

Odisha: Powering India's Growth

Unleashing the Potential of the Mining Sector





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Foreword



Odisha, with its abundant natural resources, skilled workforce, and evolving industrial landscape, stands as a key player in India's journey toward economic growth and global competitiveness in metals and mining. Odisha's strategic importance in this sector, with its rich deposits of iron ore, bauxite, coal, and chromite, positions it as an industrial powerhouse with immense potential for value addition and job creation.

Historically, the mining industry has been providing the necessary resources for Odisha's economic development. Given the mining industry's multiplier effect on job creation and spurring investment in downstream value-added industries, Odisha's above-average rate of growth of its mining industry has been a factor behind the state's GSDP recording a much faster decadal growth rate than most mineral-rich states.

The state government of Odisha has been undertaking several investment-attracting initiatives for the state. The state has favourably designed the policies for the mineral sector and presented a gamut of incentives before prospective investors in the state. Keeping in mind the infrastructure-based economic growth model of the Government, the domestic demand for minerals will gain a secular uptrend soon.

Given the mining sector's potential for job creation and its important role in the Government's flagship programmes like Make-In-India, it is essential to strike a balance between development and sustainability, ensuring that the sector continues to prosper while safeguarding the environment and promoting the welfare of local communities.

Deepak Sood

Secretary General
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Foreword



Odisha stands as a pivotal player in India's mining sector, serving as a cornerstone on the nation's economic landscape. Situated on the eastern coast, Odisha is endowed with a diverse range of mineral resources, positioning itself as a leader in India's mineral production. The state contributes significantly to the country's output of chromite, bauxite, iron ore, and coal, among other key minerals. In FY2023-24 alone, Odisha accounted for over 42% of the value of India's principal mineral production, underscoring its role in driving the national economy. With robust reserves of strategic minerals, including iron ore, bauxite, and chromite, Odisha remains crucial to India's aspirations for self-sufficiency in steel and aluminium production, aligning with the objectives outlined in the National Steel Policy.

Odisha's competitive edge in mining is bolstered by its well-developed infrastructure, strategic location, and proactive regulatory framework. The state has undertaken significant strides in leveraging technology to streamline mining operations, such as the implementation of the Integrated Mines and Minerals Management System (i3MS) to enhance transparency and efficiency. These initiatives have solidified Odisha's reputation as a favourable destination for investment in the mining sector. Additionally, the state's progressive Long-Term Linkage (LTL) policy and seamless mineral auction processes have attracted substantial domestic and foreign direct investments, further strengthening its industrial base.

Despite its achievements, Odisha's mining sector faces a set of challenges, such as logistics bottlenecks, regulatory complexities, and the cyclical nature of global commodity markets. Addressing these challenges through infrastructure investments and regulatory reforms will be crucial for sustaining growth. The state is also making strides toward sustainable mining practices, focusing on reducing the environmental footprint, ensuring efficient resource use, and enhancing community engagement. The adoption of cleaner technologies, waste management initiatives, and water conservation practices reflects Odisha's commitment to sustainable development.

Key reforms under initiatives like Atmanirbhar Bharat and the recent amendments to the Mines and Minerals (Development and Regulation) Act have paved the way for a more transparent and efficient mining ecosystem. By enabling private sector participation in exploration and mining, especially in critical minerals like lithium and rare earth elements, these reforms are set to boost India's mineral security and support the transition to a greener economy.

As Odisha continues to harness its mineral wealth, the focus on sustainability, technological adoption, and infrastructure development will be paramount in securing its position as a leader in India's mining landscape. The state's proactive approach to policy reforms and investment facilitation will not only drive economic growth but also contribute significantly to India's journey towards achieving its ambitious industrial and environmental goals.

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Powering Odisha's Economy: The Impact of the Mining Industry

Located on India's eastern coast with a 480 km shoreline, Odisha stands out as a state abundant in natural resources, rich in cultural heritage, and dense in forests and wildlife. As India's top mineral producer, it contributed 42% of the value of principal minerals in 2022-23, boasting the country's largest reserves of chromite, bauxite, manganese, iron ore, and coal. In addition, the state also holds reserves of critical minerals like nickel, platinum group of elements (PGE), graphite, which are key to India's net zero transition. This apart, Odisha also has reserves of various minor minerals like quartzite, china clay, dolomite, fire clay, silica sand, and sandstone, to name a few.

Odisha's Mining and Metals sector is integral to India's economic landscape and global trade, playing a pivotal role in supporting India's ambition to achieve a \$ 5 trillion economy by 2026-2027. Under the National Steel Policy 2017, India aims to self-sufficiently meet demand for high-grade automotive steel, electrical steel, specialty steel, and alloys essential for strategic applications. The policy sets ambitious targets of 300 million tonne per annum (MTPA) in crude steel capacity and 158 kg per capita consumption by 2030-31. With abundant mineral resources, Odisha is positioned to lead in industrial growth.

Exhibit 1: Odisha's ranking of share of mineral production in India



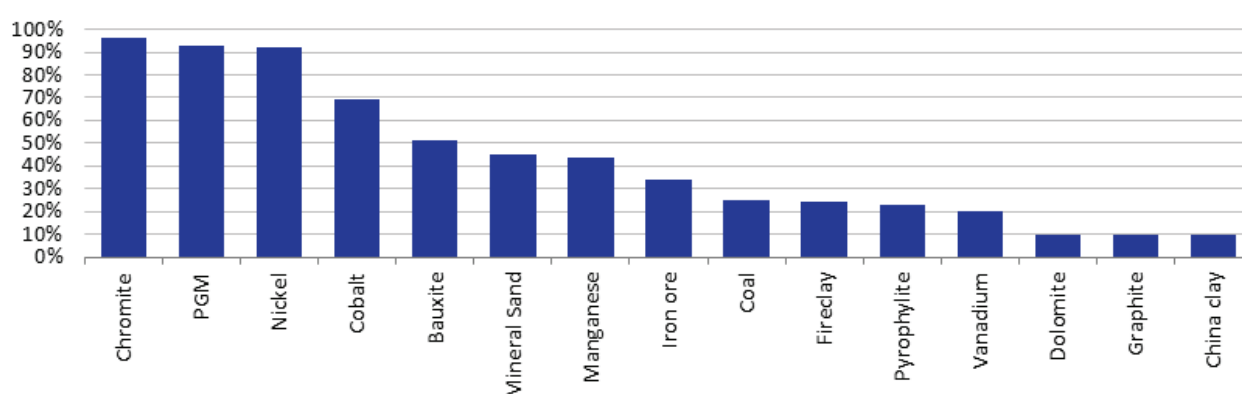
Source: Economic Survey of Odisha 2023-24, ICRA Research



In mineral production, Odisha is a major force, particularly in coal, which supports around 25% of India's coal production, bolstering national energy security. The state is also a top producer of iron ore, chromite, and bauxite—vital for the steel and aluminium sectors. Odisha produces 100% of India's chromite,

essential to the stainless-steel industry, and 73% of India's bauxite. Additionally, it accounts for 55% of India's iron ore output and ranks third in manganese ore production, following Maharashtra and Madhya Pradesh. With 34% of India's iron ore and 51% of its bauxite resources, Odisha is set to lead rapid industrial growth.

Exhibit 2: Mineral resources in Odisha as % of all-India

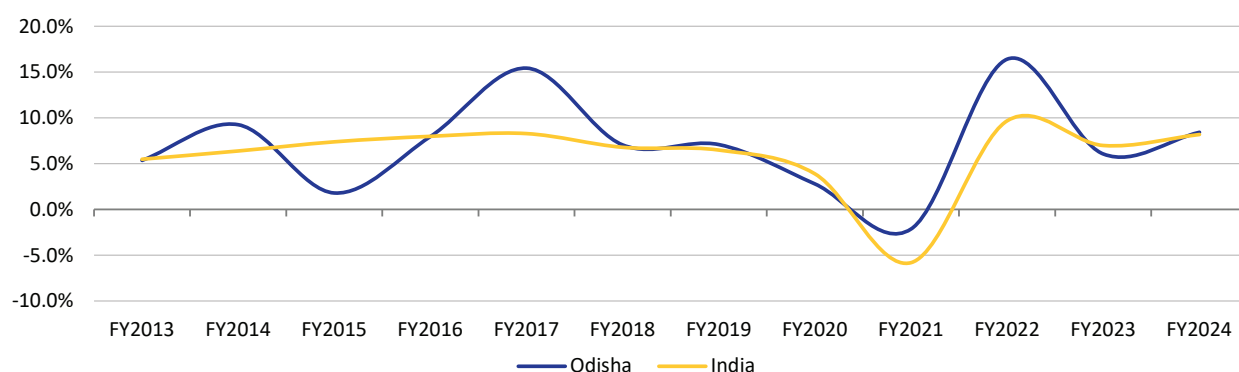


Source: Department of Steel & Mines, Government of Odisha, ICRA Research

Odisha's economic growth has consistently surpassed the national average in recent years, achieving a 10-year CAGR of approximately 7.0% compared to the national rate of 5.9%. This strong performance stems from its abundant mineral resources and a diversified industrial

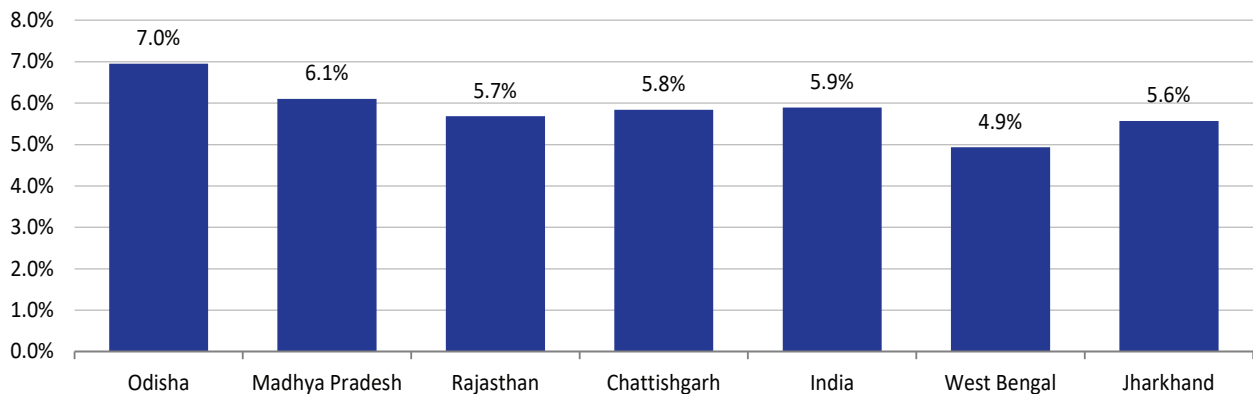
base, particularly in mining and metals. Odisha has also outpaced other key mineral-rich states, demonstrating its resilience and sustained upward momentum, fuelled by its resource-driven economy and strategic industrial expansion.

Exhibit 3: GDP Growth of India and Odisha at constant prices (2011-12)



Source: Ministry of statistics and programme implementation, ICRA Research

Exhibit 4: Average growth rates of GSDP/ GDP of mineral-rich states vs. India between FY2014 and FY2024



Source: Ministry of Statistics And Programme Implementation, ICRA Research

The industrial sector has been the cornerstone of Odisha's Gross State Value Added (GSVA). According to advanced estimates, the state's industrial sector is estimated to grow by 8.7% in 2023-2024. It encompasses four key sub-sectors: Manufacturing, Mining and Quarrying, Construction, and Utilities (Electricity, Gas, Water supply, and other services). The robust post-Covid rebound is primarily driven by a

strong recovery in the manufacturing sector, which has achieved a healthy growth rate of 9.5%, well above the national average. Mining and quarrying also showed significant recovery, reaching a growth rate of 9% after the sharp downturn in 2020-2021. This strong resurgence has positively impacted the entire industrial sector, supporting Odisha's overall economic growth trajectory.

Exhibit 5: Average growth rates of industrial and sub-sector in Odisha

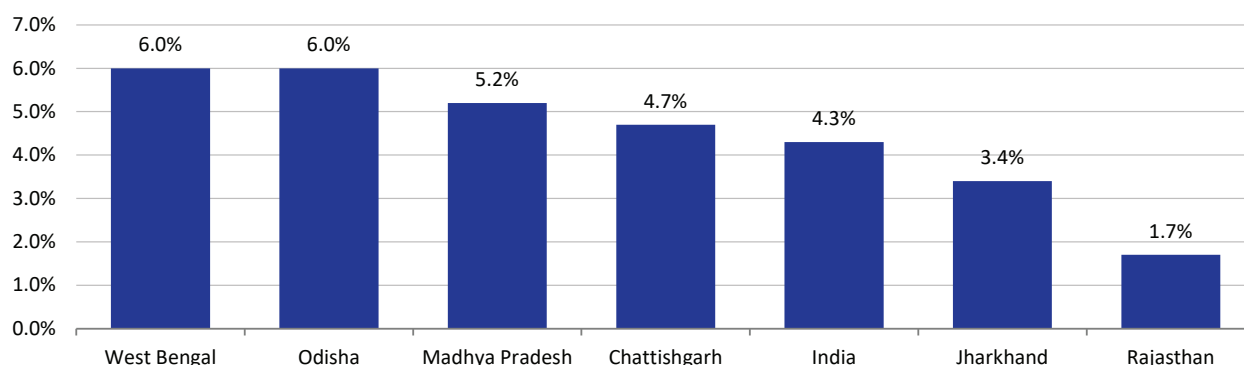
	Average Growth %		
	Share in GVA (2023-24)	2001-02 to 2022-23	2023-24
Industrial Sector	43.30%	7.7%	8.7%
Manufacturing	23.38%	10.9%	9.5%
Mining and Quarrying	9.53%	7.8%	9.0%
Construction	6.93%	4.0%	6.2%
Electricity, Gas, Water supply & other utility services	3.46%	7.1%	8.0%

Source: Economic Survey of Odisha, ICRA Research

Overall, Odisha's strategic focus on mining, metals, and manufacturing has positioned it as one of India's fastest-growing industrial economies. Its industrial sector long-term average growth rate of 6.0% places it ahead

of many peer states, reaffirming its role as a vital contributor to India's industrial landscape and positioning it as a key player in driving the nation's economic goals.

Exhibit 6: Average growth rate in industrial GSVA at constant prices for major states between 2012-13 to 2020-21

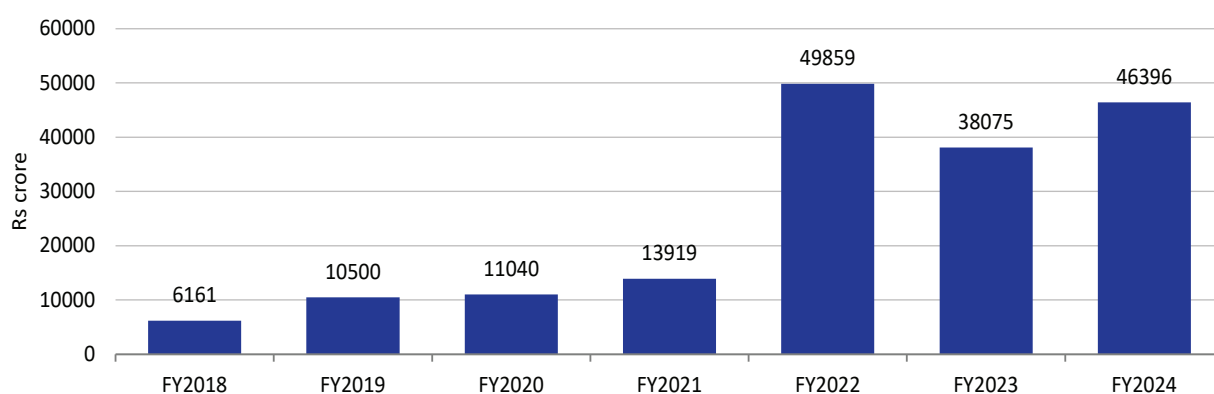


Source: Economic Survey of Odisha, ICRA Research

The mining industry has long served as a foundational pillar for Odisha's economic growth, providing essential resources and generating significant revenue. In FY2023 and FY2024, it accounted for over 85% of the state's non-tax revenues. Odisha's mining receipts reached a record high of Rs. 49,859 crore in

FY2022, driven by a substantial 258% year-on-year increase amid a commodity price rally. However, as commodity prices moderated, mining revenues declined by approximately 24% YoY in FY2023. In FY2024, a rebound in mineral prices spurred a recovery, with revenues rising by around 22%.

Exhibit 7: Revenues collection from minerals in Odisha (Rs crore)



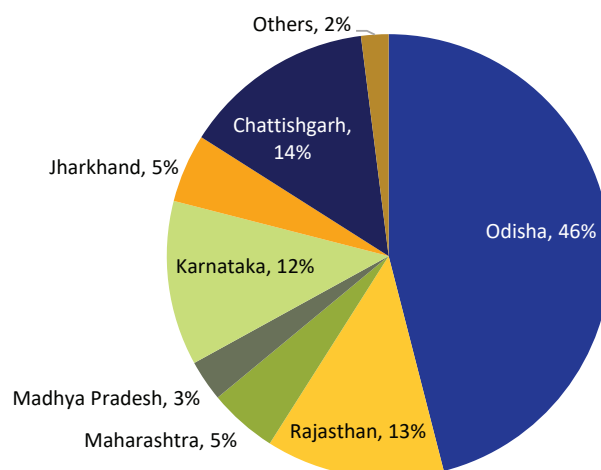
Source: Department of Steel & Mines, Odisha, ICRA Research

Mapping the Mineral Wealth of Odisha

Odisha stands as India's top mineral-producing state. In 2023-2024, production occurred across 19 states, but eight accounted for approximately 97.5% of the total mineral production value (excluding fuel, atomic, and minor minerals). Odisha led the country with a substantial 46% share of the national mineral output. Chhattisgarh followed with 14%,

capitalising on its extensive reserves of iron ore and other minerals. Karnataka, with a strong mining infrastructure, contributed 12%, while Rajasthan's output, driven by its non-metallic mineral wealth, was 13%. Jharkhand, known for its rich coal and iron ore reserves, added 4.70% to the total mineral production value.

