

Mapping Mineral Industrial Policies: Restrictions, Enablers, Incentives, and Partnerships in Indonesia and Australia

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In the [first brief of this series](#), Minerals-Based Industrial Policies in a Fragmenting World: Lessons from Indonesia and Australia, I laid out what mineral industrial policies are, how Indonesia and Australia have been implementing them, and why it matters. The next step is to dig deeper by assessing the types or “categorizations” of mineral industrial policies and determine how these different types of policies have been implemented in domestic mineral industries. I analyze industrial policy data from 1990 to 2025, building on previous research attempting to categorize industrial policies. The global resurgence of industrial policy has spurred growing research on how such policies are designed and implemented, yet the rapidly evolving landscape leaves significant questions unresolved. Common types of industrial policies include regulatory and licensing reform, export controls, financial incentives, and strategic planning and incentives. However, the types of policies states prefer, their implementation, and their effectiveness are subject to change as global mineral supply chains evolve.

To analyze mineral industrial policies in Indonesia and Australia, I compiled data on policies over the past few decades and categorized and compared them by type. This analysis relies solely on federal-level policies, which may have limitations, particularly for data on Australia, where states can exert significant influence. Future analyses could include subnational analyses to yield more specific results. Additionally, in this brief, I include environmental policies that impact the mineral sector as industrial policies. This highlights a broader trend: some policies included in this analysis were not implemented with the specific goal of being “mineral industrial policies”; however, their scope contributes to shaping the domestic mineral industry environment. Categorizing mineral industrial policies is challenging due to broad policy measures and frequent overlaps. Therefore, I adopted the National Resource Governance Institute categorization of mineral industrial policies, which provides the following categories: restrictions and penalties, enablers, incentives, and partnerships. In addition to this analysis, I apply the findings to a case study examining how these policies affected Nickel and Bauxite in Indonesia and Australia. The policy categorization analysis and case study provide a comprehensive understanding of how mineral industrial policies were implemented and their impacts on the mineral sector.

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As this brief's conclusion will show, the stakes of this analysis extend beyond categorization. Indonesia and Australia's policy choices are reshaping global mineral flows, accelerating supply-chain fragmentation, and influencing the rate of global decarbonization. Since mineral industrial policies cannot override market or resource constraints, understanding how each country wields these tools is essential to understanding their future leverage in global finance and geopolitics.

Mineral Industrial Policies: Restrictions and penalties, enablers, incentives, and partnerships

In this brief, I analyze Australia and Indonesia's mineral industrial policies by the following four categories: (1) restrictions and penalties, (2) enablers, (3) incentives, and (4) partnerships. Before diving into the analysis, I briefly define each category. Restrictions and penalties are policies that limit, control, or penalize certain behaviors in the mineral sector. These typically increase compliance costs or constrain market participation. Examples include export bans, foreign-exchange retention requirements, divestment obligations, and environmental penalties. Enablers are policies that remove barriers or improve the regulatory environment for investment and operations without providing direct financial benefits. Examples include streamlined licensing, legal clarity, simplified permitting, and digitalized application systems. Incentives are policies that encourage investment or production through positive financial or fiscal benefits. Examples include tax breaks, royalty reductions, subsidies, preferential loans, or SEZ-related benefits. Financial incentives are the most well-known and studied form of industrial policy. Partnerships are policies or frameworks that promote collaboration between domestic and foreign actors, governments, or firms to advance mineral development. Examples include bilateral or multilateral mineral cooperation agreements, joint ventures, technology-sharing initiatives, and capacity-building programs.

By categorizing Australia and Indonesia's mineral industrial policies in recent decades, we can see how the two countries' policy strategies diverge. This is unsurprising given the two countries' contrasting economic structures, governance systems, and levels of industrialization. Yet, these differences also highlight the wide range of policy tools states can use to pursue similar goals of value capture and supply-chain security through mineral industrial policy. The analysis demonstrates the following: Australia has relied mostly on partnerships (12), incentives (12), and enablers (12), while still using restrictions and penalties (6), but to a lesser extent. Indonesia has predominantly relied on restrictions and penalties (19), and enablers (14), while only implementing (4) incentives and (6) partnerships. See figure 1.

