

Essay



IMIP Morowali as a National Strategic Project: The Political Economy of Nickel Downstream Industrialization in Indonesia

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Abstract

This paper analyses Indonesia's mineral downstream industrialization policy—specifically the downstreaming of nickel through the Indonesia Morowali Industrial Park (IMIP)—from a development political economy perspective. Drawing on a combined framework of second-generation resource nationalism, developmental state theory, and global value chain (GVC) analysis, the paper argues that IMIP as a National Strategic Project (NSP) represents an ambitious yet contradictory form of state intervention: one that has succeeded in driving significant structural transformation and regional industrialization, while simultaneously confronting formidable challenges in the form of technological dependency, constrained subnational fiscal capacity, environmental degradation, and the risk of becoming trapped at an intermediate processing stage—the so-called midstream trap. The paper maps the multi-dimensional dynamics of IMIP's transformation—spanning regional economic growth, labour markets, fiscal capacity, urbanization, and social integration—and identifies their implications for Indonesia's industrialization strategy towards Indonesia Emas (Golden Indonesia) 2045.

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1. Introduction

1.1 Context: The Resource Abundance Paradox and Industrialization

Indonesia holds approximately 52 per cent of the world's nickel reserves, making it the country with the largest endowment of strategic mineral resources globally. Yet the paradox accompanying this abundance is not new to the discourse of economic development. For several decades, Indonesia has depended on the export of raw materials—ranging from oil and gas to coal and mineral ores—while its domestic manufacturing base has remained shallow and the value added generated has flowed outward through processing chains located in more advanced economies. This condition reflects what the development literature terms the resource curse: the paradox whereby resource abundance inhibits economic diversification, weakens institutions, and obstructs the formation of a competitive domestic industrial base (Auty, 2001; Sachs & Warner, 2001; Badeeb et al., 2017).

The phenomenon is not deterministic, but rather reflects institutional and policy failures in converting resource rents into the accumulation of industrial capabilities (Ross, 2015; Venables, 2016). In the Indonesian context, these failures deepened in the aftermath of the 1997/1998 financial crisis. The economic liberalization accompanying the reform era



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reinforced an extractive orientation, while what Rodrik (2016) describes as premature deindustrialization—the weakening of the manufacturing sector before reaching high income levels—became increasingly visible. Ironically, the raw materials that underpinned the successful industrialization of East Asian economies were drawn, in substantial part, from Indonesia itself.

The global context shifted dramatically in the 2020s. Nickel, for nearly a century a supporting metal for the steel industry, has now emerged as a critical mineral shaping the architecture of the global energy transition. The surge in electric vehicle (EV) production and energy storage technologies has generated an unprecedented demand for high-grade nickel (IEA, 2023, 2024; World Bank, 2020). Indonesia—controlling the majority of the world's laterite nickel reserves—has found itself at a crossroads between its historical role as a commodity exporter and a transformative opportunity to become a global hub for strategic mineral processing.

1.2 The Turning Point: Downstream Industrialization Policy and IMIP as a New Industrialization Experiment

The nickel ore export ban, first imposed in 2014 and fully enforced from 2020 onward, marked a transformative moment in the history of Indonesian industrial policy. This was not merely a trade regulation, but rather an expression of the *hilirisasi* (downstream industrialization) strategy—a policy requiring that mineral processing be conducted domestically before export—representing a new form of state intervention in resource governance. Within a single decade, Indonesia's nickel export composition shifted dramatically: from a dominance of raw ore to processed products such as Nickel Pig Iron (NPI), Ferronickel (FeNi), and Mixed Hydroxide Precipitate (MHP).

The Indonesia Morowali Industrial Park (IMIP), located in Bahodopi District, Morowali Regency, Central Sulawesi, became the epicentre of this transformation. In less than ten years of full operation, IMIP evolved from an expanse of land on the periphery of a remote region into one of the world's largest nickel processing industrial estates. The designation of IMIP as a National Strategic Project (NSP) provided an institutional framework for accelerating its development: streamlined licensing, state infrastructure support, and guarantees of investment continuity. IMIP has since become the most tangible symbol of Indonesia's ambition to climb the global value chain of critical minerals.

1.3 Analytical Framework: Resource Nationalism, the Developmental State, and GVCs

This paper analyses the downstream industrialization policy and IMIP from a development political economy perspective, employing four complementary theoretical frameworks. These are not presented as separate chapters, but rather as analytical lenses continuously articulated throughout the empirical analysis.

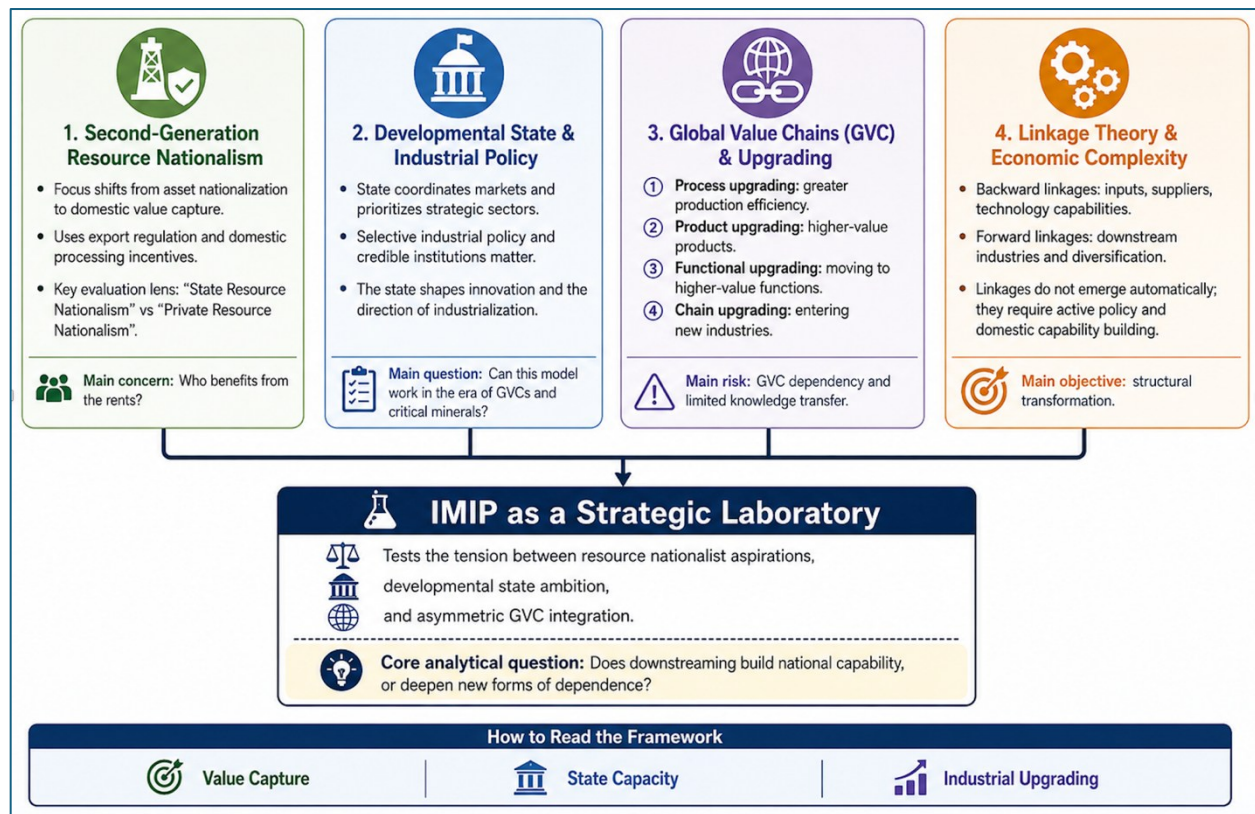
First, second-generation resource nationalism. Unlike first-generation resource nationalism characterized by the nationalization of assets, the second generation focuses on controlling domestic value addition through export regulation and domestic processing incentives (Bremmer & Johnston, 2009; Vivoda, 2009; Warburton, 2023). The critical distinction emphasized by Warburton (2023) between state resource nationalism—policies whose benefits are broadly distributed to the public—and private resource nationalism—where rents flow to politically connected business actors—serves as the primary evaluative lens.

