capitalize on Indonesia's "downstreaming" (hilirisasi) mandate—the national policy prohibiting the export of raw nickel ore to compel in-country value addition. This corporate-level execution provides a granular view of how the broader geostrategic symbiosis was concretely implemented, transforming a remote Indonesian province into a linchpin of the global Electric Vehicle (EV) supply chain.

4.1.3. The contradictions of the "developmentalist" model: environmental and social costs

While the Chinese "developmentalist" model has undeniably driven Indonesia's economic transformation, its rapid, large-scale implementation has generated significant negative externalities. These costs, particularly environmental degradation and social tensions, create a critical tension within the model and provide a strategic opening for the competing U.S. "normative" approach, which emphasizes Environmental, Social, and Governance (ESG) standards.

The most acute environmental contradiction lies in the energy source powering this industrial boom. The hydrometallurgical High-Pressure Acid Leach (HPAL) process, essential for producing battery-grade nickel from Indonesia's abundant laterite ore, is highly energy-intensive. To meet the massive electricity demand, the industrial parks have built extensive captive coal-fired power plants. According to a 2023 report by the Institute for Energy Economics and Financial Analysis (IEEFA), IMIP alone had installed over 5,000 MW of captive coal power capacity, with additional plants under construction [30]. This reliance on coal directly contradicts Indonesia's climate commitments under the Paris Agreement and its Just Energy Transition Partnership (JETP) pledge to peak power sector emissions by 2030. The IEEFA report estimates that the nickel processing industry's coal-fired captive plants could emit large amounts of CO2 annually by 2030 [31],

potentially making Indonesia's nickel sector one of the world's largest industrial carbon emitters. This "green" product, therefore, has a significant "brown" footprint, a paradox that undermines the environmental rationale for the global EV transition.

At the heart of this transformation is the Indonesia Morowali Industrial Park (IMIP), a sprawling 3,200-hectare complex in Central Sulawesi. The park's very inception is a testament to the synergy between Indonesian policy and foreign capital. Its development, formally initiated in 2013, was a direct corporate response to Indonesia's impending raw ore export ban. The park is managed through a powerful joint venture structure that braids together Chinese industrial might and Indonesian local influence. According to the Environmental Justice Atlas (EJAtlas), the key stakeholders are Shanghai Decent Investment, a subsidiary of China's privately-owned Tsingshan Holding Group, and the local Indonesian mining conglomerate, Bintang Delapan Group. After accounting for cross-shareholdings, Tsingshan effectively controls approximately 66.25% of IMIP, with Bintang Delapan holding the remainder [32]. This partnership model ensures the venture is deeply embedded within the local context while being driven by foreign capital and technology.

Tsingshan Holding Group, the world's largest stainless-steel producer, stands out as the principal architect and anchor investor of the IMIP. Its role transcends that of a mere financier; it has been the visionary and operational leader shaping the park's entire development trajectory. Beginning with its initial partnership with Bintang Delapan in 2009, Tsingshan laid the groundwork for what would become the world's largest integrated nickel processing base. The scale of this commitment is staggering. By 2023, cumulative investment in IMIP had created a massive economic footprint, generating over 80,000 direct jobs, with approximately 90% held by Indonesian workers, according to IMIP's 2023 Sustainability Report.

This strategic shift is best exemplified by the establishment of PT QMB New Energy Materials, a consortium that includes Tsingshan, battery giant CATL, and recycling leader GEM. The project utilizes advanced High-Pressure Acid Leaching (HPAL) technology to process low-grade laterite ore into high-purity nickel and cobalt chemicals essential for EV battery cathodes. This move was a direct and sophisticated response to Indonesia's call for full-chain industrial localization. By creating a comprehensive industrial ecosystem—complete with its own port, airport, and a captive power grid of over 3 GW of coal-fired capacity—Tsingshan has not just built factories; it has constructed a self-contained, vertically integrated supply chain hub [32].

While Tsingshan engineered the broad ecosystem, Huayou Cobalt, a leading global producer of battery materials, executed a more specialized but equally critical strategy. Huayou's flagship investment, PT Huayue Nickel Cobalt (HNC), is another HPAL project designed specifically to produce high-value battery precursors like Mixed Hydroxide Precipitate (MHP) [32]. This vertical integration strategy is not just a commercial advantage for Huayou; it is a tangible enactment of the hilirisasi policy, securing a stable supply of critical raw materials while contributing to Indonesia's goal of moving up the value chain.

