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THE FUTURE OF MINING IN INDIA



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THE FUTURE OF MINING IN INDIA

While a historically productive enterprise, the future of mining in India is uncertain due to weak legislation, resource overuse, and a central government that prioritises rapid developments over all else.

In 2010, mining was responsible for around a quarter of Indian GDP, and has been one of the driving forces behind nearly a decade of constant growth, with GDP nearly doubling from \$1.32tn in 2009 to \$2.6tn in 2017, according to Trading Economics and The World Bank. However, legal instability and a weak mining policy has encouraged rapid resource depletion, and investment that does not fully consider the environmental impacts of the industry, leading to uncertainty regarding the future of mining in India.

Mining in India: Depleting resources and increasing production

While India boasts significant resources, with the world's fourth-largest deposits of coal according to World Atlas, stores of many of these minerals are geographically disparate, raising the potential for conflict between local and national governments over the wealth of the country's five separate mineral belts.

According to the national government, Indian copper ore reserves totalled 207 million tonnes (Mt) in 2015, for instance, but 154 million of these deposits were located in the central state of Madhya Pradesh, which also boasts the country's largest diamond reserves.

The country also had 656Mt of bauxite in 2015, but around half of this total was found in the eastern state of Odisha. A similar concentration is seen in the distribution of silver ore, where Rajasthan has 138Mt of the country's 2015 total of 150Mt. However, while nine states are known to have bauxite reserves, just two states – Rajasthan and Karnataka – are reported to have deposits of silver ore, a more dramatic concentration of resources.

The distribution of iron ore, of which India is the third-largest producer in the world, is more balanced with Odisha and Chhattisgarh possessing reserves upward of 2.5 billion tonnes (bnt) and 1.4bnt respectively. Yet the primary concern surrounding iron ore is the rate at which India is depleting its reserves. The country's deposits of the ore, including both haematite and magnetite sources, fell from 8.3bnt in 2010 to 5.9bnt in 2015.

The rapid depletion is in line with India's dramatic ramp-up of iron ore production, from a slump of 129.3Mt in the 2014-15 financial year to an estimated 201.0Mt in 2018-19, and a record high of 225.0Mt in 2019-20.

Small-scale miners are trying to maximise production in the short term, with the operating licences of 288 mines slated to expire in 2020 at which point ownership of the mines will transfer back to the government, which will re-auction them on the open market. While this has resulted in dramatic improvements in production, the depletion of reserves combined with the inherently unstable nature of many of these operations has cast doubt over the long-term profitability of the sector. Trading Economics, using statistics from the Indian Central Statistical Organisation, predicts that GDP from mining will fall to below \$11.3bn by July 2019, from a high of \$16.3bn in January 2018.

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in January 2018.

A new National Mineral Policy

Another significant driver for change in India is the National Mineral Policy (NMP), a directive released in 2019 that will govern the country's mining sector, and replaces the 2008 version of the policy that has been in place for the last decade. The NMP grants states some powers with regard to mineral exploration and permitting, but stresses that local governments are encouraged to "endeavour to auction mineral blocks with pre-embedded statutory clearances" in order to avoid delays in the process of mine permitting and construction.

As a result, the NMP could be described as company-friendly, with an emphasis on streamlining the permitting and construction processes. The document introduces "triggers at higher level in the event of delay", enabling decision-makers to expedite the permitting process if it is being delayed. The clause highlights the apparent importance of ensuring mining work begins quickly, rather than necessarily once thorough environmental assessments have been completed.

Similarly, the policy makes few provisions to ensure operational safety, only making a vague recommendation that the directorate-general of mine safety should be "strengthened through adequate manpower, equipment, and skill sets." India has struggled recently to ensure safety at its mining operations, with 377 deaths reported between 2015 and 2017, fatalities increasing year-on-year since 2016, and the collapse of a rat-hole mine in December 2018 killing up to 13 people. The new policy introduces no new measures or practices to address this decline in safety.

The new law also designated mineral-rich areas as "Mining Land," which are to be reserved for mineral development, enabling companies to quickly build mines without obstacles. However, the policy also applies to deposits that have been claimed and on which mining work has not yet begun. This raises the possibility of miners claiming large swathes of land for themselves, with the stated intention of developing them in the near future, but without a legal timeframe within which to develop the land. The policy places a lot of trust in both private companies and, where applicable, government bodies tasked to develop mining projects, to develop the land responsibly and in a timely fashion.

Addressing environmental damage

The new NMP could be particularly disappointing to environ-

mental groups, who have argued that the previous NMP did not do enough to protect India's land in general, and forests in particular, from the damage of mining. A 2019 study by Ram Ranjan at Macquarie University Sydney found that districts that produced coal, iron ore, and limestone experienced, on average, 450km² more forest loss than other districts. The same study found that districts with minimal mineral production had, on average, 350km² less forest loss than average districts.

Furthermore, a key motivator behind the updated NMP is a 2017 decision by the country's Supreme Court, which ruled against a number of illegal miners in three Odisha districts who "destroyed the environment and forests and perhaps caused untold misery to the tribal [communities] in the area." The court encouraged the government to implement a more robust mining policy, that did more to protect the environment and could be effectively enforced on a larger scale, but it is unclear if the new NMP achieves either recommendation.

