

Examining the Potential of India-Australia Partnerships in Mining

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ABSTRACT Contemporary India–Australia relations can be best described as being loaded in intent but limited in action. Over the years, pledges of “common destiny” have repeatedly been made, only to remain unfulfilled. The 2018 release by the Australian government of its India Economic Strategy 2035 is an attempt to lay down a vision for capturing the opportunities offered by India’s market. Among these opportunities is mining. This brief discusses the challenges facing India’s mining sector and the potential for collaboration therein between Australia and India. India’s increasing urbanisation, rising household incomes, and industrial activity will drive demand for greater volumes of resource commodities. Australia can fill the gap by playing its role not only as a resource supplier, but as an enabler, helping India modernise its mining sector and improve efficiency.

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INTRODUCTION

The economic engagement between India and Australia has been expanding in recent years, as high-level interactions between their leaders are increasing. In particular, the two-way prime ministerial visits in 2014 helped the India–Australia bilateral relationship gather more momentum, revitalising ties between two countries that have long been thought of as being mutually indifferent. After all, even as Australia is one of India’s extended neighbours,¹ the two have historically not shared strong trading ties. China, Japan and South Korea are top trading partners of Australia, yet Perth is closer to Chennai than Sydney is to Seoul, Shanghai or Tokyo. For a long time, underperformance and sluggish growth have dominated the economic discourse between the two countries, even as they have successfully collaborated in areas of arts, culture and sports.

Therefore, the Australian government’s release of the ‘India Economic Strategy, 2035’ in 2018 came as a relief to those with concerns that Australia might be falling behind in according India a higher priority. The document lays down Australia’s vision for capturing the opportunities offered by India’s market, and lists “mining and resources” as one of the “lead sectors” for Australia’s economic engagement with India. This brief examines the current challenges in the Indian mining sector and discusses the opportunities for collaboration between Australia and India in this domain.

INDIA’S MINING SECTOR: KEY CHALLENGES

India is home to abundant mineral deposits, and the country’s mining sector forms an

important segment of the economy. India produces 90 different types of minerals, including fuel, atomic, metallic and non-metallic minerals. Globally, India is the third-largest coal producer, the third-largest steel producer, the fourth-largest iron-ore producer and has the fifth-largest Bauxite reserves.²

India’s prospective geology has been largely similar to that of Western Australia, South Africa and South America, as these were part of Gondwana Basin with the geological pedigree for high-quality deposits of iron ore, bauxite, coal, diamonds and heavy mineral sands. However, while South Africa and Australia have been extensively exploring and utilising their mineral wealth—with the sector contributing around eight percent of their respective GDPs—India’s mining industry contributes only 1.4 percent to GDP. This, despite India’s geological resource base being capable of sustaining much higher levels of mineral development.³

India lags behind other mining countries across all stages of mining—geoscience, exploration, development, production and reclamation. There is a need to drive initiatives across all stages for the overall development of the mining sector.

1. **Geoscience** (the search for ore bodies): The generation of baseline data to promote exploration activity, led by the Geological Survey of India (GSI), is yet to be completed. Aeromagnetic surveys have covered only 18 percent of India’s total area till date, compared to 90 percent of Australia’s total area covered since 1990. While India does have geological data covering 98 percent of the country’s total area, at a scale of 1:50,000, the country

lacks geophysical and geochemical data (only two to four percent coverage, compared to 90–100 percent coverage in Australia). Some of the most crucial shortcomings are the lack of geophysical and geochemical data, and the shortage of high-precision equipment (e.g. gravimeter and total field magnetometer).⁴ The GSI should focus on baseline data generation to encourage exploration activity by large mining companies as well as juniors.