This powerful synergy at the corporate level is not an isolated phenomenon; it is underpinned by broader geopolitical frameworks. Analysis from institutions like the Carnegie Endowment for International Peace confirms this view, identifying IMIP as a flagship "national strategic project" for Indonesia [33], realized through collaboration with Chinese capital. Frameworks like China's Belt and Road Initiative (BRI) provided the institutional and financial channels for this massive wave of investment, which included policy banks like the China Development Bank and the Export-Import Bank of China. This reinforces the argument that the partnership is a product of deliberate state-level interaction where the national objectives of both countries converge: Indonesia sought to industrialize its resource wealth, while its partners sought to secure the critical raw materials needed for green technology manufacturing.

For another side, While Tsingshan engineered the broad industrial ecosystem, Huayou Cobalt, a leading global producer of lithium-ion battery materials, executed a more specialized but equally critical strategy within IMIP. Huayou's investments were laser-focused on securing the upstream resources necessary for the EV battery value chain and establishing advanced processing capabilities to serve global markets [34].

Huayou's flagship investment in IMIP is PT Huayue Nickel Cobalt (HNC), another HPAL project developed in partnership with Tsingshan and other investors. This facility was specifically designed to produce high-value battery precursors, with a planned annual capacity of 36,000 tons of nickel and 4,500 tons of cobalt in the form of Mixed Hydroxide Precipitate (MHP). This output directly feeds the next stage of the battery manufacturing process, positioning Indonesia as a critical supplier for the world's leading battery makers. The company's public statements and strategic actions consistently emphasize a dual-pronged approach that aligns perfectly with Indonesia's objectives. First, by investing heavily in upstream processing in Indonesia, Huayou secures a stable, long-term supply of critical raw materials, mitigating supply chain risks and enhancing its cost competitiveness. Second, by building sophisticated downstream capacity for battery-grade materials, it directly contributes to Indonesia's goal of moving up the value chain. This vertical integration strategy is not just a commercial advantage for Huayou; it is a tangible enactment of the hilirisasi policy.

Furthermore, Huayou actively engages in positioning itself as a responsible and aligned partner. The company's participation in high-level policy dialogues, such as the Indonesia International Minerals and Metals Summit, serves as a platform to showcase its commitment to green manufacturing and sustainable practices. This public diplomacy is a deliberate effort to align its corporate identity with both Indonesian industrial policy priorities and the global demand for sustainable energy transition materials, thereby solidifying its strategic and social license to operate. This powerful synergy at the corporate level is not an isolated commercial phenomenon; it is underpinned and validated by broader geopolitical frameworks. Independent analysis from institutions like the Carnegie Endowment for International Peace, in its report "*How Indonesia Used Chinese Industrial Investments to Turn Nickel into the New Gold*" [33], confirms this view. The report identifies the IMIP as a flagship "national strategic project" for Indonesia, one that has been successfully realized through a strategic collaboration with Chinese capital and industry.

In essence, the actions of companies like Tsingshan and Huayou are the tangible manifestation of this strategic alignment. They are the intermediaries translating policy documents into operational realities—smelters, refineries, jobs, and exports. Through their targeted, large-scale investments, these corporations have transformed Indonesia's nickel endowment from a simple mined commodity into a cornerstone of the global EV supply chain.

4.2. Case study 2: the U.S. "normative" model – geoeconomic statecraft in a contested arena

In response to the rapid consolidation of the Sino-Indonesian nickel axis, the United States and its allies have deployed a counter-strategy rooted not in direct industrial competition, but in a sophisticated form of geoeconomic statecraft. This approach seeks to leverage normative power, financial instruments, and market access to reshape the rules of the game, thereby altering Indonesia's strategic calculus. This "normative" model is epitomized by the Just Energy Transition Partnership (JETP), a flagship initiative designed to offer a Western-led development pathway. However, as detailed in reports from institutions like the ISEAS - Yusof Ishak Institute and the Rocky Mountain Institute (RMI), the troubled negotiation of the JETP reveals a complex, multi-layered strategy that combines aspirational partnership with hard-edged economic pressure. This section dissects this strategy, analyzing the JETP as a contested arena where competing visions of development, justice, and sovereignty collide [35].

4.2.1. The promise and premise of JETP: a normative grand bargain

Announced with significant geopolitical fanfare at the 2022 G20 Summit in Bali, the Indonesia JETP was presented as a paradigm-shifting alternative to China's "developmentalist" model. Led by the U.S. and Japan, the International Partners Group (IPG) pledged a landmark $20 billion in financing to catalyze Indonesia's decarbonization [36]. The premise was a grand bargain: in exchange for adopting a development trajectory aligned with Western norms—high ESG standards, transparent governance, and ambitious climate targets—Indonesia would gain access to the capital and technology required for a green transition.

