India’s Critical Mineral Security Strategy: KABIL’s Overseas Push, Global Supply Risks and the Road to Mineral Resilience

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Recent Developments:

- India is pursuing an integrated **critical-mineral security strategy** covering domestic exploration, overseas asset acquisition, processing, recycling, substitution and supply-chain diversification because critical minerals are essential for **electric vehicles, batteries, renewable energy, electronics, defence and advanced manufacturing**.
- The Union Cabinet approved the **National Critical Mineral Mission (NCMM)** on **29 January 2025** to strengthen the entire critical-mineral value chain, from exploration and mining to beneficiation, processing and recovery from end-of-life products.
- The NCMM has set an objective of completing **1,200 exploration projects** and auctioning **100 critical-mineral blocks** by **2030–31**, while Indian entities are expected to secure at least **50 overseas mineral assets**.
- **Khanij Bidesh India Ltd. (KABIL)** has secured exploration and development rights for **five lithium brine blocks in Catamarca, Argentina**, covering approximately **15,703 hectares**.
- India has also pursued opportunities in **Australia and Chile**, but financial constraints, due-diligence timelines, commodity-price volatility and intense international competition have complicated overseas acquisitions.
- The emerging lesson is that **mineral security cannot be achieved merely by owning mines**; India also requires domestic capabilities in **beneficiation, refining, battery materials, recycling, technology and manufacturing**.

Why Critical Minerals Matter for India:

Strategic and Economic Importance:

- **Critical minerals** are minerals that have high economic or strategic importance but face significant supply risks because of geographical concentration, limited substitutes or difficulties in extraction and processing.
- **Lithium, cobalt and nickel** are important for battery technologies, while **rare earth elements** are essential for permanent magnets, electronics, defence systems and advanced technologies.
- **Graphite** is important for battery anodes and several industrial applications, while other critical minerals support aerospace, telecommunications, semiconductor manufacturing, renewable energy and defence production.
- India’s transition towards **electric mobility, renewable energy and energy storage** is expected to substantially increase demand for these minerals.
- Critical minerals are also relevant to **India’s defence preparedness**, because advanced weapons systems, aerospace platforms, sensors, electronics and communication technologies require specialised mineral inputs.
- The geographical concentration of global supply creates a strategic vulnerability because disruptions caused by geopolitical tensions, export restrictions, resource nationalism or supply-chain shocks can affect domestic industries.

Global Supply Concentration:

- The Ministry of Mines notes that at least **55% of identified critical minerals are concentrated in only 15 countries**, creating significant geographical supply risks.
- **China** has a dominant position in rare-earth production and processing, while countries such as the **Democratic Republic of Congo, Indonesia, Australia and Latin American states** are important sources of different critical minerals.
- The major strategic challenge is not limited to mining because **processing and refining capacity is itself highly concentrated**, making downstream dependence an important component of mineral insecurity.
- Consequently, India must pursue both **resource diversification** and **processing diversification**.

KABIL and India's Overseas Mineral Strategy:

Institutional Structure and Mandate:

- **Khanij Bidesh India Ltd. (KABIL)** was established in **2019** as a joint venture of **National Aluminium Company Ltd. (NALCO), Hindustan Copper Ltd. (HCL) and Mineral Exploration & Consultancy Ltd. (MECL)** under the aegis of the Ministry of Mines.
- KABIL's principal mandate is to **identify, explore, acquire and develop overseas mineral assets** containing critical and strategic minerals.
- Its overseas strategy seeks to provide Indian industries with a more reliable source of minerals that cannot be adequately supplied through domestic production.
- KABIL therefore represents the external component of India's broader **mineral-security strategy**, complementing domestic exploration and recycling.

Argentina — The Most Concrete Overseas Progress:

- KABIL signed an **Exploration and Development Agreement** with **CAMYEN**, a state-owned company of Argentina's Catamarca province, for five lithium brine blocks covering approximately **15,703 hectares**.
- The project is strategically significant because Argentina is part of the **Lithium Triangle**, alongside Bolivia and Chile, which contains some of the world's major lithium resources.
- KABIL's Argentina project provides India with an opportunity to participate directly in the upstream stage of the lithium value chain rather than depending entirely on spot-market purchases.
- Government material indicates that the first phase of non-invasive exploration has been completed, with a feasibility study targeted subsequently and production envisaged towards the end of the decade.
- The project illustrates how overseas resource acquisition can support India's emerging **battery manufacturing and electric-mobility ecosystem**.

