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E-Vehicles, Geopolitics of Critical Minerals, and India's Foreign Policy: A Realist Analysis of India's Engagement with Latin America

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The global transition from oil vehicles to electric mobility has significantly heightened the strategic importance of critical minerals, particularly lithium, for energy storage systems. While countries such as the United States, China, and India are rapidly expanding their electric vehicle (EV) ecosystems, China's existing dominance in lithium mining, processing, and supply chains creates a structural dependency that poses geopolitical and economic risks for emerging economies like India. Although recent scholarship highlights the role of critical minerals in shaping new geoeconomic alignments, limited attention has been paid to India's evolving engagement with Latin America's "Lithium Triangle" as a diversification strategy. Addressing this gap, the present study examines how lithium has become a strategic resource driving India's diplomatic and economic outreach in Latin America to enhance supply chain resilience. Methodologically, the paper employs a qualitative analysis integrating policy documents, trade data, and secondary literature to map India's emerging partnerships and the strategic motivations underpinning them. The paper argues that India's engagement with Latin America in the context of electric vehicles (EVs) and critical minerals is driven primarily by realist considerations of strategic autonomy, energy security, and supply-chain resilience. The key findings indicate that lithium security is now integral to India's long-term EV ambitions and its broader pursuit of technological and resource autonomy. The study highlights the significance of India's proactive resource diplomacy as a means to mitigate vulnerabilities, reduce Chinese dependency, and strengthen its standing in the evolving global energy order.

Keywords: Geopolitics, Energy Security, E-Vehicles, Renewable Sources, Lithium Triangle, Resource Geopolitics, Latin America

Introduction

Crude oil is one of the primary non-renewable energy sources, essential for all economic activity and development, from land, water, and air transportation to powering businesses, farming, and even household affairs. Its strategic value has also shaped international politics and global power dynamics

for more than a century. Despite its strategic role, the pressing nature of environmental issues and climate change have forced governments worldwide to shift away from crude oil towards massive adoption of alternative energy sources and technologies. According to the International Energy Agency, this shift has contributed to a significant deceleration in global oil demand growth, declining from 1.9% in 2023 to 0.8% in 2024 (International Energy Agency, 2025). Consequently, critical mineral resources such as lithium, copper, cobalt, graphite, nickel, rare earths and manganese have become a major component of green energy transition. They are widely used for making semi-conductors, plug-in and storage devices, wind turbines, wireless electronics, and solar panels. Additionally, they are strategically useful in nuclear, aerospace, medical, aerospace and advanced weaponry applications (Agrawal, 2023**).** This gradual shift towards alternative energy materials has created competition among major powers to control these strategic reserves.

For India, where renewables already account for over 46.3 % of the country's total installed electricity-capacity, the government is rolling out a dedicated "National Critical Minerals Mission" to secure these strategic resources (Ministry of New and Renewable Energy, 2024). This study examines the changing geopolitics of natural resources in light of the global push for alternative energy sources, especially the growing popularity of electric vehicles. It also examines the role of critical minerals in India's foreign policy, particularly lithium as a factor in its engagement with Latin American lithium triangles. To examine these changing geopolitics, the study employs a qualitative methodology drawing from government documents, international agency reports, scholarly literature, think-tank analyses, and bilateral agreements involving India and Latin American states. The focus is on identifying geopolitical drivers shaping India's lithium diplomacy and supply chain strategies. While secondary data provides valuable insights, limitations persist due to restricted public access to confidential mining negotiations and the evolving opacity of foreign investment dynamics.

Realist Perspectives on Resource Geopolitics and Strategic Autonomy

The strategic significance of critical minerals in electric vehicles transition and its impact on India's foreign policy can be analysed through the conceptual lens of realist theory. Within the realist tradition, Michael T. Klare's concept of *Resource Geopolitics* offers a robust theoretical lens to understand the global competition over critical minerals. Klare (2013) argues that access to, and control over, critical natural resources is a primary driver of international power dynamics, as states in an anarchic international system compete to secure resources essential for economic, technological, and military capabilities. Klare emphasizes that critical minerals are inherently strategic resources because they are limited in geographic distribution and essential for high-tech and energy-intensive industries. From a realist perspective, resource scarcity generates

strategic competition, compelling states to pursue proactive diplomacy, investments, and partnerships to ensure access. Klare underscores that resources are not just economic commodities but instruments of geopolitical leverage. States possessing strategic minerals can influence global markets, technological adoption, and industrial competitiveness. China's dominance in rare earth elements, which enables control over high-tech production globally, exemplifies the leverage inherent in resource control (Humphries, 2013).