This was a direct normative assault on the foundational logic of Indonesia's nickel boom: its reliance on captive coal-fired power plants. The JETP's core objectives, enshrined in the joint statement and later detailed in its Comprehensive Investment and Policy Plan (CIPP), included peaking power sector emissions by 2030 at 250 million tons of CO2 (a reduction from the initial 290 Mt target) and accelerating the deployment of renewable energy. These goals were not merely technical; they were politically charged, aiming to dismantle the very energy infrastructure that made the Chinese-led nickel processing model economically viable. The JETP, therefore, was not just an environmental program; it was a geoeconomic tool designed to offer an "off-ramp" from a China-centric industrial path. It sought to weaponize the inherent contradiction of the existing model—the production of "green" battery materials with a massive carbon footprint—to create an opening for a Western-aligned alternative.

4.2.2. The anatomy of a stalemate: why the grand bargain faltered

Despite its ambitious vision, the JETP quickly descended from a symbol of global cooperation into a case study of post-colonial friction and geopolitical misalignment. The initial optimism evaporated, revealing deep-seated conflicts over financing, sovereignty, and the very definition of "justice". The protracted stalemate can be attributed to three critical failures.

Despite its ambitious vision, the JETP quickly descended from a symbol of global cooperation into a case study of post-colonial friction and geopolitical misalignment. The initial optimism evaporated, revealing deep-seated conflicts over financing, sovereignty, and the very definition of "justice". The protracted stalemate, as analyzed by both RMI and ISEAS, can be attributed to three critical failures.

First, a fundamental mismatch between the financing's structure and Indonesia's expectations. Jakarta's political elite initially perceived the $20 billion as a form of climate justice reparations or grant-based aid. This expectation was swiftly shattered. The ISEAS Institute's detailed breakdown of the public financing portion revealed a stark reality: for Indonesia, only 3% were grants and another 3% were concessional loans. A staggering 60% consisted of non-concessional commercial loans, with the remainder being equity and guarantees. This "debt-for-decarbonization" model was viewed not as a partnership, but as a financially unattractive proposition [4]. Coordinating Minister Luhut Pandjaitan publicly voiced his frustration, stating the terms were no better than what was available on the open market and questioning why Indonesia should take on debt to solve a global climate problem largely created by developed nations. This stands in stark contrast to the perceived no-strings-attached nature of Chinese capital.

Second, the irreconcilable conflict of interests and governance barriers within the Indonesian bureaucracy. The JETP negotiations exposed the deep fissures in Indonesia's state apparatus, a point emphasized by the RMI report. The Ministry of Energy and Mineral Resources (MEMR) was preoccupied with technical challenges and maintaining energy security. The fiscally conservative Ministry of Finance expressed deep reservations about increasing the state's debt burden. Most critically, the powerful Coordinating Ministry for Maritime and Investment Affairs (CMMIA), led by Luhut, saw the JETP's core conditionality—a moratorium on new captive coal plants—as a direct existential threat to his signature hilirisasi (downstreaming) policy. This policy's success was predicated on cheap, reliable energy for smelters, which only coal could provide at

the required scale and speed. The RMI report highlights that the JETP Secretariat lacked the authority to command the state utility PLN or coordinate across ministries, leading to internal fragmentation (see from Table 2). This dysfunction was laid bare when the initial CIPP draft was widely criticized for excluding captive coal plants from its emissions calculations—a loophole that would allow the nickel industry to build another 8.5 GW of off-grid coal power by 2030, rendering the JETP's climate goals meaningless.

Table 2. Breakdown of the Indonesia JETP pledge

Funding Type	Public Sector	Private Sector	Total Share	Key Issue for Indonesia
Pledged Amount	11 billion (increased from 10 billion)	10 billion	$21.4 Billion (Total increased)	Massive Funding Gap: An estimated $100 billion is needed by 2030 to meet JETP targets; the current pledge is just a starting point.
Available Funds	Approx. $3.1 Billion (mobilized and available)	Data not specified	Approx. $3.1 Billion	How to efficiently deploy available funds into priority projects
Funds Under Negotiation	Approx. $5.5 Billion (under negotiation for specific projects)	Data not specified	Approx. $5.5 Billion	Negotiation progress and project feasibility
Total Funds Linked to Projects	Combined $8.6 Billion (linked to projects)	Data not specified	$8.6 Billion	Ensuring smooth project implementation and actual emission reduction results
Leadership	Germany & Japan (co-leads) Members: Denmark, UK, Italy, Canada, Norway, France, EU	GFANZ (coordinating body)	-	Can Germany and Japan effectively coordinate resources after the US withdrawal?
Priority Projects	1. Saguling Floating Solar PV Plant 2. Muara Laboh Geothermal Power Plant 3. Legok Nangka Waste-to-Energy Plant 4. Sulawesi Corridor Transmission Network 5. South Sumatra Wind Power Plant 6. Diesel Power Plant Phase-Out Program	-	-	Financing and execution progress of priority projects
Implementation Mechanism	Establishment of the "Energy Transition and Green Economy Task Force" (Satgas TEH)	-	-	Can the task force effectively accelerate JETP and JETP 2.0 implementation?

