Policy Recommendations on Enhancing U.S.-India Critical Minerals Collaboration

US·INDIA
STRATEGIC PARTNERSHIP FORUM
STRENGTHENING THE BILATERAL PARTNERSHIP

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The primary authors of these policy recommendations include U.S.-India Strategic Partnership Forum, Silverado Policy Accelerator, and P2P Strategies. The recommendations were based on the collective discussion of the roundtable, and do not include the endorsement of any specific business or organization, U.S. or Indian government agency or officials, or think tanks.

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High-Level Critical Minerals Roundtable Summary

The U.S.-India Strategic Partnership Forum, Silverado Policy Accelerator, and P2P Strategies convened a high-level roundtable on June 27, 2024, to forge an actionable roadmap driven by the needs of businesses for enhancing U.S.-India collaboration in the critical minerals sector, recognizing that this bilateral collaboration is still in its infancy. The primary focus of the high-level roundtable is to tackle the challenges inherent in critical minerals supply chains and devise effective solutions to propel progress between the two nations.

Representatives from a spectrum of stakeholders were brought together for this roundtable, including U.S. and Indian-based companies (including mining and processing companies and purchasers of critical minerals), U.S. and Indian government representatives, think tanks engaged in the U.S.-India clean energy policy, and international partners with vested interests in the critical minerals market of both nations. Notable attendees from the Governments were the U.S. Department of State, Department of Commerce, and the U.S. Trade and Development Agency and the Indian Embassy in Washington D.C.

While U.S. and Indian government representatives participated and contributed to the roundtable discussions, the recommendations put forth in this paper are not reflective of any official U.S. or Indian Government position or endorsement. Rather, these recommendations primarily stem from the collective insights and deliberations of the authors based on research and discussion with the participants during the roundtable.

This collaborative effort aimed not only to identify barriers hindering progress, but also to outline actionable initiatives that could pave the way for meaningful advancements in U.S.-India collaboration within the critical minerals sector.

The Current State of U.S.-India Critical Minerals Collaboration

The collaboration between the United States and India in the critical minerals sector represents a pivotal opportunity to advance the respective clean energy agendas of both countries, as well as their economic interests. As both nations strive to meet the demand for energy and military technologies, the demand for key critical minerals has surged. However, both the United States and India face a significant challenge in meeting this demand within their own countries as a result of China's dominant position in the global extraction and processing of critical minerals that creates supply chain vulnerabilities.

The United States and India recognize the strategic importance of diversifying their sources and are seeking to bolster their cooperation in critical minerals.[1] While both countries boast significant potential in terms of critical mineral resources, there are considerable gaps in domestic availability for critical minerals, crucial for electric vehicles and advanced clean technologies among other applications. India's membership in the U.S. Department of State's Minerals Security Partnership (MSP) and the launch of the MINVEST platform allows for greater public-private bilateral partnerships in the critical minerals sector. Additionally, the inclusion of critical minerals and rare earth element (REE) processing within the U.S.-India Initiative on Critical and Emerging Technology (iCET) highlights the strategic importance of this partnership in addressing supply chain vulnerabilities and promoting technological innovation. Following the June 17, 2024 iCET meeting chaired by U.S. National Security Advisor Jake Sullivan and Indian National Security Advisor Ajit Doval, both governments committed to expanding bilateral cooperation in critical minerals, including co-investing in lithium and rare earth projects in South America and Africa. They also aim to finalize a bilateral Critical Minerals Memorandum of Understanding swiftly and enhance collaboration in graphite, gallium, and germanium supply chains.

Recent U.S. and Indian trade policies have opened promising opportunities for bilateral investment. India's recent initiative to liberalize its historically protected domestic mining sector through the auctioning of mining blocks for critical minerals represents a significant stride towards greater market accessibility for outside investors. Nonetheless, there is room to enhance investor engagement through incentives or a modernization of India's regulatory frameworks to stimulate both U.S. and global investor interest. The Administration's decision on May 6, 2024, to grant an exemption for graphite imports from China under the Inflation Reduction Act's Foreign Entities of Concern (FEOC) rule, albeit set to expire in 2027, may prompt businesses to diversify their supply chains.[2] Moreover, the U.S. Administration's announcement on May 14, 2024, of proposed Section 301 tariffs, imposing a 25 percent duty on various critical minerals imported from China, including natural graphite and manganese—which India also produces and exports globally—has the potential to enhance the competitiveness of India's exports in light of these proposed tariffs.[3] The Section 301 tariffs on manganese and natural graphite are slated to go in effect in 2024 and 2026 respectively.[4] During this transition, the United States should explore supporting India in developing its critical minerals industry through technical assistance, potential new investment paths, and bilateral cooperation, which would be mutually beneficial for both countries' clean energy endeavors by reducing reliance on China and mitigating chokepoints in the supply chain.