In this context, Lithium has emerged as a similarly strategic mineral, where controlling extraction and processing capacity translates into global strategic influence. Klare's framework also highlights the connection between resource security and national security. States dependent on external sources for critical minerals are vulnerable to supply disruptions, coercion, and market volatility (Klare, 2013). To overcome these vulnerabilities, states will resort to bilateral agreements, joint ventures, and direct investments, reflecting a strategy to achieve strategic autonomy. By diversifying supply sources, states not only secure economic benefits but also enhance their capacity to navigate the geopolitical contest over critical minerals, reducing dependence on dominant suppliers (Chakrabarty, 2021). Moreover, Klare emphasizes that militarization is a common response to resource competition. States may deploy military force to secure pipelines, protect mining concessions, or ensure maritime transit routes (Klare, 2001).

In *The New Geography of Conflict*, Klare (2002) argues that a geographical reconfiguration of conflict zones is underway. As energy-deficient countries scramble for stable access, new strategic theatres are gaining prominence. Regions such as the Caspian Sea basin, the South China Sea, and river basins in the Global South are emerging as geopolitical fault lines. These areas, which may have appeared peripheral during ideological conflict, are now vital precisely because of their resource endowments (Klare, 2002). He further warns that future resource conflicts may not only be about oil. As technology evolves and resource demand diversifies, other materials—minerals required for high-tech industries, freshwater in river basins, or even rare earths—could become the new "geopolitical commodities" (Klare, 2007). Resource geopolitics therefore, is not purely economic; it is deeply political and strategic

While Klare's conceptualization of resource geopolitics is influential, critics argue that the deterministic assumption that resource scarcity inevitably leads to conflict oversimplifies reality, as empirical studies indicate that institutional, economic, and social factors mediate the risk, and not all resource-rich states experience violence. Besides, the variability of resources, with different commodities carrying distinct geopolitical weight, and the mitigating effects of technological change, substitution, and multilateral governance, which may reduce the strategic importance of certain resources, although Klare remains sceptical that such developments can fully neutralize geopolitical competition. However, Klare's concept of resource geopolitics remains highly relevant in the

21st century, especially given rising energy demand, geopolitical rivalry, and the increasing geopolitical salience of nontraditional resources like critical minerals. In an era marked by climate change, the geopolitics of water and rare earth minerals may become more volatile, consistent with Klare's warnings.

Global Critical Mineral Geopolitics

The transition towards sustainable energy increases the strategic significance of critical minerals used for manufacturing storage devices such as Lithium (Li-ion), Lead-acid, Sulphur, and zinc-bromine batteries. Among these devices, Lithium batteries are considered the best material for electric vehicles and storage devices due to its quick recharge and recyclable nature (IEA, 2021). The end use of lithium for manufacturing storage devices was 23% in 2010, which substantially increased to 74% in 2021 (Bhutada, 2023). the rapid expansion of electric-vehicle manufacturing, declining battery costs, technological superiority of lithium-ion chemistry, and global decarbonization policies have influenced this transition. Thus, lithium has become an attractive material for making compact, efficient, and long-lasting storage devices such as lithium-ion batteries (Hersh, 2019). Even though lithium is an abundant raw material, its extraction is more technically challenging than any other material. Natural lithium deposits, which are cost-effective in extraction, are concentrated in a limited number of places. The manufacturing of lithium-ion batteries, which constitute about 70 per cent of lithium consumption, was also controlled by a limited number of states, particularly Australia and lithium triangle countries (Gonzalez, 2021).

Due to the strategic significance of lithium, most countries have placed it on the list of strategic minerals. To ensure an uninterrupted lithium supply, the U.S. Department of Interior has made it a critical mineral among the 35 critical minerals list published in May 2018 (US Department of Interior, 2018). The European Union also published a list that placed lithium as a strategic metal for storage devices. Japan has a stockpile of critical minerals and provides financial incentives to state companies for undertaking mineral exploration projects. At the global level, China produces 18% of the world's mined lithium and 25 % of the world's mining capacity (US Energy Information Administration, 2025). India also considers lithium as a strategic resource that plays a vital role in e-vehicle adoption and attaining the goal envisioned in the Atmanirvabha Bharath. Most of these powers are extracting their domestic lithium reserves and reaching out to regions with abundant natural lithium deposits. Thus, the regions endowed with this natural resource have become potential areas for new conflicts and dependencies. This global pattern of resource endowment aligns with Klare's claim that strategic minerals reshape geopolitical fault lines, transforming resource-rich regions into theaters of emerging competition among major powers.