Third, a profound clash over the definition of a "just" transition. For the IPG, "just" was framed through a liberal-institutionalist lens, entailing deep structural reforms: phasing out domestic coal subsidies (like the DMO policy), reforming the heavily indebted state utility PLN (saddled with Take-or-Pay contracts), and adopting stringent ESG standards. These were seen as necessary prerequisites for unlocking private capital. For Indonesia, however, "just" was rooted in a post-colonial, nationalist discourse of sovereignty and developmental rights. The IPG's demands were perceived as an infringement on national sovereignty and a neocolonial attempt to dictate domestic economic policy. Jakarta argued that a truly "just" transition must acknowledge the principle of "common but differentiated responsibilities", requiring developed nations to bear the financial burden. As the ISEAS report notes, this ideological chasm transformed the negotiations from a technical discussion about energy policy into a political struggle over Indonesia's right to define its own path to industrialization.

4.2.3. The IRA as the "big stick": coercive alignment where partnership failed

As the cooperative framework of the JETP faltered, the U.S. unsheathed a far more potent instrument of geoeconomic power: the *Inflation Reduction Act* (*IRA*). If JETP was the proverbial "carrot", the IRA is the unambiguous "stick", using market access as a powerful lever of coercion. The IRA's Section 30D provides a lucrative $7,500 tax credit for EV consumers, but with transformative strings attached. To qualify, a vehicle's battery must not contain critical minerals sourced from a "Foreign Entity of Concern" (FEOC)—a designation explicitly targeting Chinese state-influenced companies. This legislation created an immediate and existential crisis for Indonesia's nickel strategy, as the entire industrial edifice, built on Chinese capital and technology, was suddenly at risk of being locked out of the lucrative U.S. EV market.

This coercive pressure is forcing a strategic realignment that is palpable at the corporate level. The academic paper on the IRA's impact provides a compelling case study with PT ESG New Energy Material, a firm with a Chinese ownership stake [37]. To navigate the FEOC restrictions and gain IRA eligibility, PT ESG is actively pursuing a "full traceability" mechanism, including barcoded MHP packaging and ISO 14001 certification. Critically, it is also investing in R&D to reduce its reliance on coal, exploring biomass co-firing and developing next-generation HPAL technology. This corporate response demonstrates that the IRA's market-access leverage is a far more potent driver of behavioral change—compelling firms to adopt higher ESG standards and invest in cleaner technology—than the JETP's aspirational financing ever was.

The IRA's coercive power is further illuminated by quantitative modeling of its market impact. The academic paper's simulation shows that under a "business-as-usual" scenario, where Indonesian nickel remains non-compliant, its access to the premium EV market is severely limited. However, in a "strategic convergence" scenario—where Indonesian firms adapt to IRA/ESG standards—the model projects a dramatic increase in export value, potentially reaching 6.2 billion to 6.8 billion annually by 2030. This stark contrast illustrates how the IRA creates a powerful, non-negotiable economic incentive for Indonesian firms to decouple from Chinese-dominated, high-carbon production methods and align with U.S.-led "normative" supply chains.

This pressure has forced Indonesia back to the negotiating table with the U.S. for a limited Free Trade Agreement (FTA) on critical minerals—the only viable pathway for Indonesian nickel to gain IRA eligibility. Washington has made it clear that such a deal is conditional on Indonesia adopting the very same normative standards that caused the JETP to stall: stringent environmental and labor protections and supply chain transparency to prove non-FEOC origin.

In this way, the JETP and the IRA function as two sides of the same geoeconomic coin. The failure of the JETP demonstrated the limits of a cooperative, finance-led approach. Yet, the coercive market power of the IRA created the compelling incentive for Indonesia to re-engage with the U.S. standards-based agenda. The

strategy is a dual-track one: the aspirational partnership of JETP sets the normative benchmark, while the hard-edged market denial of the IRA provides the enforcement mechanism. This forces Indonesia into a deeply uncomfortable but unavoidable navigation between the readily available capital of China's developmentalism and the conditional but lucrative market access of America's normative demands.