[1] The White House, "Joint Statement from United States and India," June 22, 2023.
[2] The graphite exemption is effective on July 5, 2024. U.S. Department of Treasury, Internal Revenue Service, "*Clean Vehicle Credits Under Sections 25E and 30D; Transfer of Credits; Critical Minerals and Battery Components; Foreign Entities of Concern*," 26 CFR Parts 1 and 301, May 6, 2024.
[3] The White House, "*Memorandum on Actions by the United States Related to the Statutory 4-Year Review of the Section 301 Investigation of China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*," May 14, 2024.
[4] Office of the U.S. Trade Representative, "Request for Comments on Proposed Modifications and Machinery Exclusion Process in Four-Year Review of Actions Taken in the Section 301 Investigation: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation," 89 FR 46252, May 28, 2024.

Policy Recommendations for Enhancing Bilateral U.S.-India Critical Minerals Collaboration

The policy recommendations put forth by the U.S.-India Strategic Partnership Forum, Silverado Policy Accelerator, and P2P Strategies stemmed from an in-depth roundtable discussion, heavily informed by business insights. Throughout this dialogue, participating companies delved into the precise procurement and demand requirements of their individual enterprises for essential minerals. The companies scrutinized the regulatory, financial, and operational hurdles in India, and collectively brainstormed policy recommendations aimed at incentivizing investments in India's critical minerals sector. These policy recommendations focus on critical minerals where India holds a share of global production and reserves, and we then analyze which of these minerals are most crucial to U.S. economic security, considering the United States' significant dependence on net imports of certain critical minerals. Based on these considerations, U.S. and Indian policymakers should prioritize the development of India's critical minerals sector, particularly in aluminum, barite, chromium, graphite, manganese, and zinc, as these minerals offer substantial potential for robust bilateral and economic cooperation. [5]

We crafted these policy recommendations through the prism of the Administration's current economic and national security priorities. The U.S. Administration's Indo-Pacific Strategy should include and prioritize supporting critical minerals mining and processing investment in India because it aligns with the broader goals of the Indo-Pacific Strategy to strengthen relationships with India on clean energy security.[6] The Administration's Partnership for Global Infrastructure and Investment (PGII) also emphasizes leveraging private sector expertise and resources to address clean energy supply chains globally, which can be utilized to support mining operations for critical minerals and promoting clean technology innovation in India.[7]

1.) Conduct Trade Missions Supported by U.S. and Indian Governments to Bolster Interest for India's Mining Auction Blocks and Processing of Critical Minerals

India has recently been met with challenges in promoting international interest in its critical mineral auction blocks. The Government of India recently opened up its mining sector to attract global investors so India can more easily attract investment in mineral exploration and development of its critical minerals, which are subject to uncertainty surrounding reserves and high exploration costs. Among the critical minerals up for auction in India are graphite, tungsten, vanadium, cobalt, and nickel—critical minerals for which the United States has significant net

[5] For a complete list of critical minerals production and reserves within India, see Silverado Policy Accelerator's *India Critical Minerals Data Dashboard*.
[6] The White House, *Indo-Pacific Strategy of the United States*, February 2022.
[7] The White House, *Memorandum on the Partnership for Global Infrastructure and Investment*, June 26, 2022.

import reliance.[8] However, due to low investor interest, the Government of India scrapped the auction process in March 2024 for 13 out of 20 blocks offered in the first round due to limited interest.[9]

Participating businesses, particularly those entrenched in the electric vehicle domain and those specializing in clean technology, mining, and processing equipment, should have the opportunity to conduct on-site evaluation and assessments at the mines and the processing facilities for potential viable resources during the trade mission. These assessments will shed light on operational and financial prerequisites for exploration, processing, or the enhancement of existing critical minerals in India, where a knowledge gap currently exists. The overarching goal of the trade missions is to bolster India's competitiveness in the global critical minerals market, particularly against dominant players Importantly, these trade missions should not be limited exclusively to U.S. businesses but should be inclusive to businesses in allied countries so that both U.S. and allied businesses can jointly invest and mitigate financial and operational risks in the critical minerals sector.