The NMP also fails to address existing holes in India's environmental regulations, with no specific references to mining in policies such as the Environment Act, Water Act and Air Act, which cover pollution in the country. While the Environmental Protection Rules of 2010 introduced some standards for iron ore operations, the remainder of mineral extraction projects remain unchecked, and Srestha Banerjee wrote in Indian environmentalist magazine *Down To Earth* that introducing pollution checks is almost impossible as "baseline pollution monitoring data in most mining areas is nearly non-existent or extremely poor."

A 2017 study found that waste from chromium mining in Odisha polluted local water sources, highlighting the dangers of mining by-products. The report found that levels of chromium, which is toxic to humans, in local water sources reached up to 1.46mg/L, orders of magnitude above the limit of 0.05mg/L considered safe by the government. The pollution was primarily caused by waste storage facilities overflowing during India's rainy season, and the new NMP introduces no specific regulations with regards to safety in relation to seasonal or meteorological changes.

While these shortcomings will not necessarily lead to the further decline of India's natural environments, the fact that the government has neglected to protect these areas in legislation that is infrequently updated could encourage environmentally irresponsible developments in the next decade.

MINERS SEEK 10-YEAR EXTENSION FOR INDIAN MINING LEASES EXPIRING NEXT YEAR

Fearing delays in holding fresh auctions of 288 mining leases slated to expire in March next year, the Indian mining industry has sought a ten-year extension of leases for these mines until 2030.

The Federation of Indian Mineral Industries (FIMI), in a presen-

tation to the government, has said that the industry is staring at a crisis, as fresh auctions for the expiring mining leases before the March 2020 deadline seem a distinct possibility.

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The Mines and Minerals (Development and Regulation) Act (MMDRA) 2015 made auction mandatory for the allocation of mining leases and all mining leases allocated prior to the Act, and up for renewal after promulgation of the Act, would need to go through fresh auctions.

The National Institute for Transformation of India Commission last month set up a committee on mines, minerals and coal to look into current challenges facing the sector and immediate measures to mitigate them and the FIMI representation was against the backdrop of such an initiative.

FIMI pointed out that until the promulgation of the MMDRA, there had been no distinction between captive and noncaptive mines and both were treated the same, including tenures of mining leases. Hence, mining in captive or noncaptive mines, private or government, should be treated the same under the MMDRA, with noncaptive mine leases also granted extensions



as in the case of captive mines.

It suggested that in the first phase all mining leases slated to expire next year should be extended for a period of ten years and thereafter renewed every 20 years until reserves in each mine were exhausted to prevent any risk of disruptions in raw material supplies to downstream production units.

The Mines Ministry last year had set a deadline of December 2018 for all state governments to complete fresh exploration of mineral blocks where mining leases were to expire in 2020, but this deadline has been missed by most state governments.

According to information from the government only 101 mineral blocks of the 288 were ready to be put up for auction with exploration completed in these blocks. The highest number of mining leases up for expiry are in Goa (184), followed by Karnataka (48) and Odisha (17).

IS POLITICAL CAPITAL THE MOST CRITICAL RESOURCE FOR MINING IN INDIA : BY DIPESH DIPU

Polymakers and indeed miners themselves should strive to reduce the need for political capital

Mining industry is a political industry as several of its stakeholders are largely political constituencies - government and regulatory agencies, on the one hand, and project-affected communities, on the other. For value creation through mineral extraction, mining companies need to procure licences and permits, acquire land, procure the social licence to operate, and then commence mine development and operations. For the life of mining projects, all these licences need to be retained, else there may be disruptions. However, is it safe to say that the political capital of a mining company is the most precious resource they have? And, should it be?

Resource is not a new term for the mining industry that

hinges on mineral resource exploration and further extraction. These mineral resources -- which, with greater accuracy of delineation through drilling, other exploration techniques coupled with economic investigations are classified into reserves -- form the backbone of a mining project. Geological existence followed with established technical and financial feasibility are stage-gates that resources lying underground pass through before a mining project is conceived.

Value in this life cycle of a mining project is created in the two most critical stages. First, by identification that a mineral exists underground for exploration, and second, by establishment of technical and financial investigations that the reserves are mineable. Value, thereafter, typically continues to reduce as the

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project development and construction works are undertaken, requiring large capital expenses and subsequently followed by extraction that depletes reserves, thus, reducing value for the mineral project until complete exhaustion or end of the licensed term. There are variants in this value over the life of a project curve that depends upon the pricing of mineral products and further discoveries of more resources. Hence, the value of a mining company is largely reflected in resources that are buried underneath. However, these values are notional, and unrealisable unless mining is commenced and sustained through the project's life.

