BUILDING RESILIENCE

The India-Canada Critical Minerals Partnership in an Era of Strategic Competition

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COUNCIL FOR STRATEGIC AND DEFENCE RESEARCH

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ABOUT THIS REPORT

This report examines the strategic rationale and operational framework for India-Canada cooperation on critical minerals amid intensifying Great Power competition and supply chain vulnerabilities. Authored by the Council for Strategic and Defense Research (CSDR), it analyzes how China's dominance across critical mineral value chains—particularly its weaponization of rare earth elements through export controls—has created urgent imperatives for both nations to diversify their supply chains and enhance economic security.

The report provides comprehensive assessments of India's recent regulatory transformation, including the MMDR Act amendments and National Critical Minerals Mission, alongside Canada's mature mining ecosystem and strategic positioning as an alternative supplier. Drawing on bilateral ministerial statements, policy documents, and industry data through December 2025, it identifies concrete cooperation opportunities across upstream exploration, midstream processing, and downstream value addition. The analysis concludes with actionable recommendations for establishing institutional mechanisms, facilitating technology transfer, and building long-term supply partnerships that could become a cornerstone of renewed India-Canada strategic relations.

ABOUT CSDR'S GEOPOLITICS AND INTERNATIONAL SECURITY PROGRAM

The Geopolitics and International Security Program explores and analyzes India's foreign policy decisions by conducting in-depth research and analysis. The program monitors India's engagement with a rising China and the evolving dynamics in regions like the Himalayas and South Asia. It also studies the complex geopolitics involving great powers and its impact on India's strategic interests.

ABOUT COUNCIL FOR STRATEGIC AND DEFENSE RESEARCH

Founded in January 2020 by Lt. Gen. D.S. Hooda (Retd.) and Dr. Happymon Jacob, CSDR is an innovative think tank and consultancy specializing in foreign policy, geopolitical risk, connectivity, and critical areas of defense and aerospace. With a focus on the Indian subcontinent, Eurasia, and the Indo-Pacific, CSDR is committed to generating strategic insights that drive meaningful change. Read more at www.csdronline.com

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Executive Summary

After two years of diplomatic estrangement, India and Canada are rebuilding their relationship with critical minerals cooperation emerging as a strategic cornerstone. The timing is crucial: China's dominance across critical mineral value chains—controlling 70% of global refining on average and over 90% of rare-earth processing—has created unprecedented supply chain vulnerabilities worldwide. Beijing's escalating export controls and the weaponization of the supply of critical minerals, particularly the 2025 restrictions on rare earth elements that forced global automotive production cuts, underscore the urgency of supply chain diversification.

For India, the stakes are existential. The country is 100% import-dependent on 10 critical minerals and relies on China for over 90% of its rare earth elements. When China halted exports of rare earth magnets in 2025, Indian automobile manufacturers faced severe production disruptions, exposing dangerous strategic vulnerabilities. Despite significant domestic reserves—including the world's third-largest rare-earth deposits—India's mineral sector has historically been hamstrung by regulatory barriers and structural inefficiencies, ranking it among the bottom 10 globally for mining policy perception.

Canada presents a compelling counterweight, with the world's largest known rare earth reserves and a mature mining ecosystem that produced over $52 billion in minerals in 2023. However, Ottawa faces its own challenges: 15-20-year mine development timelines, heavy export concentration to the United States (60% of critical mineral exports), and Chinese ownership stakes in key Canadian mining operations create vulnerabilities that bilateral cooperation could help mitigate.

Recent developments signal genuine political commitment. High-level ministerial engagements in 2025 produced the India-Canada Critical Minerals Annual Dialogue framework, with explicit government support for long-term supply partnerships. More significantly, India's systematic regulatory overhaul since 2023—including amendments to the MMDR Act enabling 100% FDI, auction mechanisms for critical mineral blocks, and the National Critical Minerals Mission with nearly $4 billion in funding—represents a fundamental restructuring that creates unprecedented opportunities for Canadian investment and technology transfer.

The strategic logic is compelling: Canada can diversify away from tariff-uncertain US markets while India reduces catastrophic dependence on China. With 22 common critical minerals and complementary strengths—Canada's extraction and refining expertise paired with India's emerging market scale and downstream manufacturing growth—bilateral cooperation offers mutual economic security. Success requires targeted action: bilateral off-take agreements with price-stabilization mechanisms, joint R&D on upstream technologies, regulatory harmonization through Joint Working Groups, and institutional frameworks that facilitate Canadian pension fund investments in India's nascent critical minerals ecosystem. This partnership could establish a resilient alternative axis in critical minerals supply chains while cementing bilateral ties.

Introduction

After two years of severe, protracted diplomatic tensions, the India-Canada relationship is finally on track for renewal. A pivotal moment of normalization occurred at the 2025 G7 Summit, hosted by Canada in June 2025, when Indian PM Modi met with Canadian PM Mark Carney for bilateral talks.[1] Yet, as New Delhi and Ottawa now reconstruct their relationship, they are cognizant that major geopolitical and geoeconomic shifts during their estrangement have reshaped global trade dynamics, threatened their respective economic security in novel and even unprecedented ways, and subsequently altered their shared interests in bilateral ties.

The critical minerals sector stands out as a key area where new strategic focus is evident for both India and Canada, and for good reason, given that it has emerged as a primary flashpoint in great power rivalry and caused severe supply chain insecurity for the rest of the world, and threatens the global clean energy transition. In recent years, especially in 2025, concerns have escalated significantly due to China's dominance and its willingness to 'weaponize' supply chains.

In this context, while New Delhi and Ottawa have historically had limited collaboration in critical minerals, they have recently indicated a clear intention to build cooperation in the sector, which can emerge as a pillar of the 'new' bilateral relationship.