Latin America has the world's largest natural lithium reserve, of which 60 % is in Argentina, Chile, and Bolivia (Guvvadi, 2024). They are also the largest producers of lithium and are known together as lithium triangles (LTCs). The region has become strategic due to the vast salt flats or salars, where the metal is extracted through evaporation using natural sunlight. Unlike other deposits, particularly those of Australia, the salars are natural and cost-effective. The vast lithium reserve of Latin America has attracted various powers, and they have bilateral and multilateral agreements for leasing out or joint development and exploration of these reserves. China occupies a central position among these powers, actively seeking to expand its areas of operations by building long-term economic relationships with lithium triangle countries (Farah & Babineau, 2019). Chinese companies engage in joint mining operations and investments in South America and establish an overall command over the supply value chain of lithium. China has established itself as an unquestionably partner in Bolivia's lithium industry. China processes over 60–70% of the world's lithium and cobalt, and accounted for 53% of global battery-material exports in 2023 (U.S. Energy Information Administration, 2025). China's leading lithium manufacturer, Tianqi Lithium, has a sizable investment in the Chilean mining corporation Sociedad Químicay Minera (SQM) (Kalantzakos, 2019). However, most Chinese companies mine lithium from large salt flats in Latin America and refine it elsewhere, profiting from them and leaving the host country out of the most profitable part of the process. They are also insensitive to the needs and concerns of indigenous populations surrounding the mines (Stephenson, 2023) Besides establishing dominance over lithium production in Latin America, China has created new dependency through sponsored technological development and modernisation (Altiparmak, 2023). This expansion validates Klare's claim that control over extraction and refining infrastructures enhances geopolitical leverage, enabling China to shape global supply and thereby influence the strategic autonomy of competing states like India

China's covert and overt attempts to establish its dominance in Latin America have often been viewed with suspicion by traditional industralised countries such as the U.S., Japan and the European Union. They began to openly challenge China's increased activities in lithium triangles and its ambition to control natural resources through the Belt and Road Initiative (Sanchez, 2023). Moreover, all the powers are increasing their investment in this region to control lithium and its supply chain and challenge China's geopolitical dominance (Kashwan & Jayaram, 2023)**.** Among these powers, the U.S. has been concerned about China-Russia's active engagement in extracting and processing lithium reserves in Bolivia. The U.S apprehension is based on the belief that Chinese Lithium companies are having an advantageous position in negotiation, extraction and manufacturing of lithium without any benefit to the communities who share these resources. Even though China and Russia have been playing a substantial role in developing Bolivian lithium reserves, there are also

opportunities for countries like the U.S., India, and the E.U. to capitalise on their role (Chan & Valbuena, 2023). Therefore, the U.S. has been involved in extensive lithium mining operations and established manufacturing and logistics in Chile, Argentina and Bolivia. American companies such as Albermarle Corporations, Livent, Arcadium Lithium, Energy X are operating in Latin American brines. The U.S. is also building trust among these states through technical cooperation in research and development, using efficient and environmentally friendly extraction techniques and advancing the rights of local and indigenous communities over natural resources. India is also leveraging its potential to these countries for getting access to lithium reserves. Therefore, the region where these resources are identified, mined, value-added, and produced ensnare geopolitical interests redefining the global energy politics. With the development of lithium-ion batteries and their supply chains, lithium has emerged as a strategic mineral resource with immense geopolitical potential. Thus, Latin America becomes a perfect real-world arena where Klare's concept of resource geopolitics unfolds as major powers, including India, compete to secure a place in the critical mineral order that underpins future technological dominance.

India's EV transition and Critical Mineral Vulnerability

Electric vehicle (EV) adoption in India has surged over the past two years, driven by both sustainability imperatives and long-term economic considerations. The urgency of this transition is underscored by the significant environmental and energy challenges facing the country. India's transportation sector, with nearly 300 million vehicles and rising demand for private mobility, constitutes a major source of pollution and energy consumption (Singh et al., 2019**;** Kale et al., 2015). Concurrently, twelve Indian cities rank among the fifteen most polluted globally (World Bank, 2018), while the country remains the third-largest oil consumer, importing around 80% of its crude needs at a cost of $120 billion in 2018–2019 (Banerjee, 2023). Transitioning to electric mobility thus offers multiple benefits, including reducing oil dependency, curbing import expenditures, enhancing energy security, and mitigating environmental degradation through lower emissions (Chaudhry, 2023). Moreover, it has the potential to stimulate domestic industrial growth via the development of local supply chains for battery production. From Klare's standpoint, this transformation drives India deeper into strategic dependency on external critical minerals, replacing oil insecurity with lithium insecurity unless supply autonomy is secured.