4.3. Indonesia's strategic hedging: navigating the geopolitical tightrope

Faced with two competing and often contradictory models—China's capital-intensive, speed-driven developmentalism and the U.S.'s standards-based, security-oriented normativism—Indonesia has not chosen a definitive side. Instead, it has adopted a sophisticated and pragmatic hedging strategy. This approach, rooted in Indonesia's long-standing foreign policy principle of being "free and active" (bebas aktif), is designed to maximize benefits from both great powers while preserving its policy autonomy and advancing its core national interest: downstream industrialization (hilirisasi). This is not merely a passive balancing act but an active, calculated maneuver to transform external competition into internal developmental momentum. Crucially, this strategy is not just an external diplomatic posture; it is deeply embedded in the country's domestic political economy and the complex interplay of its elite coalitions.

4.3.1. The mechanics of hedging: diversifying partnerships and selectively adopting standards

The most visible manifestation of this hedging strategy is Indonesia's simultaneous and parallel engagement with both Chinese and Western actors. On one hand, Jakarta continues to embrace Chinese investment as the primary engine of its downstreaming agenda. The industrial parks in Morowali and Weda Bay, dominated by firms like Tsingshan and Huayou Cobalt, remain the backbone of the country's nickel processing capacity. President Joko Widodo's administration consistently defends this partnership as a pragmatic necessity for national economic transformation.

On the other hand, Indonesia has actively courted Western and other non-Chinese investors to diversify its portfolio and mitigate the risks of over-reliance. The landmark deal involving Ford Motor Company, PT Vale Indonesia, and Huayou Cobalt to build a new HPAL plant is a prime example [19]. By bringing a major U.S. automaker into a project alongside a Chinese partner, Indonesia signals its openness to Western capital and creates competitive pressure on existing investors. Beyond this, Jakarta is actively pursuing a multi-vector diversification strategy. It is strengthening cooperation with Australia on critical mineral supply chains, engaging with South Korean conglomerates like LG and Hyundai on battery manufacturing projects, and maintaining long-standing industrial partnerships with Japanese firms. This deliberate effort to build a web of relationships with various middle powers further demonstrates a calculated strategy of not putting all its eggs in one basket.

This dual-track approach extends to a nuanced negotiation over standards. When engaging with the U.S. through mechanisms like the JETP or critical mineral negotiations, Jakarta acknowledges the importance of ESG standards as a pathway to premium Western markets. However, it simultaneously resists what it perceives as intrusive conditionality, as seen in the protracted JETP negotiations. Conversely, Indonesia leverages the Western discourse on sustainability to demand higher standards from its Chinese partners, pressuring them to adopt cleaner HPAL technology and improve environmental practices. This allows Indonesia to present itself as a responsible global actor to a Western audience while using that same leverage to extract better terms from Chinese investors.

4.3.2. The domestic foundations and future of hedging: elite coalitions and political continuity

Indonesia's hedging strategy is not simply a product of astute diplomacy; it is a reflection and an outcome of the country's domestic political economy. The strategy is sustained by a powerful, yet internally diverse, elite coalition whose competing interests find a pragmatic equilibrium in this middle path. Within this coalition, a

powerful bloc of nationalist-developmentalist elites, often with ties to the military and resource-based oligarchs, champions the rapid industrialization enabled by Chinese capital. For this group, represented by figures like Coordinating Minister Luhut Pandjaitan, the speed, scale, and fewer conditionalities of Chinese investment are paramount to achieving the hilirisasi vision and consolidating national economic power. This faction is counterbalanced by a more internationalist business elite, whose interests are deeply intertwined with global financial markets and Western consumer brands. This group understands the critical importance of long-term market access to the West and therefore advocates for engagement with the U.S. and its allies, pushing for the adoption of ESG standards necessary to integrate into Western supply chains and avoid the risks of market exclusion posed by regulations like the IRA.

The hedging strategy thus serves as the political equilibrium point that accommodates the core interests of both factions. It allows the nationalist wing to pursue rapid industrial development with Chinese partners while simultaneously enabling the internationalist wing to keep the door open to lucrative Western markets. This domestic consensus, born from a confluence of competing interests rather than a unified vision, is what makes the strategy resilient and politically sustainable.

This resilience is expected to continue under the incoming administration of President-elect Prabowo Subianto. Prabowo has explicitly pledged to continue President Widodo's signature hilirisasi policy, signaling a strong continuity in national economic strategy. The potential retention of key figures like Luhut Pandjaitan in the new cabinet would further cement this policy trajectory. Therefore, the strategic imperative to hedge—to simultaneously embrace Chinese investment for production capacity while seeking Western validation for market access—is likely to remain the central pillar of Indonesia's foreign economic policy for the foreseeable future.