So, given the reserves of the existing minerals underground, which may be technically and financially feasible to be mined, the value unlocking activity to be followed is the procurement of legal and social permits. These, particularly in India, have turned out to be significantly dependent on political resources a firm might have. The laws, regulations and rules that govern these permits tend to have lack of objectivity, unpredictability of outcomes and

scope for discretion. Obtaining the so-called social licence to operate also requires political skills of manoeuvring the local and state level interest groups, including local and national media. For decades, the challenges in mining project implementation have been around these issues of securing environmental and forest clearances, acquiring and getting physical possession of land, rehabilitating and resettling the project affected families, and ensuring the least resistant path to construction and development of projects. The reason so many government-owned companies prefer inclusion of these responsibilities in the scope of the work of contract miners, the Mine Developers and Operators (MDOs), is the lack of political capital they have even while they are owned and managed by the government.

The subsequent activities of the life cycle -- procuring, operating and maintaining mining equipment, and continue mineral

production -- have been more or less commoditised. These have often been, not just in India but globally, outsourced to contract miners who typically receive payments on the basis of tonnage of material excavated, these fees are expected to rise only on inflation. Contract mining, bereft of their contribution in mine construction and development, is a business analogue to a fixed income investment with stable cost-plus margin formula. Indian coal companies have been engaging the contractors in these, creating overburden removal and sometimes ore-winning activities for long, and the way they have been managed indicates the perception of these activities being low-value.

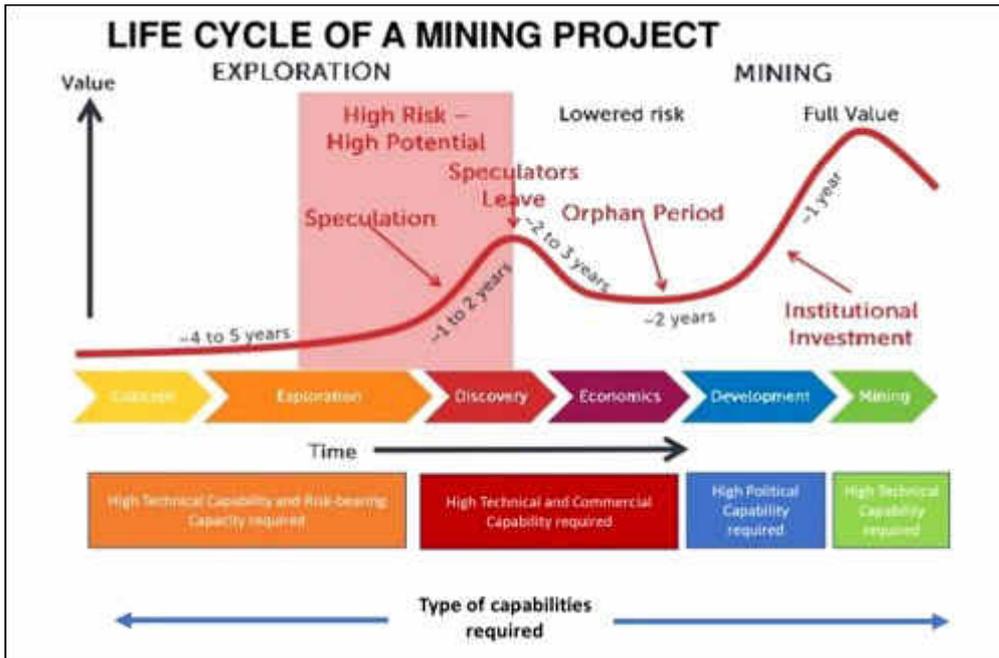
So, essentially, the next value creating activity in the life cycle of a mining project, subsequent to the mineral exploration and investigation stages,

is the construction and development of mines. Evidence from other mineral-rich countries point to this when global miners tend to keep these for themselves while they outsource the subsequent activities of operations. Evidence of large MDOs in India who have picked up contracts from government-owned miners also indicate the same

when these MDOs outsource operations and maintenance stages of mining to sub-contractors and keep mine construction and development with themselves. In this process, due to higher risks in these activities, their claim to higher margins seem legitimate if the price they receive from the government-owned mine-owners and the price they pay to the sub-contractors is unbundled and analysed.

Finally, upon analysing all the elements of the life cycle, the most value unlocking activity is the procurement of licences and permits, and land acquisition. The next one, construction and development, are economically risk-bearing but are not necessarily dependent on political capital. With clauses in the MDO contracts which pay for land acquisition, rehabilitation and resettlement and for infrastructure construction largely upfront, the

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MDO then primarily needs to have political resources to procure permissions and land acquisition and then execute the construction and development through engineering, procurement and construction sub-contract, and later, get the mining sub-contractor to operate the mines, while MDOs themselves continue to only have low skin in the game for the rest of the life of the contract, and often coterminous life of the mine. This hints towards a strong business case for mining project development and construction companies, primarily having dynamic political capabilities.

Should this, however, be the case of an industry from the perspective of policymaking? The political stakeholders may prefer this, since there exists a greater scope of rent seeking in the proc-

ess. But policymakers and indeed miners themselves should strive to reduce the need for political capital. For miners it may be imperative because acquiring political capital can be expensive, requiring indulgence, sometimes, in unethical and illegal practices. For policymakers, it has to be one of the key objectives, since rent seeking and political corruption prevent efficient capital and resource deployment in a deserving industries and make investments look less attractive to economically, operationally and technically efficient market participants. And, this can certainly be done by making the process of granting clearances, permits, social licences to operate more objective, predictable, transparent and market-driven. Will Indian mining industry go that way? More on this soon.