Exhibit 8: State-wise share of value of mineral production in FY2024 (excluding atomic minerals and hydrocarbons)



Source: Indian Bureau of Mines (IBM), Ministry of Coal, ICRA Research

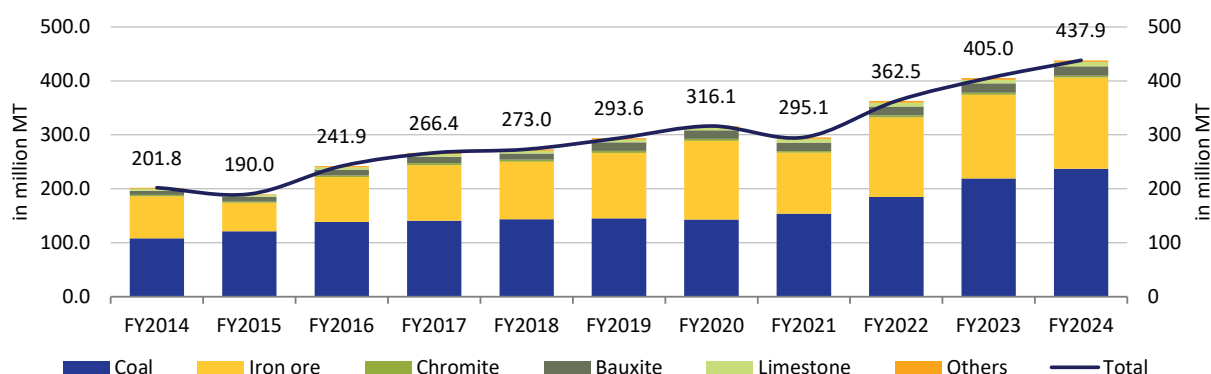


Odisha's leadership in mineral production is rooted in its abundant deposits of iron ore, bauxite, chromite, and manganese. This mineral wealth not only fuels Odisha's economy but also supports key industries across India, including steel and aluminium production. The state's mining sector plays a critical role in generating state revenue, attracting investment, and supporting employment. Given its mineral dominance, Odisha is poised to remain a cornerstone of India's mineral production, driving industrial growth and economic development in the years to come.

Odisha's mineral production has shown a general upward trend over the past several years,

underscoring its importance in India's mineral economy. However, Covid-19 led to a temporary decline, with a 6.7% reduction in overall mineral production in FY2021. This drop was primarily due to lockdown restrictions and reduced demand from downstream industries, which impacted mining activity. Following the easing of restrictions, Odisha's mining sector rebounded strongly in FY2022, with a 22.8% increase in production driven by revived demand and a global commodity price rally. This momentum continued into FY2023 and FY2024 as increased demand for minerals, particularly from the steel and construction sectors, sustained growth in production volumes.

Exhibit 9: Trend in Mineral production in Odisha (in million MT)



Source: Department of Steel & Mines, Odisha, ICRA Research

Odisha's resilient recovery is further bolstered by infrastructure investments and strategic support for the mining sector, helping the state to not only meet rising domestic demand but also strengthen its position in mineral exports. The state's vast resources in iron ore, bauxite, and chromite continue to attract investments,

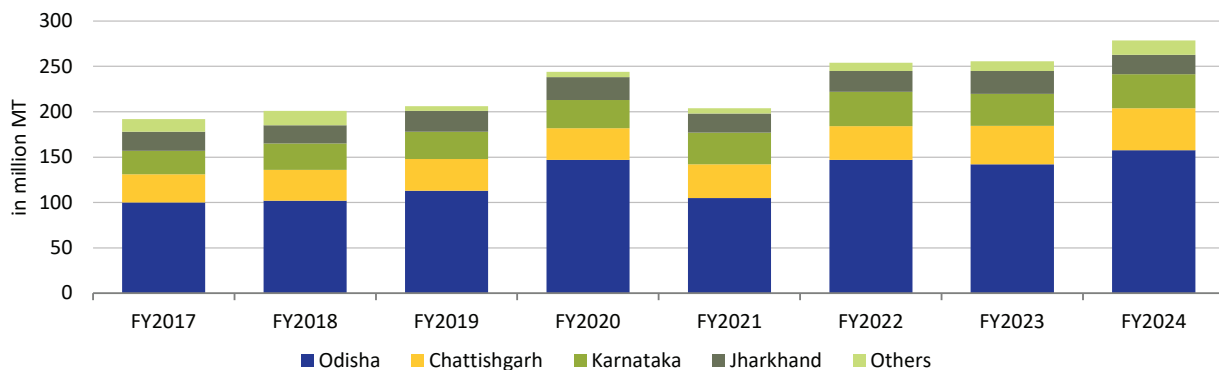
positioning Odisha as a stable and expanding contributor to India's mineral production landscape. As demand for minerals remains strong, Odisha's production capacity is expected to grow, reinforcing its role as a primary supplier in the national and global markets.

Iron Ore

India ranks as the fourth-largest iron ore producer globally, contributing 277 million tonnes (MT) to the world's total output of 2,500 MT in 2023.

Odisha has played a pivotal role in sustaining this position, supplying over 60% of India's total iron ore production in fiscal 2023-24.

Exhibit 10: Trend in state-wise iron ore production in India (in million MT)



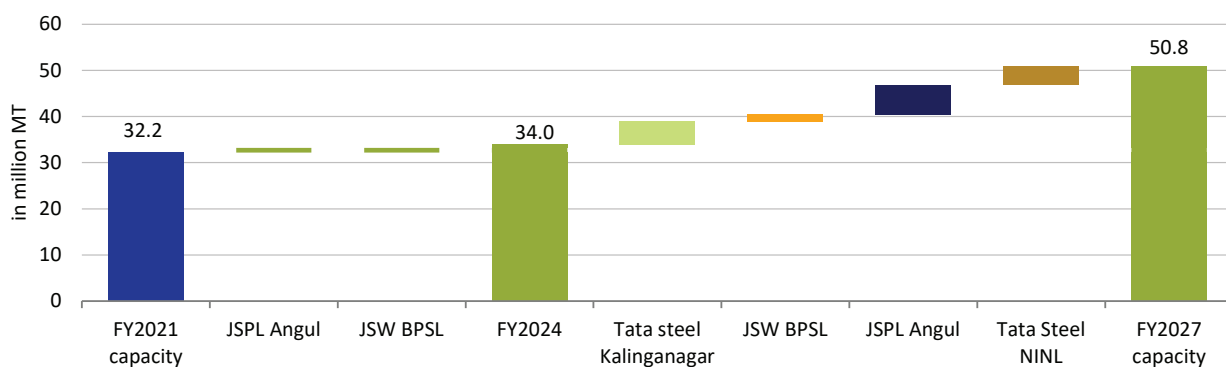
Source: Indian Bureau of Mines, ICRA Research

The substantial contribution has reinforced Odisha's significance in the Indian steel industry, ensuring a steady supply of raw materials critical for domestic steel production. The state's extensive iron ore reserves and mining infrastructure continue to underpin India's status as a key player in the global iron ore market, supporting both internal demand and export potential.

In addition to Odisha, other states like Chhattisgarh, Karnataka, and Jharkhand are notable players, collectively enhancing production capacity and providing diversified sources of iron ore for both domestic and export

markets. Chhattisgarh stands as the second-largest producer, benefiting from its rich reserves in districts like Dantewada and Bastar. Karnataka, with its well-established mining regions such as Bellary, Chitradurga, and Tumkur, accounts for roughly 10% of India's total iron ore production. Recent regulatory interventions and sustainable mining practices have supported growth in Karnataka's mining sector, ensuring consistent supply for the steel industry. Jharkhand, another resource-rich state, contributes around 9% to national production, leveraging reserves in districts like West Singhbhum.

Exhibit 11: Crude steel capacity in Odisha (in million MT)

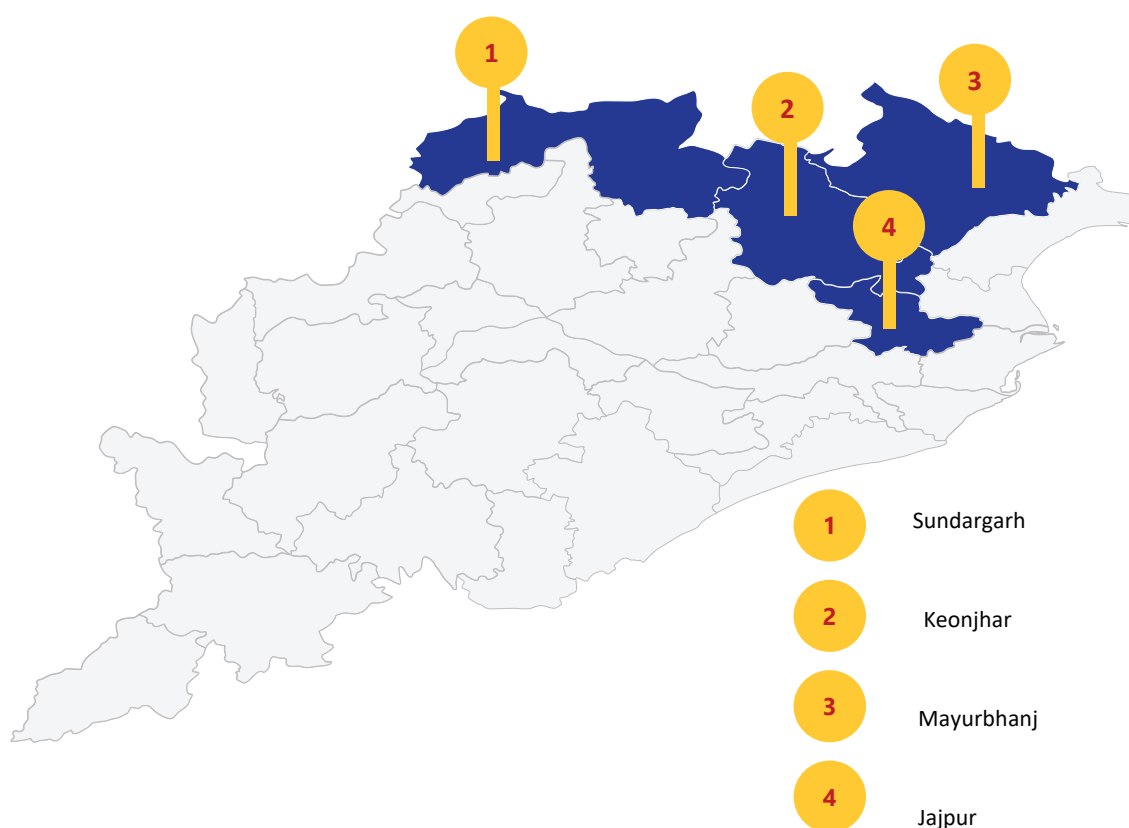


Source: Company reports, ICRA Research

With its rich reserves of iron ore, Odisha has firmly established itself as a critical hub for India's steel industries. The state's current installed steel capacity is approximately 34 million tonne per annum (MTPA), representing around 20% of the country's total capacity. Driven by extensive expansion plans from leading steel producers and the competitive advantages offered by raw material integration, Odisha's steel capacity is projected to reach around 50 MTPA by FY2027. Over the following decade, capacity is expected to surge further to

approximately 100 MTPA, potentially elevating Odisha's share from 20% to one-third of India's total steel capacity. This anticipated growth not only underscores Odisha's pivotal role in the national steel landscape but also aligns with India's broader ambitions to expand its steel output. The increasing concentration of capacity in Odisha will support enhanced economies of scale and operational efficiency, reinforcing the state's status as a cornerstone for India's future in steel production.

Exhibit 12: Key iron-ore bearing districts of Odisha



Source: Odisha Department of Steel & Mines, ICRA Research

While Keonjhar produces 61% of iron ore in the state, the production share of iron ore in case of Sundargarh is around 35%. Some of the largest

mines of Odisha having production of more than 5 MTPA in Keonjhar and Sundergarh is as below:

Exhibit 13: List of large iron ore mines of Odisha

	Mines Location	Lessee Name	Production in mmt
1	Joda East	Tata Steel Limited	11.47
2	Jajang	JSW Steel Limited	11.46
3	Gandhamardan-B	Odisha Mining Corporation Limited	7.28
4	Bolani	Steel Authority of India Limited	7.01
5	Nuagaon	JSW Steel Limited	6.26
6	Guali	Odisha Mining Corporation Limited	5.70
7	Jilling Langalota	Odisha Mining Corporation Limited	5.65
8	Thakurani	ArcelorMittal India Private Limited	5.50
9	Narayanposhi	JSW Steel Limited	5.44

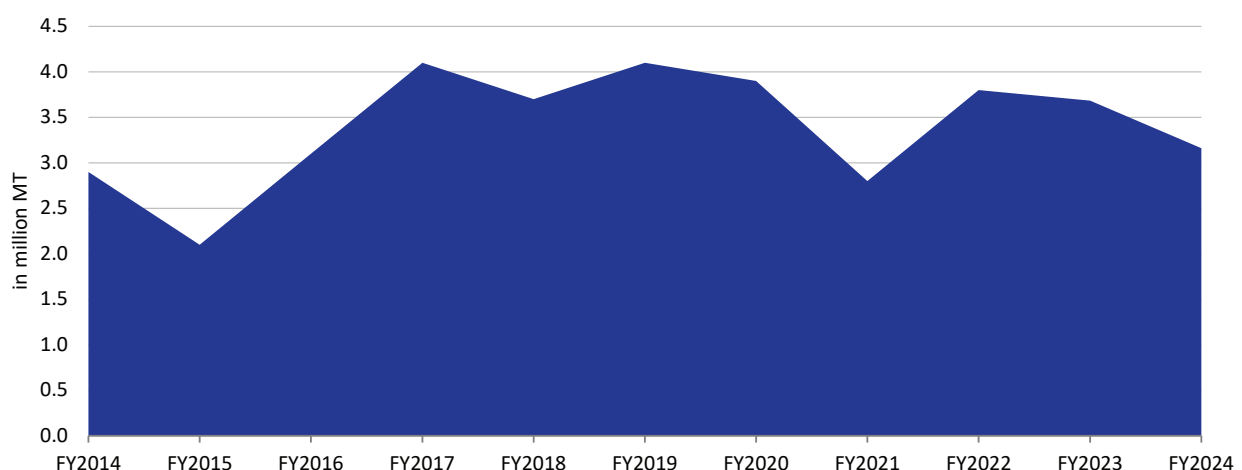
Source: Odisha Department of Steel & Mines, ICRA Research

Chromite

The state of Odisha accounts for 96% of the total reserves and 100% of the total production of chrome ore in the country. Sukinda Valley in Odisha accounts for more the 99% of the total production. The consumption is anticipated to

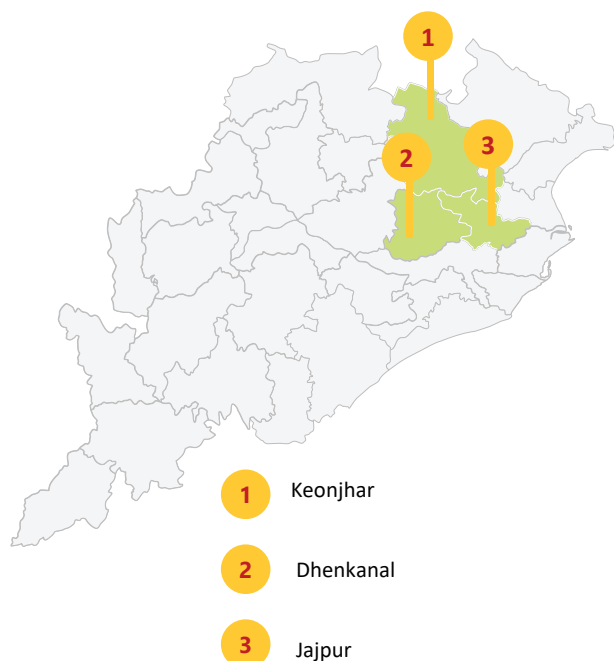
increase enormously in line with the increasing demand for ferro alloys. Approximately 80% of the chrome ore production is shared by two companies, i.e. OMC & Tata Steel Mining Limited.

Exhibit 14: Trend in chrome ore production in Odisha (in million MT)



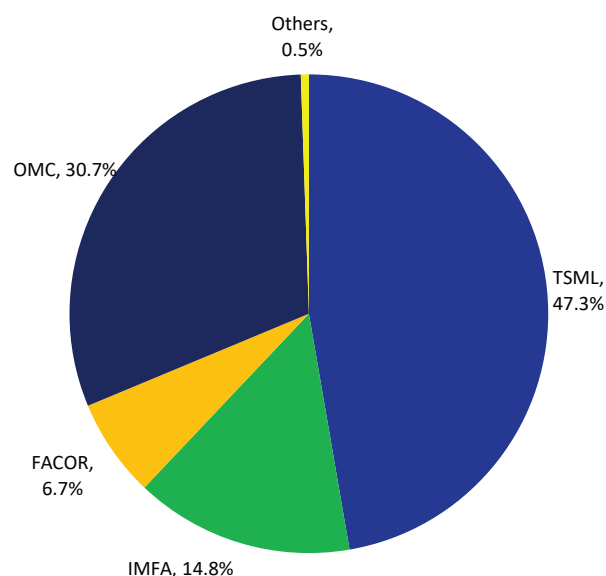
Source: Odisha Department of Steel & Mines, ICRA Research

Exhibit 15: Key chromite ore bearing districts of Odisha



Source: Odisha Department of Steel & Mines, ICRA Research

Exhibit 16: Share of leading states in India's chromite ore reserves



Source: Odisha Department of Steel & Mines, ICRA Research

Exhibit 17: List of Large Chrome ore mines of Odisha

	Mines Location	Lessee Name	Production in mmt
1	Sukinda	Tata Steel Mining Limited	1.36
2	South Kaliapani	Odisha Mining Corporation Limited	1.00
3	Saruabil	Tata Steel Mining Limited	0.35
4	Mahagiri	IMFA Limited	0.29
5	Sukinda	IMFA Limited	0.26
6	Ostapal	FACOR Limited	0.20

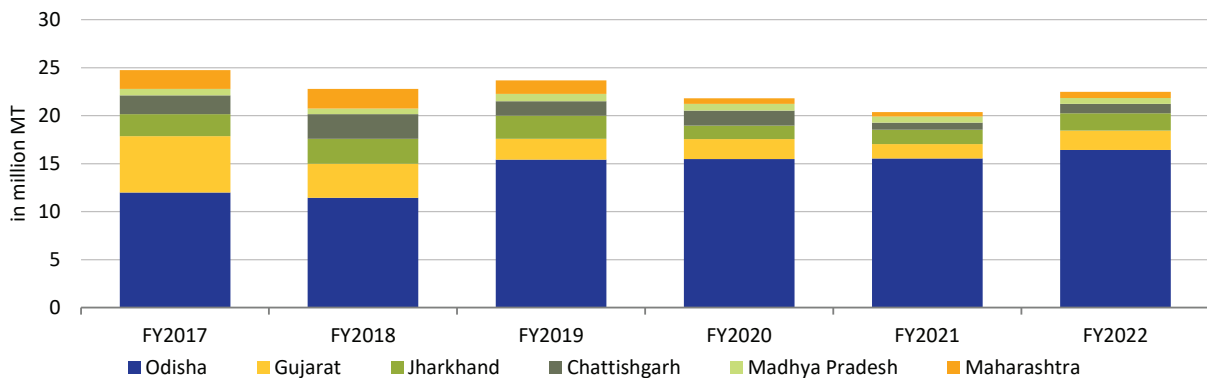
Source: Odisha Department of Steel & Mines, ICRA Research

Bauxite

In the fiscal year 2023-24, Odisha produced 17.50 million tonne (MT) of bauxite, positioning it as India's largest bauxite producer and accounting for nearly 73% of the country's total production by volume. This dominant share

underscores Odisha's strategic importance in supporting India's aluminium industry, given bauxite's role as the primary raw material in aluminium production.