4.3.3. Risks and contradictions: walking a geopolitical tightrope

However, this sophisticated hedging strategy is fraught with significant risks. The most immediate challenge lies in the structural asymmetry between the two models. China's investment offers speed and scale, directly serving Indonesia's ambitious targets. In contrast, the U.S. model is often slower and more conditional. This creates a persistent "gravitational pull" toward the Chinese model, which offers immediate results, potentially leading to a "lock-in" to a Chinese-dominated supply chain despite diversification efforts.

The second major risk is the escalation of geopolitical pressure. Indonesia's strategy is most effective in an environment of manageable competition. If Sino-U.S. tensions escalate to a point where Washington demands a clear choice, Indonesia's room for maneuver could be severely constrained. The U.S. could tighten the IRA's FEOC provisions to exclude any nickel with significant Chinese involvement, effectively forcing a choice between its largest investor and its most lucrative potential market. In such a scenario, Indonesia's carefully calibrated balancing act could collapse. The country's ability to maintain its strategic autonomy ultimately depends not only on its own diplomatic skill and domestic political stability but also on the trajectory of the broader Sino-U.S. rivalry—a variable over which Jakarta has limited control.

5. Conclusion

5.1. Restatement of the core argument

This paper has argued that the intensifying Sino-U.S. competition over green supply chains and climate finance has not unilaterally dictated Indonesia's energy transition pathway. Instead, this great power rivalry has created a strategic space for Jakarta to maneuver. By skillfully implementing a hedging strategy rooted in its "free and active" foreign policy tradition, Indonesia has effectively transformed external competition into a

lever for its own national development. It has selectively absorbed and utilized elements from two competing paradigms—China's "developmentalism" and the U.S.'s "normativism"—to pursue its core national interest of downstream industrialization while navigating the complex demands of the global energy transition.

5.2. Summary of key findings

The analysis yielded several critical findings. First, it identified two fundamentally different models of influence. China's "developmentalist" model, driven by massive capital investment, rapid project execution, and industrial capacity cooperation, has been instrumental in realizing Indonesia's nickel downstreaming agenda, successfully catalyzing the nation's rapid industrialization in the global EV battery supply chain. In contrast, the "normativist" model of the United States and its allies employs a securitization narrative, the imposition of high Environmental, Social, and Governance (ESG) standards, and the strategic use of market access as its primary tools. This approach seeks not to out-invest China directly but to reshape the rules and governance structures of the global green supply chain.

Second, this research underscores Indonesia's significant strategic agency. Far from being a passive recipient of external pressures, Jakarta has executed a sophisticated hedging strategy. It has embraced Chinese investment to achieve its immediate industrial goals while simultaneously leveraging Western pressure on ESG standards and market access to compel industrial upgrading and pursue partnership diversification. The Ford-Vale-Huayou joint venture stands as a prime example of this multi-alignment, demonstrating Indonesia's capacity to operate as an indispensable node within competing supply networks.

Finally, the study highlights the inherent risks and contradictions within Indonesia's strategy. Its profound structural dependence on Chinese capital and technology creates a powerful gravitational pull, posing a long-term risk of "lock-in" that could undermine diversification efforts. Moreover, as geopolitical tensions escalate, particularly with the potential tightening of U.S. regulations like the IRA's Foreign Entity of Concern (FEOC) provisions, Indonesia's room for maneuver may shrink, potentially forcing it into the very "either/or" choice it has painstakingly sought to avoid.

5.3. Theoretical and policy implications

This case study offers significant implications for both theory and policy. Theoretically, it enriches our understanding of middle power agency in an era of great power competition. The Indonesian case demonstrates that middle powers endowed with critical resources and strategic geographic positioning are not merely "pawns" in a larger game. They can actively convert external rivalries into domestic developmental opportunities, thereby asserting and preserving their strategic autonomy. Furthermore, this research provides a vivid illustration of 21st-century geoeconomics, where the contest is no longer primarily over territory but over the control of supply chains, the setting of technical standards, and the governance of green finance. Indonesia's experience serves as a compelling case study of how states navigate and negotiate their positions within this new competitive landscape.

From a policy perspective, the findings offer valuable lessons for all parties involved. For Indonesia, a successful hedging strategy demands exceptional diplomatic skill and robust domestic governance. The foremost challenge ahead is to translate short-term geopolitical leverage into long-term, sustainable, and inclusive development, thereby avoiding a new variant of the "resource curse" driven by transition minerals. For the United States and its allies, relying solely on a security narrative and high standards is insufficient. To effectively compete with China's model, Western nations must offer investment packages that are more attractive and attuned to the developmental needs of countries like Indonesia, meaning they must couple high standards with speed, efficiency, and greater flexibility. Finally, for China, sustaining its

investment advantages requires an evolution beyond being a mere capital provider. It must proactively address ESG concerns, facilitate meaningful technology transfer, and foster deeper local community integration to counter the normative competition from the West and meet the rising expectations of host nations.