DIPESH DIPU

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Dipesh Dipu is an expert in the energy and resources sector. He is the founder and partner at Jenissi Management Consultants. Dipesh advises clients on strategic and operational issues, including business planning, transactions, partnerships and performance improvement initiatives. He has worked on assignments in South-East Asia, Middle East and Sub-Saharan Africa on various infrastructure projects. He is also a prolific writer and engages frequently in training programs and speaking assignments at conferences and seminars.

HINDUSTAN COPPER BID TO INVEST RS 600 CRORE

The copper miner plans to produce 51.5 lakh tonnes ore in the current fiscal against last year's 41.22 lakh tonnes

Hindustan Copper has set a target to raise production by 25 per cent in 2019-20 and planned a capital expenditure of Rs 600 crore on expansion projects.

The government-owned copper miner plans to produce 51.5 lakh tonnes ore in the current fiscal against last year's 41.22 lakh tonnes.

The target is in line with plans to ramp up production to 200 lakh tonnes.

"My strategy of growth is based on three areas – capacity expansion of the operating mines, reopening of some of the closed mines and acquisition of new mining lease from the state government," said Santosh Sharma, chairman and managing director, Hindustan Copper.

All the three areas have been taken into consideration to meet the target of 51.5 lakh tonnes, Sharma added.

The company said the Malanjkhand underground mine project

in Madhya Pradesh is progressing according to schedule and production is expected in 2019-20. The company also plans to reopen the Rakha mine and start the Chapri Sideshwar mines at Ghatsila, Jharkhand.

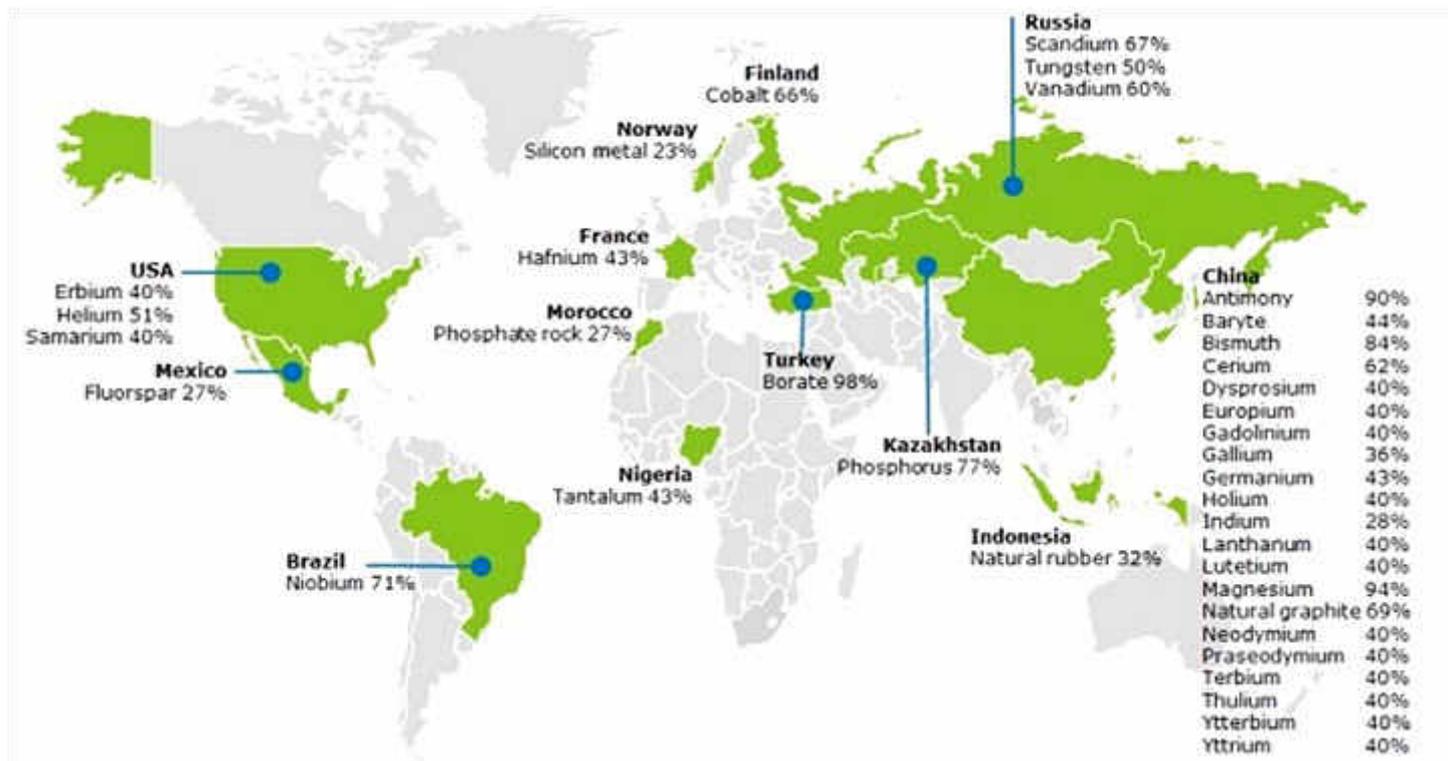


Moreover, Sharma said the company was expecting mining lease for the Dhobhani Pathargora mine from the Jharkhand state government in 2-3 months. "Since that was an operating mine, there is not much work," said Sharma.