Exhibit 18: Trend in bauxite production in India (in million MT)

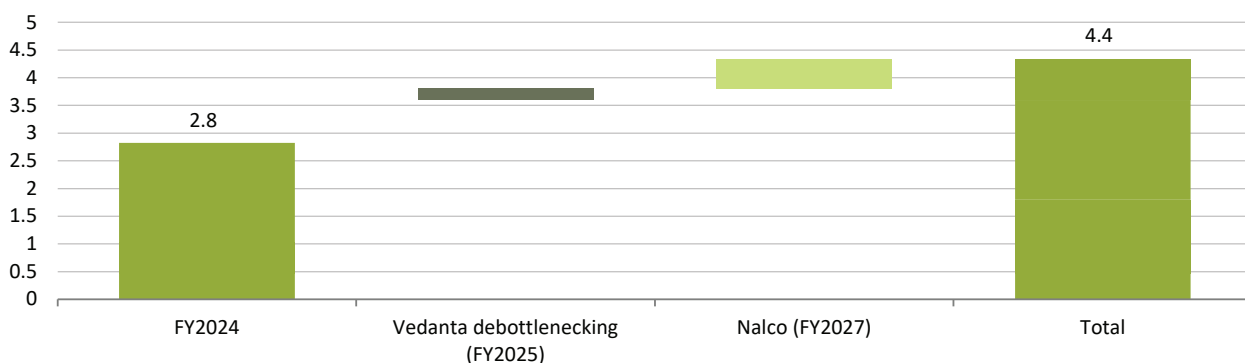


Source: Odisha Department of Steel & Mines, ICRA Research

Odisha's extensive bauxite reserves, particularly in regions such as Kalahandi and Rayagada, have enabled the state to supply a steady and substantial portion of India's bauxite requirements. This strong production base not only reduces dependency on imports but also aligns with the Government's goal to boost

domestic production and self-sufficiency in key industrial materials. As aluminium demand rises in sectors such as infrastructure, automotive, and packaging, Odisha's robust bauxite output will remain critical for meeting both current and future demand, further cementing its role as a cornerstone of India's mineral economy.

Exhibit 19: Primary aluminium capacity in Odisha (in million MT)



Source: Odisha Department of Steel & Mines, ICRA Research

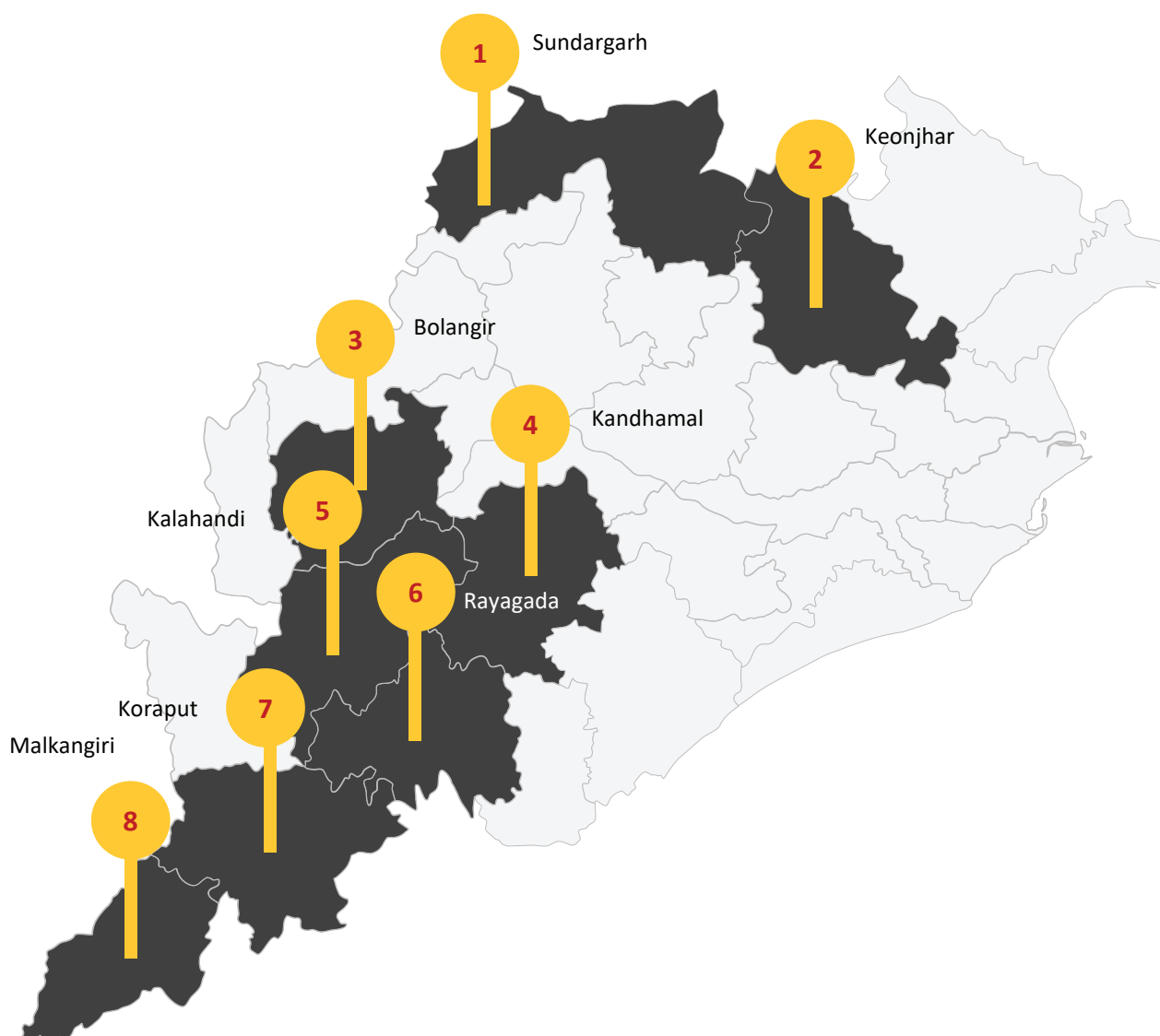
Odisha's current installed aluminum capacity stands at approximately 2.8 million tonnes per annum (MTPA), accounting for about 68% of India's total aluminum production capacity. This

significant concentration underscores Odisha's leadership in the nation's aluminum sector, driven by its abundant bauxite reserves and well-developed production infrastructure.

The state's advanced facilities, coupled with efficient resource integration, enable it to meet a substantial share of the country's aluminum demand across key industries, including automotive, construction, packaging, and aerospace. Odisha's pivotal role in the aluminum supply chain not only enhances India's position in the global aluminum market

but also supports the nation's drive toward self-reliance in industrial metals. With ongoing investments in technology upgrades and capacity expansions, Odisha is well-positioned to support future demand growth, contributing to India's ambitions for increased domestic production and reduced import dependency.

Exhibit 20: Key bauxite bearing districts of Odisha



Source: Odisha Department of Steel & Mines, ICRA Research

Exhibit 21: List of large bauxite mines of Odisha

	Mines Location	Lessee Name	Production in mmt
1	Panchpatmali– North Block	National Aluminium Company Limited	6.41
2	Baphilimali	Utkal Alumina International Limited	6.00
3	Kodingamali	Odisha Mining Corporation Limited	3.00
4	Panchpatmali– South Block	National Aluminium Company Limited	1.04

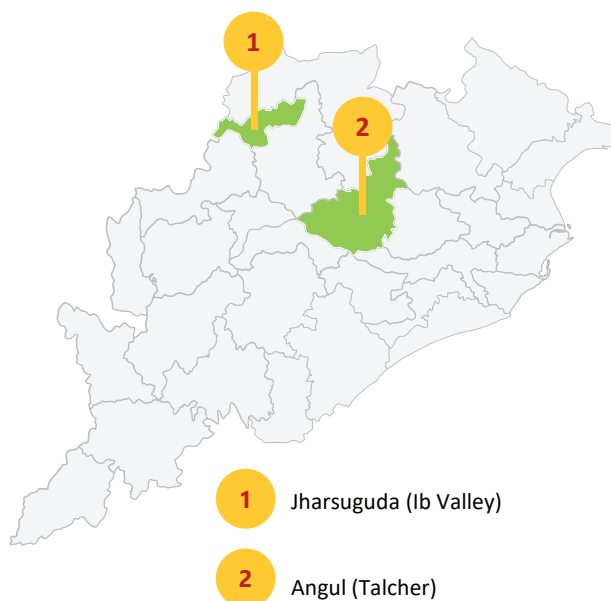
Source: Odisha Department of Steel & Mines, ICRA Research

Coal

In 2023-24, Odisha produced approximately 237 million tonne (MT) of coal, contributing around 24% of India's total coal production, which stood at 997.3 MT. To further bolster this output, the Ministry of Coal, Government of India, has

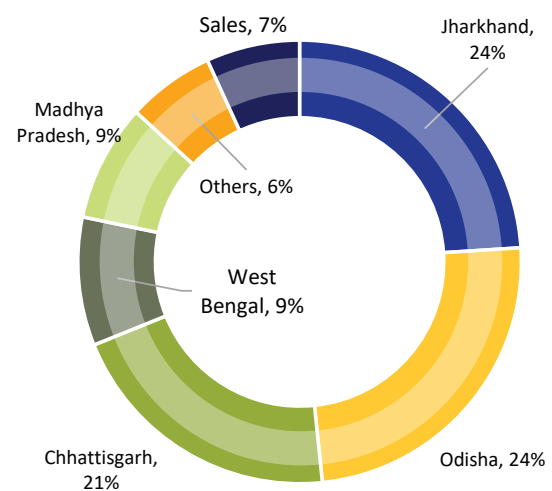
auctioned additional coal blocks in Odisha, a move anticipated to significantly increase the state's coal production capacity in the coming years.

Exhibit 22: Key coal-bearing districts of Odisha



Source: Odisha Department of Steel & Mines, ICRA Research

Exhibit 23: Share of leading states in India's coal resources



Source: IBM, ICRA Research; reserves as on Apr 1, 2022

As Odisha's mineral processing landscape continues to grow, this expanded coal production will play a crucial role in addressing the ongoing coal shortage faced by the power

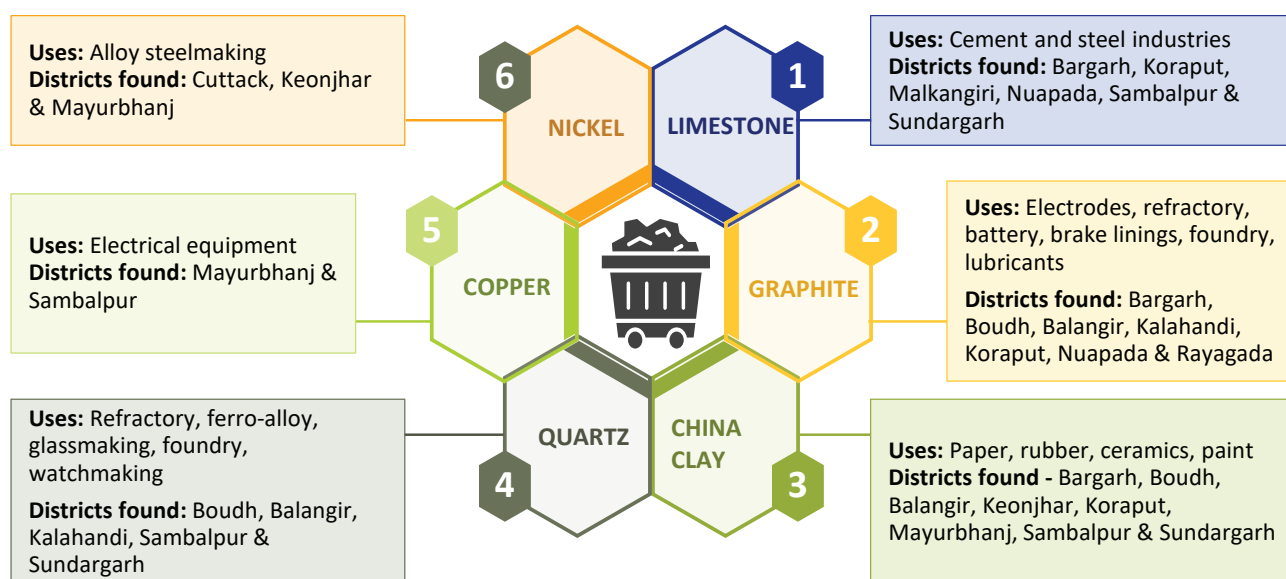
sector. Increased coal availability from the state is expected to help stabilise supply chains, reduce input costs for various industries,

and provide a steady fuel source for thermal power generation. The enhanced production capacity aligns with India's broader energy security goals, as it reduces dependency on coal imports and supports the state's contribution to a reliable and cost-effective

energy supply for industries across the country. This expanded capacity is essential not only for meeting domestic demand but also for supporting future industrial growth within Odisha and nationwide.

OTHER KEY MINERALS FOUND IN ODISHA

Exhibit 24: Odisha's other key mineral resources



Source: IBM, Odisha Department of Steel & Mines, ICRA Research

Unlocking Odisha's Mineral Potential: Strategic Exploration Initiatives

Odisha is endowed with vast mineral wealth, yet a significant portion of its resources remains untapped due to unexplored regions across the state. To address this, the Government of Odisha has been implementing strategic initiatives aimed at uncovering the full mineral potential of the state, creating auctionable mineral blocks, and ensuring a steady supply of raw materials to support industrial growth. Key initiatives undertaken by the government include:

High Resolution Aero-geophysical survey

In a pioneering move, the Government of Odisha, in collaboration with World Geoscience Corporation of Australia, conducted a high-resolution airborne geophysical survey from 1993 to 1998. It utilised advanced airborne magnetic and spectrometric technologies to generate detailed geological data across Odisha's mineral-rich zones. The use of high-resolution techniques enabled the identification of subtle geological formations and mineral deposits, which traditional exploration methods might overlook.

The survey has been instrumental in several ways:

- **Enhanced Geological Mapping:** The data generated has provided detailed insights into Odisha's subsurface geology, helping map mineral-rich areas more precisely and supporting targeted exploration efforts.
- **Discovery of New Mineral Zones:** By covering large and remote areas efficiently, the survey identified previously unexplored zones with high mineral potential, offering new opportunities for future mining projects.
- **Data Integration for Exploration Efficiency:** The collected geophysical data has since been integrated with other geological and geochemical information to refine exploration targets, streamline drilling programmes and reduce exploration costs.



Mineral Resource Mapping Programme

The Government of Odisha has developed a comprehensive Mineral Resource Mapping (MRM) Programme aimed at systematically assessing the state's mineral wealth. This programme not only focuses on Odisha's known mineral resources, such as iron ore, bauxite, and coal, but also emphasises the discovery

of strategic minerals, rare earth elements, energy minerals, gemstones, and other valuable resources. Through this initiative, the state aims to expand its mineral portfolio, identify untapped deposits, and generate auctionable blocks to support the mining sector's growth.

The MRM programme will proceed in three phases, each designed to build a robust geological database and enhance exploration efficiency:

Phase 1: Legacy Data Interpretation

- **Objective:** Analyse existing geological data from previous studies and surveys to identify areas of interest and plan the next steps.
- **Process:** This phase involves reviewing historical exploration data to identify mineral blocks at various stages of exploration. By interpreting legacy data, geologists can pinpoint underexplored or prospective areas, setting the groundwork for targeted exploration.
- **Outcome:** A comprehensive assessment of known mineral zones, with recommendations for additional surveys in high-potential regions.

Phase 2: Airborne Survey

- **Fixed-Wing Survey:** A fixed-wing aircraft will conduct aerial surveys over regions not previously covered by airborne studies. This survey uses advanced geophysical sensors to detect geological anomalies indicative of mineralization.
- **Heliborne Survey:** Helicopter-based surveys will revisit areas previously mapped to enhance confidence in the geological data. This approach enables detailed scanning of targeted zones, increasing accuracy and resolution of subsurface structures.
- **Outcome:** The airborne surveys will provide a high-resolution geophysical dataset, helping to refine exploration targets and validate potential mineral zones.

Phase 3: Detailed Exploration

- **Objective:** Conduct on-ground, detailed exploration based on insights from legacy data and airborne survey results.
- **Process:** This phase includes geological mapping, drilling, sampling, and laboratory analysis to confirm mineral presence and assess deposit quality. The focus is on creating high-confidence, auctionable mineral blocks.
- **Outcome:** Development of well-defined mineral blocks with proven reserves, suitable for commercial auction and capable of attracting investment.

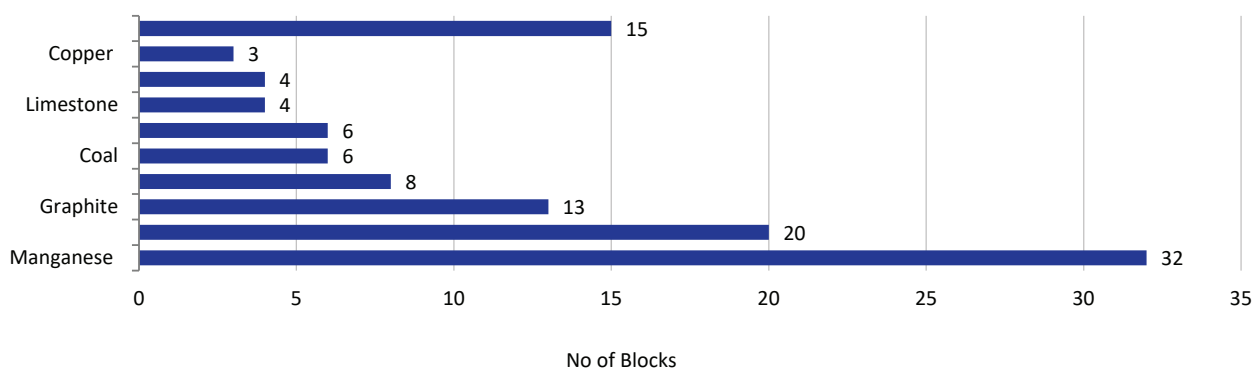
Exploration programme to generate new auctionable blocks

The Government of Odisha actively conducts mineral exploration programmes to enhance the state's resource base and meet the needs of its mineral-based industries. Over the past five years, from 2017-18 to 2021-22, the Directorate of Mines & Geology, Government of Odisha, has completed 89 geological explorations, finalised 39 geological reports for auction-ready blocks,

and identified 36 additional blocks for resource upgradation.

Currently, 111 blocks have been allocated to various Government agencies for further exploration, underscoring Odisha's commitment to expanding its mineral potential and supporting industrial growth.