To begin with, in June, the subject was on the agenda for talks between PM Modi and PM Carney, and India endorsed Canada's 'Critical Minerals Action Plan' at the G7. In October, when the Canadian Foreign Minister Anita Anand visited India, advancing clean and secure energy cooperation was part of detailed discussions, with emphasis on how Canadian critical mineral reserves, mining expertise, and technologies can help meet India's energy security requirements.[2] Importantly, the visit saw the announcement of an India-Canada Critical Minerals Annual Dialogue to establish high-level cooperation, with the first iteration to be held in Toronto in March 2026.

In November, the Canadian Minister for International Trade Maninder Sidhu held talks with the Indian Minister for Commerce and Industry, and they "agreed to encourage long-term supply chain partnerships in critical minerals and clean energy collaboration essential for energy transition, and new-age industrial expansion" in a joint statement.[3]

Minister of Petroleum and Natural Gas Hardeep Singh Puri meets Minister of Export Promotion, International Trade and Economic Development of Canada, Maninder Sidhu, in New Delhi on Nov 12, 2025.
Source: PTI

These bilateral developments come at a time when the global market for critical minerals is entering a period of accelerated demand, heightened concentration risk, and geopolitical uncertainty. No single country can break Chinese dominance or secure end-to-end resilience on its own. In this context, increased bilateral cooperation between India and Canada can mitigate a limited but crucial range of shared risks and accelerate the diversification of supply chains.

In the short term, Canada can emerge as a key supplier of critical minerals to India, which, in itself, is to the mutual benefit of both as it can help reduce India's import dependence on China and allow Canada to diversify its heavily-concentrated export market away from the US, which accounts for over 60% of Canadian mineral exports but has caused uncertainty with the imposition of tariffs. At present, India accounts for just 2% of Canadian critical minerals exports and remains heavily dependent on China for supply.[4]

Over the long term, if recent policy changes in India can successfully remove structural barriers, they can unlock substantial mineral resources, drive a period of high growth, and scale the sector. Canadian investments and expertise can be a crucial enabler of the same, especially if regulatory standards are aligned and upstream and midstream technological capabilities are transferred, shared, or co-developed. Importantly, India and Canada share 22 critical minerals, creating a shared strategic interest in securing their supply collectively.

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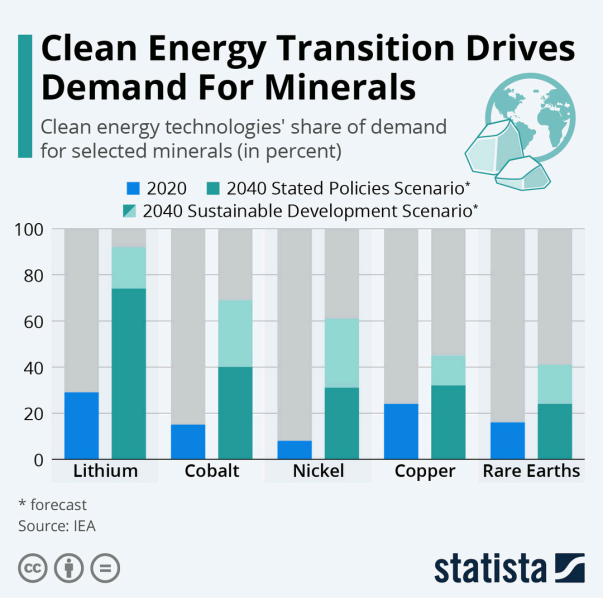
The Strategic Value of Critical Minerals

It's virtually impossible to understate the strategic significance of critical minerals. A wide range of metallic and non-metallic minerals is vital for many industrial sectors. The modern digital economy is underpinned by a range of minerals – silicon, gallium, germanium, indium, arsenic, palladium, and rare earth elements – that feed into ICs and compound semiconductors, and, by extension, all electronic devices. Similarly, advanced defence production relies not only on specialized alloys but also on guidance systems, advanced batteries, and so on.

Perhaps even more importantly, minerals such as lithium, cobalt, and rare earth elements (REEs) are indispensable to the production of clean energy technologies from solar photovoltaics (PVs) to wind turbines, battery storage, and electric vehicles (EVs). For instance, on average, an EV requires six times as many minerals to

build as a conventional car, and an onshore wind turbine requires nine times as many minerals as a thermal plant of equivalent capacity.

Consequently, the acceleration of the global energy transition has driven the demand for key minerals to skyrocket. In fact, the market size of key energy transition minerals doubled from 2017 to 2022 (reaching US$320 billion), and the International Energy Agency (IEA) estimates that by 2040 it will double again (to reach $770 billion).[5] In terms of production volume, the World Bank forecasts a 500% increase to meet global demand by 2030. In terms of fresh investments, BloombergNEF estimates that mineral production will need approximately $2.1 trillion by 2050 to meet net-zero targets. [6]



In this context, over recent years, major powers have classified key minerals vital to their advanced industrial needs and energy transition as ‘critical minerals’ – a list which can differ widely based on the relative mineral security assessment of countries. For instance, the US lists over 60 critical minerals, the EU around 34, and India and Canada have defined 30 and 34, respectively.