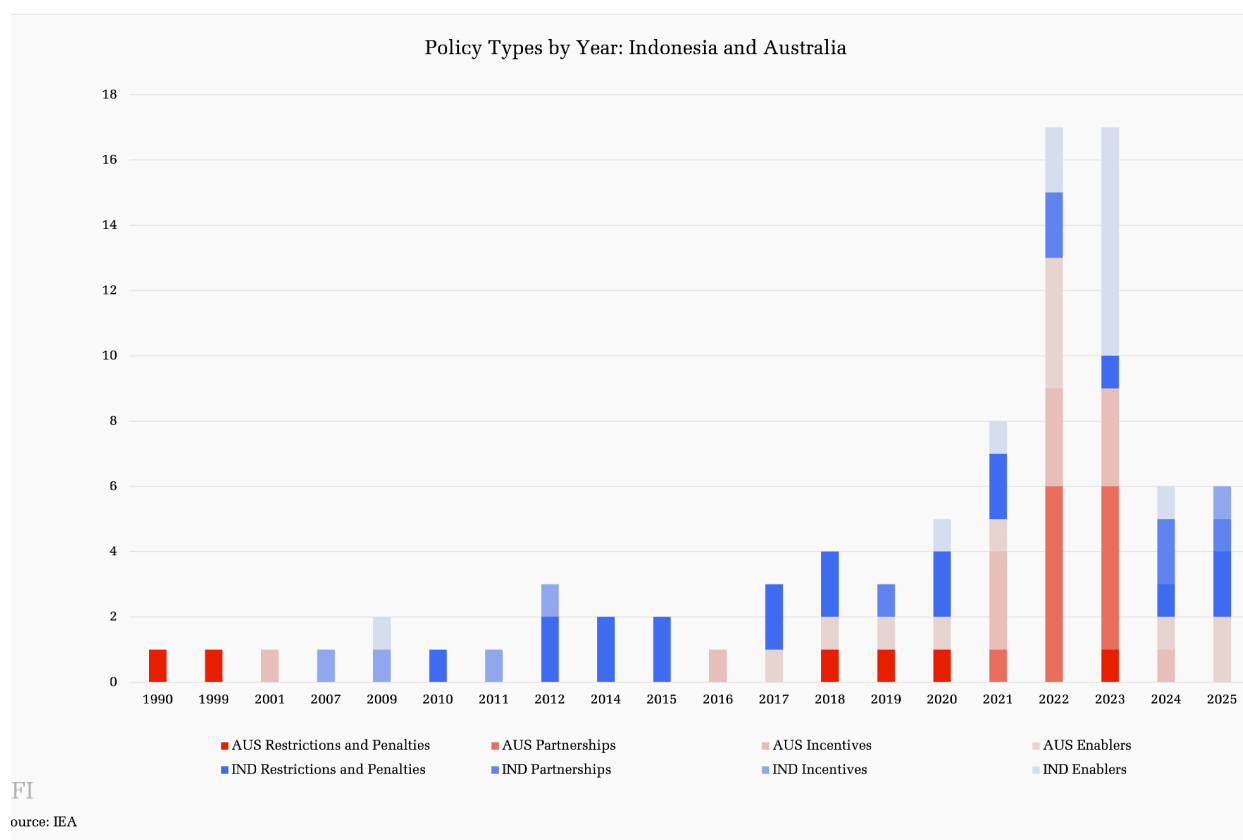


Figure 1 (above): Annual counts of industrial policy instruments in the mining and mineral sector for Indonesia and Australia, 1990–2025, classified into restrictions and penalties, partnerships, incentives, and enablers. The data shown is from International Energy Agency policy tracker, as well as Australia and Indonesia government websites.