India has pursued a series of policy initiatives to accelerate EV adoption, motivated by energy, environmental, and industrial priorities. The National Electric Mobility Mission Plan (NEMMP) 2020, launched in 2013, sought to incentivize EV adoption and develop industrial infrastructure, reinforced by the 2017 declaration of full road transport electrification by 2030 (Press Trust of

India, 2017). The 2019 FAME II policy further allocated USD 1.4 billion to enhance EV manufacturing and lithium-ion battery ecosystems (Kumar et al., 2020). India's participation in the EV30@30 campaign aims for differentiated adoption targets across vehicle categories, increasing lithium-ion battery demand from 3 GWh to 70 GWh by 2030 (Clean Energy Ministerial, 2021). Complementing this, the government facilitated 100% foreign direct investment, expanded charging infrastructure, and supported projects like the Delhi–Chandigarh solar-powered corridor, leading to a 285% growth in charging networks in 2022 and an EV market expansion from 4,819 units in 2020–21 to 237,811 in 2022–23 (Strategic Investment Research Unit, 2022; The Economic Times, 2023). This growth underscores the strategic imperative of securing critical minerals and situates India's EV ambitions within a realistic framework of resource diplomacy (Kashwan, 2023). Therefore, India's technological ambition cannot be divorced from its strategic mineral diplomacy under a realist geopolitical framework.

Despite the transition to electric mobility has elevated the strategic significance of critical minerals, India faces structural vulnerabilities in securing these minerals, arising from limited domestic deposits, minimal processing capacity, the concentration of global supply chains and nascent recycling frameworks (Stephenson 2023). India's have been exposed to acute vulnerabilities in critical-mineral supply chains. Even though, recent geological surveys have identified potential lithium and other mineral reserves domestically, their current proven availability remains insufficient to meet expected EV-related demand. Consequently, India is reliant on external suppliers, primarily Australia, Chile, Argentina and China, which dominate global supply and refining (NITI Aayog, 2023). Heavy import dependence for critical minerals and rare earth elements undermines technological transition goals and amplifies exposure to geopolitical shocks and supplier leverage. The Ministry of Mines emphasised that minimal downstream processing capacity and limited industrial ecosystems that compel India to import higher-value, processed inputs rather than capture value domestically (Ministry of Mines 2023). In realist terms, this dependency exemplifies strategic vulnerability that adversaries or dominant suppliers may exploit to constrain India's economic and national-security options.

A major challenge lies beyond extraction, is the technological vulnerability. India's strengths in mineral prospecting have not translated into competitive processing technologies or battery-grade refinement; public-sector laboratories and legacy institutions remain weakly connected to private manufacturing or global supply networks. India currently lacks integrated processing infrastructure, leading to reliance on foreign refining and re-importation of value-added intermediate products (Bansal & Chadha, 2025). This technological gap constrains domestic beneficiation, reduces export revenue potential, and perpetuates dependence on technologically advanced partners for critical stages of the value chain.

Local resistance and environmental-justice imperatives further complicate mineral development. Sustained community mobilisations against bauxite and other mineral projects, most notably in Odisha's Niyamgiri and Koraput regions, demonstrate how contested consent processes, inadequate rehabilitation arrangements, and tangible health and livelihood risks generate delays, litigation and reputational costs for developers. These socio-environmental conflicts reveal distributive inequities in risk and benefit sharing and demand robust, rights-centred governance. Similarly, power asymmetries in bilateral and multilateral engagements compound strategic constraints. Studies show that political dissimilarities and relative bargaining power shape critical-minerals trade, often privileging resource-rich or technologically dominant states and restricting equitable technology transfer. For India, asymmetric negotiations translate into limited leverage over pricing, processing terms, and secure offtake arrangements (Liu & Yang, 2025)**.** Structural impediments—fragmented regulations, insufficient logistics infrastructure, and modest fiscal incentives for capital-intensive upstream investments—raise transaction costs and disincentivise domestic beneficiation. Addressing these intersecting challenges requires coordinated policy action: targeted R&D and public–private partnerships for processing technologies; strengthened, participatory environmental governance and fair benefit-sharing frameworks; and strategic diplomatic coalitions to diversify suppliers and enable technology transfer. Only an integrated strategy that couples technological upgrading with social justice can reduce India's exposure and foster a resilient, sovereign critical-minerals base.