The Geopolitics of Critical Minerals and The New Supply Chain Insecurity

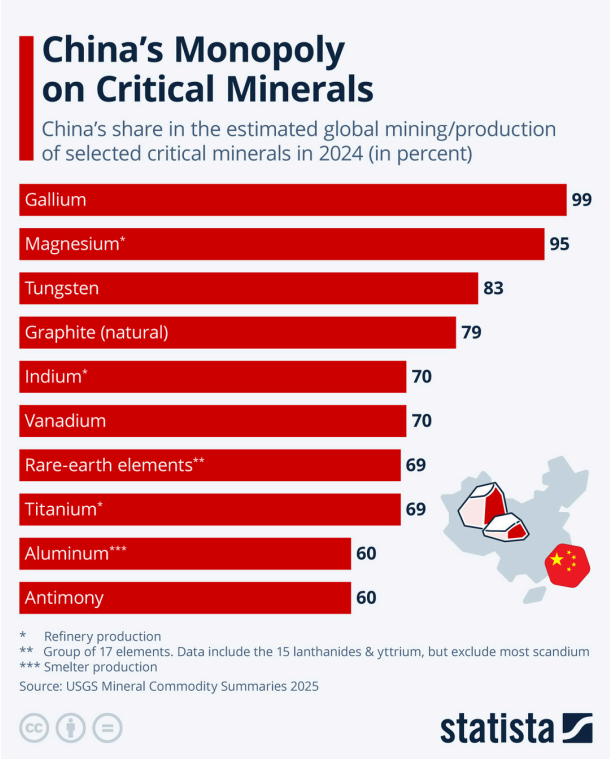
Yet, at the same time, economic security assessments for critical mineral supply chains have turned from bad to worse the world over in recent years, as geopolitical tensions, supply bottlenecks, economic (or mineral) nationalism, and even downward price pressure (often due to strategically orchestrated price wars) in some instances, have disrupted flow of essential minerals or curtailed efforts to diversify and secure supply.

Matters are further complicated by the fact that all the aforementioned risks are directly or indirectly created and exacerbated by the People's Republic of China’s (PRC) dominance across the global value chain of dozens of critical minerals. While the country itself is home to vast reserves of key minerals, particularly REEs, its real leverage lies in the refinement sector. Goldman Sachs Research estimates that China accounts for 85–90% of global REE mine-to-metal refining and 92% of global REE magnet production. China refines 68% of the world’s cobalt, 65% of nickel, and 60% of lithium (EV-grade).[7]

This dominance is a result of decades of coordinated strategic investment in mines at home and abroad (for example, out of the DRC’s 18 major operational mines, Chinese players own as many as 10) as well as processing technology capacity.[8] For several years, experts at the IEA and elsewhere have flagged the associated risks of disruption, anti-competitive behavior, and even coercion. In fact, it's been 15 years since China first used export controls on REEs as a punitive measure against Japan in the

aftermath of the 2010 Senkaku crisis.[9] Yet the major powers did very little to break Chinese control, which has grown year on year. At present, the IEA's Global Critical Minerals Outlook 2025 shows that, for a remarkable 19 out of 20 important strategic minerals (analyzed), China is the dominant refiner, with an average market share of 70%.[10]

Over the last four years or so, China's dominance, or to put it more starkly, Beijing's willingness to 'weaponize' critical minerals supply chains, has turned from a theoretical or infrequent risk for Beijing's adversaries to a very real problem for virtually every nation in the world. In 2023, in retaliation against US chip controls on Chinese semiconductor firms, Beijing imposed export controls on gallium, germanium, and graphite. The same year, it imposed a complete embargo on the extraction and separation of rare earths.[11] In 2024, it restricted the export of antimony – used in the production of infrared sensors for missiles and even nuclear weapons – and raised alarm bells within the American strategic community and elsewhere.



As countries launched new efforts to diversify supply chains in the wake of Chinese export controls, China pulled out another highly effective tactic from its playbook. In 2023 and 2024, Chinese mining giants (at home and in Africa and Latin America) increased production of key minerals (such as cobalt, lithium, nickel, and others) to levels "previously unimaginable", as one Bloomberg analyst put it, and caused global prices to plummet – in some cases, to 20-year lows (for cobalt). As a result, it has disincentivized investments in alternative mineral sources by non-Chinese miners worldwide. In fact, in the USA and Australia (at least), downward price pressures have reportedly led mines to shut as their stakeholders found themselves unable to compete.

Meanwhile, as resource-rich countries, particularly in Africa and South America, have become increasingly aware of their advantageous position in the "new oil" race, they have doubled down on efforts to diversify away from a 'pit-to-port' model, adding a new layer of complexity to the strategic competition. To take just a handful of examples from 2024, Zimbabwe and Namibia banned the export of raw minerals to ensure domestic value addition, and Ghana approved a policy to similarly exploit its green minerals.

Over the course of 2025, triggered by exorbitant US tariffs, China dramatically escalated its export controls on critical minerals, particularly for REEs. In April, Beijing introduced export restrictions on seven heavy REEs, as well as all related compounds, metals, and perhaps most importantly, magnets. As export volumes of permanent magnets fell, carmakers in the US, Europe, and elsewhere scrambled, cut production, and even temporarily shut down factories. In October, it added five more REEs to its export control list.[12]