The company, which recorded a revenue of Rs 1,816.25 crore in 2018-19, has set its sight on a revenue of Rs 2,000 crore in 2019-20. The company may also spend more than its planned capital expenditure during the year with investments up to Rs 1,200 crore.

"My actual capital expenditure commitment is Rs 600 crore but considering that I am planning to reopen one mine, ensuring expansion of another mine, the expenditure may go up to Rs 1,200 crore," Sharma said. HCL also plans to zero in on its first overseas acquisition in six months.

HERE ARE CHINA'S RIVALS IN SHIPPING RARE EARTHS TO THE U.S.



U.S. consumers of rare earths including makers of magnets used in electric vehicles, drones and robots are likely to scramble for supply of the minerals should China curb exports as the trade war deepens. Here's a list of alternative exporters that American manufacturers may turn to for rare earth supply:

Australia

The largest miner behind China boosted output last year to 20,000 metric tons, from 19,000 tons a year earlier, according to the U.S. Geological Survey. Australia is home to the mine run by Lynas Corp., the largest rare earths producer outside of China. The company said last week it plans to almost double output of the rare earths neodymium and praseodymium by 2025 and will expand its processing capacity. It also plans to help fill the shortfall in the U.S. through a joint venture with Blue Line Corp. that will build a plant to process the commodities in Texas.

Not So Rare Earths

China dominates global production and reserves of rare earths

Estonia

This European country is the second-largest supplier to the U.S., accounting for 6% of the imports of the mineral, according to USGS. It is also host to Neo Performance Materials Inc.'s Silmet facility, which has the capacity to produce 2,500 tons of rare earth products, according to a company filing. The company will likely ship more of the minerals from its operations in Estonia to customers in the U.S., should China decide to curb exports to the North American nation, Scott Fromson, an equity analyst at CIBC, said in a note to clients last week. Still, the

company would expect only "a minor and temporary impact," a spokesman said in an email in response to Bloomberg queries.

Myanmar

The Southeast Asian nation is the largest producer behind China, the U.S. and Australia, according to the USGS. Myanmar produced 5,000 metric tons of rare earths last year, and much of this year's output will need to find a home after losing its buyer, China. Beijing banned imports of the ore from Myanmar on May 14, SMM Information & Technology Co. said.

Loosening Grip

China dominates rare earths mining, but new projects are being assessed globally

India

The South Asian nation holds the fifth largest rare-earth mineral reserves. When China restricted shipments beginning 2007, India was one of the countries that joined the race to increase domestic investment and production, commissioning a monazite processing plant in 2010. Across the globe, prices of the metal soared until China agreed to open trade again.

Brazil and Vietnam

The two countries each have about 22 million tons in rare-earth reserves, according to USGS. They have been slow to develop their mines. While Vietnam doubled its output last year, the total was only 400 tons. Brazil, on the other hand, cut its output to 1,000 tons, from 1,700 a year earlier, data show. Other suppliers include Russia, which has 12 million tons still buried in the ground.

MEGHALAYA GOVERNMENT FAVOURS COAL MINING REGULATIONS

It said so in the apex court during a hearing on a petition filed by Lber Laloo, who wanted a ban on coal mining.

The Meghalaya government has maintained in the Supreme Court that it is in favour of regulating coal mining activities in the state.

The state government said this in the apex court during a hearing on a petition filed by one Lber Laloo who wanted the ban on coal mining, imposed by the National Green Tribunal (NGT) since April 2014, to be lifted.

State advocate general Amit Kumar told The Telegraph that the apex court has been hearing issues related to coal mining in Meghalaya on almost a daily basis.

The issues include appeals filed by the state against the NGT

order imposing complete ban on coal mining, appointment of Justice (retd) B.P. Katakey Committee by the tribunal, and the NGT order asking the government to deposit Rs 100 crore with the Central Pollution Control Board.

Kumar said the arguments on behalf of the state started on April 23 and continued on April 24. Thereafter, the state was again heard on Wednesday and Thursday.

“The broad arguments on behalf of the state are that the state is in favour of regulating coal mining activities in the state. It has framed the policy for doing so,” the advocate-general said.

After showing the historical legal background of the land tenure system in Meghalaya, the state argued in the apex court that the Mines and Minerals Development and Regulations Act apply to lease holders only. If a land owner is doing the mining himself,

there is no question of granting lease to himself.

“The Supreme Court, during the course of arguments, asked about the applicability of other laws. The state maintained that mining act and all other acts would apply to coal mining and the state has already informed its decision to implement all other laws to the central government,” the advocate-general added.