Second, the developmental state and industrial policy. The classical literature demonstrates that successful industrialization in East Asia rested on the state's capacity to coordinate markets, implement selective industrial policy, and build credible institutions (Johnson, 1982; Amsden, 1989; Wade, 1990). Contemporary debates question whether developing countries can replicate this model in the era of GVCs and critical mineral geopolitics (Pempel, 2022), while Mazzucato (2021) extends the state's role to that of an actor actively shaping the direction of innovation and industrialization.

Third, global value chains (GVCs) and upgrading. The GVC framework provides a systematic upgrading typology: process upgrading (production efficiency), product upgrading (higher value-added products), functional upgrading (enhanced functions within the chain), and chain upgrading (migration to new industries) (Gereffi et al., 2005; Gereffi & Lee, 2016). The risk of GVC dependency—whereby integration dominated by a single foreign partner may reinforce technological dependence rather than generating knowledge transfer—warrants particular attention (Gruin & Knaack, 2020).

Fourth, linkage theory and economic complexity. Hirschman (1977) identified backward linkages (to inputs and technology) and forward linkages (to downstream industries) as pathways of resource-based structural transformation. However, these linkages do not emerge automatically: they require deliberate policy action and the purposeful construction of domestic technological capacity (Ramdoo, 2015). The synthesis of these four frameworks positions IMIP as a 'laboratory' for simultaneously testing the tensions between resource nationalism aspirations, developmental state ambitions, and the asymmetric realities of GVC integration.

Figure 1. Analytical Framework for the Political Economy of Downstream Industrialization: Interactions among State Policy (Downstream Industrialization/NSP), Resource Nationalism, Global Value Chains, and Institutional Capacity in Shaping IMIP's Multi-Dimensional Transformation



1.4 Research Gap, Contribution, and Paper Structure

Although nickel downstream industrialization has attracted considerable attention in Indonesian policy discourse, integrative and multi-dimensional political economy analyses remain limited. Most existing studies focus on trade dimensions, foreign investment, or specific sectoral aspects (Warburton, 2023; Putri & Maksum, 2023). Studies that simultaneously map the regional economic, labour market, fiscal, urban, and social dimensions within a coherent political economy framework remain scarce.

This paper contributes precisely such an integrated analytical framework, using IMIP as a rich case for evaluating resource-based industrialization NSPs. The paper proceeds as follows. Section II traces the evolution of downstream industrialization policy and the institutional construction of IMIP as an NSP. Section III analyses IMIP's position within the global nickel value chain. Section IV maps multi-dimensional transformations and their contradictions. Section V identifies structural challenges and systemic contradictions. Section VI discusses prospects for national development. Section VII presents conclusions and policy recommendations.



2. The Evolution of Downstreaming Industrialization Policy and IMIP as A National Strategic Project

2.1 *A Brief History of Resource-Based Industrialization (1945–2013)*

Since independence, Indonesian economic development has been shaped by a persistent tension between two broad orientations. The first positions natural resources as a short-term revenue base through primary commodity exports. The second regards natural resources as the foundation for structural transformation through industrialization. This tension has recurred across successive phases of Indonesia's political economy—from the nationalization of foreign assets in the early independence period, through the developmental pragmatism of the New Order, to post-crisis liberalization and the early twenty-first century revival of the downstream industrialization agenda.

During the Sukarno era, particularly from the late 1950s to the mid-1960s, economic development was heavily shaped by ideas of economic sovereignty and anti-colonial nationalism. The nationalization of foreign firms, the strengthening of *berdikari* (self-reliance) rhetoric, and the ambition to construct a national basic industry were defining features of the period. In political economy terms, this phase may be read as an early form of first-generation resource nationalism: the state's effort to assert formal control over strategic assets and sectors previously dominated by colonial powers or foreign capital. However, this agenda failed to produce robust industrialization, owing to limited state institutional capacity, fragile macroeconomic stability, and intense political conflict. Economic nationalism in this period was thus more successful in constructing symbols of sovereignty than in building sustainable industrial foundations.

A major shift occurred under the New Order. After 1966, the state adopted a more pragmatic and technocratic development orientation. Foreign investment was actively courted, macroeconomic stabilization became a priority, and natural resource sectors served as a primary source of development financing. Oil and gas, mining, forestry, and plantation agriculture played important roles in sustaining economic growth. However, natural resource management during this period also exhibited a strong rent-seeking character. The state did control licenses, contracts, and sector-specific policies, but economic benefits frequently concentrated within business networks with close political ties to the regime. In this sense, resource nationalism was not always synonymous with broad-based public benefit distribution.

These dynamics align with Warburton's (2023) critique of resource nationalism in Indonesia. Warburton demonstrates that rhetorically nationalist policies can, in practice, channel rents toward politically connected business actors. Indonesian resource nationalism cannot be understood solely as a state project directed against foreign capital; it must also be understood as an arena of relations among the state, business elites, and domestic political interests. The embryonic tension between public and private interests in resource governance was thus already clearly visible from the New Order period onward.

At the same time, the New Order also recorded industrial achievements that cannot be dismissed. From the late 1980s to the mid-1990s, Indonesia experienced manufacturing expansion, particularly in labour-intensive and export-oriented industries. This growth was supported by macroeconomic stability, deregulation, foreign investment, and global market integration. However, relative to the experiences of South Korea, Taiwan, or Japan, Indonesia's industrialization was not accompanied by an equivalently strong industrial upgrading strategy. The developmental state literature shows that East Asian industrialization success rested on state capacity to select strategic sectors, coordinate markets, enforce performance discipline, and build credible industrial institutions—a model more systematically pursued in Japan, South Korea, and Taiwan than in Indonesia (Johnson, 1982; Amsden, 1989).

The 1997/1998 economic crisis constituted a decisive turning point. The crisis shook the foundations of the New Order economy, weakened many domestic conglomerates, and opened the way for political reform and economic liberalization. In the post-crisis period, the development orientation became more open, decentralized, and shaped by market reform agendas. Simultaneously, the commodity boom of the early 2000s reinforced the appeal of the extractive sector. Global demand for coal, minerals, and plantation commodities grew rapidly, and Indonesia benefited from rising prices and export volumes. As a consequence, the momentum for deepening manufacturing did not develop as strongly as anticipated.