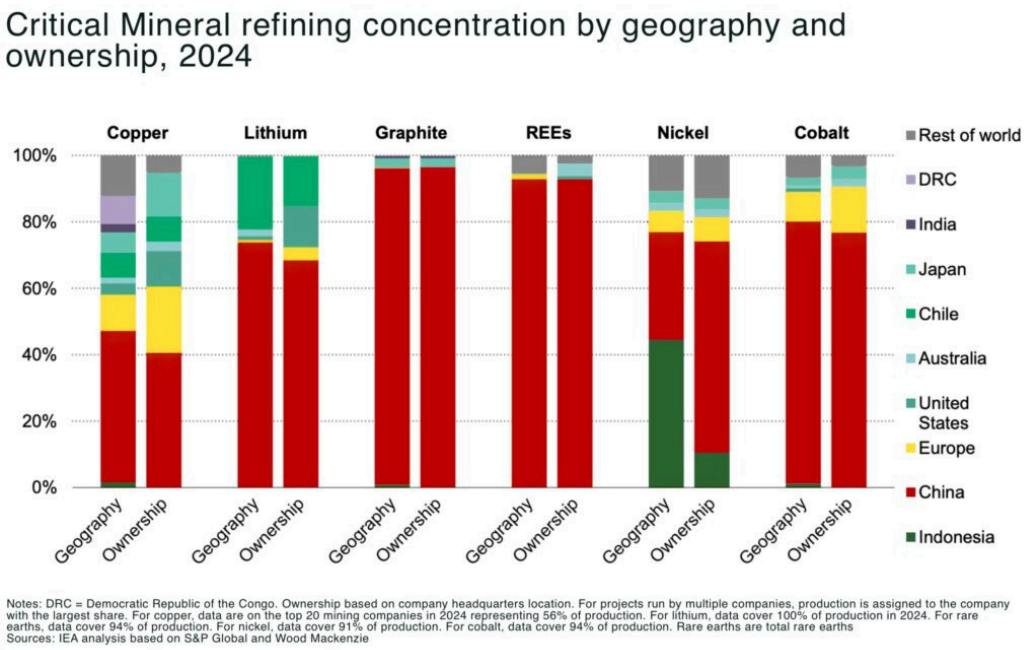


Image Source: The Oregon Group

As of December 2025, new regulations in the PRC effectively mandate that any foreign company that trades in "parts, components, and assemblies" (for instance, EV batteries) containing Chinese-source materials or manufactured with Chinese technology must first obtain a license from China. Given that any number of strategic sectors – energy, automotive, defence, semiconductors, aerospace, industrial motors, AI data centres – anywhere in the world rely on products and components that use controlled Chinese REEs, IEA experts recently characterized the impact on global supply chains as "dramatic" and stressed the "crucial importance of diversification to ensure the long-term resilience of global supply chains."[13]

The Impact on and Implications for India and Canada

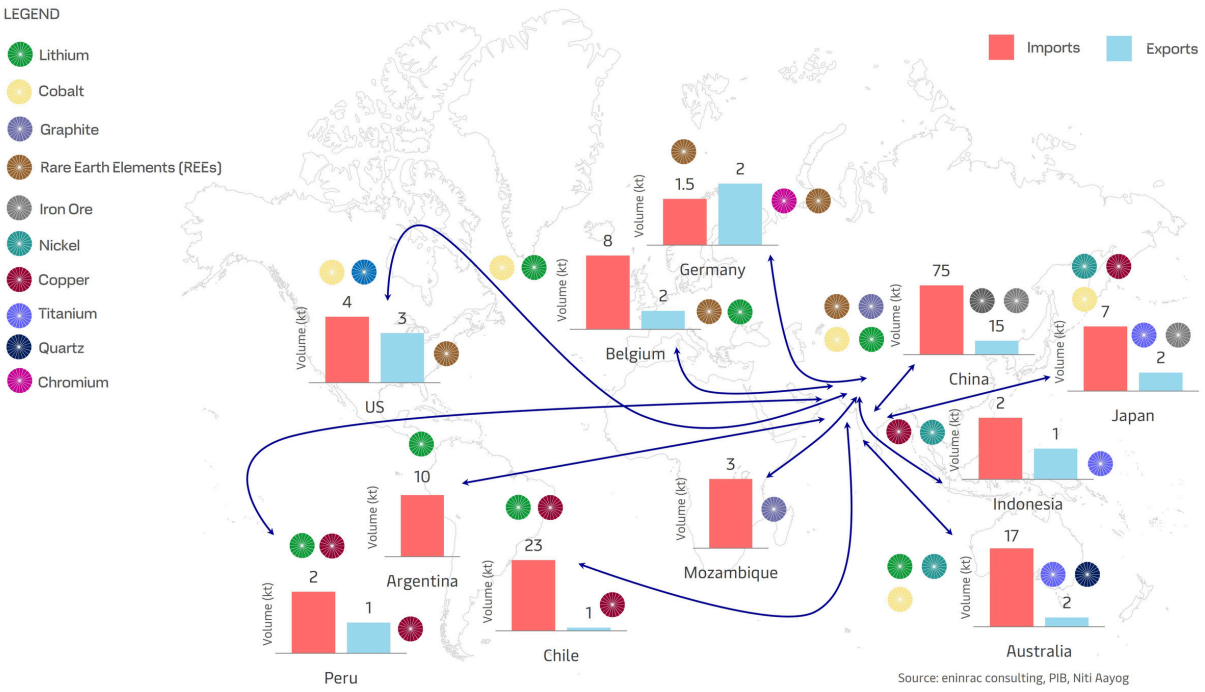
The geopolitics of critical minerals' supply chains, now pervasive and structured, will likely continue to have detrimental global ramifications, and thus, like everyone else, India and Canada, although with incomparable critical minerals' ecosystems, stand exposed to high levels of energy and economic security risks.

For India, the concerns are obvious. To begin with, while India is endowed with significant mineral reserves, its mineral ecosystem has historically been severely underdeveloped due to several structural and regulatory challenges (although the GoI has introduced extensive reforms since 2023, gains will only materialize over the long term). As a result, it is heavily import-dependent for the 30 critical minerals identified by the Indian Ministry of Mines. In at least 10 of these, India is 100% import-dependent, including key minerals such as nickel, cobalt, and lithium.[14]

To make matters more complicated, India is highly vulnerable to Beijing's export controls, given that direct dependencies on China for REEs exceeds 90% and for at least six other critical minerals exceeds 40% (in between FY19 and FY24): bismuth (85.6%), lithium (82%), silicon (76%), titanium (50.6%), tellurium (48.8%), and graphite (42.4%).[15]

Despite the recent thaw in Indo-China relations, it's evident that New Delhi and Beijing will continue to see each other as strategic competitors (at the very least, if not adversaries). In fact, a key indicator of this was the complete halt of REE imports (especially magnets) from China due to the aforementioned export controls. Unsurprisingly, the development caused panic in the domestic automobile sector, particularly as Indian auto giants cut production or resorted to expensive stopgap arrangements, and industry associations scrambled to lobby the GoI.[16] Many Indian auto firms submitted applications to the Chinese Ministry of Commerce, which were reportedly ignored, and one was even rejected.[17] While China eventually resumed shipments after six months, the episode illustrated the cost of strategic dependency for New Delhi.