5.4. Avenues for future research

This study opens several avenues for future inquiry. With a new administration taking power in Indonesia, a critical question arises: will this strategic hedging policy continue, or will it be recalibrated? Furthermore, if the "decoupling" between the U.S. and China in critical mineral sectors intensifies, how will this compress the strategic space available to resource-rich nations? Future research could benefit from comparative case studies of other countries with vital resources, such as the Democratic Republic of Congo (cobalt) or Chile (lithium), to explore variations in state capacity and strategic responses. Finally, a more granular, micro-level analysis of the roles played by different domestic interest groups in Indonesia—including the military, business oligarchs, and environmental NGOs—would provide a deeper understanding of the internal dynamics shaping the country's geoeconomic strategy.

References

[1] Mubarok, M. W. S., & Kartini, E. (2024). Nickel diplomacy: Strengthening Indonesia's role in global battery and electric vehicles supply chain. *In AIP Conference Proceedings (Vol. 3213, No. 1, p. 020003)*. AIP Publishing LLC.

[2] Dutu, R. (2016). Challenges and policies in Indonesia's energy sector. *Energy Policy*, *98*, 513–519.

[3] Gammeltoft, P., & Tarmidi, L. T. (2013). Chinese foreign direct investment in Indonesia: Trends, drivers and impacts. International Journal of Technological Learning, *Innovation and Development, 6*(1-2), 136–160.

[4] Jazuli, M. R., Roll, K., & Mulugetta, Y. (2024). A review of Indonesia's JETP through the dynamics of its policy regime. *Global Policy, 15*(5), 989–1006.

[5] Massagony, A., Pandit, R., & White, B. (2025). Political economy of energy policy in Indonesia towards net zero emissions by 2060. *Energy for Sustainable Development*, *88*, 101757.

[6] Reyseliani, N., Pratama, Y. W., Hidayatno, A., Purwanto, W. W., & Dargusch, P. (2024). Power sector decarbonisation in developing and coal-producing countries: A case study of Indonesia. *Journal of Cleaner Production*, *454*, 142202.

[7] Budi, R. F. S., & Multanto, L. P. (2020, September). Achieving new and renewable energy target: A case study of java-bali power system, Indonesia. *In 2020 2nd International Conference on Smart Power & Internet Energy Systems (SPIES)*(pp. 560-565). IEEE.

[8] Larasati, K. K., & binti Yaakub, A. H. (2025). Challenges and Legal Strategies of Indonesia in Global Trade Agreements in the Era of Fragmentation. *LIBERATICA, 1*(1), 12–22.

[9] Ramadhani, E., & Paksi, A. K. (2025). The Price of Progress: An Assessment of Indonesia's Nickel Downstreaming Policy for the Global Energy Transition. *In BIO Web of Conferences(Vol. 199, p. 02002)*. EDP Sciences.

[10] Warburton, E. (2024). Nationalist enclaves: Industrialising the critical mineral boom in Indonesia. *The Extractive Industries and Society*, *20,* 101564.

[11] Iksan, M., & Soong, J. J. (2023). The political economy of Indonesia's development strategy under China-USA power rivalry and hegemonic competition: A middle power with its hedging strategy. *The Chinese Economy, 56*(4), 304–320.

[12] Wardhana, A. R., Aji, P., Prasetyo, K., & Muttahidah, S. A. (2024). Breakthrough on Indonesia's Energy Policy: Adaptive Governance Perspective for Just Energy Transition Partnership (JETP). *In Journal of Physics: Conference Series(Vol. 2828, No. 1, p. 012001)*. IOP Publishing.

[13] Mulia, A. H., Wukirasih, S., & Suryadinata, W. H. (2023). Whither Just Transition? A Case Study of Energy Transition Mechanism (ETM) Country Platform in Indonesia. *Global South Review, 5*(1), 31–46.

[14] Widad, R. N., Rahmawati, N. S. M., & Akmaluddin, M. C. (2026). Indonesia–US Partnership for Sustainable Renewable Energy (2022–2024): Promoting Sustainable Development and Green Economy. *PROIROFONIC, 1*(1), 511–519.

[15] Budi, R. F. S., & Hadi, S. P. (2022). Indonesia's deregulated generation expansion planning model based on mixed strategy game theory model for determining the optimal power purchase agreement. *Energy*, 260, 125014.

[16] Amin, K., Paramitha, D. I., Al Farauqi, M. D. A., & Iryani, M. I. (2024). Managing power rivalry: Indonesia's perspective and strategy in managing relations with China in the Indo-Pacific. *In Dynamics in the Indo-Pacific: From geopolitics and geoeconomics perspectives* (pp. 73–84).