Restrictions and Penalties

Australia has implemented 6 policies in the restrictions and penalties category, while Indonesia has implemented 19. Depending on their scope and context, restrictions and penalties can be quite impactful and drive more immediate change. Governments use restrictions and penalties as the most basic level of restructuring industrial activities. In Australia, these policies have been implemented primarily to address social and environmental concerns. For instance, the Environment Protection and Biodiversity Conservation (EPBC) Act (1999), the Modern Slavery Act (2018), and the National Waste Policy Action Plan (2019). The Hazardous Waste (Regulation of Exports and Imports) Act (1999) regulated the transboundary movement of hazardous waste, such as battery and mineral processing waste, and is the only example of trade regulations around minerals that Australia has implemented.

Indonesia has implemented a significantly greater number of restrictions and penalty policies, and in a shorter time frame. Many of these policies are iterations of export bans, such as the nickel ore export bans (2014, 2017, and 2020), and the copper concentrate export curbs (2014, 2017, and 2025). Besides the export bans, Government Regulation No. 8 of 2025 stands out as a more unique example of Indonesian restriction and penalty policy. This regulation will require exporters of natural resource products (such as mining/metal minerals, plantations, forestry, and fisheries) to retain 100% of their exports at specified foreign earnings for a 90-day holding period; during that period, companies can use those funds to pay domestic expenses in Indonesia.

Enablers

Australia has implemented 12 enabling policies, and Indonesia has implemented 14, making enabling policies the most commonly used between the two countries. While these policies don't provide financial incentives, they support the development of better market and industry conditions. Enablers aim to generate broader, system-wide benefits by improving coordination, information sharing, and alignment between public and private actors.

Australia's enabling policies have been implemented primarily through initiatives and strategies. Key examples include Australia's Minerals National Mineral Exploration Strategy (2017), Critical Minerals Mapping Initiative (2018), and the National Battery Strategy (2024). These initiatives support the industry by creating structure and pathways for researchers and mining industry stakeholders to collaborate for advancement.

Indonesia's enabling policies have primarily been implemented through formal legislation and have mostly "enabled" critical mineral mining by streamlining permitting and administrative processes, expanding access to mining opportunities, and creating national industry standards. Mining Law No. 3/2020, Energy Ministry Decree regarding National Planning on Mineral and Coal 2022-2027, and Energy Ministry Decree Regarding Classification of the Critical Minerals Lists are three key examples of these types of policies. For example, Indonesia's Mining Law No. 3/2020, which centralized licensing to the central government and extended permit terms to require increased domestic nickel processing. Many of these policies impact not only critical minerals but also coal mining. Additionally, another form of enabling mineral industrial policies concerns laws that facilitate the creation of special economic zones (SEZs) and foreign investment. China, as a pioneer of SEZs, not only played a part in role modeling SEZ development in Indonesia, but also has shaped the evolution of SEZs in Indonesia through major investment and development support. The largest foreign investors in Indonesia are Singapore, Hong Kong, and China. Singapore and Hong Kong serve as major investment hubs through which Chinese financing frequently flows. Examples of these types of policies are Law No. 39 of 2009 on Special Economic Zones, Government Regulation No. 40 of 2021 on Special Economic Zones, and Law No. 2 of 2025. Support of

SEZs has led to the development of industrial parks centered on mining critical minerals, which are often part or primarily owned by foreign investors, like China.