2. **Exploration** (defining the extent and value of ores): The Mines and Minerals (Development and Regulation) (Amendment) Act, 2015 ushered in a regime of transparent and non-discretionary grant of mineral concessions. However, it also resulted in the nationalisation of the exploration regime. Traditionally, most mining countries have adopted the ‘first-come-first-served’ principle to grant exploration rights and make provisions for automatic transfer from prospecting to a mining lease. Reconnaissance-cum-prospecting-cum-mining licences should be issued on a ‘first-come-first-served’ basis, through a transparent online system for deep-seated, concealed or rare-earth minerals. Surficial, bulk and stratified minerals areas for exploration may be allocated on exploration-cum-mining rights through an auction process. This will boost private and foreign participation in exploration.⁵

India’s exploration expenditure is insignificant when compared with other mineral-resource rich countries, such as Canada and Australia, which account for 14 and 13 percent of the global mining-exploration spend, respectively. India’s

share is a meagre two percent. For each square kilometre of a potential mining lease, Australia spends US\$5,580 and Canada spends US\$5,310. India, on the other hand, spends only US\$9 per square km, despite its vast mineral resources.⁶ Exploration in India is mostly limited to a depth of 50–100 m, compared to 300 m in Australia.⁷ Another issue that requires attention is the underutilisation of funds collected under the National Mineral Exploration Trust (NMET). As of March 2018, INR 1,184 crore was collected under the NMET, but only INR 79.95 crore has been spent so far. The unavailability of high-tech equipment for exploration also remains an issue.⁸

3. **Development** (the opening up of ore deposits for production): India faces substantial delays in processing mining leases and prospecting leases; environmental and forest-clearance processes, too, are lengthy and time-consuming. The ‘Environment Clearance and Forest Clearance’ process is mired in inefficiencies and bogged down by ambiguous land records.⁹ Additionally, companies require multiple approvals from various state agencies, which are delayed due to poorly defined timelines. It can take up to five years or more to obtain mining lease or prospecting lease permits in India, much longer than the time it takes in other mining geographies, e.g. under two months in Canada and Australia. Since a long processing time disincentivises applications for new rights, many countries are aiming for a processing period of less than three months.¹⁰

4. **Production** (the large-scale production of ores): India lacks the advanced technology required for the mining, extraction and processing of precious minerals, such as gold, diamond and platinum. The organised sector in mining, which is dominated by large Public Sector Undertakings (PSUs) and a few private companies, use fairly mechanised techniques with skilled manpower. However, the unorganised sector, comprising medium and small operators, employ manual methods and unskilled labourers, mining mostly marble and granite.
5. **Reclamation** (the restoration of mining sites): India does not have the financial guarantee required for mine closure, and progressive rehabilitation is not undertaken by companies due to inadequate monitoring. Mine closure is a critical area for sustainable development and must be enforced through regulatory measures. The financial guarantee for mine closure in India, being very low, does not sufficiently deter defaulters. While closure plans were made integral to the clearance process in 2003, activists maintain that these plans are pits disguised as water bodies and waste dumps as plantations.

The environmental and social costs of closing and rehabilitating old and abandoned mines are exponentially high even in the developed world, which goes far beyond the capacities of mining companies. Western Australia and Canada require companies to pay a large percentage of the mine-closure cost (70 percent in Western Australia) upfront as financial security.

All these factors put a long-overdue spotlight on the Indian mining sector.

AUSTRALIA'S MINING SECTOR

Australia's mining sector has historically played an important role in shaping the country's national economy. Mining contributes about eight percent of Australia's total GDP and around 60 percent of exports.¹¹ The mining extraction and refining industries—as well as the various industries that supply mining equipment, technology and services (METS)—make a significant contribution to the Australian economy as a source of income and a driver of improved living standards.

Australia is a world leader in the global minerals industry, with abundant and diverse mineral resources, skilled mining-industry professionals, and cutting-edge extraction and processing technologies. A Deloitte report commissioned by the Minerals Council of Australia found that the total economic contribution of the mining and METS sector was US\$236.8 billion in 2015–16, accounting for 15 percent of the country's total GDP. In 2015, Australian METS organisations exported approximately AU\$15 billion worth of products and services to more than 200 mining jurisdictions around the world and invested AU\$4 billion in research and development. Innovation has played an important role in enabling this growth. From 2003 to 2014, resource projects worth AU\$400 billion were initiated in Australia. Over 50 percent of the companies in Australia's AU\$90 billion METS sector export their goods and services, and 60 percent of the world's mining-related software is written in Australia.

Australia has the world's largest reserves of brown coal, mineral sands (rutile and zircon),

nickel, lead, silver, uranium, iron ore and zinc; second-largest reserves of bauxite and tantalum; third-largest reserves of copper; and fourth-largest reserves of silver. Australia's expertise—recognised in the Indian mining sector—spans the entire mining value chain, from exploration to decommissioning.