These conditions contributed to symptoms of premature deindustrialization. Rodrik (2016) defines premature deindustrialization as the decline of manufacturing's role at relatively low per capita income levels, causing developing countries to forgo one of the principal pathways to productivity transformation. In the Indonesian case, this manifested in a weakening manufacturing contribution to the economic structure after its early-2000s peak, even as a strong base of high value-added technology and industry had yet to be established.

Nickel downstream industrialization was thus not a policy that emerged suddenly. It represents a response to Indonesia's long experience with resource-based development that has not fully generated structural transformation. The downstream industrialization agenda seeks to address Indonesia's historical failure to convert resource endowments into industrial capabilities.

2.2 The 2014 Turning Point: Export Ban and the Architecture of Downstream Industrialization Policy

Law No. 4 of 2009 on Mineral and Coal Mining (the Minerba Law) established the legal foundation for downstream industrialization policy by mandating domestic mineral processing and refining. Implementation, however, was hampered by resistance from mining companies and the unpreparedness of domestic smelter infrastructure. When the nickel ore export ban took effect in January 2014, global market reactions were immediate: nickel prices on the London Metal Exchange surged significantly, while China's stainless steel industry—heavily reliant on Indonesian nickel ore—began seeking alternative supplies.

The policy subsequently underwent partial relaxation before being fully reinstated from 2020 onward. The export ban triggered a formal dispute at the World Trade Organization (WTO), with the European Union filing a complaint on the grounds of violations of free trade rules. Despite Indonesia's loss at the WTO panel level, the government's commitment to downstream industrialization only strengthened—demonstrating that the policy had transcended technical trade considerations to become a fundamental geopolitical position in the national development narrative.

A layered architecture of supporting policies was constructed: fiscal incentives including tax holidays of up to twenty years and tax allowances for industrial estates, expedited investment licensing, and the development of energy and connectivity infrastructure. Presidential Regulations on NSPs served as the primary instrument granting institutional privileges to priority projects, including IMIP, to cut through the bureaucratic obstacles that typically impede large-scale investment. In the perspective of resource nationalism, this constitutes a clear instance of second-generation resource nationalism: not the nationalization of ownership, but the nationalization of value added (Vivoda, 2009).

2.3 IMIP as a National Strategic Project: Institutional Construction

Institutionally, IMIP was established through a partnership between the Bintang Delapan Group of Indonesia and the Tsingshan Steel Group (via Shanghai Decent Investment Group) of China, bringing together access to domestic nickel resources, state policy support, large-scale industrial capital, and nickel processing technology developed within China's industrial ecosystem (PT Indonesia Morowali Industrial Park, n.d.; Jakarta Globe, 2024).

The institutional construction of IMIP cannot be separated from the National Strategic Project (NSP) framework. Peraturan Presiden Nomor 3 Tahun 2016 tentang Percepatan Pelaksanaan Proyek Strategis Nasional, as subsequently amended — most recently through Peraturan Presiden Nomor 109 Tahun 2020 — provided the legal basis for accelerating projects deemed strategic for national economic growth, job creation, and regional development (Republik Indonesia, 2016, 2020). The NSP list has since been continuously updated through regulations of the Coordinating Minister for Economic Affairs (Peraturan Menteri Koordinator Bidang Perekonomian). In the Morowali context, the industrial estate and mineral processing facilities in the region were positioned as part of the NSP agenda for the industrial and infrastructure sectors.

This strategic status fundamentally repositioned IMIP institutionally. As an estate within the NSP architecture, IMIP gained political legitimacy, coordination priority, and stronger regulatory support compared with ordinary investment projects. NSP status provides the state with tools to accelerate licensing, reduce inter-agency coordination barriers, and push for supporting infrastructure provision. From a political economy perspective, this demonstrates that nickel

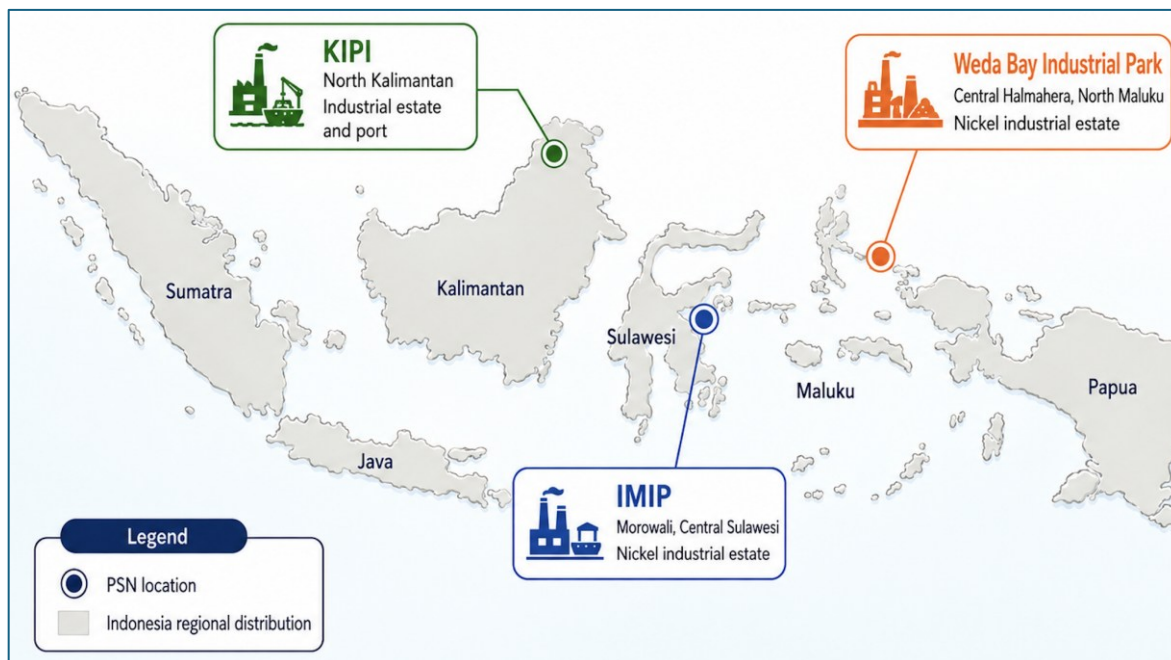
downstream industrialization depends not only on market dynamics, but equally on state capacity to shape markets, direct investment, and organize productive space.

In less than a decade, IMIP evolved from an initial nickel processing estate into a more complex industrial ecosystem. Various tenant companies now operate within the estate, engaged in nickel processing, nickel pig iron (NPI) production, ferronickel, stainless steel, and intermediate products linked to the battery supply chain. This ecosystem is further supported by power plants, industrial ports, logistics facilities, worker residential areas, and other supporting infrastructure. Given these characteristics, IMIP is more accurately understood as an industrial ecosystem than as a mere collection of smelters.

