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Creating and Leveraging Opportunities for Mineral-Rich Countries

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An initiative of the



3. Creating and Leveraging Opportunities for Mineral-Rich Countries

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Summary:

Increasing demand for transition minerals is perceived by many resource-rich countries as a new opportunity to boost revenue and advance towards industrialization. While these resources present substantial economic opportunities, countries often remain limited to raw material extraction due to infrastructure, investment, and governance challenges and/or market dynamics which do not support the emergence of new or localized clusters of operations.

Efforts to move down the value chain through processing localization mandates and/or export bans, as seen in Zimbabwe's lithium policies, have had mixed results, mostly leading to inefficiencies and reduced production. Examples like Indonesia's nickel sector must also be considered carefully, balancing socio-economic benefits with environmental impacts. Nationalization efforts, such as Chile's new lithium strategy, also illustrate the difficulty of driving sustainable and positive outcomes from such policies.

International partnerships, North-South collaborations, and regional integration efforts also aim to enhance processing capabilities and increase industrialization. However, these endeavors face significant hurdles, including weak institutions, political instability, and the need for substantial investment and capacity building. Robust regulatory frameworks, capacity building, and regional cooperation to harness the full potential of mineral resources while ensuring sustainable development and equitable benefits for local communities are crucial.

3.1. Navigating Economic Opportunities and Challenges in Mineral-Rich Countries

Amidst the rush to access critical minerals in the energy transition, resource-rich countries are hoping to capitalize by adding value to raw materials through refining, smelting, and manufacturing components of batteries and other green technologies. This is not the first attempt for many of these countries at developing such forward linkages. However, in many mineral-rich developing countries there are often far more economic development

opportunities in the short to medium term in backward linkages – mining companies purchasing goods and services – fostered by local content policies, and in optimizing mineral governance and resource management. Adding value through refining and creating finished goods from minerals could remain a long-term goal in some cases, but local procurement and employment are often mining's most effective developmental contribution.

Moving down the Mineral Value-Chain

Mineral deposits crucial for the energy transition are often exploited in concentrated clusters in **emerging economies**. The Lithium triangle (Bolivia, Chile, Argentina) holds around 54% of the world's lithium [1], an essential component in batteries for electric vehicles and energy storage systems. In Southeast Asia, Indonesia represents 40% of global nickel production [2]. Approximately 30% of the world's transition minerals are believed to be situated within the African continent [3].

Although resource-rich countries are integrated into the global value chains, their role continues to be generally **limited to extraction and exportation of raw materials**. Advancing to processing industries can present an opportunity to industrialize and develop, increasing fiscal revenue as exports gain in value, creating new and highly technical employment opportunities, and fostering an ecosystem of supplier and product-consuming industries. In addition to diversifying their economies and reducing their exposure to price volatility commonly associated with raw commodity production, moving down the value chain could bring higher revenues, higher-skilled jobs training for local communities as well as positive technological spillovers. The International Monetary Fund projects that the extraction of select minerals could boost the African region's GDP by 12% or more by 2050 [4].

Furthermore, the processing of most minerals, including those most critical to energy and industrial transitions, is highly concentrated, increasing supply chain risk and creating bottlenecks that are vulnerable to economic or geopolitical shocks. As a result, this leverage can be used to flex political muscle [5]. Diversifying the location and control of processing and other downstream operations could foster more efficient and possibly more transparent markets, unlocking opportunities for

partners of the relevant resource-rich countries – an ecosystem approach necessarily entails consideration of partnerships at industrial and policy levels.

Challenges in Establishing Value-Added Industries

Mining and processing both demand enabling conditions including infrastructure, skills, commercial relevance of their product, and substantial investment. For example, beyond meeting the high energy demands of processing plants, a comprehensive transport network – trains, containers, trucks, and ample storage space, all integrated with custom port facilities – is vital for the efficient movement of many minerals and the equipment and consumables necessary to process them [6]. As such, a major hurdle is financing mineral transformation operations in countries which may not present sufficient downstream markets or connect to global value chains easily. Public finances have been especially under strain post-Covid, and domestic firms mostly lack technical and financial capacity for new processing operations, while capital pools focusing on these operations are mostly reluctant to take on the operational and political risk of operating in frontier countries.

Numerous resource-rich States have nonetheless expressed their objective of moving down the value chain, not only to processing but also manufacturing, and have adopted policies generally associated with resource nationalism: processing localization mandates, export bans and/or nationalization policies. However, these policies often incur high costs and are difficult to enforce, sometimes leading to inefficiency and rent-seeking behavior. Notably, past mineral export bans in countries like Tanzania and Zambia have paradoxically resulted in decreased local production of both processed and raw minerals [7]. Studies on export control measures found that such measures, despite

their goal of enhancing local processing, often fall short. They can even negatively impact the industry by reducing mineral exports.

Furthermore, it is also notable that “green” or sustainable refining remains an emerging field for which relatively few standards and studies have been developed to date, and for which best practice is scarce, leading stakeholders to question whether processing actually constitutes “value addition” when considering both the uncertainty of the business case and the environmental and social impacts this industry can have.