Australia's minerals sector has played a significant role in its relationship with India. Over a period of five years (2012 -2017), the latter has grown from being Australia's ninth-largest trading partner to fifth-largest, according to the Minerals Council of Australia. In 2017, Australia's minerals exports were worth AU\$11.2 billion (71 percent) of the AU\$15.7-billion merchandise export to India. Australia-India trade was worth AU\$27.4 billion in 2017. Coal (mostly metallurgical/coking) was worth AU\$9.2 billion, a growth of 38 percent in 12 months and an 11-percent annual growth trend over the past five years. With increased demand for minerals and metals—driven by India's economic development, increasing urbanisation, rising household incomes and industrial activity—the market conditions for Australian resource exports are set to improve. Every minute, 30 people in India are moving to a city; it is the equivalent of Australia's population urbanising every 19 months.¹² Australia has the strength and capacity to further improve its relationship with India in this sector, by engaging with all its facets.

AUSTRALIA-INDIA MINING: THE POTENTIAL FOR SYNERGY

India's GDP is expected to continue to grow in the next years on the back of economic development, rapid urbanisation, thrust on

infrastructure investment, improved private investment, strong industrial activity, and increased consumption. The government's programmes such as "Make in India" (hike manufacturing share in the GDP from the current 17 percent to 25 percent by 2022), "Housing for all by 2022," smart cities, "power for all", modernisation of the railways and aggressive highway construction targets will drive growth at a faster pace in end-user industries. Growth in these industries—including power, cement, construction and infrastructure—will, in turn, boost domestic mineral consumption.¹³

India's metal usage remains low across most metals, as compared to other developing and developed countries. The mining industry, by its very nature, affects a wide variety of stakeholders, triggers various downstream economic activities and, therefore, has a multiplier effect on the economy. With the right policy support, the mining sector can boost GDP; increase state-level and national taxes and royalties; and provide employment, especially in remote areas. The sector has the potential to create six million additional jobs by 2025 and can contribute an additional US\$125 billion to India's output and US\$47 billion to India's GDP by 2025.

Key initiatives that will boost the Indian mining sector are listed below. These are areas where Australia can play a significant role, either directly or by sharing their best practices with India.

- 1. Enhancing Productivity and Sector Modernisation:** The Indian coal industry lacks in competitiveness. Historical coal production growth rate has been

approximately two to three percent. The country needs a growth rate of seven to eight percent to meet future demands. Private and commercial miners can bring in more investment and advanced technology, which is essential for the rapid growth of India's coal-mining industry. Australian mining equipment and technology suppliers can offer the solutions that India's mining sector needs to improve efficiency. Currently, the Australian METS only exports technologies developed in Australia. It can work towards innovation, catering to India's unique mining sector, and can explore India's potential as a production and innovation hub. Australian METS sector has a number of comparative advantages, which if utilised can offer a range of solutions to the mining industry in India. These solutions span the mining value chain, with data-driven mining decisions and social and environmental sustainability playing a pivotal role; develop geophysical and geochemical knowledge, data analysis, modelling and geographic information system (GIS) skills; develop skills in installing, operating and manufacturing advanced extraction technologies as well as advanced drilling, sensing, sorting and processing technologies; foster skills in the operation and maintenance of autonomous and robotic equipment, develop technical expertise in material sciences and nanotechnology.¹⁴ Limited capital expenditure and technological upgrades with inadequate infrastructure, too, affects productivity. The output per mining worker in India varies between 150 to 2,650 tonnes per annum, compared

to an average of 12,000 tonnes per worker in Australia.¹⁵

2. **Mapping and the Generation of Baseline Data:** India's total land area is 3.2 million sq. km, of which the identified Obvious Geological Potential (OGP) area for minerals is 0.57 million sq. km, amounting to 18 percent of the total land area. Until now, most of the exploration in the country has been near the surface (50–100 m), with little or no information on deep-seated, concealed or rare earth minerals. According to the Ministry of Mines, for surficial minerals, 100 percent of the OGP area has been mapped, while for deep-seated minerals, only 22 percent had been mapped as of March 2018. In contrast, other mineral-rich countries with similar geology, such as Australia, have almost 95 percent of their OGP fully mapped. To attract private and foreign investors to mine in India, it is essential to complete all the surveys—geophysical, geochemical, aero-geophysical and marine—and make the basic data available in the public domain. India can also introduce a robust and transparent 'public-exploration reporting mechanism', compliant with the JORC code or equivalent in the statute.¹⁶ Australian METS companies have a competitive edge in advanced technology and systems. On the lines of the Australian UNCOVER project, the GSI is partnering with its Australian counterparts to unlock India's mineral potential. The initiatives include characterising India's geological cover, investigating India's lithospheric architecture, resolving 4D geodynamic and metallogenic evolution, and detecting