Another layer of vulnerability stems from the geographic concentration of global supply chains. China holds a dominant position in refining capacity, cathode-active-material production and rare-earth separation, while the "lithium triangle" and Australia continue to shape upstream extraction (Ministry of Mines, 2023). Supply concentration increases strategic uncertainty, particularly for countries such as India pursuing accelerated decarbonisation and technological modernisation. Even though policy responses have begun to address these vulnerabilities, alternative frameworks that emphasis on recycling, strategic reserves and supply-diversification partnerships need to be emphasised. Thus, India's mineral insecurity intensifies its drive for strategic outreach to Latin America as a necessity borne out of realist pursuit of national resilience and power preservation.

Latin America in India's Foreign Policy Reorientation

The domestic measures adopted by India to boost e-vehicles have substantially influenced its foreign policy. Traditionally, India has depended on West Asia for energy demands, particularly oil. Today, India imports nearly 80–85% of its crude oil, and approximately 55–65% of that originates from West Asian suppliers**,** making the region the cornerstone of India's energy security architecture (Banerjee, 2023). However, with the development of EVs and its

commitment towards an energy-efficient future, India has been looking beyond its preoccupation in West Asia towards regions that were traditionally beyond its foreign policy radar. Securing a stable supply chain for critical materials used in EVs may lead to strategic partnerships and diplomatic considerations. Latin America, which is considered as a forgotten continent due to physical detachment, is attracting India's attention due to its large quantity of natural resources like copper, silver, iron ore, niobium, tin, antimony, bauxite, lead, and lithium deposits (Tharoor, 2012). This shift symbolises a realist-driven diversification of resource geographies, allowing India to reduce the concentration of risk on a single region for its energy security.

One of the reasons for India's foreign policy reorientation towards Latin America was mainly due to its change in energy geopolitics and the increasing dependence on imported lithium for manufacturing storage devices. Historically, India had given little emphasis on the domestic lithium industry. The country depended more on lithium imported from Hong Kong and China. It also ventured into joint mining operations with mining companies in Argentina (Stephenson, 2023). However, India's attempt to replace oil vehicles with electric vehicles by 2030 has opened new opportunities for engagement with Latin American countries, particularly the lithium triangles. Argentina, Bolivia, and Chile are significant in ensuring an uninterrupted lithium supply for the Indian EV industry and supply value chains. Besides, there is also increasing realisation that India's failure to take decisive actions in securing lithium would leave the country far behind in the race for lithium battery manufacturing and its supply chain. This failure would negatively impact India's ambition to become a significant lithium producer and electric car manufacturer and, in the long run, would hinder economic growth and job creation (Goel et al., 2023). Therefore, since 2019, India has chartered its mineral extraction strategy to meet its domestic lithium needs by developing domestic capabilities or expanding its sphere of influence to the lithium triangles. India considers this engagement as a measure to ensure self-reliance in developing critical technological capacity regarding lithium production and e-storage devices (Deccan Herald, 2023). Thus, with the advent of EVs, Latin America has become an important place in Indian foreign policy, which will enable India to build effective relations with the Lithium Triangles and provide an effective counter-strategy against China's attempt to control the lithium sector in the region (Singh, 2021). India's strategic outreach to Latin America therefore epitomises Klare's argument that states actively reposition their foreign policy to secure and defend access to strategic resources that determine future economic and military power.

Comparative Assessment of India's Engagement with the Lithium Triangle- Argentina, Bolivia, and Chile

India- Argentina Relations

Among the Latin American countries, Argentina has the world's third-largest lithium reserve, estimated at around 19 million tonnes (US Geological Survey [USGS], 2022). It is also the fourth-largest producer of lithium in the world. This potential reserve was a significant factor that influenced India's policy towards Argentina. India believes its engagement with Argentina would provide a continuous supply of lithium for the domestic industry and enable it to maintain a competitive edge in the global lithium market. On August 26, 2022, the External Affairs Minister of India, Dr S Jaishankar, visited Buenos Aires on the invitation from the Foreign Minister of Argentina, Santiago Cafiero and signed a Memorandum of Understanding regarding cooperation in mineral resources (Ministry of External Affairs, 2022). This MOU is strategically significant as it secures India's access to critical minerals, particularly lithium, diversifies its supply chains, strengthens bilateral economic and diplomatic ties, and enhances India's capacity to participate in the global energy transition while mitigating geopolitical dependencies. Both countries have recognised that cooperation in critical minerals would benefit them and augment trade, investment, and technology collaboration in the lithium sector. This diplomatic strategy exemplifies Klare's resource geopolitics — India securing preferential access to a scarce strategic resource to reduce vulnerability and enhance national power.