To spur investor interest, the Governments of the United States and India, in conjunction with interested U.S.-owned, Indian-owned, and allied businesses should target their trade missions aimed at revitalizing investment enthusiasm in these critical mineral auction blocks. These trade missions should target auction blocks of critical minerals that the United States has the highest net import reliance on, such as graphite and manganese. In iCET joint statement of June 2024, the governments of the United States and India announced that they want to deepen bilateral cooperation for critical minerals supply chains under the U.S.-India Commercial Dialogue between the U.S. Department of Commerce and the Indian Ministry of Commerce and Industry, with private sector input from the U.S.-India CEO Forum.[10] We recommend that these types of public-private collaborative endeavors should also be orchestrated alongside key U.S. stakeholders including the Department of Commerce, the Department of State's Mineral Security Partnership, and the Department of Energy and private businesses that account for small to medium-sized businesses. These trade missions should also be conducted through business organizations, such as the U.S.-India Strategic Partnership Forum, P2P Strategies, and other business-related entities, with both U.S. and Indian government representatives in attendance and consist of on-site visits to mines and processing facilities in India.

2.) U.S. Government Should Conduct Feasibility Studies for Mining and Processing of Natural Graphite and Manganese

The U.S. Trade and Development Agency (USTDA) should conduct a feasibility study aimed at advancing environmentally sustainable graphite and manganese mining and processing facilities

[8] Government of India, Ministry of Mines, "*Ongoing NITS (Critical Minerals)*," accessed June 14, 2024; U.S. Department of Interior, U.S. Geological Survey, "*Mineral Commodity Summaries 2024*," Figure 2: U.S. Net Import Reliance, pg. 7.
[9] Government of India, Ministry of Mines, "Brief on Auction of Critical and Strategic Minerals by Mines Ministry," March 29, 2024.
[10] The White House, *Joint Fact Sheet: The United States and India Continues to Chart an Ambitious Course for the Initiative on Critical and Emerging Technology*, June 17, 2024.

within India. This type of feasibility study would be modeled after USTDA's successful initiative to conduct a feasibility study to develop a nickel processing facility in the Philippines in 2022.[11] Currently, the United States is 100% net import-reliant on both graphite and manganese, making it vulnerable to supply chain disruptions and potential geopolitical tensions as these minerals are predominantly processed in China. India currently accounts for 8% of global production of artificial graphite, 4% of mined manganese, and 17% of ferromanganese and silicomanganese.[12]

By having USTDA bear the costs of the feasibility study for graphite and manganese within India, it would assist in offsetting risk for U.S. businesses that are hesitant to enter the Indian market due to lack of market knowledge of India's critical minerals sector. The scope of the USTDA feasibility study could evaluate the technical and economic viability of establishing graphite and manganese mining and processing facilities in India, focusing on regions rich in these minerals reserves such as the states of Odisha and Jharkhand. The feasibility study could also assess the financial costs for businesses, quality considerations, and competitiveness of India's refining graphite and manganese ores to produce high-quality materials suitable for electric vehicle batteries and clean energy applications. These feasibility studies align with the concepts outlined in the latest US-India joint iCET statement which proposes a collaborative program between the Geological Survey of India and the U.S. Geological Survey to explore, characterize, and evaluate rare earth elements and critical mineral deposits.[13]

Another crucial aspect of the USTDA-led feasibility study or can be provided through technical assistance from a U.S. agency (such as Department of Energy, Department of State's Mineral Security Partnership or U.S. Agency for International Development) could involve the potential to enhance technical capabilities within the Indian ecosystem. This includes supporting institutions such as the Geological Survey of India (GSI) and the Indian Bureau of Mines (IBM), both key public entities under the Government of India's Ministry of Mines. Strengthening their capacities not only facilitates current assessments but also positions them to conduct future evaluations for other critical minerals, particularly those essential for ensuring future economic and national security interests of the United States.