and characterising the distal footprints of ore deposits. Geoscience Australia is the national agency for geoscience research and geospatial information. As part of Project Uncover (India), deep seismic reflection surveys (DSRS) will be carried out to interpret the lithospheric architecture of earth. The idea is to look for potential mineral deposits up to a depth of 1,000–2,000 m. Experts also tap into the domain of magnetotellurics, i.e. the study of the earth's crust to analyse its conductivity.¹⁷

3. Critical Minerals: Technological change has driven the global demand for a new group of metals, non-metals and mineral elements, considered necessary for the economic well-being of the world's major and emerging economies. The importance of rare earth elements and other critical minerals stems from their unique catalytic, metallurgical, nuclear, electrical, magnetic and luminescent properties. The growing significance of these minerals is demonstrated in their use in the manufacture of mobile phones and computers, flat-screen monitors, wind turbines, electric cars, solar panels, rechargeable batteries, defence-industry technology and products, etc. The growing demand for critical minerals, creates significant economic opportunities for Australia and India to collaborate.¹⁸

4. Create an Integrated Single-window Clearance Process and Expand the Logistics Infrastructure: One of the major reasons for delay in making a mine operational is the time-consuming process of getting environmental, forest

and other clearances. It requires three to five years to operationalise a mineral block, which includes gram sabha consent (365 days), environment clearances (358 days), forest clearances (440 days) and land owners' consent (365 days). To facilitate easy mining operations, the Ministry of Mines recently launched the mobile app TAMRA (Transparency, Auction Monitoring and Resource Augmentation) across 12 mineral-rich states, to track the status of the statutory clearances associated with mining blocks. The ministry has also constituted an inter-ministerial group—the Post Auction Mining and Approvals Facilitator (PAMCAF)—to expedite the various clearances/approvals required after the allotment of mineral blocks through e-auction. It remains to be seen if the PAMCAF will help the mineral blocks reach the operationalisation stage as early as possible.¹⁹

In addition to these commendable measures, the government has also addressed the need to put in place a single-window and time-bound environment and forest clearance process: the “Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single-window Hub,” commonly called PARIVESH. PARIVESH has been rolled out for online submission, monitoring and management of proposals, submitted by project proponents to the Ministry of Environment and the state-level Environmental Impact Assessment Authorities. Such proposals seek various types of clearances from the centre, states and districts, such as environmental,

forest, wildlife and 'coastal regulation zone' clearances.

In Australia, it takes only one year to get environment and forest approvals for mining activities. The Australian Department of State Development (DSD) is responsible for monitoring the clearance process, removing bottlenecks and ensuring timely approvals. India could implement a similar single-window process to streamline environmental and forest clearances. India must also expand its logistics infrastructure for major-steel, iron-ore and coking-coal routes. To facilitate coal transport through the sea route to coastal demand regions, it is necessary to expand major port capacity.

5. **Human Capital in Mining:** Mining labour is crucial for the sustainable development of the sector, especially as there could be an incremental demand of 1.5–2.5 times in the workforce by 2025.²⁰

There will be an increased requirement for mining engineers, geologists, diploma holders and skilled/semi-skilled labourers. The impending shortage of human capital in the sector can be addressed by increasing the capacity of educational institutions and partnering with industry, the HRD ministry or the National Skill Development Council. Given India's plans to expand its mining sector and increase the mining share in the GDP by one percent in the next two to three years, Australia's world-class technical expertise in the METS will be beneficial for the country.