Exhibit 03 : Trade Volumes of Critical Minerals – India & World (2024)



In this context, India's heavy reliance on China poses serious economic and security concerns, and future supply disruptions could critically undermine India's efforts to build domestic industrial production, stall technological advancements, and weaken defence preparedness. Moreover, given the nature of Indo-China relations, Beijing can also be counted upon to restrict the transfer of extraction, separation, and refinement technologies to India, which will likely undermine and delay its recent efforts to build a domestic industrial ecosystem for critical minerals.

Meanwhile, the outlook for critical minerals in Canada is far rosier, given its mature mining ecosystem and vast reserves, and Ottawa has identified an opportunity to emerge as a reliable alternative supplier amid supply chain insecurity. However, despite relatively low import dependencies, multiple challenges – some stemming from the geopolitics of critical minerals – threaten Canada's position in the sector at present and could hinder its ambition to emerge as a leader in the future.

To begin with, Canada's regulatory framework (which adheres to very high ESG standards, for instance) is commendable but can also lead to regulatory uncertainty and delays: the timeframe to set up a new mine in Canada is anywhere between 15-20 years. Consequently, alternative jurisdictions with relatively lower environmental standards (such as China, Latin America, or Africa) or with easier-to-navigate regulatory systems (such as Australia) can be more attractive investment destinations. As a result, the Canadian Climate Institute warns that the country could lose tens of billions of dollars in new mining investment by 2030.[18]

Canadian mining firms have also suffered from downward price pressures, in part due to China's strategy. For instance, in 2023, overall mineral production value in Canada declined by 8 percent despite growth in domestic production volumes and strong growth in global demand.[19] Moreover, Canadian critical mineral exports are heavily concentrated in select markets, heightening the sector's exposure to geopolitical and trade risks. In fact, close to 60 percent of Canadian critical mineral exports are sent to the US, and it's likely that tariffs imposed by Washington in 2025 will have a negative impact, at least in the short term.

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Finally, over the past two decades, many Canadian mining ventures have been financed by China, for example: state-controlled Chinese corporations are major shareholders in two of Canada's biggest mining firms; the Chinese company Shenghe recently acquired shares in Canada's only rare earth mine; Sinomine operates one of Canada's two lithium mines and a cesium mine, the only one of its kind in North America and Europe.[20] This creates heightened economic security risks for Ottawa, given its recent history of diplomatic tensions with Beijing and its interdependence, as much of the output is exported to China for processing. This complicates Canadian efforts to increase domestic value addition in its critical mineral ecosystem.

In this context, the recent focus placed on bilateral cooperation in critical minerals by New Delhi and Ottawa can help mitigate a limited but crucial range of shared risks. Over the long term, if Canadian strengths can meet the opportunities unlocked by major policy changes in India, they can help accelerate the diversification of supply chains. Consequently, it's pertinent to understand their respective landscapes and policy environments.

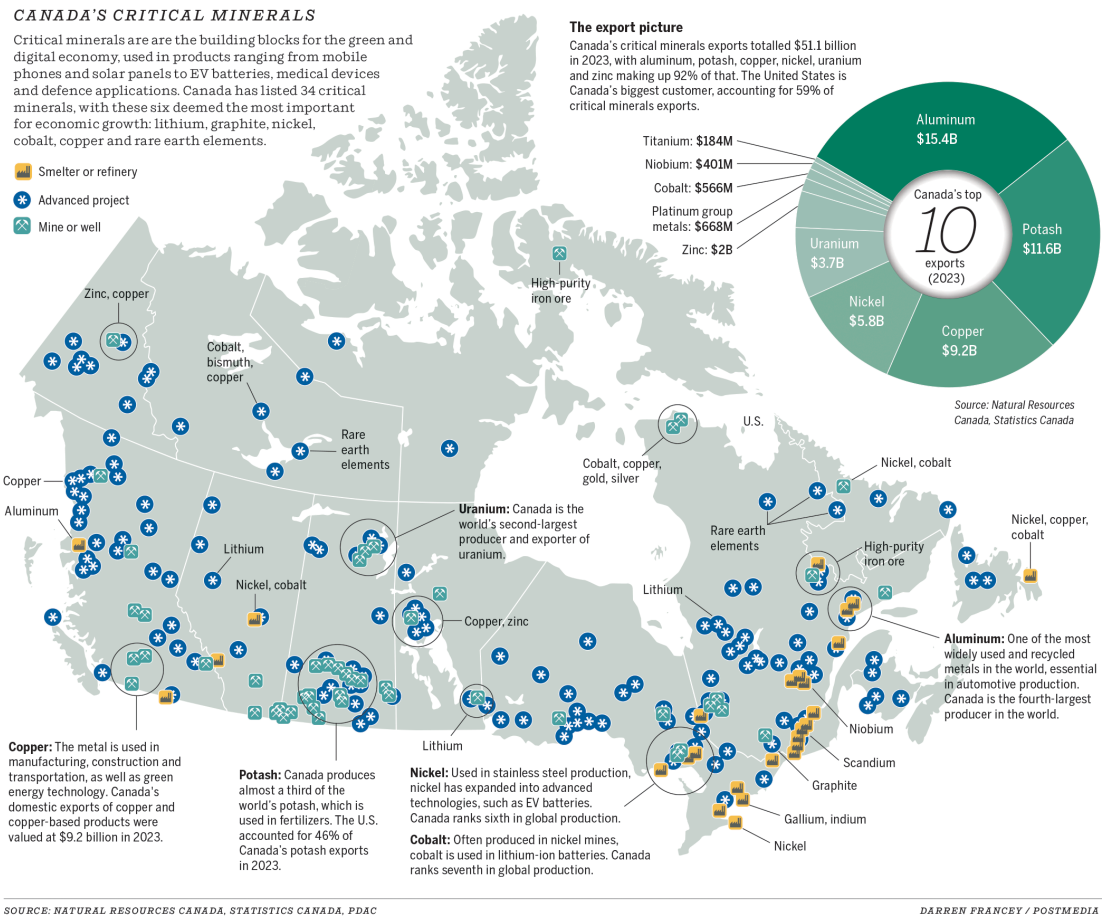
Canada's Critical Minerals Landscape

Canada is one of the world's largest resource powers and boasts abundant mineral reserves. For instance, while China dominates REE production, the largest known reserves are in Canada.[21] Around half of the world's publicly listed mining companies are based in Canada, and it has around 200 operational mines, dozens of which extract critical minerals. In 2023, the country produced more than 60 minerals and metals worth over $52 billion.[22]