Incentives

Australia has implemented 12 incentive policies, while Indonesia has implemented 5. While less disruptive to the private sector, incentives require more government funding and are therefore more expensive. Additionally, incentives can be distortionary, especially when applied at the firm-level; while they are not disruptive to the firms that receive them, they often disadvantage those that do not. In Australia, incentive policies are primarily implemented through grants or changes to the tax regime. Grants include the Australian NRFC investment commitment in the rare earths project (2025), funding through the Modern Manufacturing Initiative (2021), and the establishment of the Australian Critical Minerals R&D Hub (2022). These policies differ from enablers in that they are tied to direct financial support for the development of critical minerals. Major policies, such as the Future Made in Australia Plan 2025, also include grants to expand critical minerals production. Fiscal regime incentives, which refer to tax and royalty mechanisms a government uses to attract or retain investment in the extractive sector, are also a form of financial incentives. The 2001 royalty system on minerals and the 2019 lithium royalty regime (5% feedstock rate when first products sold) are two examples of this. The 2019 lithium royalty regime in Australia clarified the royalty basis (e.g., % at first product sale) to de-risk mineral processing investments.

In Indonesia, incentives were implemented early on and primarily based on fiscal regime incentives. For example, Law No. 39 on Special Economic Zones in 2009 reduced costs for foreign investors in SEZs, and the Corporate Income Tax Holiday in 2011 implemented a 0% corporate income tax for 5–20 years, depending on the size of investment, for pioneer corporations in industry, including nickel and other mining. However, the Corporate Income Tax Holiday was later revoked in 2023. The most recent policy, Law No. 2 of 2025, will raise royalty rates on most nickel products (class 2 nickel), replacing the former flat 10 percent levy with a variable 14–19 percent royalty. However, the new law will reduce the cost and risk of downstream investment for battery-grade nickel (class 1 nickel) by reducing royalties to just two percent for nickel output that is refined to class 1 nickel domestically. However, class 2 nickel, which is primarily used for creating steel, is currently the most commonly produced form of Nickel in Indonesia. The new law aims to reshape Indonesia's nickel industry by enabling the government to capture a greater share of value-added and fiscal revenue, while simultaneously strengthening its leverage over private firms through a royalty structure that incentivizes battery-grade production.

Partnerships

Australia has signed into 12 international partnerships, including bilateral investment treaties, multilateral partnerships, and memorandums of understanding (MOUs), while

Indonesia has entered into just 6 partnerships. Partnerships function like enablers, promoting coordination and information sharing among public and private actors on an international scale. The implementation of partnerships as a form of mineral industrial policy is relatively new. Australia didn't enter into any of its current formal mineral partnerships until 2021, and Indonesia didn't enter into any until 2019. Since 2021, Australia has entered into bilateral mineral agreements with Korea, India, Japan, the US, France, Germany, and the UK. Additionally, Australia has entered several multilateral partnerships, such as the Minerals Security Partnership (2022) and the Sustainable Critical Minerals Alliance (2022), and, as of 2025, the multilateral AUKUS agreement was expanded to include a critical minerals focus. Australia has focused on partnerships with major democracies worldwide. Notably, despite significant Chinese involvement in the Australian mining sector, Australia has no formal partnership with China.

On the other hand, the Presidential Reg. 26/2010, in which Indonesia joined the EITI transparency initiative, was the first mineral partnership the country entered into. The EITI transparency initiative is part of broader efforts to address transparency challenges in Indonesia and has supported a push for the disclosure of payments and production to improve mining sector governance. In 2022, Indonesia announced its participation in the Just Energy Transition Partnership (JETP), a global decarbonization partnership that, in part, supports the decarbonization of Indonesia's mining industry. Additionally, Indonesia has entered into MOUs with South Korea (2022), China (2024), the United Kingdom (2024), and Saudi Arabia (2025). Additionally, Indonesia is actively pursuing accession to the Organisation for Economic Co-operation and Development (OECD), a process that requires aligning domestic policies and regulatory standards with OECD norms, including those governing mining, environmental safeguards, and industrial practices.

Case Study: Nickel and Bauxite

To better understand how these two distinct mineral industrial policy models have been implemented, I contrast the country's respective industrial policies on nickel and bauxite production. It is important to note that, in addition to mineral industrial policies, demand, pricing, and global markets play major roles in mineral production and are key factors influencing the outcomes of industrial policies. Additionally, policies have a lag time; these factors can make linking policies to results challenging. However, these nuances further highlight the need to analyze mineral industrial policies and why mineral-producing countries must approach policy implementation with caution.