Australia — Lessons from a Missed Opportunity:

Mt Marion and Wodgina Lithium Assets:

- In **December 2024**, a consortium involving **KABIL, Coal India Ltd., Oil India Ltd. and ONGC Videsh Ltd.** submitted a non-binding offer for stakes in Australia's **Mt Marion and Wodgina lithium mines**.
- The Indian consortium subsequently revised its offer after the bidding process was reopened, but the assets were ultimately acquired by **South Korea's POSCO**.
- The episode demonstrated the intense international competition surrounding high-quality lithium assets.
- India's difficulty in competing for such assets highlights the importance of **financial depth, valuation expertise, rapid decision-making and risk-bearing capacity** in overseas mineral investments.

Key Lessons for India:

- High international valuations can make strategic mineral acquisitions financially risky, particularly when commodity prices are volatile.
- **Lithium-price volatility** can significantly alter the expected profitability of mining projects and complicate long-term investment decisions.
- Divergent forecasts regarding future **spodumene concentrate prices** create additional uncertainty for lithium-mining investments.
- The absence of a sufficiently developed domestic **spodumene-to-battery-material value chain** can reduce the economic value of acquiring an upstream asset.
- Limited time for consortium partners to conduct **technical, financial, legal and environmental due diligence** can weaken the quality of investment decisions.
- The experience demonstrates that mineral acquisition must be integrated with **domestic processing and manufacturing capacity**.

Chile — Financial and Institutional Constraints:

Lithium Opportunities:

- KABIL has explored opportunities involving Chilean lithium resources, including engagement with **ENAMI**, Chile's state-owned mining company.
- The potential cooperation covered the broader lithium value chain, including **exploration, extraction, processing and commercialisation**.
- KABIL also examined a separate high-value lithium-brine opportunity after signing a **non-disclosure agreement** and obtaining access to project information.
- The scale of investment encouraged KABIL to explore cooperation with other Indian public-sector entities, but **due diligence could not be completed within the available timeframe**, preventing participation in the relevant bidding process.
- Another Chilean opportunity was eventually transferred to **Coal India Ltd.** because of KABIL's limited financial capacity and the substantial capital already committed to its Argentine projects.

Structural Challenges Facing KABIL:

Financial Constraints:

- Overseas critical-mineral projects require **large upfront capital**, while mining projects often have long gestation periods before commercial production begins.
- Public-sector entities may therefore face difficulty simultaneously financing multiple overseas projects across different countries.
- The government's NCMM recognises this challenge and provides financial support for **foreign sourcing of critical minerals** as part of the broader mission architecture.

Commodity-Price Volatility:

- Critical-mineral prices can experience substantial fluctuations because of changes in electric-vehicle demand, technological developments, new mining capacity, inventory cycles and geopolitical developments.
- High-priced acquisitions undertaken during a commodity boom can become financially unattractive if prices subsequently decline.

Global Competition:

- India competes with countries possessing greater financial resources, stronger mining companies and established downstream processing capabilities.

- Strategic mineral assets are increasingly viewed as instruments of **economic security and technological power**, intensifying competition among major economies.

Geopolitical and Host-Country Risks:

- Overseas mining investments are exposed to **regulatory changes, political instability, resource nationalism, taxation changes, environmental opposition and community resistance**.
- Long-term mineral security therefore requires diversified geographical sourcing rather than dependence on a small number of foreign jurisdictions.

India's Integrated Critical-Mineral Strategy:

National Critical Mineral Mission:

- The **National Critical Mineral Mission** seeks to strengthen India's critical-mineral value chain from exploration and mining to beneficiation, processing and recovery from end-of-life products.
- The mission combines **domestic exploration, overseas sourcing, recycling, research and development, processing infrastructure and human-resource development**.
- It aims to support the exploration of **1,200 projects**, auction **100 critical-mineral blocks** and promote domestic production of at least **15 critical and strategic minerals** by 2030–31.
- Indian entities are also expected to secure at least **50 overseas mineral assets**, which could contribute around **5% of annual critical-mineral demand** by 2031.