3.) U.S. Government Should Offer Technical Assistance to Ensure High Environmental Standards in Mining and Processing of India's Critical Minerals Sector

Alongside a potential USTDA-led feasibility study, we recommend that that the U.S. Government should also offer technical assistance and bilateral cooperation on adherence to high environmental standards in India's critical minerals mining and processing sector to facilitate the production of "greener" products. This technical assistance can be modeled off the either the standards contained

[11] U.S. Trade and Development Agency, "*Vice President Harris Launches USTDA Critical Minerals Processing Project in the Philippines*," November 22, 2022.
[12] See Silverado Policy Accelerator's *India Critical Minerals Data Dashboard* for an in-depth analysis of India's share of global production and reserves of key critical minerals, and U.S. net import reliance of these critical minerals.
[13] The White House, *Joint Fact Sheet: The United States and India Continues to Chart an Ambitious Course for the Initiative on Critical and Emerging Technology*, June 17, 2024.

in Sustainable Critical Minerals Alliance (SCMA), of which the United States is a member, or the Initiative for Responsible Mining Standards (IRMA). High environmental standards in the SCMA encourage industry practices in the critical minerals sector that prevent biodiversity loss, protect species at risk, support nature protection and minimize pollution.[14] On the other hand, IRMA is an internationally recognized voluntary assurance program designed to enhance the environmental performance of mining operations through third-party verification and certification against comprehensive standards applicable to all mined materials.[15] Many major mining companies globally adhere to IRMA due to its phased approach aimed at achieving rigorous compliance levels.

This type of technical assistance on environmental standards could be conducted through various U.S. government agencies, such as U.S. Agency for International Development, U.S. Department of State's Mineral Security Partnership, or U.S. Department of Energy, and in partnership with India's Ministry of Mines. This commitment to sustainability would not only mitigate environmental risks, but also enhance India's reputation as a responsible sustainable global player in the critical minerals industry.

4.) *U.S. and Indian Governments Should Jointly Develop Market Research Intelligence Reports for Critical Minerals Industry Sectors*

The U.S. and Indian governments should collaborate, engaging the private sector as appropriate, to produce comprehensive market intelligence reports for each other's critical minerals sectors that integrate technical insights from agencies like the US Geological Survey and the Geological Survey of India with the strategic business acumen of their Commerce Departments and Embassy economic units. While the U.S. seeks access to India's graphite and manganese supply, India, heavily reliant on imported lithium to meet its domestic energy needs, is actively exploring alternative global sources. The U.S. presents a promising partner for Indian firms seeking to secure a stable lithium supply. The U.S. government is making substantial investments in its own lithium mining sector, such as the Department of Energy's $2.26 billion funding of Lithium Americas' project in Nevada, suggesting potential opportunities for international partnerships to expedite the sector's growth. Furthermore, India is already in discussions with the U.S. about potential collaborations on lithium processing technology, highlighting avenues for mutually beneficial cooperation for this critical mineral.

These market intelligence reports would serve as invaluable roadmaps for potential investors, offering insights into the viability of investing in both United States and India's mining and processing sectors for domestic consumption and trade, as well as the process for regulatory compliance and financing of these projects. By providing guidance on regulatory compliance, market entry and investment strategies, and conducting technical assessments on critical mineral mining and processing, these public market intelligence reports jointly crafted by the Government

[14] Government of Canada, "Sustainable Critical Minerals Alliance," (accessed June 17, 2024).
[15] Initiative for Responsible Mining Standards (IRMA), "Standards that Dig Deeper and Assurance at Every Level," (accessed June 26, 2024).

of India and the United States could bridge the current knowledge gap on critical minerals that they can source from each other to meet their domestic demand.