Indonesia's Nickel Export Ban: Successes & Challenges

Indonesia's ban on nickel ore exports in 2014 in a bid to grow a domestic processing industry has been hailed as a success in terms of export revenue gains. It enabled it to attract more than \$15bn of foreign investment in nickel processing, primarily from China, and to build an extensive domestic smelting industry, as well as battery plants and several electric vehicle factories [8]. However, while the export revenue gains are evident, the extent to which this revenue is retained and equitably shared within the country remains uncertain. This is mostly due to the capital-intensive nature of the nickel sector, the high share of foreign equity and the sector's limited linkage with other parts of the economy beyond the primary sector. Moving down the value chain has not concretely translated into development gains for the Indonesian populations.

Furthermore, the ecological impact of this new industry heavily reliant on coal-fired power has caused international and stakeholder concern: even as Indonesia produces the vast majority of nickel so necessary to a global energy transition, it is doing so by burning huge quantities of fossil fuels, thereby exacerbating the climate stakes the same transition aims to address. This incoherence is both a mark on transition policies in consumer regions and a significant failure of global governance to mitigate climate impacts. Nevertheless, Jakarta is planning taxes on exports of intermediate nickel products, with the goal of encouraging the development of a full electric vehicle supply chain [9] [10].

Finally, a few countries have turned towards the **nationalization of their mining industries** in the hope of controlling and managing valuable mineral resources. In April 2023, President Gabriel Boric announced plans to nationalize Chile's lithium industry [11], with the state taking a majority stake in all new lithium contracts and exploration/extraction areas. This announcement builds on Chile's strong institutions and its successful nationalization of its copper resources in the 1960s and 70s, with the creation of the national company Codelco [12]. However, Chile stands out as an exception – **most countries having attempted nationalization of their resources were unsuccessful**. Examples such as Zambia and Peru also attempted to nationalize their mining industries in the same time period and ran into corruption and mismanagement issues [13] [14]. Whether Chile can replicate its success with copper in the lithium sector remains to be seen – several companies have shown interest in developing new lithium projects and are awaiting clarification on the 2023 lithium strategy to pursue them [15].



3.2. Transforming Resource Wealth: Opportunities for Mineral-Rich Nations

North-South Partnerships for Added-Value

In recent years, partnerships between resource-rich nations aiming to advance down the value chain and those requiring minerals for their energy transition have multiplied. These partnerships all encompass some form of commitment from “buyer” partners to bolster smelting and transformation capacities in “producer” partner countries, as well as to enhance expertise and capabilities. The European Union (EU) has now entered into 12 such “Strategic Partnerships” with Argentina, Australia, Canada, Chile, the Democratic Republic of the Congo, Greenland, Kazakhstan,

Namibia, Norway, Rwanda, Ukraine and Zambia, all including a pillar on local value addition, and is similarly refocusing aspects of its relations with Brazil, China, Colombia, Japan, Mexico, Peru, the United States (US), Uruguay, the EuroMed countries and the African Union around critical minerals [16]. The US is orchestrating the Mineral Security Partnership (MSP), a collaboration of fourteen countries and the EU to catalyze public and private investment in responsible critical minerals supply chains globally, which will continue to expand its outreach to resource-rich countries with the newly formed MSP Forum [17]. Another significant example is the MoU

between the US, the Democratic Republic of Congo (DRC), and Zambia, aimed at bolstering electric vehicle battery production in these nations [18].

There are several limitations to these partnerships. For processing industries to emerge and support sustainable economic development, a number of **enabling** conditions must be met, including a skilled workforce, technical expertise, consistent policies, and strong institutions and frameworks. In-depth understanding of market dynamics and strategic positioning of industrial opportunities are also essential to harness the full potential of processing facilities and drive sustainable industrial growth – unfounded assumptions as to the economics of processing cannot drive political ambitions. Attempts to add value to mineral exports may not be economically viable or competitive on a global scale, leading to the erosion of existing industries and potential deindustrialization. Value-added products may face stiff competition from established producers in global markets, making it challenging for resource-rich countries to capture market share and achieve sustainable profitability.

Without these enabling conditions and concerted efforts, processing industries risk becoming yet another source of environmental destruction and social disruption, generating unreliable revenue without fostering long-term industrialization and development gains.

Finally, one of the key expectations associated with moving down the value chain is the opportunity to access new technologies and acquire advanced skills. As industries advance along the value chain, the demand for new technologies and a diverse range of competencies escalates. However, whether this progression will truly benefit the country and its population hinges on a holistic approach, encompassing not only the acquisition of new technology but also the maintenance and

reproduction of this technology domestically. Additionally, creating an environment that uplifts locally trained individuals will be essential to prevent any adverse consequences of brain drain.

Capacity Building for Responsible Mining in Resource-Rich Countries

Developing resource-rich countries often lack the **human, financial, and expertise resources** to fully implement their own mineral governance frameworks, negotiate contracts with multinational corporations, and monitor and hold mining companies accountable. Additional challenges stem from the fact that substantial reserves of minerals are found in hotspots for biodiversity, as well as lands traditionally belonging to indigenous peoples.