On Thursday, after conclusion of arguments on behalf of the state



and other appellants, senior advocate Colin Gonsalves, who was appointed as amicus curiae, started his arguments but could not complete it by 4pm. He is likely to argue for another half an hour on Friday.

There will be some more arguments, including on the

issue of transportation of extracted and assessed coal, Kumar said.

“I expect that the legal issues, which are pending regarding coal mining in Meghalaya, will be resolved once and for all. If the Supreme Court finally holds that the MMDR Act will apply, the state has to follow the act. If it holds that the act is not applicable and mining can be permitted under mining plan and policies of the state government, mining will start according to the state’s policy,” he added.

There will be complete clarity only after detailed and extensive arguments and the apex court’s judgment.

“I must say it has been possible only after the new government (Meghalaya Democratic Alliance government) decided to resolve the long-pending issue by taking prompt legal measures,” the advocate-general said.

RECORD INTERNATIONAL IRON ORE PRICES SPUR LOWER GRADE EXPORTS FROM INDIA

In 2018-19, India became a net importer of iron ore. Inward shipment rose 43% to 12.3 mt as steelmakers prefer imported ore

At over \$100 a tonne, the global price of iron ore’s higher grades is now the highest in five years, kindling hope of revival in export of lower grades of ore from India. Export of iron ore of up to 58 per cent ferrous content (58-Fe) attracts zero duty. Traders say once the price of this baser grade of ore breaches \$70 a tonne, export becomes viable.

Odisha alone has in excess of 100 million tonnes of inferior grade iron ore accumulated at mine heads; this ore lacks takers in India. More such inventory is piling up in Jharkhand; the two states account for over 80 per cent of the country’s accumulated iron ore stockpile.

Despite the zero-duty incentive, export of lower grade material did not pick up because of flagging demand abroad, especially

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China. Steel mills in that country are buying more of enriched ore and even pellets, as local and national governments there have launched a crackdown on polluting industries.

Now, however, a supply disruption in Brazil and Australia, and plunging inventories at China's ports, have goaded steel makers to source more ore. The lower grade ore is now \$85 a tonne and the higher grade (65 per cent Fe) is \$115. The futures price of the benchmark 62-Fe grade soared to \$103 at China's Dalian Commodity Exchange.

"Over three months, demand for lower grade iron ore has witnessed an upswing, after mine disruptions in Brazil and Australia. As international prices flare, we expect the momentum to sustain. There is immense stock in the domestic market and this needs to be liquidated," said a mining industry source.



In 2018-19, India became a net importer of iron ore. Inward shipment rose 43 per cent to 12.3 million tonnes (mt) as steel makers preferred to source higher grade ore from abroad. Iron ore export from the country fell 56 per cent to 6.9 mt, owing to a mining ban clamped in Goa by the Supreme Court, depressed seaborne prices and a 30 per cent export duty on higher grade ore.

Analysts are now betting that the benchmark Fe grade ore fines will rise in price to \$110 a tonne, as Chinese steel makers aiming to ramp up output will be keen to replenish stock. More, simmering trade tensions between the US and China are expected to buoy prices.

The global ore supply crunch is unlikely to ease, with 40 mt of supplies choked after breaches at tailing dams of Brazil-based Vale, the world's largest iron ore miner. The tailing dam bursts in late January at Vale's mines in Brazil had sparked turmoil in global supplies.

AUSTRALIA: ADANI WINS ONE OF LAST TWO PERMITS NEEDED TO BEGIN WORK ON MINING PROJECT

Adani has faced difficulties obtaining finance for the mine and accompanying rail project as climate change concerns have discouraged lenders from backing new thermal coal developments.

The Australian state of Queensland on Friday approved Adani Enterprise's management plan for an endangered bird at the site for a controversial coal mine, leaving only one more permit before construction can start on the project.

India's Adani has been working for a decade to obtain approvals to develop the Carmichael mine in the remote Galilee Basin, but the process has been slow as the project has become a touchstone for concerns about climate change.

"The Department of Environment and Science (DES) approved Adani's black-throated finch management plan," the Queensland regulator said.

"DES has met regularly with Adani to ensure that the plan is robust and is well-placed to deliver the best outcomes for the

protection of the black-throated finch."

Adani said it had received notice that its plan had been approved.

The approval leaves just one permit outstanding, which relates to management of a sensitive groundwater source. That is expected to be issued by June 13.

Adani has faced difficulties obtaining finance for the mine and accompanying rail project as climate change concerns have discouraged lenders from backing new thermal coal developments, while falling prices have also raised doubts about the mine's economics.

But voters worried about jobs in the downtrodden region returned the ruling Liberal-

National coalition to power in an Australian election this month, renewing momentum for the project.

A local conservation group condemned Friday's approval, saying in a statement that "Australians should be alarmed by this decision".