Presently, a substantial gap exists from a business standpoint regarding the operational and financial feasibility of investing in mining or processing critical minerals within India and the United States. Existing government reports from both countries do not currently address the specific needs of businesses looking to invest. For instance, while the Geological Survey of India conducts analyses on critical minerals, these reports predominantly adopt an academic perspective rather than providing information relevant to business interests. Similarly, the U.S. Geological Survey conducts mineral mapping but lacks tailored market reports geared towards investors. Specific elements of a market intelligence report could include U.S. and India's investment environment within the critical minerals sector, strategies for market entry, guidance on accessing government and private financing for foreign investors, standards for critical minerals mining and processing, among others.

5.) U.S. Government Should Offer DFC or EXIM Bank Funding Dedicated to Graphite and Manganese Mining and Processing Facilities within India

Extending U.S. Development Financing Corporation financing for India's critical minerals mining and processing facilities in specific critical minerals such as graphite and manganese could enable the production of components essential for clean energy technologies like batteries for electric vehicles and renewable energy applications. By facilitating the availability of these minerals, DFC can accelerate the transition to a low-carbon economy both in India and globally. Currently, India is DFC's largest market, and the U.S. agency has a strong partnership with the country's private sector, especially for India's solar panel manufacturing.

Another funding stream could be EXIM Bank, which provides financing and insurance solutions to mitigate commercial and political risks associated with international business transactions. In the context of graphite and manganese mining projects in India, EXIM Bank's support can help alleviate concerns related to project financing, regulatory uncertainties, and market volatility, thereby enhancing the feasibility and attractiveness of investments in the sector. EXIM Bank's financing can facilitate the export of American mining equipment, technology, and expertise to India for graphite and manganese processing and mining projects. This promotes American exports and creates opportunities for U.S. companies in the mining and related industries, contributing to job creation and economic growth domestically.

6.) U.S. and India Should Jointly Fund Research Initiatives to Support Alternatives for EV Battery Production

The Administration's iCET joint statement announced that both the Indian and U.S. governments were dedicated to "advancing Indian collaboration with U.S. organizations and companies for carrying out research studies for beneficiation of critical minerals, including lithium, titanium,

gallium, and vanadium.[16]" However, we recommend that both governments expand the focus to include innovation and research aimed at reducing dependence on lithium, cobalt, nickel and other critical minerals in the EV battery supply chain, given the shared priorities of both governments to increase electric vehicle sales to meet their clean energy goals. As the world's third-largest emitter of greenhouse gases, India has taken proactive measures to increase electric vehicle deployment domestically through government initiatives such as Production-Linked Incentive (PLI) for advanced chemistry cell (ACC) battery storage and the Faster Adoption of Manufacturing Electric Vehicles (FAME) initiative. However, this transition to electric vehicles amplifies India's demand for lithium-ion (Li-ion) batteries, which are dependent on critical minerals such as lithium, cobalt, and nickel. India imports nearly 100% of its lithium, cobalt, and nickel requirements, and the United States currently imports about 57% of nickel, 67% of cobalt, and less than 25% of lithium respectively.[17]

To foster innovation and research aimed at reducing dependence on lithium and nickel in the EV battery supply chain, collaborative efforts between the U.S. government and Indian businesses and universities are crucial. U.S. government agencies such as the Department of Commerce, U.S. Geological Survey, the Department of Energy's National Laboratories, and the National Science Foundation can play instrumental roles in facilitating these collaborative research initiatives. By leveraging their expertise, resources, and networks, these agencies can support joint research projects focused on alternative battery technologies. Establishing a U.S.-Indian government-supported forum, in partnership with American and Indian universities and research institutions, would provide a platform for coordination and knowledge exchange. Jointly funded research initiatives, backed by technical expertise from both governments, would accelerate the development and deployment of innovative solutions to diversify away from lithium and nickel in battery manufacturing. These strategic partnerships not only enhance the resilience of the global battery supply chain but also foster sustainable development and technological leadership in the energy storage sector for both nations.

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[16] The White House, *Joint Fact Sheet: The United States and India Continues to Chart an Ambitious Course for the Initiative on Critical and Emerging Technology*, June 17, 2024.
[17] Government of India, Ministry of Mines, "Steps Being Taken By the Government for Becoming Self-Reliant in Critical Minerals," August 2, 2023; U.S. Geological Survey, "*Mineral Commodity Summaries 2024*," Figure 2: U.S. Net Import Reliance, pg. 7.