In 2022, the government took another vital measure by sending a high-level delegation comprising three geologists, one each from the Mineral Exploration Corporation Ltd (MECL), KABIL, and the Geological Survey of India (GSI), to Argentina for estimating lithium deposits and to prepare a roadmap for potential acquisitions or joint ventures. India has identified and secured five lithium-brine blocks **in** Catamarca province, Argentina**,** namely Cortadera-I, Cortadera-VI, Cortadera-VII, Cortadera-VIII, and Cateo-2022-01810132**,** under an agreement between KABIL (Khanij Bidesh India Ltd) and the Argentinian state-owned enterprise CAMYEN**.** Commercial evaluation of the mines has been conducted, and an agreement has been reached (Law, 2023). Regarding the ownership and control of the identified mineral resources, the government has authenticated that the public enterprise KABIL has the sole ownership or lease rights. This cooperation is expected to guarantee a steady supply of crucial minerals to India's domestic market. KAPIL has also signed a non-binding MoU to share information regarding prospective possessions of lithium reserves with three public enterprises in Argentina. This evidences India's realist-driven tactic of establishing direct control over extraction zones rather than relying solely on external suppliers. All these efforts were undertaken at a point in time when China and the U.S. made significant

inroads in Argentina's lithium sector through joint development and transfer of the latest technological know-how. Thus, through engaging with Argentina, India has actively engaged in geopolitical competition with the major stakeholders in Argentinian lithium reserves, like China and the U.S., to ensure an uninterrupted lithium supply for its bourgeoning EV market. However, India's pursuit of lithium mining in Argentina faces multifaceted challenges, including complex regulatory and environmental approvals, high-altitude brine extraction technicalities, inadequate infrastructure, economic volatility, intense competition from global powers, and diplomatic and joint-venture constraints (Ministry of Mines, 2023). Therefore, India's engagement is not only economic but also competitive — a balancing action within a resource competition structure dominated by major powers.

India- Bolivia Relations

As per Geological Survey of the United States of America, Bolivia accounted for a quarter of the global lithium reserves, estimated at around 21 million tonnes (USGS, 2022). Most of these reserves are concentrated primarily in Salar de Uyuni, Coi Pasa and Pastos Grandes and are extracted through the Direct Lithium Extraction Technology (DLE). Among these mining areas, Salar de Uyuni is the largest identified lithium deposits in the world, stretching across 4000 miles (Ahmad, 2020). Due to this extensive reserve, the government has decided to go for a five-fold increase in lithium production by 2025 (Davis, 2020). This increase in production quantity provides an attractive opportunity for Indian companies to operate in Bolivia. Besides, India also wanted a significant position in the region where the US, China, and Russia are increasing their presence.

India's engagement in Bolivia's lithium sector has been strategically significant in securing critical minerals essential for its clean energy and electric mobility ambitions. The partnership became operational in 2019 when the Bolivian state-owned enterprise Yacimientos de Litio Bolivianos (YLB) Corporation agreed to supply lithium carbonate to India and to establish joint ventures for manufacturing battery and energy storage devices, forming a foundational component of India's FAME II policy, which targets 30% electric vehicle adoption by 2030 (Embassy of India, Peru, 2023; Ministry of External Affairs, 2019). In February 2019, a three-member delegation from KABIL under the Ministry of Mines conducted technical visits to the Salar de Uyuni mining centers and evaporation ponds, evaluating the feasibility of joint development operations and the commercial exploration of Bolivia's extensive lithium deposits (USGS, 2022).

These efforts were further reinforced through high-level delegations led by Dr. V.K. Saraswat and Minister of State for External Affairs Meenakshi Lekhi in 2019 and 2023, respectively, which involved detailed consultations with the Bolivian Ministry of Energy and YLB. The delegations focused on lithium

extraction processes, potential joint ventures, and downstream battery and storage device manufacturing. Collectively, these initiatives established a framework for long-term industrial and commercial cooperation, enabled the supply of critical lithium resources to India, and strengthened India's strategic presence in Bolivia's competitive lithium sector, where Chinese firms already maintain significant operations (Embassy of India, Peru, 2023).