IMIP's development also illustrates how downstream industrialization policy operates through a configuration of state, global capital, and industrial estates. The state provides the regulatory framework and strategic status. Investors provide capital, technology, and market networks. The industrial estate provides the physical space and integrated infrastructure for large-scale production. This combination explains why IMIP was able to grow rapidly and become one of Indonesia's most important nickel processing hubs.

Beyond IMIP, several other mineral-based downstream industrial estates have developed under similar policy frameworks. The Weda Bay Industrial Park (IWIP) in Central Halmahera, North Maluku, for instance, is a nickel industrial estate involving major Chinese investment (Tsingshan, Huayou, and Zhenshi Group) that has evolved into a hub for battery-material and stainless-steel production. IWIP was formally included in the National Strategic Project list through Peraturan Menteri Koordinator Bidang Perekonomian Nomor 12 Tahun 2024 (Perubahan Keenam atas Peraturan Menko Perekonomian Nomor 7 Tahun 2021 tentang Perubahan Daftar Proyek Strategis Nasional) and designated a National Vital Object through Keputusan Menteri Perindustrian Nomor 1197 Tahun 2021 (Kementerian Koordinator Bidang Perekonomian, 2024; Kementerian Perindustrian, 2021). Meanwhile, the Kalimantan Industrial Park Indonesia (KIPI) in North Kalimantan is designed as a green industrial estate based on renewable energy, intended to support more sustainable development of downstream mineral and petrochemical industries; its construction was officially launched by President Joko Widodo in December 2021 under the NSP framework (Kompas.com, 2021; Sekretariat Kabinet, 2021).

Figure 2. Map of Mineral-Based Downstream Industrialization Estates in Indonesia: IMIP (Morowali), Weda Bay Industrial Park (Central Halmahera), and KIPI (North Kalimantan) as National Strategic Projects





However, this institutional construction also raises important questions. If IMIP is positioned as a state strategic project, its success cannot adequately be measured by investment value, number of tenants, production capacity, or employment absorption alone. IMIP's success must also be assessed in terms of the extent to which it has generated technology transfer, strengthened domestic labour capabilities, created linkages with national industries and local SMEs, delivered adequate fiscal contributions to the region, and established credible environmental and social governance. In other words, NSP status must be read not merely as an instrument for accelerating investment, but also as a development governance obligation.

In this framework, IMIP constitutes an important laboratory for Indonesia's downstream industrialization. It demonstrates the state's success in converting resource access into an attraction for processing investment. At the same time, it tests whether downstream industrialization can move beyond intermediate processing toward industrial deepening and the formation of national capabilities. The key question is not simply whether Indonesia's nickel is now processed domestically, but whether that processing is building an industrial structure that is more sovereign, inclusive, and sustainable.

2.4 The Political Economy of Policy: Coalitions, Rents, and Interests

Downstream industrialization policy did not emerge from a political vacuum. Its supporting coalition encompasses economic nationalists in technical ministries (Energy and Mineral Resources, Industry, Investment), segments of domestic industry that perceive opportunities in the nickel supply chain, and political elites who recognize the electoral capital offered by the downstream industrialization narrative. On the other side, groups bearing the costs of the policy—small-scale miners, traditional ore exporters, and steel producers dependent on imports—lack the coalition strength to impede it.

The deeper question concerns the distributional character of the policy's benefits. Warburton (2023) cautions that Indonesia's downstream industrialization policy carries a strong dimension of private resource nationalism: rather than broadly distributing benefits to the public, the policy tends to consolidate economic opportunities among specific business actors with political access. The dominance of Chinese foreign investment through IMIP, connected to particular domestic business networks, reinforces these concerns. The centre-region relationship in Morowali exhibits a similar pattern: the central government determines policy direction and captures the majority of fiscal value, while local government bears the burden of public service provision with considerably more limited capacity. In the terminology of Evans (1995) and Pempel (2022), this indicates the character of a quasi-developmental state, rather than a genuinely functional developmental state.

3. IMIP in The Global Nickel Value Chain

3.1 Structural Transformation of the Global Nickel Industry

The global nickel industry has undergone dramatic structural transformation over the past two decades. For nearly a century, the industry was dominated by high-grade sulphide ores exploited by Western corporations—Inco, Falconbridge, Norilsk Nickel. China's entry, however, changed everything. The technological innovation of Nickel Pig Iron (NPI), developed by Chinese producers, enabled the processing of low-grade laterite ore into nickel products usable by the steel industry. As the Rotary Kiln-Electric Furnace (RKEF) technology—developed by Tsingshan—proved capable of processing Indonesian nickel ore efficiently and at scale, an Indonesia-China industrial axis formed that fundamentally restructured global nickel supply.

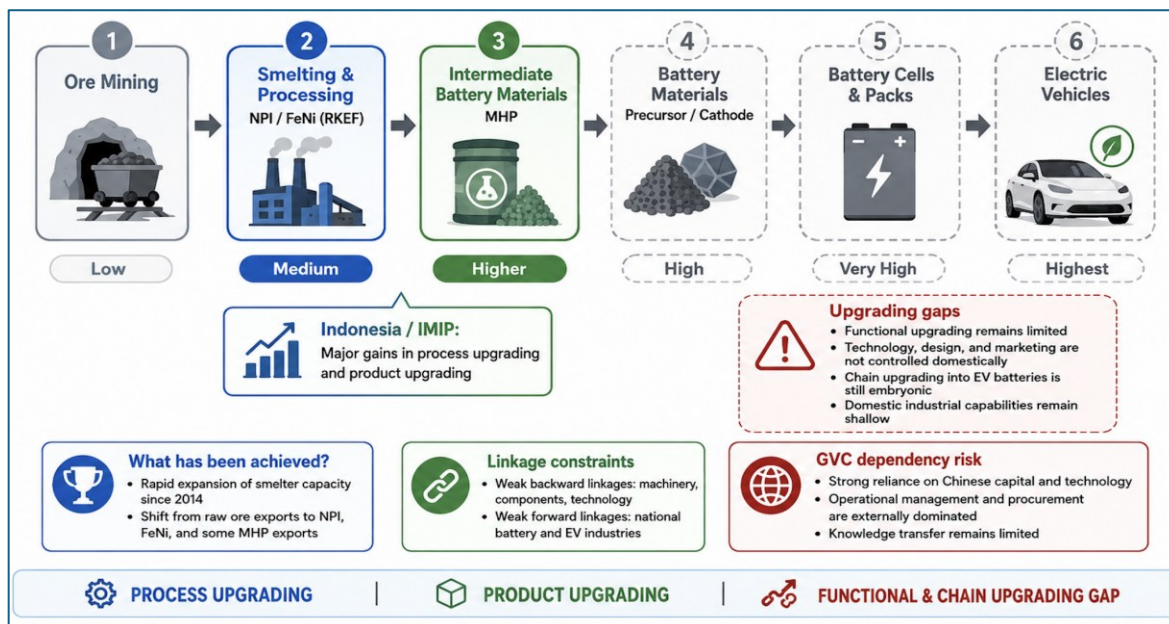
A further transformation arrived with the electric vehicle revolution. The surge in demand for lithium-ion batteries shifted part of nickel demand from a mere steel additive to an active component of high-performance batteries. High-grade nickel—in the form of mixed hydroxide precipitate (MHP) produced through High Pressure Acid Leaching (HPAL) technology—has become the new frontier, opening chain upgrading opportunities for Indonesia (IEA, 2023; Olivetti et al., 2017). The global nickel industry has thus transformed not only in its supply structure, but also in an increasingly diversified demand structure.