Establishing robust regulatory frameworks and institutions for responsible mining management is vital for instilling confidence among investors, companies and local communities. This involves integrating strong environmental and social safeguards, transparent revenue management, and benefit sharing with the population. Numerous organizations, including the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, the Extractive Industries Transparency Initiative, and the World Bank, are dedicated to supporting resource-rich countries in developing these frameworks. Assistance is also available through various channels, including training programs and knowledge-sharing initiatives to help with the implementation of these norms as countries face obstacles such as limited institutional capacity, corruption, and political instability [19].

Capacity building should also be directed towards assisting **resource-rich countries in understanding the scope of their own resources**. Private companies often boast a deeper technical and geological understanding

of the reserves they plan to exploit compared to the resource-rich nations themselves, which can lead to unequal contract negotiations. Therefore, centralizing and disseminating geological data on a country's underground reserves is always essential to sound resource management. However, funding is indispensable for such initiatives, and resource-rich countries typically lack the financial means to spearhead costly exploration projects without any assurance of returns, robust regulatory frameworks and institutions [20].

Finally, with the numerous actors dedicated to capacity building efforts in resource-rich countries, there is generally a **lack of coordination among the various actors involved in the capacity-building initiatives**, as governments may not have the capacity to coordinate or map ongoing efforts in different sectors. This can therefore lead to duplication of efforts, inefficient use of resources, and confusion among stakeholders.

3.2. The Possibilities of Deeper Regional Integration

Regional policy approaches that leverage the diversity in minerals, expand often narrow and/or shallow markets, and pool resources can tackle challenges more effectively than isolated efforts. At the country level, structural reforms can complement these regional efforts, nurturing domestic firms in both the processing sector and its supportive industries. This presents an opportunity for these countries to capitalize on their combined mineral resources and collective bargaining power. Through such collaboration, transaction costs could be minimized, intra-regional synergies fostered, competitiveness enhanced, and economies of scale realized.



Africa

Capacity building and North-South partnerships could focus on capitalizing and investing in existing regional frameworks for the governance of mineral resources on the African continent, the most notable of which is the **African Mining Vision (AMV)** published in 2009 by the African Union [21]. An African Development Minerals Center (AMDC) was set up to implement the AMV, and is now developing an **African Green Minerals Strategy (AGMS)** in partnership with the African Development Bank, African Legal Support Facility (ALSF), United Nations Economic Commission for Africa (UNECA), and United Nations Development Programme (UNDP) [22] [23]. However, these frameworks lack capacity (the AMDC currently employs four to five people) and buy-in from many resource-rich African states, and implementation has barely progressed in the last fifteen years.

Another promising African regional framework is the **African Continental Free Trade Area (AfCFTA)** which is entering into its operational phase in April 2024 [24]. This free trade area could potentially create a larger and more interconnected market for minerals, enhancing the region's investment appeal. Simplifying bureaucratic procedures and harmonizing mining regulations across borders would foster a stable, predictable investment environment.

Furthermore, the operationalization of the AfCFTA could potentially unite fragmented mineral markets for larger-scale operations and **form regional value chains** that draw on both raw and processed mineral inputs. A 2021 report by BloombergNEF found that the DRC, in partnership with South Africa, Gabon (manganese) and Madagascar (nickel), could leverage its cobalt resources and its hydroelectric power to become a low-cost and low-emissions producer of lithium-ion battery cathode precursor materials [25]. It estimates that it would be three times cheaper to build a cathode pre-cursor plant in the DRC than in the US; and similarly, much cheaper and less polluting than in China and Poland. In line with this study, the DRC and Zambia have started to collaborate on electric battery production for two- and three-wheeled electric vehicles for Africa [26]. Success in these smaller regional initiatives can pave the way for larger, more comprehensive hubs for regional mineral processing and manufacturing.

However, a combination of political, economic, infrastructural and institutional challenges has **hindered deeper regional integration in Africa** despite the numerous regional economic communities and the African Union's push for continental integration [27]. Political instability, civil wars, and conflicts in some African countries have severely disrupted regional economic integration efforts. The strong desire to preserve national sovereignty and identity, especially among the newly independent African nations in the 1960s, has also made

countries reluctant to cede authority to regional bodies [28]. Lastly, as aforementioned, the lack of human, institutional and financial capacities in many African countries and regional bodies has hampered efforts to effectively implement and sustain regional integration initiatives.

Latin America

Since at least July 2022, ministers and officials from Chile, Argentina and Bolivia have been engaged in talks about potentially **coordinating their policies and production of lithium resources** through some form of strategic alliance or cartel-like organization, similar to OPEC for oil. The main motivations appear to be increasing their collective bargaining power over lithium prices, controlling the pace of extraction to align with national development goals, and capturing more value from their lithium reserves amid soaring global demand. However, several obstacles exist, including **historical tensions and mistrust between the countries**, diverging national interests, competition from other lithium sources, potential resistance from industry, and the unique nature of lithium as a specialty product rather than a commodity like copper. While concrete details are lacking, the foreign ministers have reportedly been in "advanced talks", and Bolivia's president has indicated openness to a common lithium policy for the region [29] [30].

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