India's engagement in lithium extraction in Argentina and Bolivia reflects distinct strategic approaches shaped by geopolitical, technical, and regulatory factors. In Argentina, Indian entities such as KABIL, MECL, and GSI have secured exploration and acquisition rights over several lithium-brine blocks in Catamarca, leveraging joint ventures and commercial agreements, with a focus on brine-based high-altitude salars (Ministry of Mines, 2023). In contrast, Bolivia's lithium reserves in the Salar de Uyuni are state-controlled, with stringent government oversight, limited foreign investment opportunities, and complex regulatory frameworks, which have constrained India's direct participation (Aguirre, 2021). Thus, it is evident that India's engagement with Bolivia's lithium sector aligns its foreign policy with Bolivia's strategy to expand lithium production and establish joint ventures, allowing India to secure critical resources for clean energy and electric mobility while fostering long-term industrial cooperation amid global competition. India's partnerships in Bolivia exemplify Klare's rationale of forging resource alliances to secure long-term geopolitical and economic advantages.

India-Chile Relations

Chile occupies a significant place in the lithium triangles as its production is heavily concentrated on natural brines. It is also gifted with third largest lithium deposits (Agrawal, 2023). However, due to the strict government regulations imposed by the 1970s Parliamentary Act due to resource nationalism, environmental concerns and strategic economic interests, the extraction and management of these vast reserves by any government or private company is based on a government-issued license. This provision enabled the Government of India to actively support state-owned companies that develop lithium independently or in a joint venture with state-owned companies in Chile (Goel et al., 2023). In October 2019, a 5-member Niti Aayog delegation under Dr V.K. Saraswat visited Chile to source/acquire lithium (Ministry of External Affairs, 2023). The two countries have advanced lithium cooperation with ENAMI, a state-owned company in Chile. They signed a non-closure agreement with India's public-owned company, KABIL, for jointly developing lithium deposits in Chile (Bhaumik, 2023). Moreover, Chile has expressed interest in technology transfer and assistance for industrial capacity building in lithium exploration in India. Such institutional collaboration supports India's realist strategy of building long-term structural presence in resource-rich economies, particularly in Latin America.

Strategic Implications and Future Outlook

India's pursuit of lithium and other critical minerals aligns with its broader objectives of achieving energy security, advancing domestic battery manufacturing, and supporting initiatives such as the National Electric Mobility Mission Plan, FAME-II, and the Production Linked Incentive (PLI) scheme. More significantly, access to lithium supports India's national security imperatives, including military battery systems, clean-energy infrastructure, and future dual-use technologies. Engaging with the Lithium Triangle allows India to diversify away from a single dominant supplier—China—whose near-monopoly across refining, processing, and gigafactory production represents a strategic vulnerability (Pratap, 2025). Thus, India's entry into Latin America provides both material benefit and symbolic geopolitical relevance, situating India not merely as a consumer market but as a participant in the emerging critical-mineral order. Here, Klare's theory elucidates that India's lithium diplomacy is fundamentally about increasing national power and safeguarding strategic autonomy in an era where clean-energy transitions redefine geopolitical hierarchies.

However, when compared to China and the United States, India's capability remains in an early developmental phase. China continues to dominate the lithium value chain: it controls a significant proportion of global refining capacity, battery cell manufacturing, and associated technological know-how (IEA, 2023). Chinese companies maintain deep embeddedness in the Lithium Triangle through long-term concessions, financing agreements, and state-supported ventures. The United States, while less dominant in processing, compensates through institutional financial power and geopolitical influence in the Western Hemisphere, supported by frameworks such as the Inflation Reduction Act and the Minerals Security Partnership (US Department of States, 2023). India, by contrast, has only recently entered the sector through institutional channels such as KABIL and its engagement remains exploratory rather than fully integrated. This disparity highlights the urgency of India's realist strategy — failure to secure timely control over supply chains could cement long-term dependency.

Multiple risks complicate India's lithium diplomacy. One central concern is dependency in primary extraction and technology. Even if India secures raw lithium supplies, refining capacity, advanced cell chemistry, and large-scale battery manufacturing remain underdeveloped. This is mainly due to the lack of sophisticated technology needed for high purity extraction and refining (Chadha et al., 2025). Without parallel domestic industrial scaling, lithium acquisition may reproduce patterns of dependency similar to earlier reliance on imported fossil fuels or electronics. A second vulnerability is market volatility; lithium prices fluctuate significantly due to speculative investment, fluctuating demand projections, and regulatory unpredictability in producing states. Additionally, technological uncertainty presents a strategic dilemma: lithium-ion batteries

could eventually be displaced by alternatives such as solid-state storage, sodium-ion technology, or hydrogen-powered systems (Guvvadi, 2024), risking long-term sunk-cost exposure. Geopolitical competition poses another dimension of vulnerability. As China and the United States intensify their presence in Latin America, India faces structural disadvantages as a late entrant and China's financially integrated supply-chain presence (Kang et al., 2022). Competitive pressures may influence access terms, pricing leverage, or regulatory positioning. Moreover, unlike China's vertically integrated model or the U.S. strategy of financial security alliances, India's approach is predominantly bilateral and resource-focused, rather than ecosystem-wide. Realist logic suggests that India must minimise vulnerability by reducing reliance on global markets controlled by geopolitical competitors.