Exhibit 25: Mineral-wise number of blocks under exploration



Source: Directorate of Mines & Geology, Government of Odisha, ICRA Research

Odisha's Competitive Edge in Mining: Leading India's Mineral Landscape

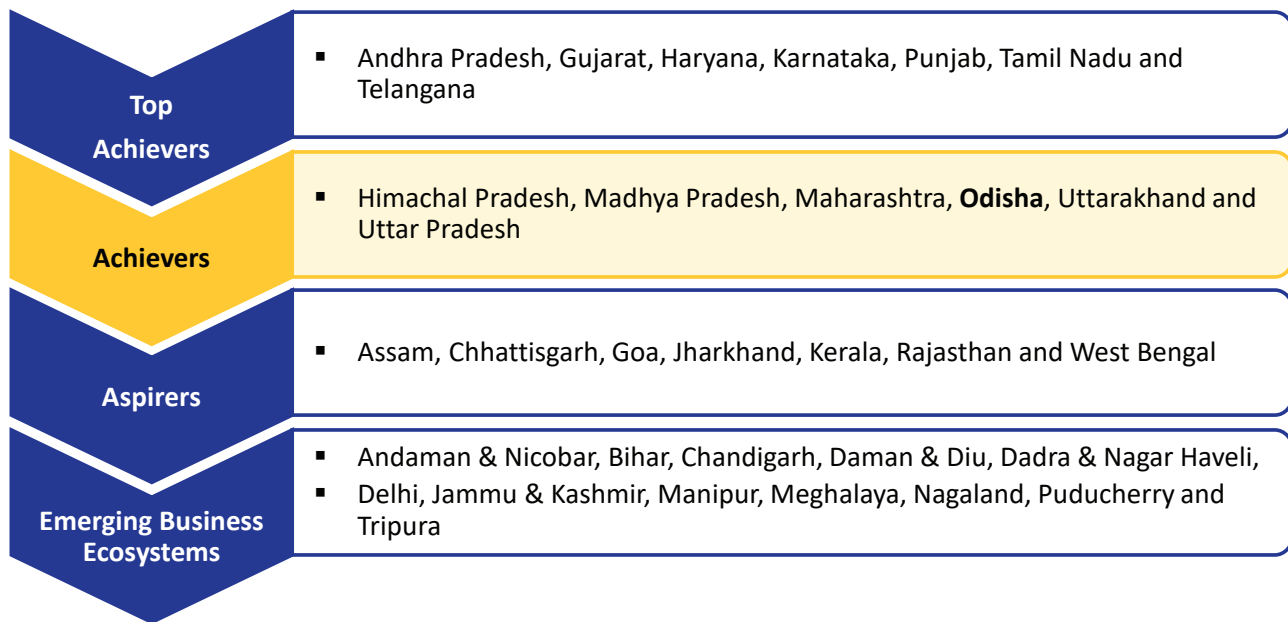
Odisha offers a unique combination of resources and infrastructure that make it a highly attractive destination for investors in the mining and metals sector. The state's natural resource abundance, efficient logistics and affordable energy create a favourable environment for industrial growth and strengthen its position as a leading destination for resource-based industries.

In the Department for Promotion of Industry and Internal Trade's (DPIIT) Ease of Doing Business (EoDB) rankings for 2022, Odisha earned the

status of an 'Achiever,' reflecting its commitment to creating a business-friendly environment. To streamline processes and improve investor confidence, the state has implemented a range of reforms focused on digitisation, accessibility, and efficiency. The state's achievements in the Ease of Doing Business rankings underscore its dedication to continual improvement and adaptability to meet the evolving needs of industries, creating an environment conducive to sustainable and long-term growth in the mining and industrial sectors.



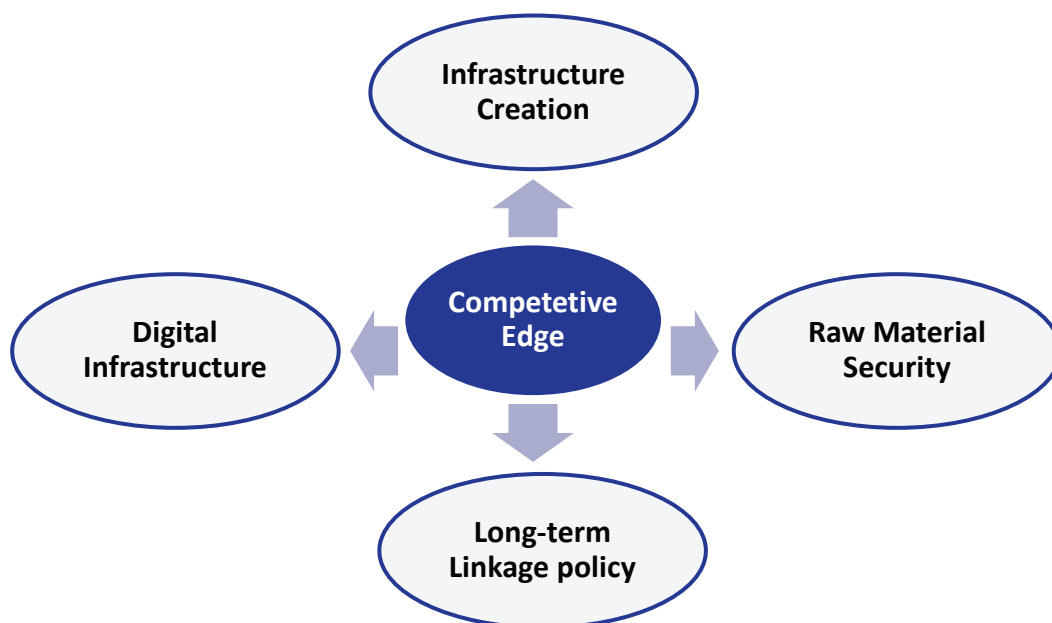
Exhibit 26: Ease of Doing Business ranking 2022



Source: Department for promotion of industry and internal trade, ICRA Research

In the Export Preparedness Index (EPI) 2022, Odisha secured the 11th position, reflecting its growing focus on enhancing export capacity and competitiveness.

Exhibit 27: Odisha's Competitive Advantages



Source: ICRA Research

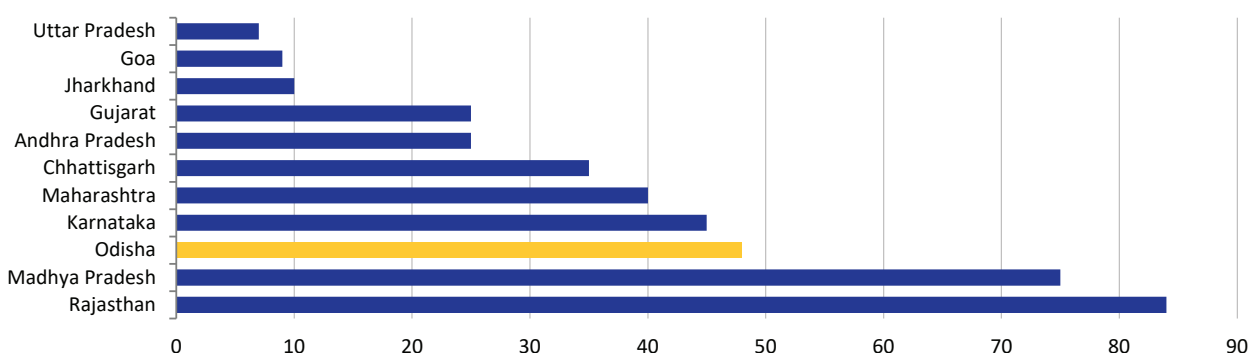
Raw Material Security

Ensuring a consistent supply of raw materials for the mineral-based industries is a critical challenge, especially as demand continues to rise rapidly. As India's most mineral-rich state, Odisha has taken proactive steps to address this, positioning itself as a leader in mineral auctions and production.

Since 2015, Odisha has achieved remarkable success in mineral block auctions, appearing in top three highest number of successful auctions among Indian states. The state has not only auctioned 48 mineral blocks but has

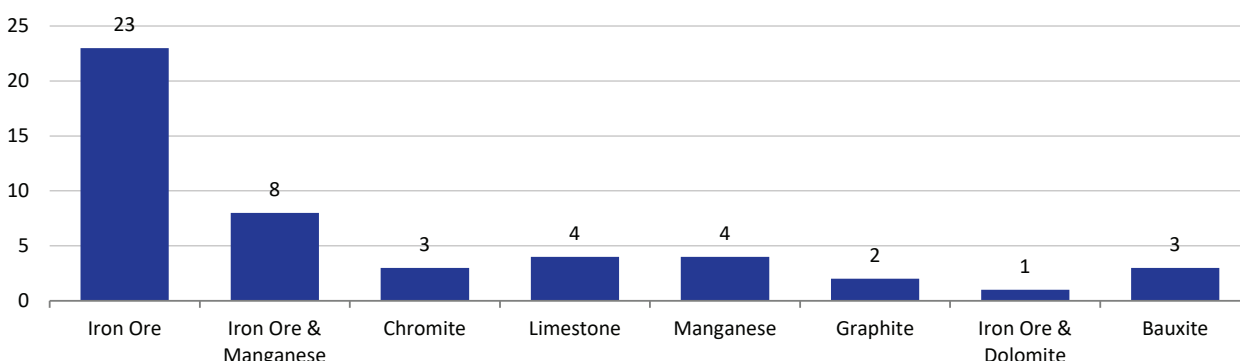
also operationalised majority of them, thereby ensuring that these resources are actively contributing to industrial supply chains. This achievement highlights Odisha's commitment to efficient resource management and its ability to streamline the auction-to-production process. By continuing to drive efficient resource management, Odisha is set to play an increasingly pivotal role in India's industrial growth, ensuring that raw materials are available to fuel expansion across sectors such as steel, aluminium, and energy.

Exhibit 28: State wise mineral block auctions since 2015



Source: Ministry of Mines, ICRA Research

Exhibit 29: Mineral-wise block auctions since 2015 in Odisha



Source: Ministry of Mines, ICRA Research

The Government of Odisha, a mineral-rich state in eastern India, has announced plans to auction 30 mineral blocks in the current fiscal year, 2024-25. This strategic move aims to expand resource

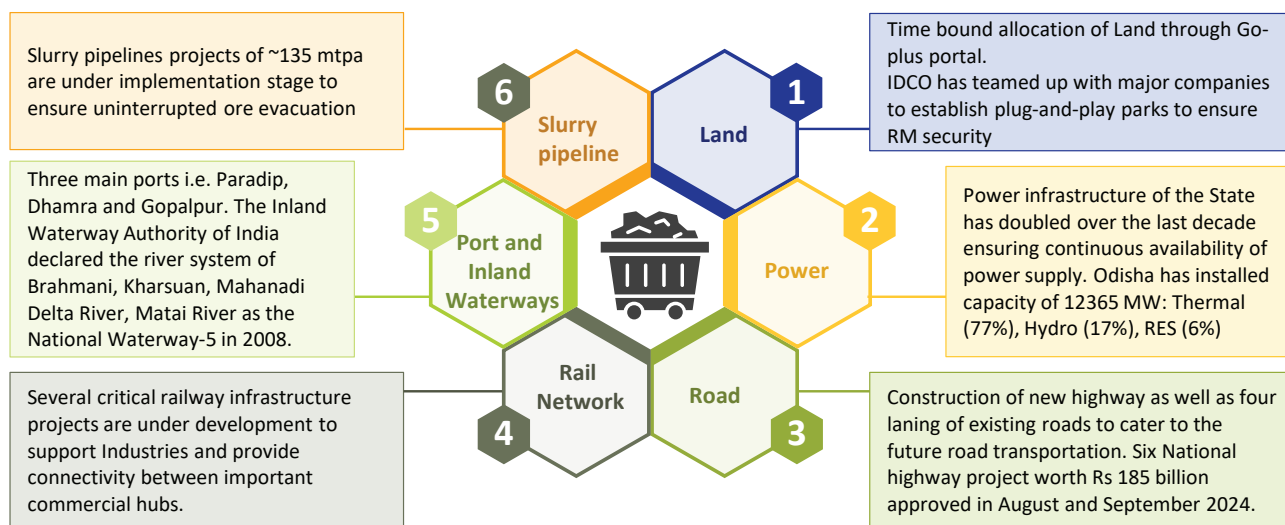
availability and attract investments into the mining sector, reinforcing Odisha's position as a key contributor to India's mineral supply chain.

Long-Term Linkage (LTL) Policy

The Odisha Government has revised its Long-Term Linkage (LTL) policy through the Odisha Mining Corporation (OMC), enabling OMC to allocate up to 80% of its production of iron ore, chromite, bauxite, and limestone exclusively to state-based industries with end-use facilities. This amendment aims to ensure a stable supply of essential raw materials to local industries, particularly amid the declining share of merchant miners following the introduction of the auction-based mining regime.

As the auction system shifts mineral resources toward captive miners, downstream metal manufacturers without their own mines face significant challenges in securing the raw materials necessary for production. The updated LTL policy is therefore critical for Odisha's metal and mineral-dependent industries, as it provides an assured, long-term source of high-quality resources for producers within the state.

Exhibit 30: Empowering growth through strategic infrastructure development



Source: ICRA Research

Technology – Digital Infrastructure Development

One area where Odisha scores over other states is the early adoption of technology for the management of mineral resources tracking its journey from the pit to port. Odisha today uses an advanced Integrated Mines and Minerals Management System (i3MS), a technology

platform which has helped in ensuring greater compliance, supported faster decision-making, and curtailed mineral leakage by integrating the system with railways, ports, weigh bridges, as well as GPS-enabled trucks.

The i3MS system has been a key differentiator for Odisha, improving its competitive position over other mineral-rich states for ease of doing business. Apart from i3MS, Odisha has also developed an online single window portal, GO SWIFT, for tracking the entire investment cycle of a project, thereby enhancing the B2G interface. Through GO SWIFT, the Government

has aimed to provide a one-stop solution for various Government services like information on the state's industrial land bank, tracking of regulatory clearances required and other G2B services, and grievance redressal, among others.

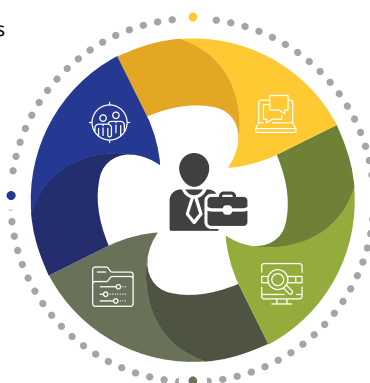
Exhibit 31: Key highlights of Odisha's i3MS platform – Leveraging technology to track the journey of ore from pit to port

INTEGRATION WITH RAILWAYS/ PORTS

The system is integrated with the Indian Railway system. Once the permit is issued, the portal notifies the railways system and rake indent is made on this basis. Integration with ports allows easy tracking of exports through ports. Integration of the system with the tax department allows for waybill generation which ensures authenticity.

LEVERAGING TECHNOLOGY

Online system which checks the statutory clearance instantly at every step before giving permission to execute the activity. The system scrutinizes every process and checks instantly before the final approval is given.



CHECKS PILFERAGE

System has the facility to delegate power and re-assign job for faster delivery of the Transit permit. Officers are accountable for delay in approval process. To check the illegal transportation of minerals, the system is integrated with seaports, tax authorities, commerce, and transport department, etc. GPS-based vehicle tracking system allows for guard against illegal activities.

EFFICIENCY

At the time of application submission, the online system checks all required statutes from the system automatically. Automated system allows to issue permits without delay resulting in greater efficiency.

Source: ICRA Research

Institutional Architecture of Minerals Sector in India

India's mineral resources are broadly classified into five categories: fuel, metallic, non-metallic, atomic, and minor minerals. To efficiently manage these resources, the country has established specialised ministries responsible for overseeing various activities such as survey, exploration, mining, production, demand-supply management, auctioning, marketing, and pricing. The Ministry of Mines is the primary authority responsible for formulating and implementing policies, regulations, and laws related to the exploration, mining, auctioning, and revenue management of all minerals, excluding natural gas, petroleum, atomic minerals, and coal. The Ministry of Coal specifically handles the exploration, mining, and pricing of coal and lignite, while the Ministry of Petroleum & Natural Gas oversees the exploration, production, distribution, and pricing of petroleum and natural gas. Additionally, the Department of Atomic Energy focuses on the exploration and identification of uranium and other atomic minerals essential for India's nuclear energy program. However, for major minerals (which broadly include all

groups of minerals excluding minor minerals), the Central Government retains the power of revision and/or fixing of royalties. Moreover, in the case of coal, lignite, and atomic minerals, the states are required to take prior approval of the Central Government to grant mining concessions.

The mineral sector in India is primarily governed by the **Mines Act, 1952** and the **Mines and Minerals (Development & Regulation) Act, 1957 (MMDR Act)**, administered by the Ministry of Mines. The **National Mineral Policy of 1993** serves as the key reference document outlining the rules, regulations, and procedures for the regulation and development of the sector, excluding coal, petroleum, and atomic minerals. Apart from the MMDR Act, 'The Coal Mines (Special Provisions) Act, 2015' also regulates coal and lignite mining in the country. The state governments are the owners of minerals located within their boundaries, whereas the Central Government is the owner of minerals found in the ocean within the territorial boundaries of India.