Indonesia has the largest nickel reserves in the world, 55 million metric tons, followed by Australia, with 24 million metric tons. Even though Indonesia has over twice as many reserves, in 2024, it produced roughly 20 times more nickel ore than Australia. Further, Australian nickel production peaked in the early 2000s, while Indonesian nickel production has grown rapidly since 2016. Despite global share of production peaking in the early 2000s, Australia still leads in the bauxite market, endowed with the second-largest bauxite reserves in the world (3,500 million metric tons in 2024).

Indonesia's global share of bauxite production peaked in 2013, before hitting a sharp decline and making a slow comeback since 2017. Indonesia has the fourth-largest bauxite reserves, with 2,800 million metric tons in 2024. Here, the relationship is flipped – Australia only has about 1.25 times more bauxite reserves than Indonesia, but in 2024 produced roughly 28 times more bauxite than Indonesia. Figure 2 demonstrates the ebb and flow of nickel and bauxite production in Australia and Indonesia since the 1980s.

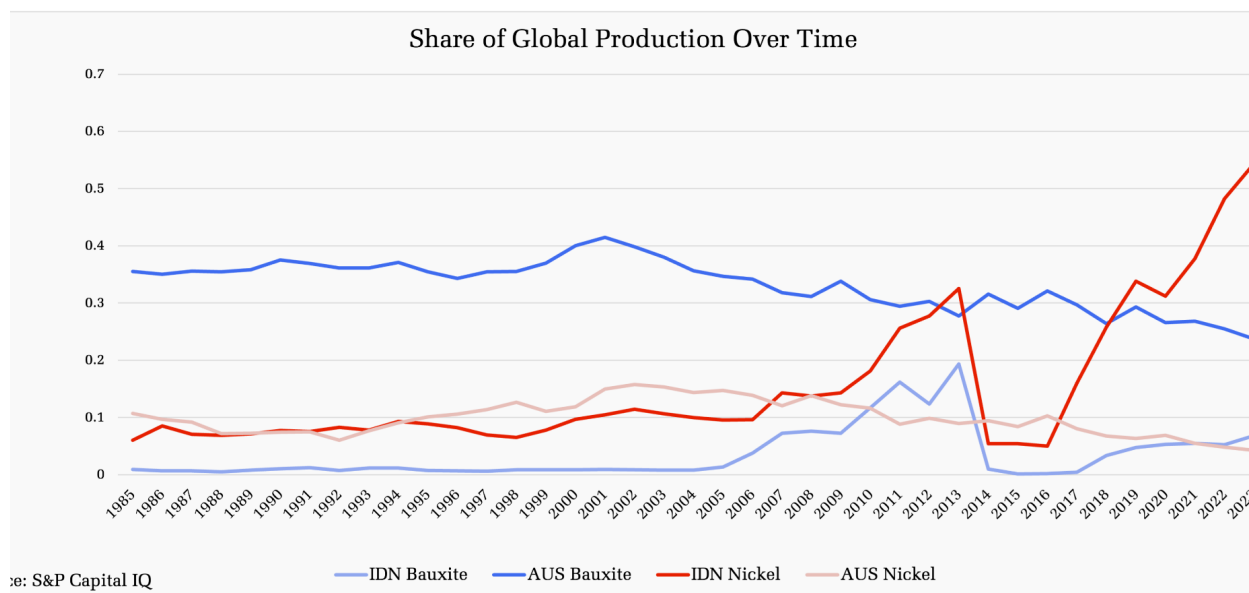


Figure 2 (above): Share of global nickel and bauxite production for Indonesia and Australia, 1985–2024, based on S&P Capital IQ data. Indonesia's nickel share remains modest until 2008, then accelerates sharply following the 2014 export ban and subsequent industrial upgrading, reaching nearly 60 percent by 2024. Australia's nickel share remains comparatively steady. For bauxite, Indonesia dominates until the mid-2000s but declines after 2014, while Australia's share remains stable. Data illustrate the divergent impacts of industrial policy on global mineral positioning.