In December 2022, Ottawa announced a Critical Minerals Strategy to further expand and de-risk its supply chains.[23] Since then, Canada has committed roughly $3 billion to support critical mineral production, largely through a 'Critical Minerals Sovereign Fund' which facilitates investments in projects with emphasis placed on refinement capacity and domestic value addition.

Canada has also substantially increased investments in geoscience technologies to expand exploration activities and has announced plans to introduce a 30 percent Critical Mineral Exploration Tax Credit for exploration-related expenditures for specific critical minerals.[24]

Importantly, to enhance the economic security of its critical minerals' sector, Ottawa has introduced national security reviews for foreign investments in critical raw material projects in efforts to make the sector more autonomous, and the Canadian has forced multiple Chinese state-backed companies to sell their stakes, for instance, in Canadian lithium exploration firms, and has also stopped Chinese firms from acquiring stakes, for instance, in an REE facility last year.



More recently, Canada has expanded tax incentives for the sector and expedited strategic project timelines through the Major Projects Office – a federal co-ordination unit established in August 2025 to streamline regulatory approvals, accelerate permits, and attract foreign investment for key projects.[25] As recently as November, Ottawa added three major critical-mineral projects to this list — the Sisson Mine (tungsten–molybdenum), Crawford Nickel, and Nouveau Monde Graphite Phase 2.

> Provincial governments in Canada with high reserve concentrations, such as Quebec, Ontario, and British Columbia, play a key role in the development and regulation of the mining industry and have launched their own critical mineral strategies and policies. For example, the province of B.C. is home to a deep pool of expertise and professional capacity in the sector, with over 1,000 publicly listed firms that operate mines globally.

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In recent years, Canada has also accelerated diplomatic efforts to attract and secure investments through international partnerships with key allies and secure customers for its critical minerals' exports through off-take agreements. It is a founder member of the Mineral Security Partnership (MSP) and, amid critical minerals supply chain insecurity, has declared its intention to emerge as a reliable alternative supplier.

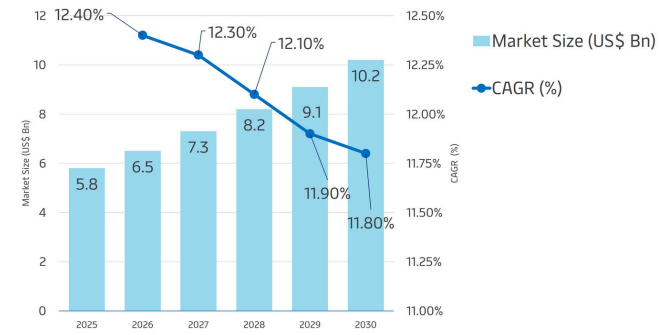
India's Strategic Policy Overhaul in the Critical Minerals Sector

India's geological resources are varied and underexplored. It lacks known reserves for several critical minerals. On the other hand, the country holds the world's third-largest share of REEs (8% of global supply). Yet, the country's mineral industry remains relatively small by global standards, and has grown sluggishly compared to other jurisdictions due to several structural constraints.

The Fraser Institute's 2023 Annual Survey of Mining and Exploration Companies ranked India in the bottom ten (among 60 countries) on the Policy Perception Index.[28] Among many structural impediments, the sector's effective tax rate is estimated at 46-50% (down from 60-64%), the highest globally. In the same survey, India has not even ranked in the Investment Attractiveness Index for many years, and the last time it did, in 2016, it was in the bottom ten (over 90 countries).

India has so far lagged behind across all stages of the supply chain, and industrial-scale metal extraction facilities are close to nonexistent. It is also yet to gain the technical know-how to institute reliable regulatory and governance standards or best practices, such as vapor metallurgy, which the Ministry of Mines has identified as “the future” of sustainable metallurgical processes. As a result, downstream industries continue to rely on imported raw materials, as previously detailed.

Exhibit 03 : Market Size – Critical Minerals India



Source: eninrac estimates

In recent years, however, New Delhi has launched a sustained strategic policy push to build up domestic production in the critical minerals sector and integrate into global supply chains. In the last three years, it has twice amended the Mines and Minerals (Development and Regulation) Amendment Act, 1957 (in 2023 and 2025), thereby overhauling the legal environment to increase private participation and attract domestic and foreign investment into the sector.[29]

To begin with, the MMDR amendments have opened up private exploration activities through license grants. In 2024, in a bid to accelerate this process and alleviate the high associated costs, the Ministry of Mines launched a scheme to offer partial reimbursement (50 percent) of exploration expenses to (private) license holders, who will be required to repay the amount once mineral production begins.[30] Simultaneously, the Geological Survey of India has rapidly and significantly increased the number of mineral exploration projects undertaken year on year, with a higher priority placed on critical minerals for earmarked projects.[31] In fact, over a thousand exploration projects have been scheduled for the next five years.