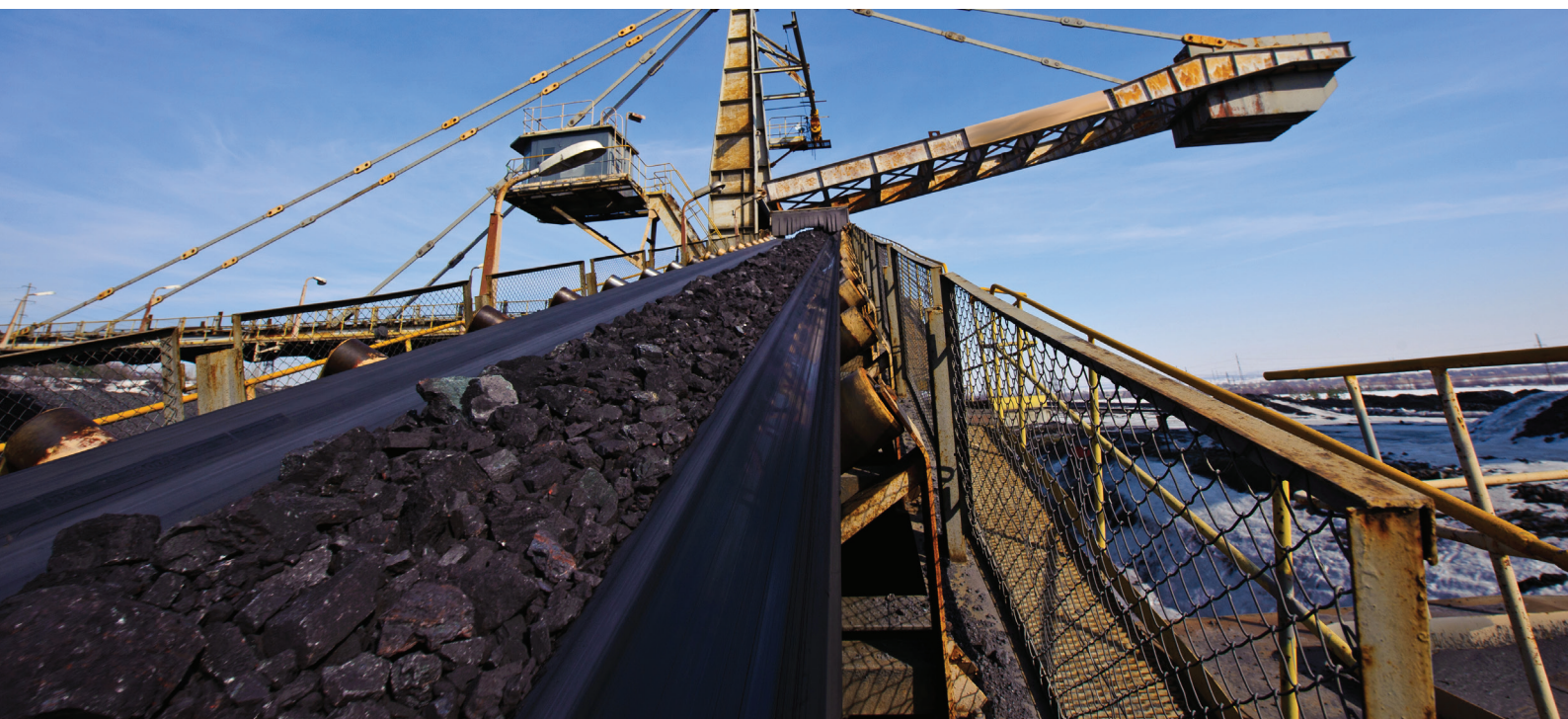
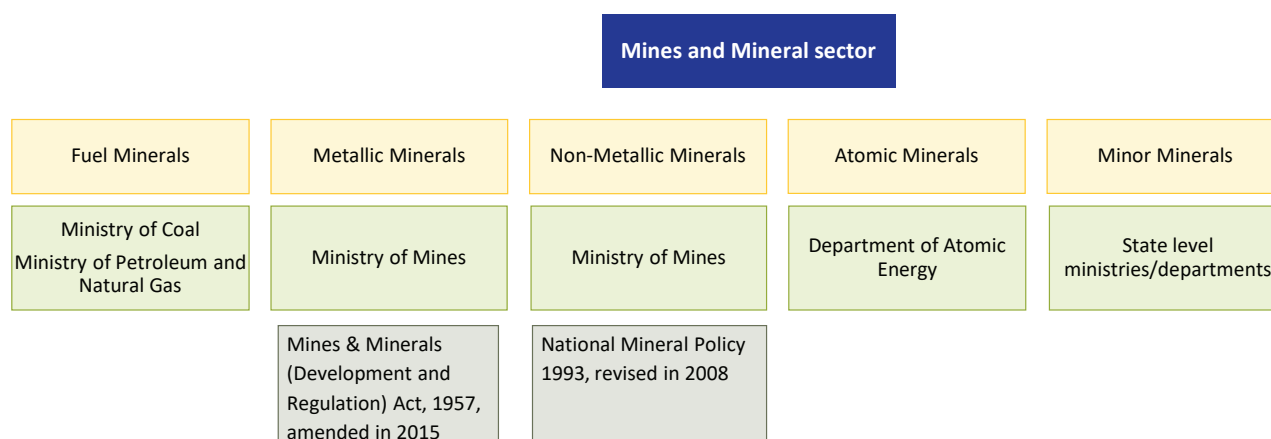


Exhibit 32: Institutional architecture of minerals sector in India



Source: Ministry of mines, ICRA Research

In India, mining is a highly regulated industry, requiring multiple approvals from Central and state agencies, including the Ministry of Environment & Forests, the Directorate General of Mines Safety, and the State Pollution Control Boards. Non-compliance with mining laws can lead to severe consequences, such as production halts, hefty fines, or even bans. The Hon'ble Supreme Court has issued significant rulings on illegal allocations of captive coal mines and unauthorised iron ore mining in states like Karnataka, Odisha, and Goa. These landmark judgments have influenced the creation of new regulations, such as The Coal Mines (Special Provisions) Act, 2015 and the Mines & Minerals (Development and Regulation) Amendment Act, 2015, which introduced transparent processes for mineral resource allocation.

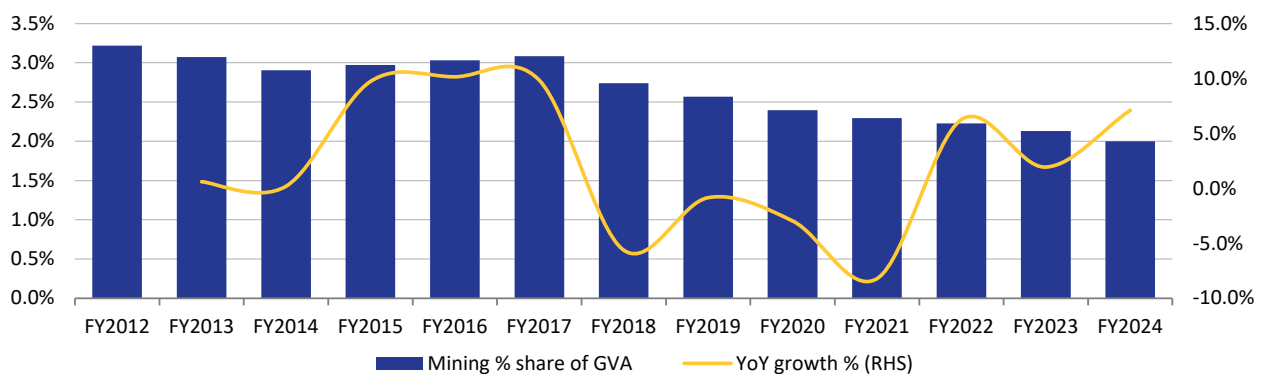
Following these Supreme Court rulings, the new regulatory regime mandates that mineral resources be allocated to private entities exclusively through auctions. To deter illegal mining, the court imposed strict penalties, including lease cancellations and fines amounting to 100% of the value of illegally mined minerals. Alongside increased regulatory oversight, the sector faces rising taxes and duties, including mandatory contributions to the District Mineral Foundation (DMF) and the National Mineral Exploration Trust (NMET), in addition to state royalties. These measures are aimed at ensuring compliance, promoting transparency, and enhancing the sustainability of mining activities.

Investment Landscape and FDI Trends in India's Mining Sector

India's mining sector has witnessed substantial reforms in recent years, creating an investment-friendly environment that has attracted both domestic and international players. Despite India's efforts to attract foreign investments into its mining sector, several challenges continue to hinder the inflow of Foreign Direct Investment (FDI). These obstacles stem from regulatory complexities, infrastructure limitations, and

socio-environmental concerns, which can deter international investors from fully committing to mining projects in India. Consequently, the mining sector's contribution to the GDP has steadily declined from ~3.0% between FY2012 and FY2018, to less than 2.3% since FY2021. In fact, in FY2024, it stood at a decadal low of just 2%. The annual growth rate was also significantly impacted in the same period.

Exhibit 33: Trend in share of the mining sector to India's overall GVA



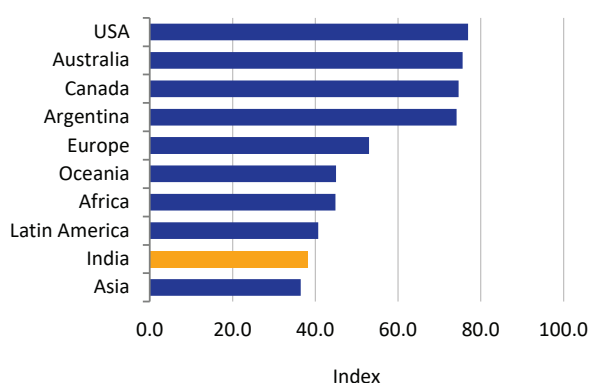
Source: MOSPI, ICRA Research



In FY2023, India ranked 69th out of 86 countries on the Fraser Institute's Mining Investment Attractiveness Index and 81st out of 86 on the Policy Perception Index, indicating significant challenges in attracting mining investments. According to the survey, 90% of the respondents expressed concerns over India's legal framework, while 83% highlighted uncertainties regarding the enforcement of existing regulations. Additionally, 82% cited issues with regulatory overlaps and inconsistencies, which serve as substantial barriers to investment.

These challenges have made India a less attractive destination for global mining companies, despite its vast mineral potential. As a result, foreign direct investment (FDI) in the mining sector remains notably low, accounting for just 0.3% of India's total FDI inflows. This minimal share underscores the sector's limited appeal compared to other mineral-rich regions around the world, where streamlined regulations and stable policies create a more favourable investment environment.

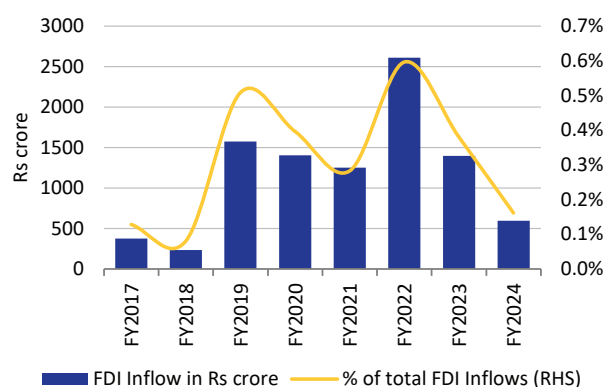
Exhibit 34: India's rank in Mining Investment Attractiveness Index



Source: Fraser Institute Annual Survey of Mining Companies (FY2023), ICRA Research

The reluctance of global mining majors to invest in India is a reflection of the perceived regulatory complexity and legal uncertainties that can lead to project delays and increased costs. Addressing these concerns by addressing key areas such as expediting permit timelines, enhancing infrastructure quality in mining regions, and ensuring greater clarity and consistency in the enforcement of relevant laws by government

Exhibit 35: Trend in FDI inflows to India's mining industry



Source: DIPP, ICRA Research

agencies. It also includes streamlining taxation and dispute resolution processes to attract investments, implementing measures to reduce uncertainties related to land acquisition, rehabilitation, and resettlement, expanding the country's geological database, and improving infrastructure for skill development and training of the mining workforce.

Navigating Obstacles: Key Challenges in India's Mining Sector

LOGISTICS BOTTLENECKS

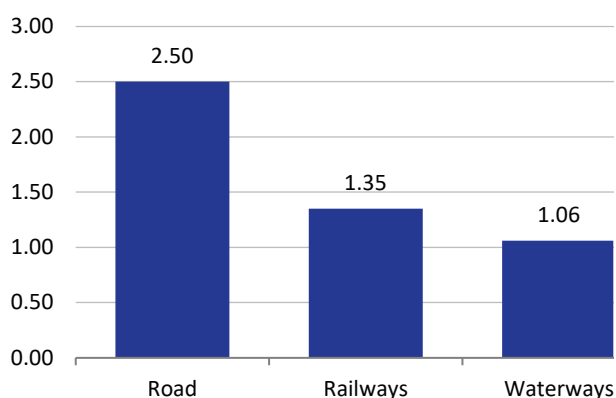
THE MISSING LINKS

Logistics remains a crucial cost driver in determining the overall competitiveness of mineral sources for end consumers. In countries like the US and China, where railways and waterways have been extensively developed, integrated logistics infrastructure provides a significant competitive advantage. These efficiencies are lacking in developing countries like India, where there is still a heavy reliance on

road transportation. Given that road transport is approximately 2.4 times more expensive than waterways and about 1.9 times as costly as railways, this dependence on roads for bulk commodity movement significantly increases the landed cost for end consumers. Additionally, longer transit times associated with road transport adversely impact the working capital cycles of industries reliant on bulk materials.

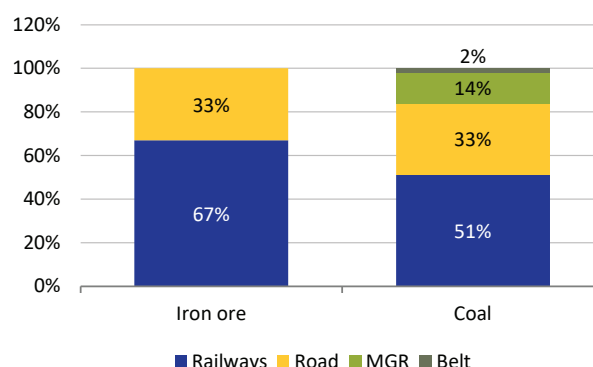


Exhibit 36: Freight cost comparison through various modes (Rs/tonne KM)



Source: NITI Aayog; ICRA Research

Exhibit 37: Mode of outward movement of coal and iron ore in India

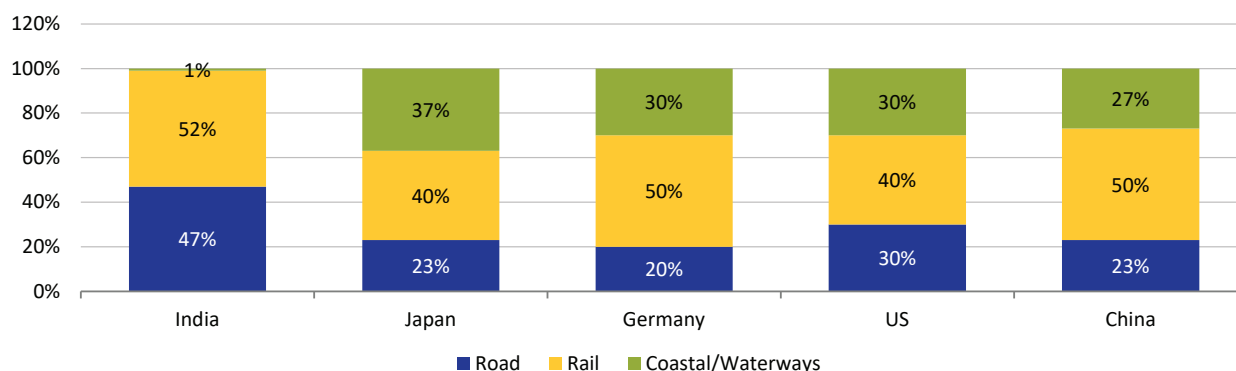


Source: Ministry of Coal, Ministry of Railways, ICRA Research

India's logistical challenges are evident in the heavy reliance on road networks for bulk material transportation. In 2024, nearly 33% of India's coal production and iron ore output were transported by road. For materials like

steel, around 47% is moved via roads in India, compared to just 23% in China and 30% in the US. This over reliance not only raises costs but also reduces efficiency in the supply chain.

Exhibit 38: Modes of transportation for steel industry



Source: Ministry of Steel, ICRA Research

To enhance the cost competitiveness of the domestic mining and mineral industries, India must invest significantly in expanding its railway infrastructure. Shifting more bulk commodity transportation to railways could gradually reduce the dependence on costlier road transport, improve transit times, and

optimise working capital cycles for industries. Additionally, investing in multimodal logistics solutions, including inland waterways, can further streamline supply chains, reduce congestion on roads, and promote a more efficient and sustainable logistics ecosystem.

THE MISSING RAKES

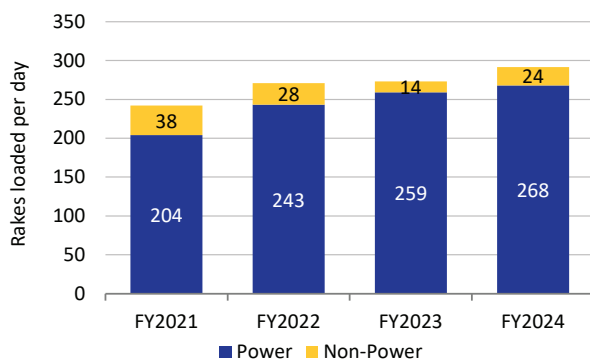
A persistent shortage of railway rakes, particularly during the peak demand months of April to May, has long been a challenge for domestic consumers of bulk commodities. This issue is exacerbated as the Indian Railways prioritises coal transportation to power plants over other industries, such as cement and steel, which fall under non-regulated sectors. As a result, the availability of rakes for non-regulated customers has seen a sharp decline—from 38 rakes per day in FY2021 to just 14-18 rakes per day in FY2022 and FY2023, which slightly improved to 24 rakes per day in FY2024.

Growth has been insufficient, even when considering overall rake availability for both regulated and non-regulated sectors. The compounded annual growth rate (CAGR) of

rake availability stood at 6.4% between FY2021 and FY2024, which significantly lagged behind the ~11-12% CAGR in domestic coal production during the same period. This disparity highlights a critical logistical bottleneck for industries relying on timely bulk commodity transportation.

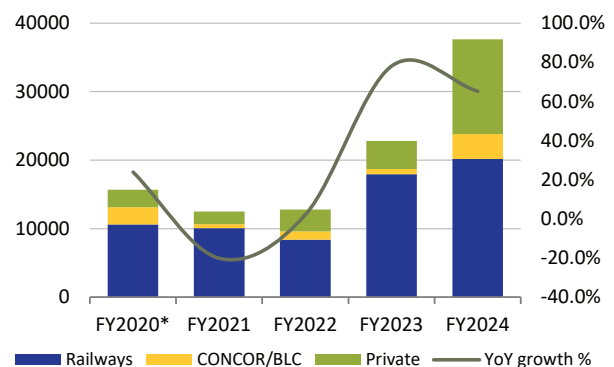
Without increased allocation of resources by the Indian Railways, this shortage of rakes could continue to hinder the mining sector's efficiency and disrupt supply chains. However, there are positive signs on the horizon. The production of railway wagons in India has seen a notable uptick since the beginning of FY2023. However, given the estimated requirement of ~105618 wagons by FY2030, more effort is required, which could help bridge the existing demand-supply gap for rakes.

Exhibit 39: Rake availability for the coal sector



Source: Ministry of Coal, ICRA Research

Exhibit 40: Domestic production of railway wagons



Source: Indian Railways, ICRA Research; *indicates 11M FY2020

Exhibit 41: Estimated wagons procurement required by Indian Railways for coal traffic by FY2030

	2022	2030	Additional
Rakes/day requirement for Coal Handling	465	956	491
5% Reduction in requirement due to various efficiency projects			467
Total No of Rakes assuming average Turnaround time of 3.9 Days per Rake			1821
Total No of wagons (58 wagons/Rake)			105618

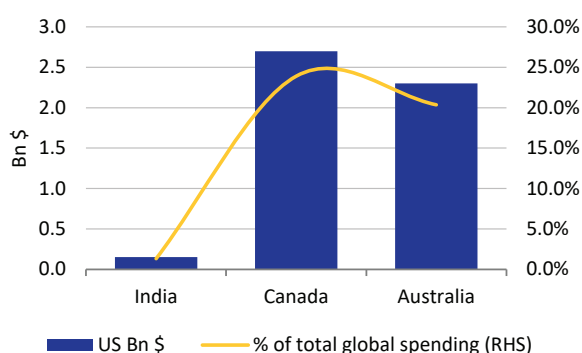
Source: Ministry of Coal, ICRA Research

LIMITED INVESTMENT IN MINERAL EXPLORATION: PRIVATE SECTOR'S PRESENCE NEGLIGIBLE

Mineral exploration is inherently the most high-risk segment within the mining value chain, characterised by limited visibility on returns for the capital invested. The risk is especially pronounced for deep-seated minerals like copper, lead, zinc, diamonds, and gold, where the likelihood of discovering economically viable reserves remains low. Given the high costs, long timelines, and uncertain outcomes, exploration activities carry significant financial and operational risks. Currently, India lacks

a robust and dynamic mineral exploration ecosystem. The sector is predominantly led by Government entities, such as the Geological Survey of India (GSI), Mineral Exploration Corporation Limited (MECL), Central Mine Planning & Design Institute Limited (CMPDIL), and various state-level Departments of Mines and Geology. These bodies drive the majority of exploration initiatives, leaving limited room for private sector involvement and innovation.