IN AUCTION REGIME, CAPTIVE MINING MAY PUSH COMMERCIAL MINING OUT

The Mines and Minerals (Development and Regulation) Amendment Act, 2015, through its provisions in sections 8A (5) and (6) has created a dead-end for mineral leases that existed prior to its enactment for captive and non-captive purposes in 2030 and 2020, respectively, and requires these leases to be put out for auctions by the state governments. Renewal of mining leases, even for government-owned companies, have become a subject of possible auction. A case in point is that of Donimalai iron ore mine of NMDC Ltd, for which the lease renewal application has seen the state of Karnataka demanding 80 per cent revenue share. NMDC has filed a petition in the Karnataka High Court and the order has been reserved so far.

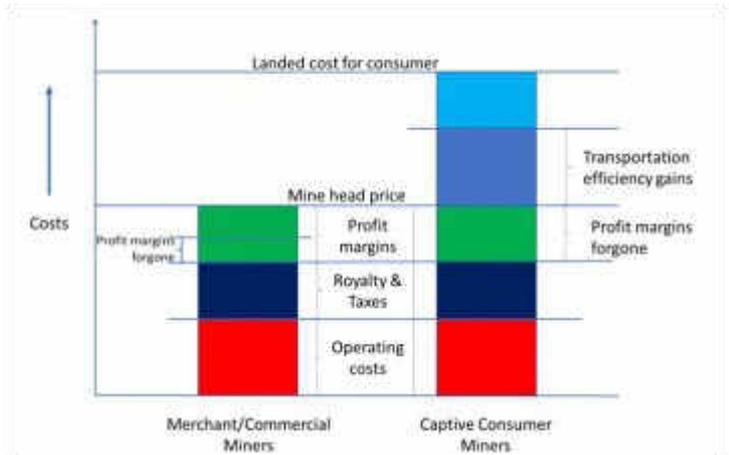
The reason for Karnataka's demand this revenue share has been the outcome of auctions they conducted for iron ore mines in the state that fetched them bids of similar proportions in the revenues. The state in the recent past, 2016 onwards, has auctioned 14 mines where the weighted average of the premium has been observed to be 99.18 per cent. The data of iron ore block auctions from 2016 to 2018 as provided by the Ministry of Mines, Government of India, on its website has the following details:

Date of Auction	Name of Block	Reserves in the block (MT)	Highest bid (revenue share %)	Successful bidder
01.10.2016	ML No. 2621	14.71	90.82%	JSW Limited
03.10.2016	ML No. 2487	31.53	100.30%	MSPL
04.10.2016	ML No. 2365	33.89	81.10%	JSW Limited
04.10.2016	ML No. 2366	6.94	58.90%	JSW Limited
05.10.2016	ML No. 2559	28.47	111.10%	MSPL
05.10.2016	ML No. 2313	10.03	100.10%	JSW Limited
06.10.2016	ML No. 2290	28.62	102.52%	JSW Limited
06.09.2018	ML No. 2148	63.33	129.90%	MSPL
05.09.2018	ML No. 2563	9.26	111.00%	MSPL
04.09.2018	ML No. 995	9.71	95.20%	JSW Steel
03.09.2018	ML No. 2433	10.02	59.50%	Minera Steel and Power Pvt Ltd
03.09.2018	ML No. 2245	7.57	55.50%	Kirloskar Ferrous Industries Ltd
05.12.2018	ML No. 2566	3.18	36.70%	Kirloskar Ferrous Industries Ltd
05.12.2018	ML No. 2185A	9.22	39.10%	Hotchur Ispat Pvt Ltd
Total, Weighted Average		266.48	99.18%	

According to a Moneycontrol report, a senior official of NMDC said if the Karnataka government decides to stick to the 80 per cent premium, the miner would be losing Rs 1,348 per tonne and may result in a loss of Rs 944 crore per annum as it mines about seven million tonnes per annum from that mine [1]. A relook at

the table above shows that successful bidders for the auctioned iron ore mines have been captive consumers.

While the Karnataka High Court order is awaited to settle the legal question, it is worthwhile to consider the outcomes of the auctions and consider if auctions are likely to push commercial miners on the brink. The graph below shows the components of costs that play out in the economic decision of bidding for mineral blocks:



It can be observed that mine-head price, revenue share of which is the bidding criteria for all mineral auctions, sets the upper limit for commercial miners. From this price, the commercial miners are expected to meet all the operating costs, pay the royalties and taxes, and earn some profits to return to investors. A prudent commercial miner, therefore, can offer to pay only a portion of the profit margins to win an auction, which as a proportion of mine-head price would be low.

Contrast this to the captive consumer, whose benchmark may be the landed cost of mineral procurement at their plant or mill. If they procure from the same subject mine of auction after winning the auction, they would compare the costs of procurement with those of the alternate sources, which in case of Karnataka iron ore mines could have been imports from Australia. Hence, if the bidding strategy of captive consumers for these mines is to target supply security, and as long as their landed costs of procurement from alternate source is considered the limit, they can offer the entire mining profits and savings in transportation costs to the state government.

So, the quantum of sum total of profits forgone and transportation savings (or efficiency gains if transportation is also likely to be managed by them) for a captive consumers on one hand, and the quantum of the profits forgone by the commercial miner on the other, will determine the eventual winner in any contest. And, it does appear from the rates being quoted for iron ore miners in Karnataka, and even other mineral blocks elsewhere, that commercial miners may have a tough job at hand to win an auction.