3.2 Indonesia's and IMIP's Position in the Global Nickel Value Chain: Upgrading Achievements

Within the GVC framework, Indonesia has achieved significant process upgrading and product upgrading. From having virtually no meaningful nickel smelting capacity before 2014, Indonesia has become the world's largest producer of NPI and FeNi. IMIP operates dozens of RKEF production lines with continuously expanding capacity. The transformation in Indonesia's nickel export composition reflects this shift: raw ore that dominated exports before 2020 has been substantially replaced by NPI, FeNi, and, to a lesser extent, MHP.

Evaluation through Gereffi and Lee's (2016) upgrading typology, however, yields a more nuanced picture. Process and product upgrading have indeed occurred and are significant. Functional upgrading—enhancing Indonesia's position from mere processor to designer, marketer, or innovator within the value chain—has barely materialized. Command of RKEF technology rests with Tsingshan, not with Indonesian firms or engineers. Chain upgrading—migration into the battery industry, which offers manifold additional value added—remains in an embryonic stage. The limited backward linkages—the scarcity of domestic machinery and component supply industries—and forward linkages—the underdevelopment of a national battery industry—demonstrate that the industrial interlinkages predicted by Hirschman's (1977) theory do not materialize automatically without active and deliberate policy (Ramdoo, 2015).

Figure 3. Indonesia's and IMIP's Position in the Global Nickel Value Chain: From Ore Mining to Electric Vehicles — Processing Stages, Value Added, and Upgrading Gaps. Source: Adapted from IEA (2023); Olivetti et al. (2017)



Source: Processed from International Energy Agency (2023; Olivetti et al., 2021)

The Indonesia-China axis that has formed also raises serious questions about GVC dependency. The dominance of Tsingshan and Chinese investor consortia extends beyond equity ownership to encompass technology, operational management, procurement networks, and product marketing (Gruin & Knaack, 2020). This differs fundamentally from the industrialization model of South Korea or Taiwan, where domestic firms progressively acquired technological capabilities. Indonesia's economic complexity—measured through the Economic Complexity Index—remains comparatively low, reflecting that domestic industrial knowledge capacity has not grown commensurately with the expansion of physical mineral processing capacity (Hausmann et al., 2022).



3.3 Critical Mineral Geopolitics and Market Access Threats

Global geopolitical dynamics have added an increasingly complex layer of challenges. The United States Inflation Reduction Act (IRA) of 2022 requires that electric vehicles seeking tax incentives must use battery minerals mined or processed in countries with free trade agreements with the United States, or must incorporate battery components manufactured outside entities affiliated with China. Given the dominance of Chinese investment in IMIP, Indonesia's nickel products face the risk of failing to qualify under the IRA, which could close access to the US EV market.

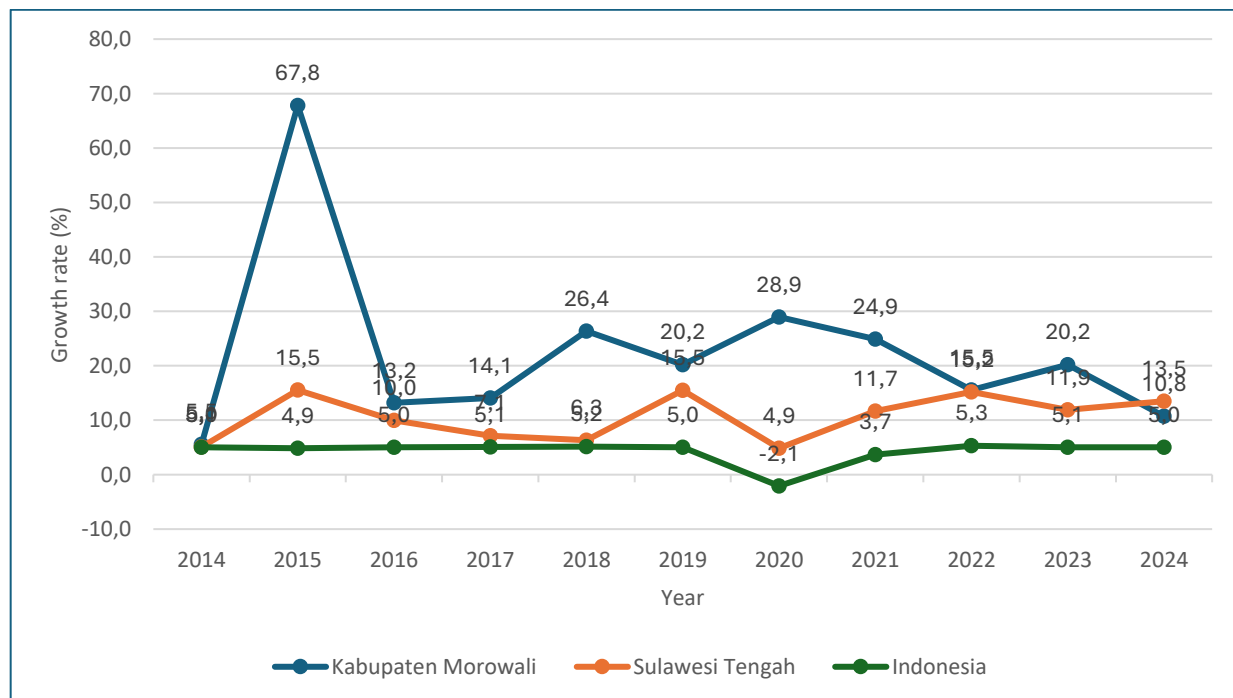
On the European side, the Carbon Border Adjustment Mechanism (CBAM), being phased in progressively, will impose carbon costs on imported products with high carbon intensity. IMIP's reliance on coal-fired power generation will face increasingly significant barriers to European market access. The combination of geopolitical pressure from both directions places Indonesia in a vulnerable position: its nickel products risk losing access to two of the world's principal markets simultaneously, precisely at a moment when massive investments have been made to build processing capacity (IEA, 2024).

4. Dimensions of Transformation: Achievements and Contradictions

4.1 Regional Economic Transformation

The impact of IMIP on the economy of Morowali Regency can scarcely be described as anything less than a quantum leap. In under a decade, Morowali's Gross Regional Domestic Product (GRDP) grew more than fortyfold from its initial level, lifting a regency that was previously among the poorest in Central Sulawesi to become the single largest contributor to the provincial economy—accounting for nearly half of Central Sulawesi's total economic output. The economic structure underwent a dramatic shift, from a dominance of primary sectors—mining and agriculture—toward capital-intensive manufacturing industry.