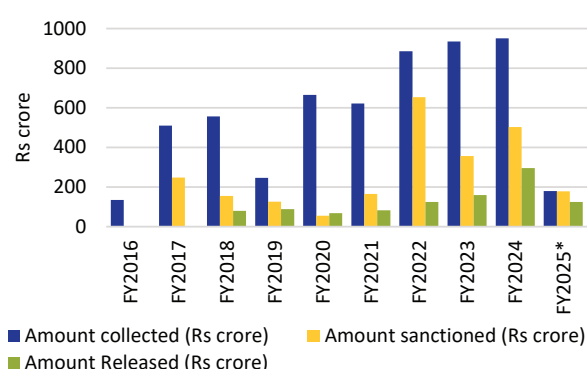
Exhibit 42: Exploration spending (US Bn\$) and share of total expenditure



Source: Industry reports; ICRA Research

India allocates a mere 1.3% of the global expenditure on mineral exploration, significantly lagging behind other resource-rich countries. In comparison, Canada accounts for 24% and Australia for 20% of global exploration spending, reflecting their robust focus on discovering new mineral resources. This disparity highlights India's underinvestment in exploration, which hampers the discovery of untapped mineral reserves and limits the country's ability to fully leverage its geological potential. The relatively low exploration spending in India can be attributed to several factors, including regulatory

Exhibit 43: NMET's collection and amount released (Rs crore)



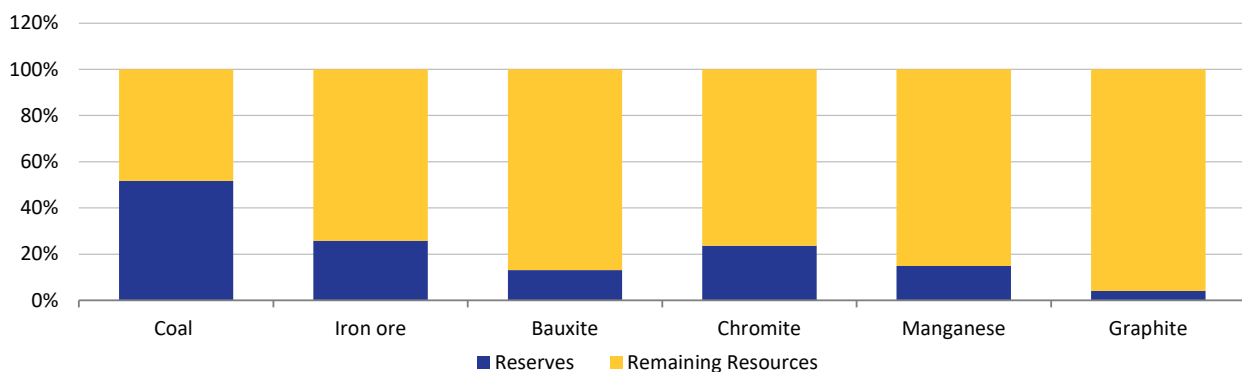
Source: Ministry of mines, ICRA Research

hurdles, limited private sector participation, and inadequate use of advanced technologies in exploration processes. The National Mineral Exploration Trust (NMET) was established in 2015 to enhance mineral exploration across India. Funded by contributions from mining leaseholders, NMET allocates resources to various exploration projects nationwide. However, the actual release of fund compared to amount collection remains very low, which reveals that significant improvement is required to enhance the mining exploration activities in India.

The limited investment in exploration results in a low resource-to-reserve conversion ratio for certain minerals. Consequently, India's mining potential remains underexploited, with

many minerals still classified at the resource level. Significant further exploration is needed to elevate these resources to proven reserves, thereby unlocking their full economic value.

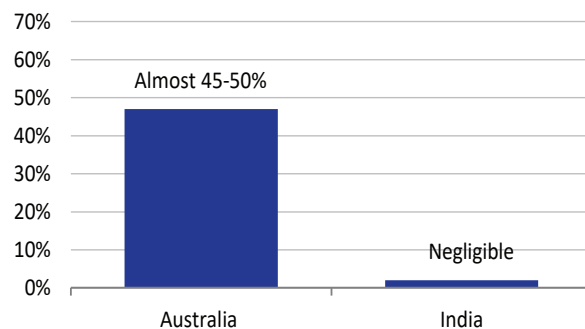
Exhibit 44: Reserve to resources % for major minerals in India



Source: Ministry of mines, ICRA Research

In addition, given the presence of only a limited number of entities in mineral exploration in India, investment flow in this field has remained a constraint, a fact also reflected by India not figuring among the top ten global destinations for investments in mineral exploration. On the other hand, Canada, the US, and Australia have emerged as breeding grounds for 'junior' mining companies who possess the technological knowhow to explore a particular mineral and has access to risk capital from diverse sources like venture funds.

Exhibit 45: Exploration spending % by junior mining companies in India



Source: Ministry of Mines, ICRA Research

SLOW REGULATORY APPROVALS – RISK OF CAPITAL BLOCKAGE

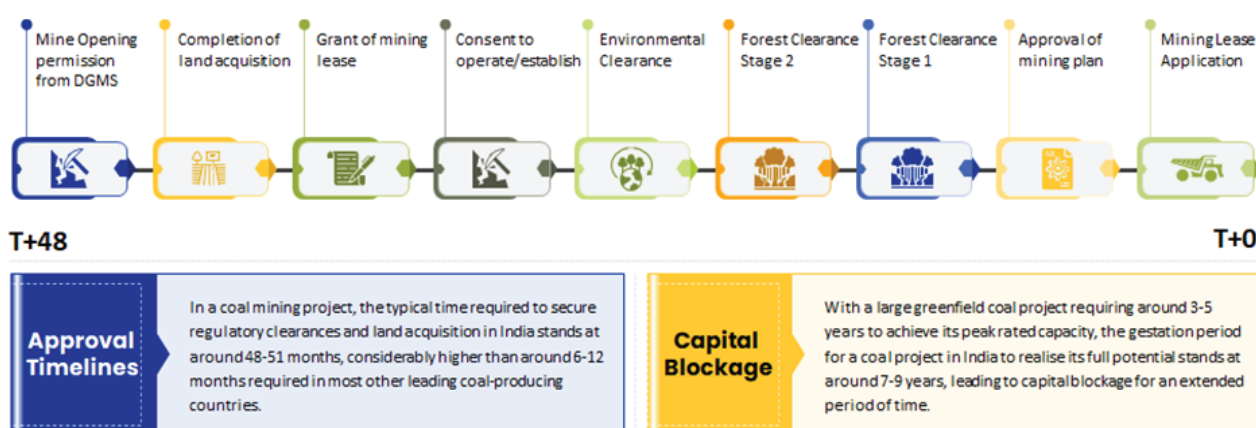
Despite recent improvements, India still lags behind other major mineral-producing countries in ease of doing business, particularly in the mining sector. For instance, securing regulatory clearances and land acquisition for a coal project in India typically takes 48-51 months, compared to just 6-12 months in other leading coal-producing nations.

This timeline can extend further for projects facing surface constraints, such as proximity to reserve forests, densely populated areas, or overlapping critical infrastructure like railways and power lines. Given that a large greenfield coal project takes about 3-5 years to reach its peak capacity, the total gestation period in India extends to 7-9 years, resulting in prolonged capital lock-in.

Streamlining the mine approval process through better coordination among Central and state authorities, along with expedited

land acquisition, remains crucial for attracting greater investment in the mining sector.

Exhibit 46: Stages of regulatory approvals before the start of coal mining operations



Source: Discussion paper on Auction of Coal Mines For Sale of Coal, Ministry of Coal, ICRA Research

Exhibit 47: Comparative overview of timeline for grant of licences

Countries	Timelines to receive permits
Canada	Ontario stands out among all the jurisdictions, wherein it takes around 1-2 month; Quebec, Newfoundland & Labrador also has similar timelines; in other Canadian provinces and territories, companies were able to acquire the permits within six month
United States	Nevada, Quebec, Alaska and New South Wales- Usually entities take six months to get the permits
Australia	In Western Australia, Northern Territory and Queensland- Permits usually takes 6 months or more
Northern Europe	Sweden- Less than six months, while in Finland it usually takes more than six months

Source: Fraser Institute Annual survey of mining companies, 2023; ICRA Research

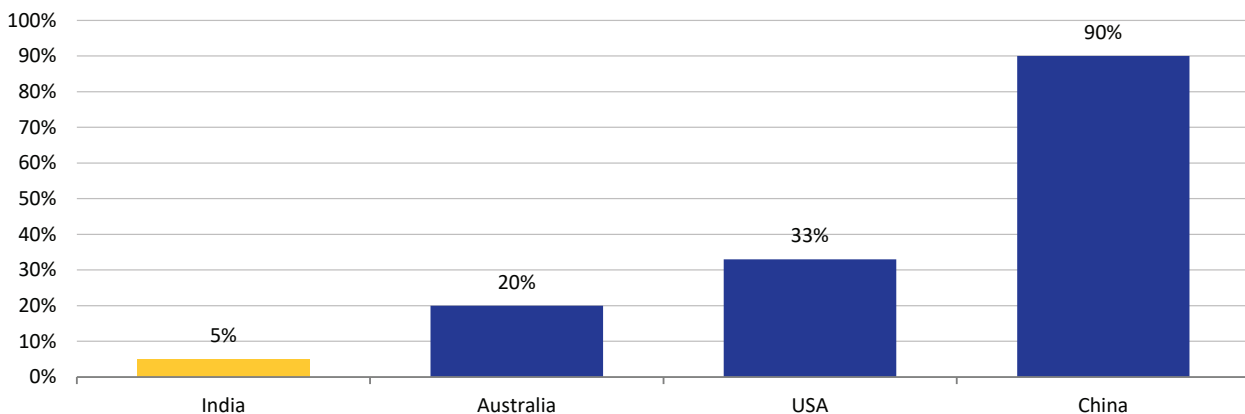
SUB-OPTIMAL INVESTMENT IN TECHNOLOGY

India has made considerable progress in harnessing the potential of sub-surface minerals like iron ore, bauxite, and dolomite. However, the country has been less successful with deep-seated minerals that require advanced, technology-driven mining techniques. For bulk commodities such as coal, mining operations in India are predominantly shallow, limited to depths of 50-100 meters. In contrast, underground coal mining—which offers advantages such as reduced ecological impact and fewer land acquisition issues—remains significantly underutilised in India, accounting for only about 5% of total coal production. This is starkly lower compared to other major coal-producing nations, where underground mining is far more prevalent, comprising approximately

90% of production in China, 33% in the United States, and 20% in Australia.

The limited adoption of underground mining in India can be attributed to challenges like high upfront costs, limited technological expertise, and inadequate investment in advanced mining infrastructure. Greater focus on adopting underground mining technologies could help India optimise its coal extraction, minimise surface disruption, and overcome the constraints of land acquisition, especially in densely populated and ecologically sensitive areas. Embracing such technologies is essential for the sustainable expansion of India's mining sector and for tapping into deeper mineral reserves.

Exhibit 48: Share of production from underground coal mines

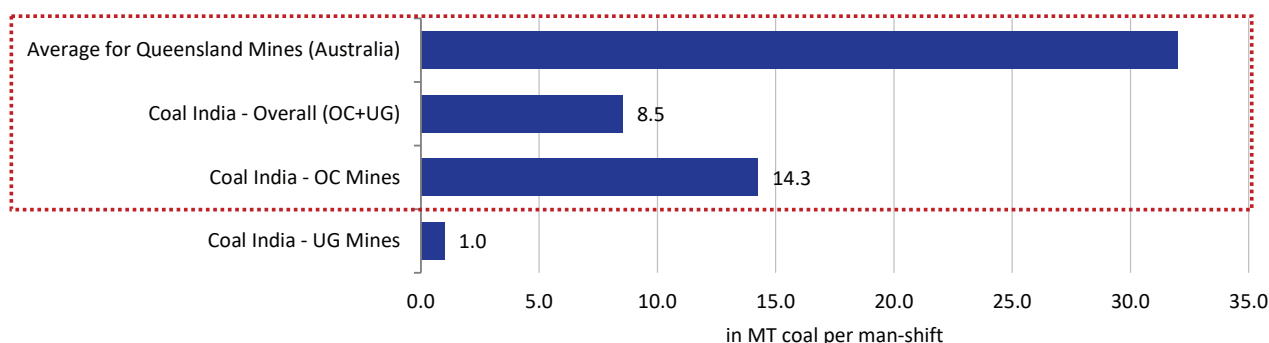


Source: Coal India, Planning Commission Twelfth Five Year Plan (2012–2017), ICRA Research

Technology not only improves mine safety but also boosts productivity. Investments in mass production techniques like continuous miners, longwall mining, high-capacity excavators, and surface miners can significantly enhance output as does the use of drones with remote sensing streamlines surveillance and mapping. In

Queensland, Australia's coal mines, productivity per shift is nearly four times that of Coal India due to automation and digital advancements. For India, investing in smart mining technologies is crucial for achieving cost competitiveness and gaining a long-term edge over global peers.

Exhibit 49: Output per man shift (in tonnes) for Coal India and Australian Miners



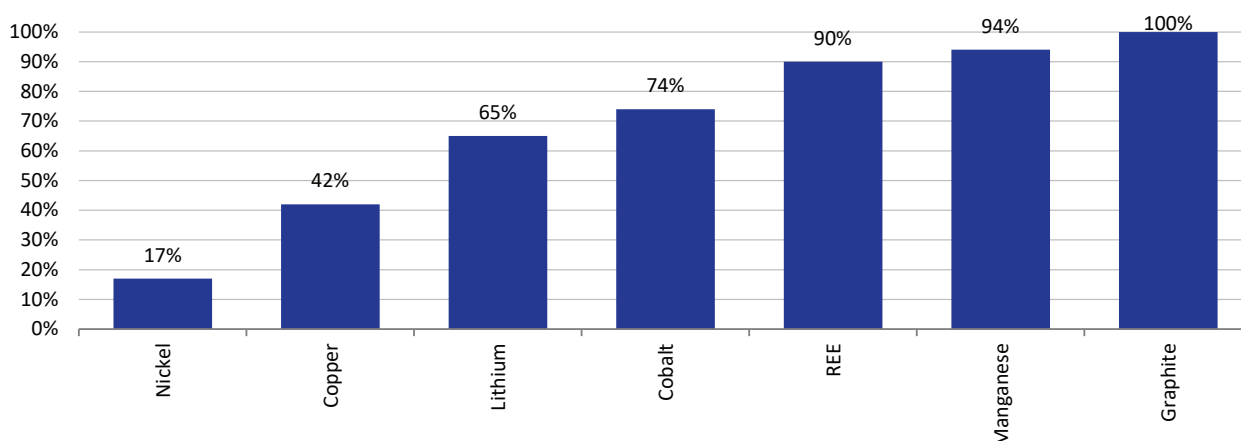
Source: Coal India, ICRA Research; OC: Opencast; UG: Underground

GEOPOLITICAL DYNAMICS AND THEIR IMPACT ON GLOBAL MINING POLICIES

The effects of deglobalisation and shifting geopolitics on critical mineral supply are increasingly clear in 2023. The Ukraine conflict and the rift between China and the West is straining economic ties, while a push for self-sufficiency is reshaping investments and supply chains. As demand for minerals crucial to the energy transition surges through 2050, competition is intensifying. Yet, production

remains heavily concentrated, with China dominating battery mineral processing, exposing global supply chains to risks. In response, top mining companies are boosting investments to diversify sources, with capital spending set to rise sharply from 2012 to 2025. This underscores the urgent need for resilient, localised supply chains to reduce reliance on single sources, especially in critical green energy sectors.

Exhibit 50: Share of China in processing of critical mineral refining/ processing



Source: IEA, Giani Metals, ICRA Research; REE – Rare Earth Elements

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ISSUES:

The Indian mining industry faces significant environmental, social, and governance (ESG) challenges that impact its sustainability and long-term viability. On the environmental front, issues such as deforestation, water contamination, air pollution, and a high carbon footprint from energy-intensive operations are prevalent, leading to ecosystem degradation and health risks for local communities. Socially, mining projects often result in the displacement of communities, inadequate rehabilitation, and poor working conditions for labourers, particularly contract and informal workers.

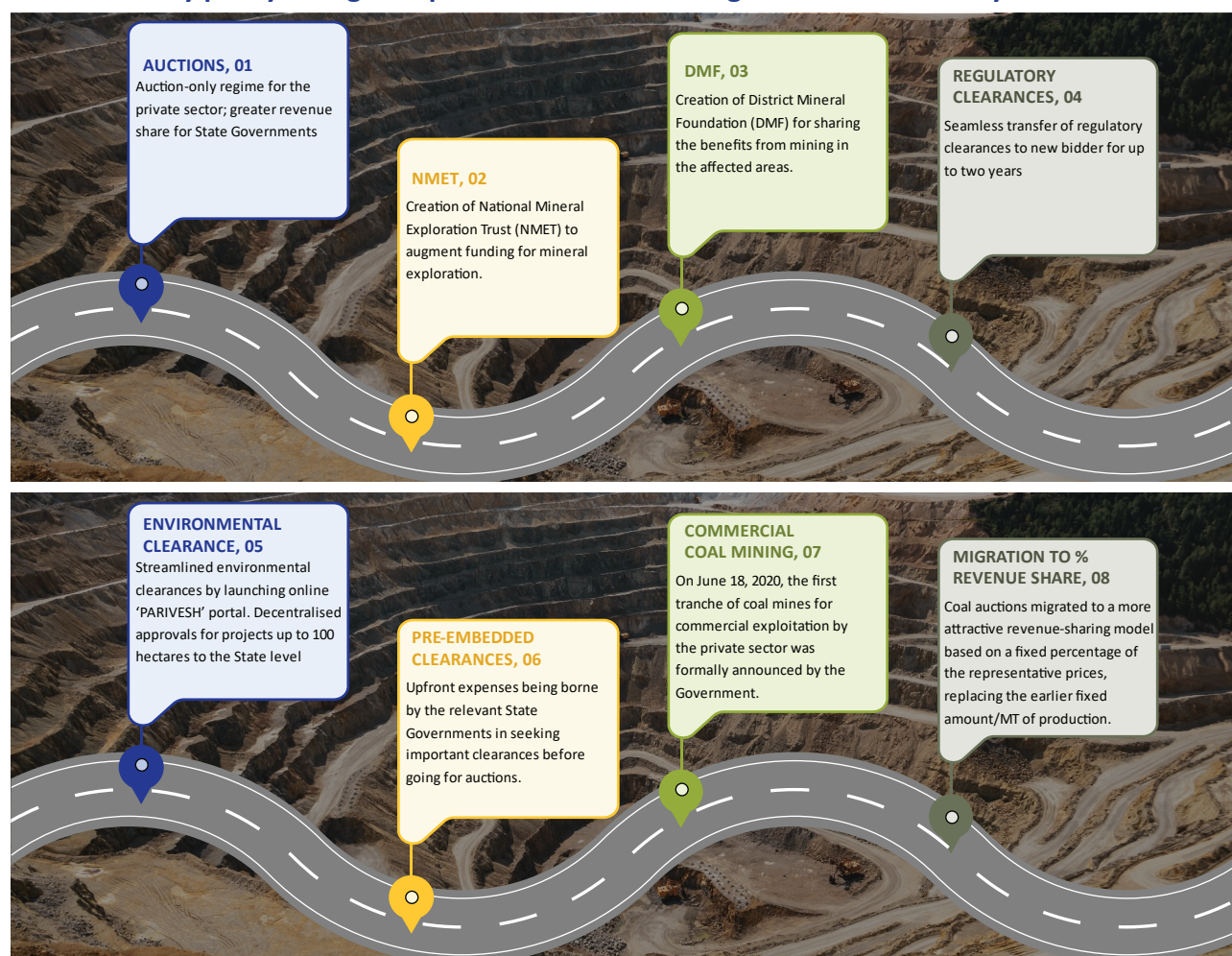
There are also concerns around community health due to pollution and insufficient safety protocols. From a governance perspective, the sector struggles with regulatory compliance, corruption, and a lack of transparency in awarding mining licences and utilising royalties. The industry's lag in ESG reporting and adherence to global standards further hampers investor confidence, highlighting the need for improved sustainability practices, stronger community engagement, and enhanced regulatory oversight to build a more responsible mining ecosystem in India.