The reliability of Latin American partners remains uncertain due to political volatility, regulatory flux, and competing developmental priorities. Argentina currently represents the most accessible environment, with investor-friendly frameworks and established lithium operations (Exim Bank of India, 2023). Chile offers predictability and technological maturity, though recent policy changes seek stronger state oversight of strategic minerals. Bolivia presents the greatest challenge due to resource nationalism, ideological governance, and the prioritization of state-controlled industrialization. These differences mean India cannot adopt a uniform diplomatic strategy; rather, its engagement must remain context-sensitive and adaptive. Political and social dynamics further shape the operational feasibility of lithium mining. Extraction in the Lithium Triangle is concentrated in ecologically fragile salt-flat regions where water scarcity, land rights, and indigenous territorial claims constitute major sources of contention (Konda & Rakheja, 2024; Aylwin et.al., 2025). Local resistance movements argue that lithium extraction mirrors historic extractive patterns benefiting foreign actors while marginalizing indigenous communities. India's engagement must therefore address ethical and procedural legitimacy, including environmental safeguards, free, prior and informed consent, and benefit-sharing frameworks. Failure to do so may lead to reputational costs, operational delays, or legal challenges. Acknowledging these concerns becomes essential in maintaining long-term access — a misstep could provoke backlash that harms India's geopolitical stature.

Despite these complexities, India's engagement offers opportunities to position itself as a responsible actor advocating sustainable mineral governance rather than a purely extractive participant (International Institute for Sustainable Development, 2023). Establishing partnerships based on technology transfer, co-investment in refining and battery manufacturing, and joint research may differentiate India from other external actors (Purushothaman, 2023). Furthermore, India can leverage multilateral platforms, South-South cooperation frameworks, and climate diplomacy to institutionalize long-term mineral security beyond transactional contracts. This approach supports India's aspiration to

emerge not only as a resource-acquiring state but also as a norm-shaping actor in global mineral governance. In sum, India's engagement with the Lithium Triangle provides a pathway to enhance strategic autonomy and national competitiveness within the global clean-energy transition. However, success requires a calibrated approach that integrates foreign policy, technology development, ethical resource governance, and industrial ecosystem building that align with local development priorities. India must balance geopolitical competition, technological uncertainty, and local socio-environmental realities. India's lithium diplomacy reflects the core realist belief that strategic resources determine a state's future power position — and therefore securing lithium access is a direct investment in India's long-term national security and geopolitical stature. As Klare warns, nations that do not proactively secure their critical minerals risk strategic subordination — a scenario India seeks to avoid through its expanding footprint in Latin America.

Conclusion

The study demonstrates that the global shift toward electric mobility has elevated lithium from a mere industrial input to a strategic resource with profound geopolitical implications. Applying Klare's resource geopolitics to India's foreign policy exemplifies the strategic logic behind India's increasing presence in Latin America. It demonstrates how India's lithium diplomacy addresses the question of resource scarcity, supply-chain vulnerability, and great-power competition shape state behaviour in an anarchic international system. India's efforts to engage with Bolivia, Chile, and Argentina—through joint mining projects, processing ventures, and technology partnerships—reflect an emerging resource-security doctrine aimed at reducing structural dependence on China and diversifying strategic supply chains. Thus, India's attempt is a deliberate strategy to translate resource access into geopolitical and industrial leverage. This engagement underscores that the pursuit of critical minerals is not merely an economic objective but a strategic imperative consistent with both Klare's framework and realist theory. The study also emphasised the need for India to invest in domestic refining capacity and advanced battery technologies to prevent raw-material dependence from translating into technological dependence. Diplomatic engagement with Latin American governments must incorporate environmental safeguards, technology transfer, and benefit-sharing mechanisms to ensure long-term viability. India should also pursue multilateral frameworks for critical-mineral governance, diversify partnerships beyond bilateral arrangements, and coordinate industrial policy with trade and climate diplomacy. The study concludes by suggesting that future research should examine the long-term sustainability of lithium extraction in environmentally fragile salt-flat regions, assess the geopolitical consequences of emerging battery alternatives such as sodium-ion and solid-state technologies, and compare India's critical-mineral strategies with those of other middle powers. Further empirical inquiry

into the socio-political impacts of mining in indigenous territories would also deepen understanding of the ethical dimensions of resource geopolitics.

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