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In the post-exploration phase, amendments have enabled India to hold auctions for critical mineral blocks, thereby increasing private-sector participation. However, success has been mixed for various reasons. As of December 2025, out of 55 blocks collectively valued at billion $350,

34 have been successfully auctioned. The rest were annulled, ostensibly because they did not attract the minimum number of technical bids required, which strongly indicates their commercial infeasibility.[32] Apart from quality concerns over the reserves, a lack of data and clarity was a key reason behind failures and even the absence of major players in some tranches. Notably, the GoI has also launched auctions for offshore critical mineral blocks.[33]

Importantly, in both the exploration and mining of critical mineral blocks, the GoI has permitted up to 100 percent Foreign Direct Investment.

At the same time, given a lack of reserves or commercial infeasibility, New Delhi has pushed to acquire, develop, mine, and process key critical mineral blocks abroad in order to enhance integration into global supply chains. For instance, in 2024, the state-owned Khanij Bidesh India Ltd (Kabil) – a joint venture of three PSUs formed under the Ministry of Mines in 2019 – acquired five lithium blocks in Argentina.[34] Moreover, the Ministry has plans in place to support the acquisition strategies of Kabil and other PSUs, such as NDMC, through the Minerals Security Partnership (which India joined in 2023), which aims to coordinate such ventures with member nations.[35] The Minerals Security Finance Network (an initiative under the MSP framework), which India joined in 2024, can potentially support the country's pursuit of foreign assets through a network of development finance institutions (DFIs) and export credit agencies (ECAs), as well as by pooling data and expertise.[36]

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Another key aspect of India's mineral diplomacy is to secure access to key production and refinement technologies through old and new bilateral or multilateral collaborations, such as the India-Australia Mineral Partnership and the MSP, and over recent years, New Delhi has launched a series of talks with the USA, Russia, the UK, Gulf countries, and other strategic partners.[37]

Finally, in early 2025, India launched the National Critical Minerals Mission (NCMM) to tie together its various ad-hoc strategies over recent years into a 'whole-of-government' approach to support and build the domestic ecosystem. The NCMM's budgetary outlay is nearly $4 billion (half of which will come from PSUs' investments), and it offers incentives at every stage of the production process to significantly boost private-sector participation. If successfully implemented, it will help miners circumvent key

regulatory hurdles and also allow Indian PSUs and the private sector to make the most of New Delhi's international partnerships.[38]

Exhibit 02 : Geographical Spread of India's Critical Mineral Landscape

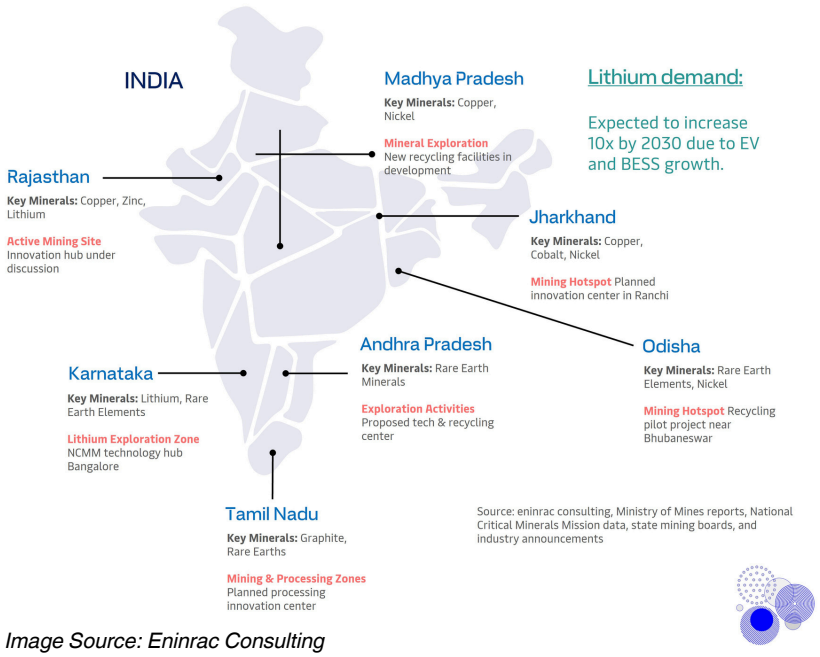

Image Source: Eninrac Consulting

The Logic of Indo-Candian Critical Minerals' Cooperation and Key Recommendations

As India and Canada implement their respective critical minerals strategies in a precarious global environment, it's important to note that no single country can secure end-to-end resilience on its own. At the same time, however, the lack of historical bilateral collaborations and significant variance in India and Canada's respective critical minerals' ecosystems also limit the potential of their partnership, but significant political will and investment can eventually append the status quo and help each other mitigate a crucial range of shared risks and accelerate the diversification of global supply chains. Even at present, there exists real, albeit limited, potential for mutually beneficial collaboration. In the process, critical minerals' cooperation can emerge as a new and key pillar of their relationship.

> Canada can emerge as a key supplier of critical minerals to India in the short term, which, in itself, can help reduce India's import dependence on China and allow Canada to diversify its heavily concentrated export market away from the US amidst tariff uncertainty. At present, India accounts for just 2% of Canada's critical minerals exports. Importantly, India's removal of import duties on 40 key minerals over the last two financial years enhances the prospect of trade growth between India and Canada.

To begin with, Canada can emerge as a key supplier of critical minerals to India in the short term, which, in itself, can help reduce India's import dependence on China and allow Canada to diversify its heavily concentrated export market away from the US amidst tariff uncertainty. At present, India accounts for just 2% of Canada's critical minerals exports. Importantly, India's removal of import duties on 40 key minerals over the last two financial years enhances the prospect of trade growth between India and Canada.

Recommendations:

- Focus on critical minerals in the trade negotiations for the Comprehensive Economic Partnership Agreement (CEPA).
- Build market ties through industry association partnerships and information exchange platforms,
- Enable specific bilateral off-take agreements – including partial equity provisions by Indian players and price stabilization mechanisms – for the long-term supply of key critical minerals (especially those processed in Canada).