Key Policy Shifts: Strategic Reforms in India's Mining Landscape

In the past few years, the GoI has implemented multiple reforms for bringing in greater transparency, improving the ease of doing business, and enhancing the investment attractiveness for the domestic mining sector, while at the same time creating a mechanism for greater sharing of the benefits of mining activities with the respective state governments and the mining-affected areas. The Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) is the cornerstone of India's

mining regulatory framework, governing the exploration, mining, and management of minerals other than petroleum and atomic minerals. Over the years, the Act has undergone several amendments aimed at improving transparency, increasing investments, and boosting efficiency in the mining sector. Below is a chronological overview of the key changes to the MMDR Act and their impact on the Indian mining industry.

Exhibit 51: Key policy changes implemented in the mining sector since January 2015



Source: Ministry of mines; MMDR Acts; ICRA Research

Migration to the auction-only route: In response to the Supreme Court's cancellation of 204 coal blocks in October 2014, the Government of India amended the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) on January 12, 2015. This amendment replaced the previous discretionary system of granting mining leases with a transparent auction-only approach for awarding mineral concessions to private entities. The shift to auctions has not only enhanced transparency but also increased revenue sharing with state governments. Since adopting this regime, India has auctioned 425 non-coal mineral blocks (such as iron ore, chromite, limestone, bauxite, and gold) and 163 coal blocks.

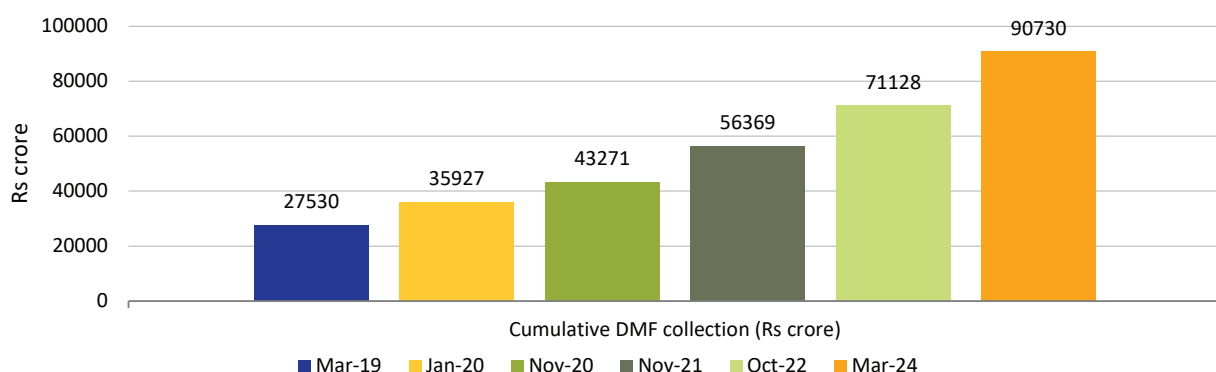
Increased funding and entry of private sector players in mineral exploration: The Mines and Minerals (Development and Regulation) Amendment Act, 2015 introduced a levy of 2% of mining royalties to fund the National Mineral Exploration Trust (NMET), aiming to boost investments in India's underfunded mineral exploration sector. The NMET was established to accelerate both regional and detailed exploration activities. In March 2021, the Government further liberalised exploration by removing the need for non-exclusive reconnaissance permits and allowing select private companies to conduct prospecting activities. These companies can also access

the NMET funds to support their exploration efforts. So far, 14 accredited private exploration firms have been notified. Between FY2018 and FY2023, the NMET collections averaged Rs 635 crore annually, providing critical resources to advance exploration, which is essential for developing a robust mining ecosystem.

Creation of the District Mineral Foundation (DMF) for mining-affected areas: The District Mineral Foundation (DMF), established under the 2015 Mines and Minerals Amendment Act, aims to share mining revenues with communities impacted by mining operations. Mining companies contribute 30% of royalties for older leases and 10% for newer ones, creating a substantial fund to improve healthcare, education, infrastructure, and livelihoods in mining regions.

DMF projects focus on building hospitals, schools, water facilities, and supporting skill development to promote economic resilience. Governance is led by district authorities with local representation to ensure that the funds meet community needs. Despite improvements in states like Odisha and Jharkhand, issues such as fund underutilisation and delays persist. Strengthening transparency, community involvement, and leveraging technology for monitoring can enhance DMF's impact, driving sustainable development in mining areas.

Exhibit 52: Trend in cumulative DMF collections (Rs crore)



Source: Ministry of mines; ICRA Research

Seamless transfer of clearances: The MMDR Act 2015 led to the expiry of several merchant mining leases on March 31, 2020. To address delays in obtaining fresh approvals by new bidders, the Government amended the Act in January 2020, allowing existing clearances to be transferred to the new lessee for a period of two years, providing a buffer to secure renewed approvals. However, due to persistent delays in this process, a further amendment was introduced on March 28, 2021, removing the two-year limit. This change ensured that statutory clearances could be seamlessly transferred to new lessees and remained valid for the entire lease term. This policy shift has enhanced certainty in the auction process, improved price discovery, and ensured a stable supply of raw materials for downstream industries.

Transitioning to a more balanced risk-reward framework on revenue-sharing with the states in mine auctions Initially, coal mine auctions followed a revenue-sharing model where states received a fixed amount per metric tonne of production. This structure favoured state revenues, even during market downturns when falling prices squeezed miners' profit margins, thereby discouraging investor interest. To address this, in May 2020, the Government adopted a more balanced approach, linking revenue sharing to a fixed percentage of representative prices. This change ensures that states share in both the upside and downside risks, aligning incentives and encouraging greater participation by investors, even during industry downturns.

Opening up the coal sector for commercial mining by private companies: India's coal sector was nationalised in 1973, but a shift toward privatisation began with the Coal Mines (Special Provisions) Ordinance, 2014, allowing for future commercial mining by private players. Despite this, end-use restrictions persisted for another five years, limiting private sector participation. Initial enthusiasm for captive coal block auctions

faded due to unsustainable premiums, leading to a drop in interest by FY2018-FY2019.

To revive private investment, the Government introduced reforms between 2019 and 2020, such as allowing 25% open market sales from captive mines, enabling 100% FDI via the automatic route, and lifting end-use restrictions for certain mines. The sector was fully opened on June 18, 2020, with the announcement of the first tranche of coal blocks for commercial mining by private firms.

Removal of end-use restriction and distinction between captive and non-captive mines in auctions: On March 28, 2021, the GoI brought in amendments to the MMDR Act for removing the end-use restrictions while auctioning minerals. Additionally, captive mines (other than atomic minerals), that had been already auctioned before March 28, 2021, were henceforth allowed to sell up to 50% of their annual production as merchant sales subject to additional revenue share with the state government. This move to remove the end-use restrictions was intended to not only support better price discovery in future auctions, but also to incentivise mining companies, increase the domestic mineral availability to the end-use sectors, and reduce import dependence.

Streamlining processes for seeking environmental clearance: To promote transparency and real-time monitoring, the Ministry of Environment, Forest and Climate Change (MoEFCC) digitised the process of environmental clearance (EC) application through the online 'PARIVESH' web portal. Moreover, for a further debottlenecking of the decision-making process of the MoEFCC, the procedure for granting EC has been decentralised to the state level for lease areas measuring less than 100 hectares (increased from 50 hectares earlier). In addition, to fast-tracking EC approvals, in April 2015, the MoEFCC standardised the Term of Reference (ToR) and EC conditions,

helping project sponsors simultaneously start preparing Environmental Impact Assessment Reports and Environmental Management Plans, even before applying for the ToR. At present, close to 20 major approvals are required before operationalising a coal mine.

Pre-embedded clearances in mineral auctions:

To increase the ease of doing business in the mining sector, the Ministry of Mines issued guidelines on June 3, 2020, for auction of mineral blocks with pre-embedded clearances. Though this would entail upfront expenses being borne by the relevant state governments in seeking important clearances before going for auctions,

the mechanism can potentially lead to better price discovery, aided by greater policy clarity and reduced project gestation period. Such pre-embedded clearances would include: a) Approval of a mining plan by the Indian Bureau of Mines (IBM), with the winning bidder having the flexibility to enhance/reduce the mine capacity by 25%, b) Stage-I forest clearance and EC from the MoEFCC, with a flexibility to enhance/ reduce production limit by 25%, and c) Securing land acquisition for both Government and private land. The cost borne by the state government in getting these clearances would be recouped from the winning bidder.

Exhibit 53: Impact of the MMDR Amendment Act 2021



Source: MMDR Amendment Act 2021, ICRA Research

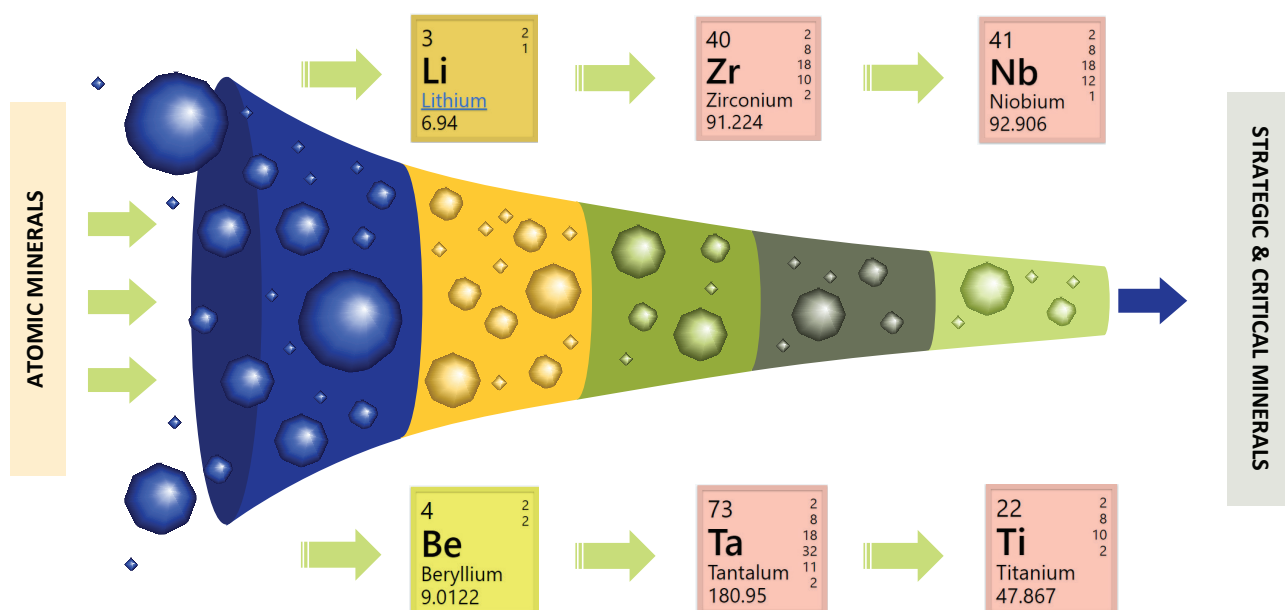
¹In February 2019, Government had allowed up to 25% open market sales for captive coal blocks, which, in March 2021, got enhanced to 50% merchant sales for captive blocks of all minerals

The Mines and Minerals (Development and Regulation) Amendment Act, 2023 amended the Mines and Minerals (Development and Regulation) Act, 1957, with the aim of

strengthening the exploration and extraction of critical minerals essential for India's economic development and national security.

Regulatory change - Liberating lithium for private exploration

Exhibit 54: Reclassification of 6 atomic minerals to strategic & critical minerals as per the MMDR Amendment Act 2023

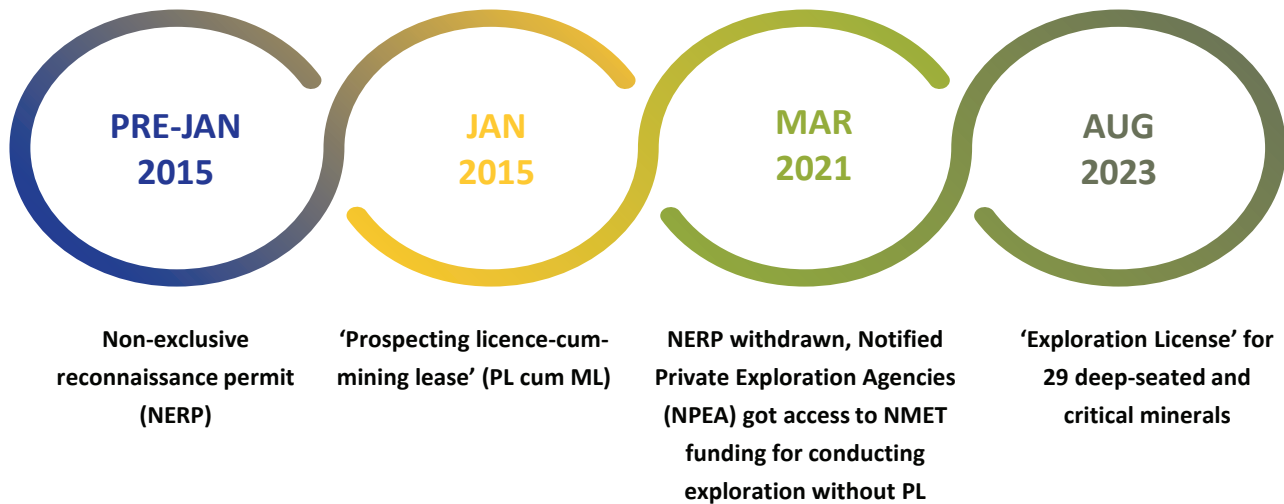


Source: ICRA Research

Lithium was previously classified as an atomic mineral due to its role as a primary source of tritium in thermonuclear reactions and its use in cooling systems of nuclear power plants. Under The Atomic Minerals Concession Rules, 2016, any lithium-bearing orebody with concentrations exceeding 5,000 parts per million (ppm) in hard rock/clay deposits, and 200 ppm in brine deposits, could only be mined by Government companies. Deposits with lower concentrations of lithium were available for private sector mining.

However, with the amendment to the MMDR Act in August 2023, lithium, along with five other minerals (including zirconium), was reclassified from an Atomic Mineral to a Critical & Strategic Mineral. This change opened the exploration and mining of lithium, across all ore grades, to private sector participation, significantly broadening the scope for exploration and development in the critical minerals space.

Exhibit 55: Transition of mineral exploration regime in India



Source: ICRA Research

Even though 100% FDI is allowed in the mining sector through the automatic route, India's earlier non-exclusive reconnaissance permit and PL-cum-ML regimes failed to attract global mining majors to the country. Subsequently, in March 2021, even as privately-owned Notified Private Exploration Agencies were allowed to undertake exploration without a PL and get access to funding from the National Mineral Exploration Trust (NMET), global mining majors/junior mining companies remained on the sidelines.

To fast track the production of critical & deep-seated minerals, The Mines and Minerals (Development and Regulation) Act was amended in August 2023 to empower the Central Government to conduct such auctions. Moreover, to enable a more attractive risk-return sharing for explored blocks, the Government introduced the auction of 'Exploration Licence' for 29 deep-seated and critical minerals, which would permit the licensee to undertake reconnaissance and prospecting activities. The preferred bidder for exploration licence shall be

selected through a reverse bidding process for a share of the auction premium paid by the mining lease holder. The bidder quoting the lowest percentage bid was likely to be the preferred one for exploration licence. This gives a higher upside to the exploration agency against the erstwhile NPEA regime.

In March 2024, Karnataka (for gold, copper & lithium) and Rajasthan (for rare earths and potash) became the first states to launch 'Exploration Licences' in the country. Andhra Pradesh, Chhattisgarh, Madhya Pradesh, and Maharashtra are in line to launch the 'Exploration Licences'.

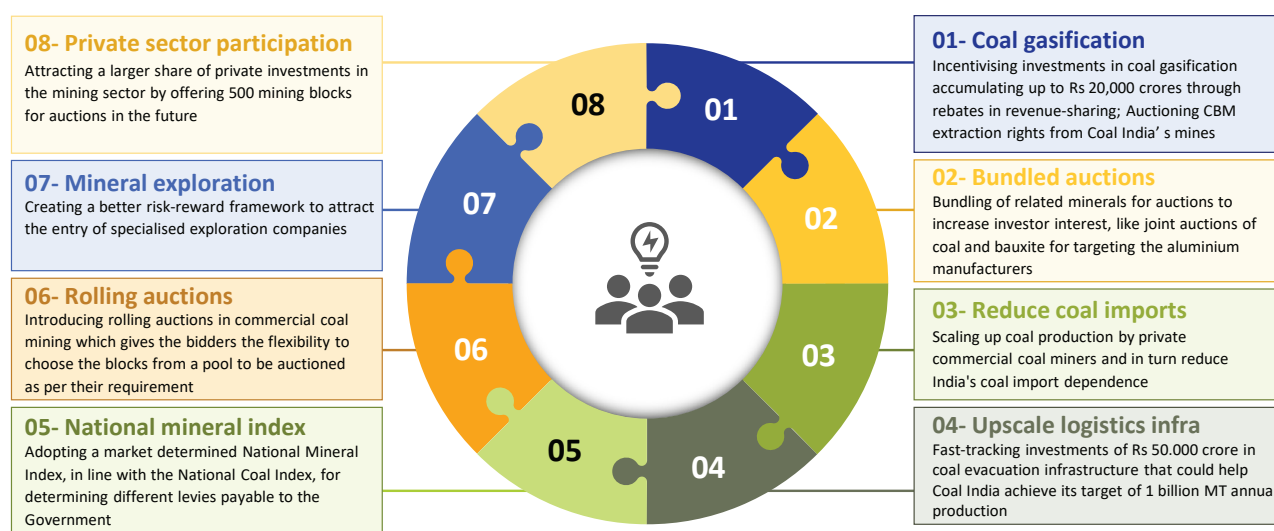
To encourage private exploration of critical and strategic minerals, the Ministry of Mines introduced a scheme offering partial reimbursement of exploration costs to licence holders. The Scheme for Partial Reimbursement of Exploration Expenses for Holders of Exploration Licenses (EL), launched on June 24, provides a 50% reimbursement on exploration expenses, with a maximum limit of ₹20 crore.