Based on the policy analysis, we know that Indonesia primarily uses restrictions and penalties to manage the mineral sector. In 2012, Indonesia implemented a 20% tax on Nickel ore and concentrate materials. This was followed by several increasingly strict export bans on Nickel, culminating in a total export ban to incentivize domestic processing. The 2020 mining law centralized licensing authority, so only the federal government can issue mining licenses; since then, only companies that have downstream operations, such as nickel processing, may receive licenses. Another factor contributing to the increase in nickel production has been the influx of foreign investment into the mining sector. Since 2020, foreign investment in Indonesia's mining sector has grown from \$2.0 billion to \$5.2 billion. After the 2020 mining law was passed, foreign investors had to invest in building downstream smelting facilities, which were cost- and time-intensive, but many complied to maintain their mining investments in the country. Much of this foreign investment, particularly from Chinese firms, was attracted by Indonesia's uniquely high-grade nickel ore. Because few alternative sources could match its quality, investors maintained operations in Indonesia and adapted to

new policy requirements. In combination with these policy changes, Indonesia adopted domestic benchmark pricing to keep nickel ore prices below global levels. This keeps nickel ore affordable for Indonesian nickel smelters, aligning with the overall downstreaming policy. Going forward, Indonesia has also recently implemented several upstream-focused mineral industrial policies. All of the recent upstream-focused industrial policies in Indonesia were implemented in 2023. This includes the creation of the critical minerals list, as well as several regulatory reforms that increased permitting and eased mining territory allocation.

Indonesia's nickel policy has been successful; however, challenges around nickel ore availability have arisen. Sometimes there is too much nickel relative to the number of smelters, leading to increased illegal nickel exports, often to China. Other times, there is not enough nickel to meet the number of smelters, requiring imports of nickel ore from countries like the Philippines, an emerging producer. Additionally, the influx of foreign investment has raised concerns about domestic value-adds in technology and knowledge transfer to the local economy.

While Indonesia has implemented export bans for bauxite, these policies have been more inconsistent. The first raw bauxite export ban was imposed in 2014 but was lifted in 2017 after smelter development lagged. In 2023, President Jokowi reimposed a full export ban to revive investment in domestic alumina refining. However, unlike nickel, Indonesia has more limited and comparatively lower-quality bauxite reserves. When the export ban was reimposed, Chinese investors were able to replace this bauxite supply with reserves in Guinea. Whereas importers of nickel would struggle to find a replacement supply due to export bans, leading to compliance and foreign investment in smelters, the same is not true with bauxite. Therefore, the export ban is one of the key reasons why Indonesian bauxite production has dwindled. Despite these challenges, bauxite mining is likely to benefit from many of the upstream mining reforms implemented in 2023.

In contrast to Indonesia, Australia has prioritized enablers, incentives, and partnerships to support the domestic upstream and overall mining industries. With the second-largest bauxite reserves in the world, Australia has been a major producer of bauxite for several decades. Exploitation subsidies and import bans for bauxite were implemented in the 1970s to support the industry. These support policies built a strong foundation for the Australian bauxite industry, and therefore, the current bauxite output is, in part, due to legacy industry and policy. However, bauxite production in Australia began increasing significantly between 2016 and 2018, around the time that enabling policies like the Biodiversity Offset Scheme and the Australian Minerals National Mineral Exploration Strategy were implemented. None of Australia's policies in the last few decades have focused specifically on just bauxite, but rather the general upstream mining sector as a whole. Although the 2010s brought on intermittent spikes in the global share of bauxite production, bauxite production has been slowly declining since the early 2000s. Perhaps it is too soon to tell if some of Australia's recent upstreaming policies have made an impact on bauxite. Despite this steady decline, Australia's bauxite

production still outpaces Indonesia, and will likely continue to due to Australia's vast reserves.