According to Austmine's 2015 industry survey, 20 percent of the Australian METS

companies export to India and 23 percent had operations or offices in the country.²¹ The establishment of the Australia–India Mining Partnership at the Indian School of Mines is an important initiative to showcase Australia's technological innovation and its expertise in mining governance and environmental management.²²

6. **Sustainable Environmental Management:** Mining in India is considered amongst the most dangerous professions and annually causes a significant number of accidents and fatalities. Data tabled in the Lok Sabha by the Labour and Employment Ministry on 31 December 2018 showed that 377 workers involved in the mining of coal, minerals and oil were killed in accidents between 2015 and 2017. Australia, meanwhile, has the lowest mining accident rates in the world. Such impeccable safety record makes Australia the ideal partner for India for the development of mine-safety management plans. The Queensland and Indian governments recently signed a three-year memorandum of understanding (MoU) to this end. The MoU establishes a partnership between India's Directorate General of Mines Safety (DGMS) and Queensland's Safety in Mines, Testing and Research Station (SIMTARS). Both countries will implement risk-based safety-management systems, incorporating training programmes, seminars and technical meetings; a national mine-disaster centre; and an occupational health and safety academy. The groups will also work on modernising

the research-and-development laboratory of the DGMS.

7. **Tax System:** Rationalisation of taxation remains a major issue in the mining sector. The global average taxation applicable for mining is 40 percent of the gross profit. However, India is constantly adding to this, in the form of royalty, a host of statutory levies implemented by the states, and the two new levies introduced in MMDR (Amendment) Act, 2015—payment to District Mineral Foundation; and payment of two percent of royalty to the National Mineral Exploration Trust. Adding to this are the one-time regulatory costs related to environment clearances and forest clearances, which brings the total taxation to around 65 percent of the gross profit. Therefore, it is necessary to define an ideal tax system for the industry to make it more lucrative, especially for foreign investors. The taxation regime for mining in India affects all downstream industries and employment opportunities in the economy, while fuelling the already skewed balance of payment through additional import of minerals. Therefore, there is need to rationalise the taxation structure for the mining sector for sustainable development and deriving long-term benefits in terms of sustained raw material security for industries.²³

‘MINE IN INDIA’

India has significant mining potential that still lies untapped. The mining industry has failed to exploit the resources sensibly, due to the

absence of infrastructure facilities, regulatory challenges and the lack of sustainable mining activities. The investment in the mining sector is not commensurate to the country’s vast mining potential, as evident from the low FDI in the sector, despite the 100 percent allowance. To rectify the situation, the government aims to increase the GDP share of mining from two to five percent over the next 20 years.

The Indian mining sector has suffered from administrative and legal issues. These include bans on mining in various states through Supreme Court orders, a low level of exploration activity, increasing imports, high taxation rates, heavy land-acquisition costs, and low rail-evacuation capacity. Additionally, according to the mining survey conducted by Fraser Institute in 2016, India ranks 97th out of 104 countries in the Investment Attractiveness Index for mining, highlighting the country’s inability to attract global investors to its ‘Mine in India’ initiative. India is ranked 59th out of 96 mining jurisdictions on composite mineral and policy potential. Even the New Mineral Exploration and Licensing Policy, 2016 has failed to strike a note with foreign investors. The policy is still wanting in tax incentives for explorers and does not offer an investor the grant of prospecting licence or a composite licence (PL-cum-mining lease).

According to a report by FICCI, if India wants to increase the share of its mining sector to five percent of the GDP in the next 20 years, the sector must grow at the rate of 10–12 percent annually. India’s insignificant exploration expenditure, with tax rates as high as 64 percent (amongst the highest globally), is one of the main factors for a low FDI inflow.

CONCLUSION

India's appetite for energy is insatiable. By 2025, India is set to become one of the largest importers of iron ore, thermal coal and coking coal, accounting for 11 percent, 25 percent and 22 percent, respectively, of their global seaborne trade. India's increasing share in the global seaborne market is also likely to put upward pressure on the global prices of these commodities. By meeting its own demand for mining commodities, India can address its current account deficit. However, if mining growth continues to be slow, by 2025, India will incur US\$58 billion in forex spend from iron ore, coking coal and thermal coal.

Investment, innovation and infrastructure are key drivers in boosting the growth of India's mining sector and enabling administrative and regulatory framework across the centre and state machineries, which will incentivise investors.

Australia's abundant resources are only one part of a larger picture. There is room for improvement in India's relatively inefficient mining practices as well as mine safety and mine rehabilitation. Australia and India should forge a mineral alliance, focusing on research, exploration and development. The two countries must identify challenges and utilise the opportunities for their mutual benefit. 

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