Meanwhile, as recent policy changes in India successfully remove structural barriers, Canadian investments and expertise can help unlock a period of high growth for domestic critical minerals resources, especially if regulatory standards can be aligned. India has already liberalized the FDI regime for its mineral industry, and over the long term, Canadian firms could benefit from entry into the country in terms of cost-advantages, the potential to scale up a nascent ecosystem, access to cheap labor, and the sheer size of the Indian market, which will grow alongside Indian industrial production (EVs, semiconductors, etc.). Importantly, India and Canada share 22 critical minerals, creating a shared strategic interest in securing their supply collectively.

Even more importantly, the transfer or co-development of upstream and midstream technological capabilities can mutually enforce long-term dividends from their respective reserves. For example, a joint R&D effort can focus on AI-based geological exploration techniques or extraction technologies that make it commercially viable to extract lithium from reserves contaminated by clay deposits (like the blocks in India's J&K).[39] A template already exists in the form of the recently established critical minerals' research partnership between CSIR-Institute of Minerals and Materials Technology (India) and the University of Saskatchewan (Canada), which can be copied and expanded.[40]

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Recommendations:

- Undertake diplomatic activities and grant ELs to attract Canadian mineral exploration firms into India.

- A JWG can also be set up to explore the transfer of exploration technological capabilities.
- Pursue the institutionalization of best practices and enhancement of ESG standards in India, through a high-level JWG, to help unlock investment potential.
- Explore a bilateral critical minerals partnership agreement to facilitate Canadian investment in India's critical minerals sector.
- Establish select targeted pilot projects, through joint ventures, between India and Canada, in key critical minerals to build interlinkages and kickstart wider industrial collaborations.
- Create an incentive framework to direct investments by Canadian pension funds and asset management groups (many of which are already heavily invested in various sectors of the Indian economy, totaling over $55 billion) into the critical minerals ecosystem.[41]
- Jointly fund R&D for upstream and downstream activities in the critical minerals sector with research institutional linkages focused on specific technical problems.
- Facilitate talent and labor exchange programmes to address specialized labor shortages in Canada's minerals ecosystem and build a talent pool ready for the future expansion of India's critical minerals sector.

In the downstream sector, India and Canada can build a long-term technological partnership that addresses their respective weaknesses in refining capabilities and also builds resilience in value chains for strategically vital, complementary sectors. For instance, BloombergNEF has argued that Canada has the best conditions (even more so than China) for developing battery supply chains, which is significant given that India's EV sector is set to expand at a compounded rate of close to 30 percent over the next half-decade.[42] Relatedly, India has launched a production incentive scheme for domestic rare earth magnet manufacturers, with a support fund worth nearly $800 million. Given China's dominance in the downstream sector, collaborations to diversify these value chains can considerably enhance the economic and energy security of both India and Canada.

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Recommendations

- Establish a JWG to undertake focused analysis of their respective downstream sector in critical minerals' GVCs where geopolitical risks for both India and Canada are acute. The JWG should also
- Jointly fund R&D activities to build mutually beneficial refinement technologies that enhance value addition in their respective ecosystems, as well as build resilience in strategically vital industrial sectors heavily dependent on REEs and other critical minerals.

- Leverage trilateral cooperation within the recently established Australia-Canada-India Technology and Innovation (ACITI) Framework to share and co-develop technologies for the downstream sector.
- Facilitate co-development or transfer of technologies and incorporate Canadian best practices in mineral recovery to help introduce circularity into India's critical minerals ecosystem.

Finally, another key area for Indo-Canada cooperation is the joint exploration and co-development of foreign critical minerals assets acquired by Indian PSUs and Canadian giants. While ambitious, such projects can focus on common critical minerals that are absent from the geologies of India and Canada, with financial risks shared between them. The MSP/MSFN already provides a theoretical institutional framework for this, but it can also be pursued through a separate bilateral mechanism.

Conclusion

The India-Canada critical minerals partnership represents more than a transactional supply arrangement. It offers both nations a strategic pathway to enhance economic security in an era defined by supply chain weaponization and Great Power competition. As China continues to tighten its grip on global critical minerals value chains through export controls and market manipulation, the cost of inaction for India and Canada has never been higher.

For India, diversifying away from catastrophic dependencies on Chinese rare earth elements and other strategic minerals is not merely an economic imperative but a matter of national security. The 2025 export control crisis, which paralyzed domestic automobile production, serves as a stark reminder that strategic autonomy in critical sectors cannot be achieved without secure, diversified mineral supply chains. Canada's vast reserves, technological sophistication, and commitment to responsible mining practices position it as an ideal partner to help India break free from Beijing's stranglehold.

For Canada, the partnership offers an opportunity to diversify export markets beyond an increasingly protectionist United States while attracting large-scale investments into its underutilized reserves. More importantly, collaboration with India, whose domestic market will expand exponentially as its industrial base grows, provides Canadian firms with early-mover advantages in what will become one of the world's largest critical minerals markets.

The real potential of this partnership, however, lies not in short-term supply arrangements but in long-term technological collaboration and value chain integration. Joint R&D in exploration technologies, co-development of refinement capabilities, and institutional mechanisms that facilitate investment flows can create durable strategic linkages that transcend the cyclical nature of bilateral relations. The recently announced India-Canada Critical Minerals Annual Dialogue provides the institutional architecture to pursue these ambitions systematically.

However, success is far from guaranteed. It will require sustained political commitment, creative financing mechanisms, regulatory harmonization, and a willingness to move beyond rhetoric toward tangible projects with clear timelines and accountability structures. If both nations can rise to this challenge, critical minerals cooperation will not only mitigate shared vulnerabilities but also establish a model for how middle powers can collectively build resilience against supply chain coercion in an increasingly fragmented global order.

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