Figure 4. The Economic Growth of Kabupaten Morowali comparing to Sulawesi Tengah Province and National, 2014–2024



Sources: Processed by Authors from various official dataset from BPS (Muhyiddin, 2026)

Multiplier effects are evident in the development of supporting sectors: construction, trade, transport, and services expanded rapidly alongside the arrival of tens of thousands of workers and the accompanying demand for goods and

services. This constitutes a manifestation of forward and backward linkages that, although not yet fully realized in the form of an integrated domestic industry, has generated economic activity beyond the industrial estate itself (Hirschman, 1977).

Yet behind the impressive growth figures, structural vulnerabilities lurk. Morowali's growth, resting almost entirely on a single commodity, renders it highly exposed to global commodity price cycles. The decline in nickel prices during 2023–2025 resulting from global oversupply—ironically driven partly by Indonesia's own production expansion—illustrates the fragility of monodimensional growth foundations. The boomtown-bust dynamics classically associated with resource-based industrialization (Auty, 2001; Cust & Harding, 2020) represent a genuine threat that must be anticipated.

4.2 Labour Market Dynamics: Structural Transformation without an Employment Boom

One of the most significant findings from IMIP's development concerns the character of its industrialization from an employment perspective. Employment elasticity in Morowali is remarkably low—approximately 0.115—indicating that each one per cent increase in output yields only a 0.115 per cent increase in employment. This is characteristic of highly capital-intensive industrialization, fundamentally different from the labour-intensive industrialization model that classically serves as the entry point for developing countries into the structural transformation process.

Concealed behind this low elasticity figure, however, is a substantial transformation in work quality. The share of formal employment in Morowali increased by more than 14 percentage points—a significant shift in labour market structure. Skill upgrading has occurred to a moderate degree, and nominal wages have risen in absolute terms. This constitutes process upgrading in the employment dimension: a shift from informal and subsistence work to formal employment with better safety standards (Gereffi & Lee, 2016).

Real wage growth relative to comparable regions, however, has not demonstrated significant acceleration, indicating that the surplus from this remarkable industrialization has not been distributed proportionally to labour. The dominance of foreign workers—primarily from China—in technical and managerial positions adds a further dimension of controversy: limited technology transfer to local human resources and social tensions in industrial relations. Overall, IMIP represents a case of structural labour transformation—rather than an employment boom—in which the impact of industrialization is more pronounced in the quality and structure of work than in the quantity of available jobs.

4.3 Subnational Fiscal Capacity: Fiscal Effort Collapse

Perhaps the most striking paradox in IMIP's development is the gulf between economic growth and subnational fiscal capacity. While Morowali's GRDP increased more than fortyfold during the period 2011–2024, locally generated revenue (PAD) grew only approximately fourfold. The revenue-to-GRDP ratio—a measure of local government capacity to capture the economic value generated within its territory—plummeted from approximately 14.93 per cent to only 1.35 per cent.

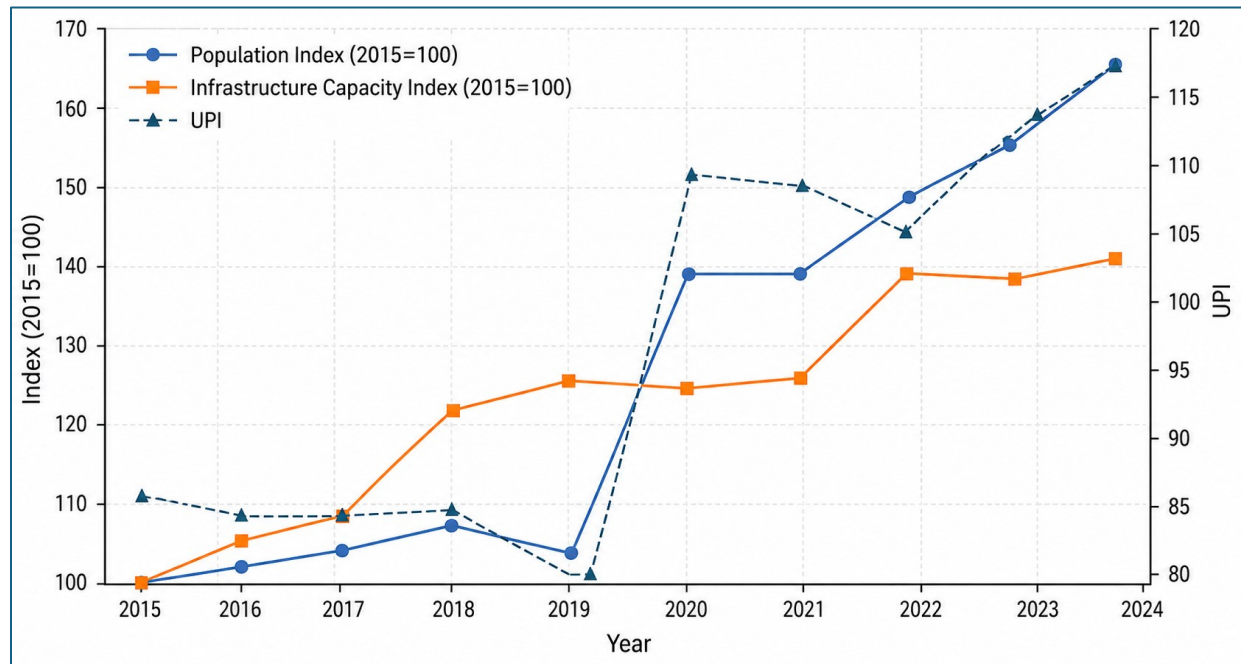
This condition warrants conceptualization as fiscal effort collapse: a situation in which extraordinarily rapid economic growth outpaces the fiscal system's capacity to capture and redistribute the economic value created. Its structural roots include the dominance of major corporate taxes (corporate income tax, VAT) that accrue entirely to the central government, the limited local tax instruments applicable to large industry, and revenue sharing mechanisms not designed to capture resource-based industrialization at the speed and scale of IMIP.

The practical implications are severe. The Morowali Regency Government must provide public services to a population swollen by large-scale in-migration, with fiscal capacity that is small relative to the size of its regional economy. This is not merely a technical fiscal problem; it is a manifestation of the subnational developmental state's failure to capture the surplus of industrialization and convert it into inclusive development (Bahl & Martinez-Vazquez, 2006).

4.4 Urban Transformation and Infrastructure Pressure

Bahodopi District has experienced industrial urbanization at an unmatched pace. In a short time, a locality that was previously a remote fishing and farming settlement transformed into an industrial agglomeration housing tens of thousands of workers from across the country. This explosive population growth has far outstripped the available infrastructure capacity.

Figure 5. Urban and Infrastructure Indicators in Bahodopi. Source: Processed from official data of BPS, Morowali Regency, and other government agencies.



Sources: Processed by Authors from various official dataset from BPS (Muhyiddin, 2026)

The Urban Pressure Index—a measure capturing the imbalance between population growth and infrastructure availability—in Bahodopi records extremely high pressure. Access to clean water, adequate sanitation, sufficient housing, healthcare services, and transport connectivity have all lagged far behind the needs generated by industrial expansion. This constitutes a manifestation of the infrastructure lag trap: extremely rapid economic growth creates infrastructure demand that local government planning and budget capacity cannot meet.