While bauxite production has continued to maintain dominance, Australian nickel production has steadily declined over the past ten years and has been decreasing at an even faster rate since 2016. Australia's global share of nickel production outpaced Indonesia until 2010, and then again for a short period from 2014 to 2016. Australian policies directly impacting nickel mining emerged recently. In 2020, the Australian federal government supported nickel exploration through the Exploring the Future program (2020). In 2024, Western Australia implemented a royalty relief on nickel to incentivize production. Additionally, the 2025 Future Made in Australia Plan includes tax credits and grants to promote domestic mineral mining and processing. Since these policies were recently implemented, it may take several years to observe their impact on nickel ore production.

The diverging outcomes between Indonesia and Australia demonstrate that timing, market structure, and resource characteristics fundamentally shape the success of mineral industrial policies, regardless of policy type or categorization. Indonesia's rapid rise in nickel production, surpassing Australia despite its later start, stemmed from a combination of high global demand for battery materials, strict downstream mandates, and the presence of uniquely high-grade ore that foreign investors couldn't easily substitute. The policy sequence forced investment into smelting just as Chinese firms were scaling up capacity, locking in downstream integration. In contrast, Indonesia's bauxite policies failed to replicate this success because its reserves were less competitive, and buyers could easily pivot to Guinea. Australia, meanwhile, maintained a steady, market-friendly approach through enablers and incentives that fostered stability but lacked the coercive power or urgency to generate comparable downstream transformation. Ultimately, these mixed outcomes reveal that mineral-based industrial policies are highly sensitive to interactions with demand, pricing, global markets, and the timing of policy implementation.

Key Takeaways and Looking Towards the Future

How will Indonesia's and Australia's domestic mineral industrial policy models evolve in the future? To answer this question, we first need to understand that policy goals and methods stem from different contexts. Australia is a high-income, developed country pursuing incentives, enablers, and partnerships; Indonesia is a rapidly developing middle-income country pursuing primarily restrictions and penalties, as well as enablers. For example, Australia, as a high-income country, is pursuing more policies at the expense of government funding, while Indonesia, as a middle-income country, is pursuing more policies at the expense of the private sector. As Indonesia continues to develop and achieve key goals in value-added mining development, its industrial policy strategies may begin to shift.

The nickel and bauxite case study demonstrated that timing, market structure, and resource characteristics fundamentally shape the success of mineral industrial policies, regardless of policy type or categorization. Therefore, the effectiveness of mineral-based industrial policy depends not just on policy models but also on alignment between policy design, resource endowment, and the global demand cycle. Mineral industrial policies cannot control domestic markets; they can only attempt to shape them. That means that even if we understand how mineral-producing countries make decisions and set policies, there is always uncertainty about future outcomes.

Finally, global connectivity plays a key role in domestic mineral markets and mineral industrial policies. As Australia and Indonesia continue to implement mineral industrial policies to shape the role of mining in their domestic economies, these policies will also determine how they can help meet global demand for critical minerals, support decarbonization, and shape global finance and geopolitics. The past five years have seen a major increase in mineral industrial policies, not only in Australia and Indonesia, but also around the world in countries like the US and China. The way Indonesia and Australia are navigating critical mineral opportunities and challenges has impacted global supply chains, not only in terms of production levels, but also in financial pathways and geopolitical trade blocs. These models reflect the broader global trend that mineral supply chains are becoming more regionally fragmented. At the same time that Australia and Indonesia's domestic mining industries are impacting the global supply chain, the global geopolitical and financial ecosystem is also impacting their domestic mining industries and decisions around mineral industrial policies. Future research should consider the role of foreign actors in domestic mining ecosystems, whether through foreign direct investment or global partnerships.