It may be pointed out here that operating costs are considered

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equal in both the cases of commercial miners and captive consumers. This is, therefore, assuming paired operational efficiency when both commercial and captive consumers bidding for the mines are private entities.

A valid argument to have supported the higher bids by captive consumers, typically private companies, may be the operational efficiency gains, when in a contest with the government-owned mining companies, which could be forgone by the private companies to ensure supply security. This may hold good if the captive consumer set-up their own mining units operating at private-sector operational efficiency. However, it is observed that the captive consumers do not tend to have experience and expertise in mining and hence, hire contract miners for the purpose of mining. In such cases, the efficiency gains in

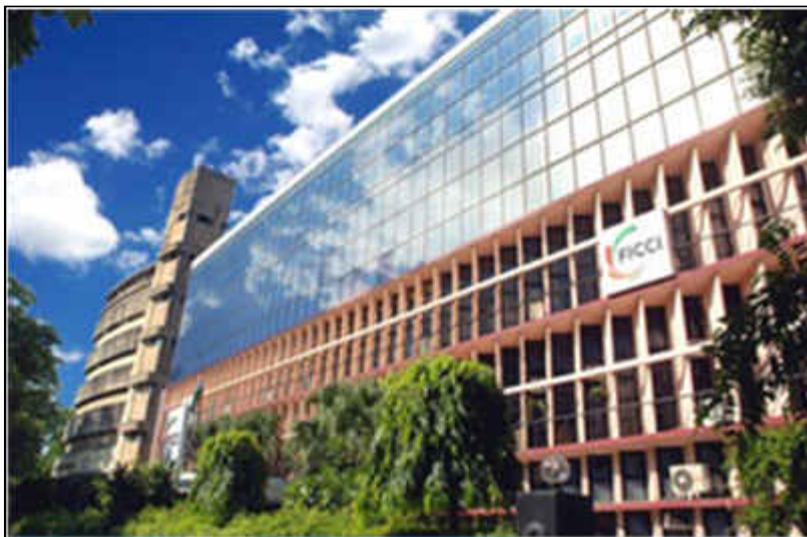
operations can be largely offset by the margins required by the contractors, transaction costs of outsourcing and bureaucracy costs of captive mining. Thus, the explanation for higher bids of revenue share by private captive consumers may be explained primarily through the forgone profits in mining and forgone savings in transportation, and perhaps, marginally, by forgone operational efficiency gains.

Evidence from these concluded auctions, and considering the economics of mining by commercial and captive consumers, it may be safe to state that auctions may have put commercial miners in a relatively disadvantageous position, and a government-owned company in a even greater precarious position, when they are bogged by relative operation inefficiency in comparison to private commercial miners.

INDIA'S FICCI EXPRESSES CONCERN OVER DROP IN MINING CONCESSIONS

One of India's premier industrial representative bodies, the nonprofit Federation of Indian Chambers of Commerce & Industry (FICCI) has expressed concern over the drop in mining concessions being awarded every year.

In a presentation to Niti Aayog, a policy think tank of the Government of India (GoI), the Chamber called for the government to "expedite" auctions of mineral blocks, moneycontrol.com reported. The FICCI pointed out that the average of such sales had come down to 15 mines annually today, compared with the 300-400 mineral concessions given prior to 2015.



As part of reforms and in the interest of mining sector transparency, the Indian Parliament passed the Mines and Minerals Development and Regulation Amendment Bill in 2015. The Indian government claimed this had removed the arbitrariness seen earlier in such auctions.

FICCI said although the 2015 act does grant the winner of the mineral block with sub-surface mineral rights, the company had to face a lot of red tape to seek the surface rights and

obtain necessary statutory clearances. This was a hindrance in converting successful auctions into production on the ground.

Citing unnamed sources, moneycontrol.com reported officials from Rio Tinto, Tata Steel, Vedanta and the Federation of Indian Mineral Industries (FIMI) also were part of the presentation.

The mining sector of India had already been demanding further reforms, including the implementation of a "One Tax Regime" in mineral production along the lines of GST, with the effective taxation rate (ETR) capped at 40%, the Hellenic Shipping News reported.

A few days ago, Niti Aayog itself set up a high level committee to look at ways and means of boosting mining in the country, according to CNBC-TV18 reported.

Mining contributes about 2% to India's GDP, but some in India claim it could go up to as much as 10%.

In FY 2018, for example, India's import bill hit U.S. \$465 billion, of which \$126 billion, or 27%, consisted of metals and minerals alone.

EXAMINING THE POTENTIAL OF INDIA-AUSTRALIA PARTNERSHIPS IN MINING

-NATASHA JHA BHASKAR

In continuation from the previous issue...

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.

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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. 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 export 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 nano technology. 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.
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, aerogeophysical 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 16 JORC code or equivalent in the statute. 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.

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.
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

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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. 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. 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. 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.

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.

‘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

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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 the Fraser Institute in 2016, India ranks 97 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 this ranked 59 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 incentivize 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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