Spatial planning has also fallen systematically behind. Adequate Detailed Spatial Plans (RDTR) were unavailable as industrialization proceeded at high speed, resulting in unplanned spatial encroachment and environmental degradation. This pattern is not unique to Morowali—resource boomtowns in Alberta (Canada), the Pilbara (Australia), and the Zambian Copperbelt exhibit similar dynamics (Gamu & Dauvergne, 2018; Gilberthorpe & Papyrakis, 2015). The distinction lies in how swiftly and deeply a government is able to learn from these dynamics and integrate industrial with urban planning.

The chart in Figure 5 visually depicts the disparity between the rate of population growth and the development of infrastructure capacity in Bahodopi. The population index curve exhibits a steep upward trajectory in recent years, reflecting the influx of labour and migration triggered by IMIP's expansion. By contrast, the infrastructure index curve rises at a far more gradual slope, signalling that basic facility construction has been unable to keep pace with the speed of demand growth.

The widening gap between the two curves illustrates the increasing urban pressure experienced by the region. The greater the distance between the population and infrastructure indices, the heavier the burden borne by public service systems such as clean water, sanitation, housing, and local transport. The figure simultaneously confirms the existence

of the infrastructure lag trap, in which economic growth and industrialization are not matched by commensurate territorial infrastructure readiness.

4.5 Social Transformation: Partial Integration and Segmentation

At the social level, IMIP has generated dynamics that may be conceptualized as partial integration: economic integration has proceeded rapidly and significantly, while social and institutional integration has lagged and remained uneven.

On the positive side, aggregate indicators record progress. Labour absorption in Morowali Regency and its surroundings increased by more than 50 per cent, unemployment declined, and labour formalization improved. The Gini coefficient decreased at the aggregate level, indicating that industrialization has had a positive distributive effect in macroeconomic terms.

Aggregates, however, conceal important heterogeneity. Spatial segmentation between the heavily investment-dense industrial estate and surrounding areas that are relatively untouched creates an uneven development pattern. Gaps in access to quality education and healthcare remain significant. The potential for a dual labour market—in which local workers, domestic migrant workers, and Chinese foreign workers operate in different labour market segments with different wage levels, working conditions, and career prospects—raises questions requiring deeper investigation. Conflicts and resistance that occasionally arise—land disputes, worker demonstrations, tensions between local communities and migrant workers—are expressions of the tension between state resource nationalism rhetoric and the more complex private resource nationalism realities on the ground (Gamu & Dauvergne, 2018; Jenkins et al., 2018; Warburton, 2023).

5. Structural Challenges and Systemic Contradictions

5.1 Technology Lock-in and Foreign Capital Dependency

At the heart of all of IMIP's achievements lies a fundamental paradox: Indonesia processes minerals in large volumes, yet does not control the core technology enabling that processing. The RKEF technology underpinning NPI and FeNi production at IMIP was developed and is controlled by Tsingshan Holding Group. The majority of machinery, critical components, and technical expertise continue to be imported or sourced from China. In GVC terms, this is not functional upgrading—it is integration as a follower, not as a value chain leader (Gereffi & Lee, 2016).

The consequence is a genuine risk of technological lock-in. Billions of dollars in infrastructure investment in coal-based RKEF technology creates substantial barriers to entry for new technologies. Meanwhile, HPAL technology—which produces MHP with a lower carbon footprint and products better suited to the EV battery supply chain—requires very large upfront investment and a long learning curve. The existing investment structure at IMIP systematically impedes transition to cleaner and higher value-added technology (Ramdoo, 2015).

5.2 Carbon Intensity and Tensions with the Green Transition Agenda

IMIP operates with very high electricity consumption, supplied primarily by coal-fired power plants constructed specifically for the industrial estate. The carbon intensity of the RKEF process—generating CO₂ emissions per tonne of nickel produced that far exceed the standards of the sulphide-based nickel industry in advanced economies—creates a dual vulnerability: not only in terms of Indonesia's own climate commitments, but also in terms of international market access.

This tension sharpens considerably in the context of the European CBAM and increasingly stringent green supply chain standards from global automotive manufacturers. The narrative of 'green nickel' occasionally raised in Indonesian policy discourse obscures the reality that the processing operations themselves are highly carbon-intensive (Jenkins et al., 2018). This represents a contradiction between short-term industrialization agendas and long-term climate commitments that remains unresolved at the policy level.



5.3 *Industrial Populism and the Risk of Politicizing Downstream Industrialization*

Downstream industrialization has evolved into a powerful populist narrative in Indonesia's political economy. Claims of a national transformation from 'selling raw materials' to 'selling processed products' carry significant electoral resonance. Yet this rhetorical force has become a double-edged sword.

First, an excessively optimistic populist narrative tends to inhibit critical evaluation and the policy reforms that are genuinely needed. If downstream industrialization is constructed as an unquestionable national success, criticism of its problematic dimensions becomes difficult to voice in public policy space. Second, the consistency and continuity of downstream industrialization policy depend heavily on the political commitment of individual leaders, rather than on solid institutions and transparent rules. This is the antithesis of what should characterize a functional developmental state (Johnson, 1982; Warburton, 2023). Weak inter-ministerial coordination exacerbates the situation: the absence of a 'pilot agency' with cross-sectoral authority—in the spirit of Japan's MITI admired by Wade (1990)—constitutes a fundamental institutional weakness.

5.4 *The Risk of the Midstream Trap*

Taken together, the challenges outlined above converge on a single existential risk: the midstream trap. The majority of IMIP's current production capacity operates at the NPI and FeNi level—midstream products whose value added represents only a fraction of the full potential of the nickel value chain. The leap to battery precursors and battery cells—which would represent a manifold multiplication of value added—has not yet materialized at meaningful scale.

An ironic paradox has simultaneously emerged: IMIP's massive production expansion has contributed to global nickel oversupply, which in turn has depressed nickel prices and reduced operational profitability. Indonesia has succeeded in becoming the world's largest NPI producer, yet that very success has eroded the profit foundation of the industrialization itself. Escaping this trap requires a qualitative leap toward more sophisticated technologies and products—but that leap demands conditions (technology mastery, skilled human resources, an innovation ecosystem, patient capital) that are not yet available in adequate measure.

6. *IMIP in The National Development Perspective: Lessons and Prospects*

6.1 *Can Morowali Become 'Indonesia's Shenzhen'?*

The analogy of Morowali as 'Indonesia's Shenzhen' has circulated widely in Indonesian development discourse. The analogy is appealing because Shenzhen—which transformed from a small fishing village in southern China into a global technology city within four decades—represents the most dramatic example of zone-based industrialization in modern history. However, the analogy requires serious qualification.

Shenzhen was built on a foundation of manufacturing integrated with far broader industrial networks in Guangdong and mainland China. Its sectoral diversification was evident from the outset, not locked into a single commodity. Its industrialization was simultaneously driven by the accumulation of domestic capabilities and was not solely dependent on a single dominant foreign partner. Morowali, by contrast, has grown from a single commodity, with technology controlled by a single dominant foreign partner, in an ecosystem where domestic capabilities remain weak.