Domestic Resource Development:

- India has expanded exploration and auctioning of critical-mineral blocks following amendments to the **Mines and Minerals (Development and Regulation) Act**.
- Government data indicate significant identified resources of minerals such as **rare earth elements, niobium, graphite, lithium, nickel and cobalt**, although geological resources do not automatically translate into economically recoverable reserves or commercial production.
- This distinction is important because **resource availability, economic viability, extraction technology and processing capacity** determine actual mineral security.

Recycling and Circular Economy:

- Recycling can reduce dependence on primary mining by recovering minerals from **used batteries, electronic waste and industrial residues**.
- The government has introduced measures to support the recovery of critical minerals from **overburden, dumps and tailings**, thereby improving resource efficiency.
- Developing domestic recycling capacity is particularly important for lithium-ion batteries because recovered materials can re-enter the manufacturing cycle.

Processing and Value Addition:

- India must move beyond the acquisition of raw mineral resources towards domestic **beneficiation, refining, chemical conversion, precursor production and advanced-material manufacturing**.
- The Union Budget **2026–27** proposed customs-duty exemption for capital goods required for processing critical minerals in India, supporting the development of domestic processing capacity.
- This approach can help India capture greater value from imported or domestically produced minerals and reduce vulnerability to foreign processing hubs.

Way Forward:

Strengthen KABIL:

- KABIL should receive greater **financial autonomy, specialised mineral expertise, professional project evaluation and faster inter-PSU coordination**.
- Overseas investments should be assessed through rigorous **technical, geological, financial, environmental and geopolitical due diligence**.
- India should develop a portfolio approach in which several smaller investments across countries reduce the risks associated with dependence on a single large project.

Promote Risk-Sharing Partnerships:

- Indian PSUs can collaborate with **private companies, foreign governments, sovereign entities and global mining firms** to distribute financial and operational risks.
- Long-term **offtake agreements, joint ventures and sovereign-to-sovereign arrangements** can provide greater supply certainty without requiring complete ownership of mining assets.
- India should also use strategic partnerships under platforms such as the **Minerals Security Partnership** and other bilateral and plurilateral arrangements to diversify supply chains.

Build Domestic Value Chains:

- The ultimate objective should be **mineral security rather than ownership of individual mines**.
- India should simultaneously develop **mineral processing, refining, battery materials, permanent magnets, recycling and advanced manufacturing**.
- Technological substitution should be encouraged wherever economically and strategically feasible because reducing dependence on a particular mineral can be as valuable as securing additional supplies.

Conclusion:

- India's experience with KABIL demonstrates that **critical-mineral security is a value-chain challenge rather than merely a mining challenge**.
- Overseas acquisitions can provide strategic access to resources, but financial constraints, commodity volatility, geopolitical risks and intense competition make a mine-by-mine acquisition strategy insufficient.
- India therefore needs an integrated framework combining **domestic exploration, overseas assets, diversified suppliers, strategic stockpiles, recycling, substitution, processing capacity and resilient manufacturing ecosystems**.
- The **National Critical Mineral Mission** provides the institutional framework for this transition, while KABIL can serve as an important instrument for securing overseas resources.
- The strategic objective should ultimately be to ensure that disruptions in any individual country, mine or processing facility do not threaten India's **energy transition, technological development, defence preparedness or manufacturing competitiveness**.

Value Addition for UPSC:

Key Conceptual Framework:

- **Critical minerals ? strategic dependence ? supply-chain vulnerability ? overseas diversification ? domestic processing ? recycling and substitution ? mineral security.**
- **Upstream security** means securing access to mineral resources through domestic exploration and overseas assets.
- **Midstream security** means developing beneficiation, refining and chemical-processing capabilities.
- **Downstream security** means establishing competitive manufacturing of batteries, magnets, electronics, defence equipment and renewable-energy technologies.
- **Circular security** means recovering critical minerals through recycling and urban mining.
- A strong UPSC conclusion can therefore state: **"India's critical-mineral strategy must evolve from securing mineral ownership to securing the entire mineral value chain."**