[17] Evita, L. (2016). Transparency of Regulatory and Public Participation of Law Number 4 Year 2009 of Mineral and Coal Mining in Indonesia. Journal of Law, *Policy and Globalization*, *47*, 110.

[18] Ratnaningsih, E. (2022, September). Renewable Energy Policy to Achieve Sustainable Development Goals in Indonesia. *The 3rd Asia Pacific International Conference on Industrial Engineering and Operations Management.* https: //doi.org/10.46254/AP03.2022.20220583

[19] ChuanYu, J., Manurung, H., Anggara, F., & Setiawan, I. (2024). Indonesian nickel overview: potential, development and prospects. *In Conference of Metallurgists*(pp. 753–763). Springer Nature Switzerland.

[20] Office of Assistant to Deputy Cabinet Secretary. (2020, January 10). *Gov't Committed to Stop Raw Material Exports.* https: //setkab.go.id/en/govt-committed-to-stop-raw-material-exports/

[21] Rahmad Nasution, A. M. (2024, October 8). Luhut echoes Indonesia's halt in EV battery raw material exports. *Antara News*. https: //en.antaranews.com/news/328802/luhut-echoes-indonesias-halt-in-ev-battery-raw-material-exports

[22] Warburton, E. (2017). Resource nationalism in Indonesia: Ownership structures and sectoral variation in mining and palm oil. *Journal of East Asian Studies, 17*(3), 285–312.

[23] Li, X., Peng, Y., He, Q., Wang, H., & Zhang, Y. (2023). Development of new-energy vehicles under the carbon peaking and carbon neutrality strategy in China. *Sustainability, 15*(9), 7725.

[24] Wang, R., Lee, K. E., Mokhtar, M., & Goh, K. C. (2023). The transition of belt and road initiative from 1.0 to 2.0: Challenges and implications of green development. *Fudan Journal of the Humanities and Social Sciences, 16*(3), 293–328.

[25] Chen, S. (2021). The emerging role of chinese transnational corporations as non-state actors in transnational labour law. *Journal of Asian Sociology, 50*(1), 143–178.

[26] Rosada, F., Wibisana, R. A. A., & Paksi, A. K. (2023). The Impact of Indonesia-China Nickel Cooperations on Indonesia's Economy and Environment. *Nation State: Journal of International Studies, 6*(2), 96–116.

[27] Dinata, S., Iksan, M., Silaban, M., & Purwanto, E. (2020). *The Outcome of China's Investment in Indonesia: Lessons from the Nickel Industry*. Center For International Private Enterprise.

[28] Tela, I. A., & Yu, Z. (2025). Examining the global perception of nickel mining environmental impact: A case study of China-Indonesia public opinion on earth's sustainability. *In International Conference on Strategic and Global Studies (ICSGS 2024)*(pp. 22–42). Atlantis Press.

[29] Puspita, C. (2024). Indonesia's foreign policy in the nickel industry amidst US-China rivalry in clean energy investments. *In AIP Conference Proceedings(Vol. 3213, No. 1, p. 020004)*. AIP Publishing LLC.

[30] Hasan, K., GEM, G. E. M., Hummer, L., & Myllyvirta, L. (2024). *Indonesia's captive coal on the uptick.* The Centre for Research on Energy and Clean Air.

[31] Pereyra, J., Lou, J., Hilde, T., & Scurlock, E. (2024). *Mining, Manufacturing, and Markets*. University of Maryland.

[32] IMIP. (2023). *2023 Sustainability report.* Indonesia Morowali Industrial Park.

[33] Tritto, A. (2022). *How Indonesia used Chinese industrial investments to turn nickel into the new gold*. Carnegie Endowment for International Peace.

[34] Scungio, L. (2021). *China's global mineral rush: Learning from experiences around controversial Chinese mining investments*.

[35] Variza, B. N. A., & Priadarsini, N. W. R. (2025). Accelerating Renewable Energy: Analyzing United in Diversity (UID) as Collaboration with Rocky Mountain Institute (RMI) in Indonesia's Pursuit of Sustainable Development Goal 7. *AEGIS: Journal of International Relations, 8*(2).

[36] Selvaraju, S., Pratiwi, A., Sabogal Reyes, L., & Rojas, L. (2025). *Just Energy Transition Partnership grants and country platforms: lessons from Indonesia and South Africa.* London School of Economics and Political Science, LSE Library.

[37] Putri, S. L. N., Tayip, D. K., Xu, K., & Zhang, S. (2026). How the US Inflation Reduction Act Transforms Indonesia's Nickel Industry. Journal of Economics, *Business and Management, 14*(1), 15–20.