For Morowali to transcend boomtown status and develop into a sustainable industrial hub, product diversification beyond nickel, substantial strengthening of local human resource capacity, diversification of investment partners, and enhanced regional connectivity integrating it with the broader economies of Central Sulawesi and Eastern Indonesia will all be required. Morowali's growth pole function for Eastern Indonesia—as conceptualized by Perroux (1955) and elaborated by Barca et al. (2012)—depends critically on the strength of forward and backward linkages to surrounding economies, not merely on the scale of production within the industrial estate itself.

6.2 *Replicating the NSP Model: Lessons from IMIP for Other Industrial Estates*

The IMIP experience yields layered lessons for the design of other mineral-based NSPs. What has succeeded is the speed of regional economic transformation—no other industrial estate in Indonesia has changed a regency's economy

as rapidly as IMIP. Integration into global critical mineral value chains also occurred quickly. The improvement in labour formalization, though not commensurate with output expansion, is a genuine achievement.

What requires improvement encompasses fiscal architecture enabling local governments to capture greater shares of the industrialization surplus, enforceable and verifiable technology transfer requirements, consistently implemented environmental standards, and anticipatory urban planning. These lessons are relevant for other mineral-based NSPs: the bauxite-aluminium industrial estate in North Kalimantan (KIPI), the planned copper processing facilities in Papua, and cobalt development.

Table 1. Comparative Analysis of Downstream Industrialization Policies: Indonesia (Nickel—IMIP), Chile (Copper—CODELCO), and Malaysia (Palm Oil—FELDA)

Dimensi	Indonesia (Nikel/IMIP)	Chile (Tembaga/CODELCO)	Malaysia (Sawit/FELDA)
Instrumen Kebijakan	Larangan ekspor bijih; insentif fiskal; PSN	BUMN dominan; stabilisasi harga; royalti progresif	BUMN pengelola perkebunan; subsidi; standar produk
Bentuk Nasionalisme SDA	Second-gen: kontrol nilai tambah domestik	Second-gen: kepemilikan negara + ekspansi GVC	Hybrid: agro-industri; inklusi petani kecil
Model Investasi	Dominasi modal asing (Cina); domestik minor	BUMN dominan; asing mitra subordinat	BUMN + koperasi; partisipasi domestik kuat
Kepemilikan Negara	Rendah (<10% di IMIP)	Sangat tinggi (CODELCO ~100%)	Tinggi (FELDA ~80%)
Tingkat GVC Upgrading	Process+Product; Functional lemah	Process+Functional; Chain berkembang	Full chain; Brand ownership
Dampak Fiskal Daerah	Fiscal effort collapse; kesenjangan fiskal	Dana stabilisasi; transfer ke daerah memadai	Subsidi petani; ketimpangan berkurang
Pelajaran untuk Indonesia	Perkuat kepemilikan nasional & transfer tek.	Bangun BUMN nikel yang kompetitif	Inklusivitas komunitas lokal sejak awal

Source: Adapted from Warburton (2023), Ramdoo (2015), and various secondary sources.

6.3 Implications for Indonesia Emas 2045

Downstream industrialization has been positioned as a bridge toward Indonesia Emas 2045—Indonesia's ambition to become a high-income country by the centenary of its independence. Yet the bridge still requires many load-bearing pillars that are not yet firmly in place. Domestic innovation capabilities in the mineral industry remain severely limited. High-quality human resources in metallurgy, process chemistry, and materials engineering remain scarce. Institutions—from research bodies to engineering universities to standardization agencies—are not yet strong enough to support the industrial deepening that is required.

A realistic roadmap toward Indonesia Emas must honestly acknowledge that downstream industrialization in its current form is merely the first step of a long journey. The next step—from midstream processing to knowledge-based manufacturing—demands a far deeper developmental state commitment than has hitherto been visible. This means long-term investment in research and development, technical higher education, industry-academia partnerships, and coordinated cross-sectoral industrial policy (Mazzucato, 2021). Bappenas's role in maintaining long-term consistency through the National Long-Term Development Plan (RPJPN) 2025–2045 is crucial in ensuring that the downstream industrialization agenda does not reduce to a short-term electoral narrative.

7. Conclusions and Policy Recommendations

7.1 Conclusions

Nickel downstream industrialization policy and IMIP as a National Strategic Project represent the most ambitious industrialization experiment in the history of modern Indonesian industrial policy. Within a single decade, this experiment has succeeded in fundamentally transforming the mineral export structure and creating a new industrialization epicentre in Eastern Indonesia that was previously unimaginable.



Yet an honest evaluation demands that we look beyond impressive growth figures. The transformation produced is partial and replete with contradictions. On the positive side: processed product output and exports have grown dramatically, Morowali's regional economy has been transformed, and labour formalization has increased significantly. On the negative side: technological dependence on foreign partners remains high, fiscal effort collapse has prevented local government from capturing the industrialization surplus, urban and infrastructure pressures have exceeded local government capacity, and social integration has proceeded unevenly.

Three principal contradictions must be resolved if downstream industrialization is to become a genuinely sustainable structural transformation strategy: first, growth without strengthening subnational state capacity; second, GVC integration without functional upgrading and substantive technology transfer; and third, industrialization without a coherent green transition pathway. Indonesia's trajectory stands at a critical juncture: downstream industrialization can either evolve into a foundation for competitive, knowledge-based industrialization, or become trapped as a midstream processor dependent on foreign capital and technology in the long term. The difference between these two trajectories is determined by the policy choices made today.

7.2 Policy Recommendations

Five policy recommendations are derived from the foregoing analysis:

First, reform the fiscal architecture to address fiscal effort collapse. The revenue-sharing formula must be reformed to more proportionally reflect the scale of regional industrialization. New subnational fiscal instruments enabling regency governments to capture a larger share of economic value generated by large industry in their territory should be considered, including adaptive subnational resource rent-sharing mechanisms.

Second, enforce verifiable technology transfer requirements. The renewal of business licences and fiscal incentives for companies in NSP industrial estates must be tied to verifiable obligations: industry-funded apprenticeship and technical education programmes; progressively increasing requirements for the proportion of domestic experts in senior technical positions; and mandatory R&D collaboration with domestic research institutions and universities.

Third, integrate the green agenda into the industrial strategy. A dedicated energy transition roadmap for NSP industrial estates must be developed, with carbon intensity reduction targets tied to clear incentives and disincentives. HPAL technology requires more active policy support—specific fiscal incentives and financing support—as a pathway out of coal-based RKEF technological lock-in.

Fourth, adopt anticipatory and integrated industrial spatial planning. New industrial NSPs must not repeat the mistakes of Bahodopi. Industrial estate Detailed Spatial Plans (RDTR) must be completed before investment arrives, not after. Planning for basic infrastructure provision—clean water, sanitation, housing, healthcare, education—must be an integral part of NSP feasibility study documents, with urban infrastructure reserve funds set aside from investment receipts.

Fifth, strengthen cross-sectoral NSP coordination institutions. An NSP coordination body with cross-sectoral authority, adequate technical capacity, and a clear monitoring, evaluation, and enforcement mandate is required. Downstream industrialization policy cannot continue to depend on the political commitment of individual leaders; it must be underpinned by solid institutions, transparent rules of engagement, and independent accountability mechanisms.

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