Reforms under Atmanirbhar Bharat

On May 16, 2020, the GoI made a list of announcements under the Atmanirbhar Bharat scheme for enhancing investments in the mining sector and bringing in structural reforms. The focus of the scheme was to improve the

ease of doing business, increase employment, reduce import dependence for minerals, and simultaneously establish India as an export hub for various commodities. The key focus areas of the scheme are highlighted in the exhibit below:

Exhibit 56: Key areas of the Atmanirbhar Bharat scheme for the mining sector



Source: Atmanirbhar Bharat presentation dated May 16, 2020, ICRA Research

Key takeaways from the Atmanirbhar Bharat scheme for the mining sector:

- Ramping up domestic coal production by private commercial miners and in turn reducing India's coal import dependence
- Establishing India as a major player in seaborne coal trade, incentivising investments in coal gasification accumulating up to Rs. 20,000 crore by CY2030 through rebates in revenue-sharing
- Auctioning coal-bed-methane (CBM) extraction rights from Coal India's mines
- Fast-tracking investments of Rs. 50,000 crore in coal evacuation infrastructure that could help Coal India achieve its aspirational target of 1 billion MT production
- Bundling of related minerals for auctions to increase investor interest, like joint auctions of coal and bauxite for targeting the aluminium manufacturers
- ≥ Attracting a larger share of private investments in the mining sector by offering 500 mining blocks for auctions in the future

Emerging Trends Shaping the Future of Mining

Mapping the key critical minerals behind breakthrough technologies

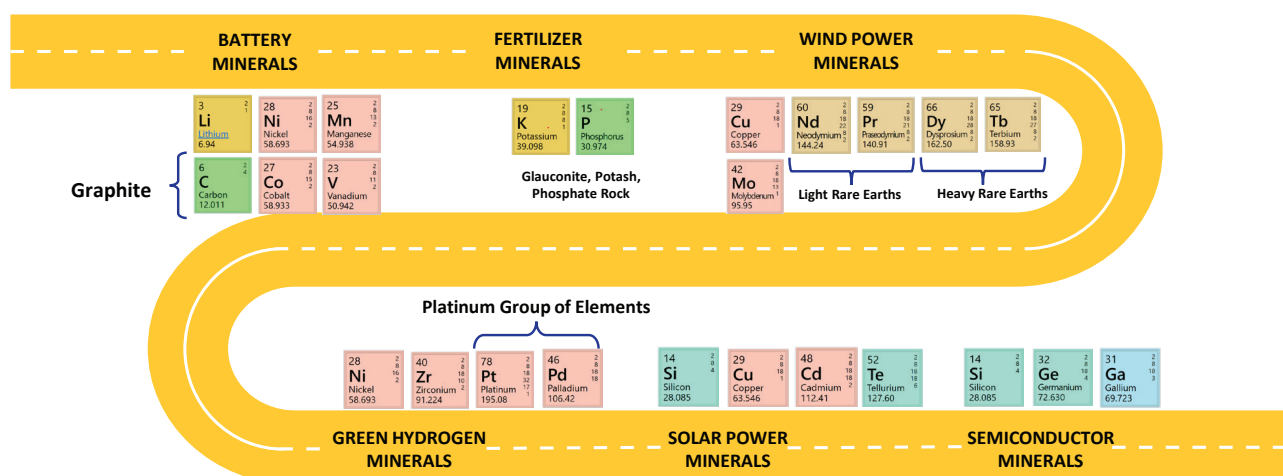
As the world moves toward decarbonisation, certain critical minerals have emerged as indispensable due to their unique properties that are crucial for enhancing efficiency, performance, and sustainability. **Lithium, cobalt, and nickel** stand out as the core materials behind battery technologies, particularly in electric vehicles (EVs) and energy storage systems. **Rare earth elements (REEs)**, including neodymium, praseodymium, dysprosium, and terbium, are essential for manufacturing permanent magnets, which are key components in electric motors, wind turbines, and other clean energy technologies. **Copper** is another critical mineral that underpins virtually all green technologies. Its superior electrical conductivity makes it

indispensable for the wiring and circuitry in renewable energy installations such as solar panels and wind turbines. In addition to these well-known critical minerals, the **platinum group metals** (PGMs)—including platinum, palladium, and rhodium—play a pivotal role in hydrogen fuel cell technology.

As these breakthrough technologies continue to evolve, the demand for critical minerals will intensify, requiring a strategic approach to resource mapping and management. The interdependence between critical minerals and technology development makes it clear that sustainable access to these materials will be the linchpin of a successful global energy transition.



Exhibit 57: List of important minerals that are critical for India's mineral security and net-zero transition



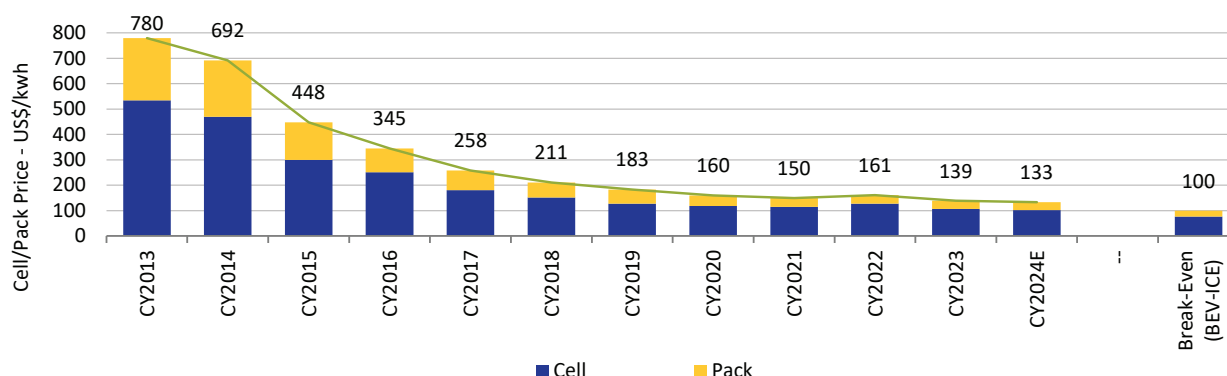
Source: ICRA Research

The Inflection Point: Demand for critical minerals to surge, going forward

Technological advancements and economies of scale have played a pivotal role in driving down the costs of green energy technologies. Over the past decade, the cost of lithium-ion batteries (LIBs) has plummeted by more than 80%, decreasing from \$780/kWh in 2013 to an

estimated \$133/kWh by 2024. This remarkable cost reduction, led predominantly by China's dominant role in battery manufacturing and supply chain optimisation, has been a critical factor in the rapid global adoption of renewable energy sources and electric vehicles (EVs).

Exhibit 58: Trend in price of lithium-ion-battery

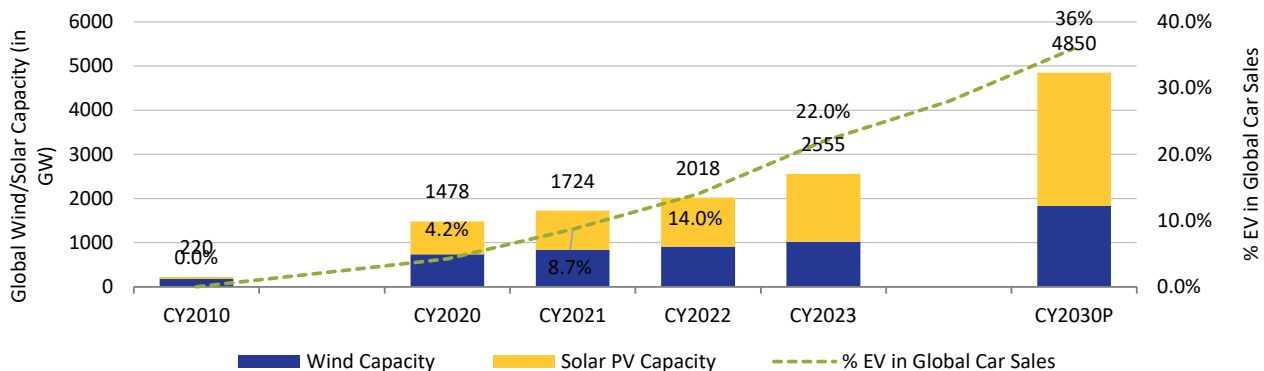


Source: Bloomberg New Energy Finance, ICRA Research; \$100/kWh LIB price is widely considered the sweet spot when EVs are expected to reach cost-parity with ICE vehicles

The scale of this transformation is evident in the latest forecasts by the International Energy Agency (IEA), which projects that by 2030, the global installed capacity for renewable energy (including wind and solar) will reach 2.4 times

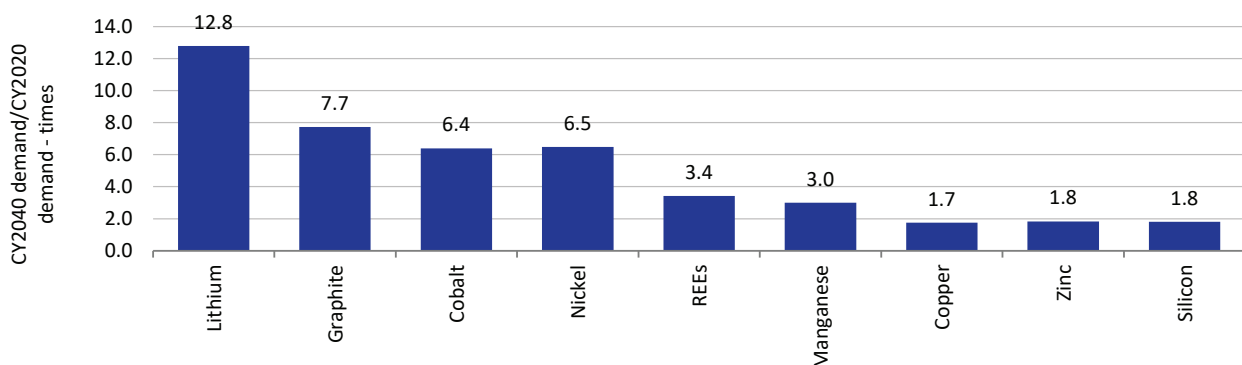
its 2022 levels. Simultaneously, EV penetration in the global automotive market has grown significantly, reaching a market share of 14% in 2022, with further expansion projected to 36% by 2030.

Exhibit 59: Trend in adoption of renewable energy and EVs (IEA forecasts)



Source: IEA, ICRA Research

Exhibit 60: IEA's CY2040 demand of critical minerals (in STEPS) represented as number of times of CY2020 demand



Source: IEA, ICRA Research; STEPS: Stated Policy Scenario takes into account relevant policies and implementation measure adopted by countries as of the end of August 2023, together with relevant policy proposals

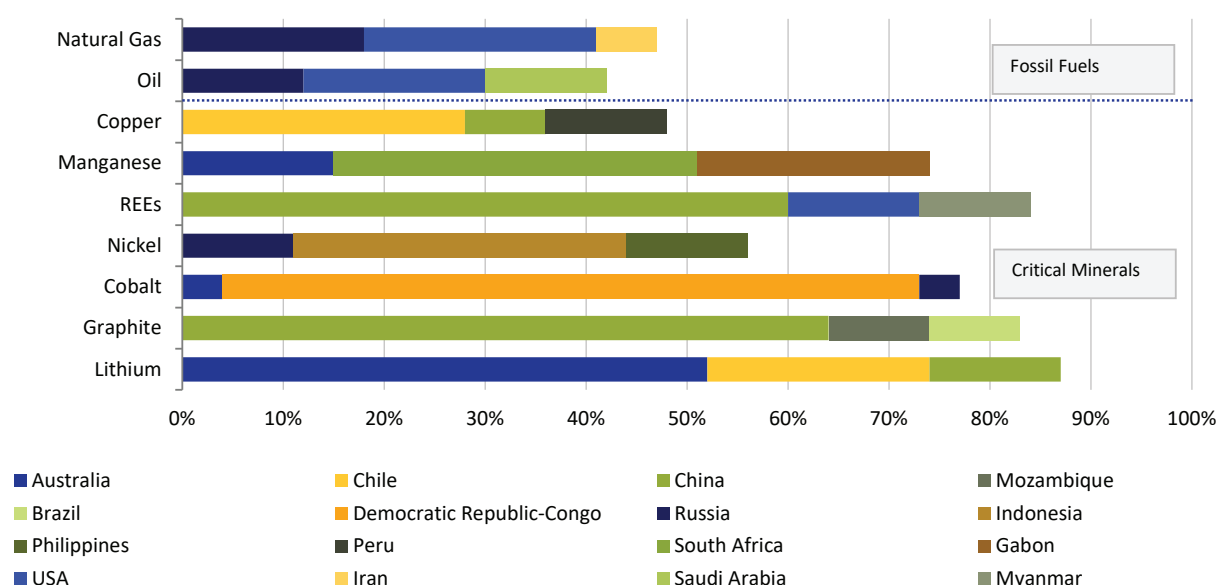
This shift towards green technologies is creating an unprecedented demand surge for critical minerals. As the energy transition accelerates, key minerals such as lithium, cobalt, nickel, copper, and rare earth elements will see a sharp increase in consumption, driven by their essential roles in battery production, renewable energy infrastructure, and other low-carbon technologies. Estimates suggest that demand for some of these critical minerals could multiply several times over the current levels, placing immense pressure on supply chains and amplifying the strategic importance of securing reliable, diversified sources of these materials.

However, the production of key energy transition minerals exhibits a higher level of concentration compared to oil and natural gas. For lithium, cobalt, and rare earth elements, more than three-quarters of the global output is controlled by the top three producing nations, with some minerals seeing a single country contributing nearly half of the global supply. In 2019, the Democratic Republic of the Congo (DRC) accounted for approximately 70% of global cobalt production, while China was responsible for 60% of the rare earth element output.

The high degree of concentration, coupled with complex and interdependent supply chains, heightens the risk of disruptions due to geopolitical tensions, trade restrictions, or regulatory changes in major producing regions. As the global energy transition accelerates,

securing diversified and resilient supply chains will be critical in mitigating these risks and ensuring stable access to the minerals will become essential for sustainable energy technologies.

Exhibit 61: Share of top producing countries in extraction of selected minerals and fossil fuels, 2019



Source: IEA, ICRA Research

INDIA'S CRITICAL MINERALS SCENARIO: NAVIGATING THE PRESENT

India's demand for critical minerals is witnessing a sharp rise, driven by its ambitious targets for renewable energy expansion, electric vehicle (EV) adoption, and the overall growth of high-tech industries. However, India is heavily import-dependent for the majority of its critical minerals. Despite having some reserves of graphite, bauxite, and rare earth elements, the country relies on imports for key minerals like lithium, cobalt, and nickel, which are essential for battery production and clean energy technologies. Most of India's lithium and cobalt imports come from Australia, Latin America,

and Africa, while China dominates the supply of processed rare earth elements and graphite. This high dependency on imports exposes India to supply chain vulnerabilities and price volatility in global markets, particularly as demand for these minerals intensifies worldwide. As India scales up its clean energy ambitions, securing a stable supply of critical minerals through strategic partnerships, domestic exploration, and investment in mineral processing infrastructure will be vital to meeting future demand and reducing import dependency.

Exhibit 62: India's import dependence for key critical minerals

Sl. No.	Critical Mineral	Percentage (2020)	Major Import Sources (2020)
1	Lithium	100%	Chile, Russia, China, Ireland, Belgium
2	Cobalt	100%	China, Belgium, Netherlands, US, Japan
3	Nickel	100%	Sweden, China, Indonesia, Japan, Philippines
4	Vanadium	100%	Kuwait, Germany, S. Africa, Brazil, Thailand
5	Niobium	100%	Brazil, Australia, Canada, S. Africa, Indonesia
6	Germanium	100%	China, S. Africa, Australia, France, US
7	Rhenium	100%	Russia, UK, Netherlands, S. Africa, China
8	Beryllium	100%	Russia, UK, Netherlands, S. Africa, China
9	Tantalum	100%	S. Africa, Australia, Indonesia, Malaysia, US
10	Strontium	100%	China, US, Russia, Estonia, Slovenia
11	Zirconium	80%	S. Africa, Australia, Indonesia, Malaysia, US
12	Graphite	60%	China, Madagascar, Mozambique, Vietnam, Tanzania
13	Manganese	50%	S. Africa, Gabon, Australia, Brazil, China
14	Chromium	2.50%	S. Africa, Mozambique, Oman, Switzerland, Turkey
15	Silicon	<1%	China, Malaysia, Norway, Bhutan, Netherlands

Source: Ministry of Mines, ICRA Research

India's critical mineral future is also deeply tied to global partnerships. Given the country's limited domestic reserves of key minerals like lithium and cobalt, securing long-term Mineral Supply Agreements (MSAs) with resource-rich countries is crucial. India has already made significant strides in establishing partnerships with nations like Australia, Argentina, and Chile for lithium and cobalt supplies. These collaborations not

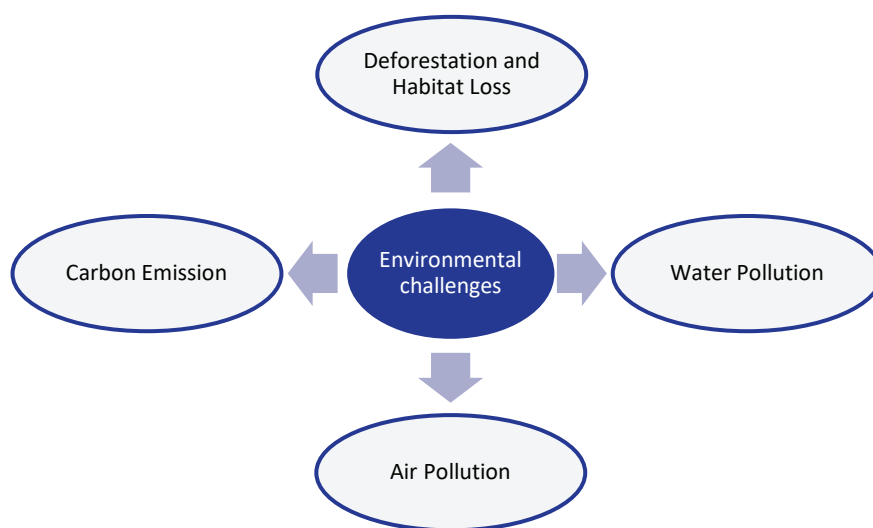
only ensure access to essential minerals but also provide opportunities for technological cooperation and joint ventures in mining and processing. As competition for critical minerals intensifies globally, India's ability to navigate and strengthen these international alliances will be pivotal for securing its place in the global supply chain.

Sustainability in Mining: Balancing Growth with Environmental Stewardship

The mining industry in India is pivotal to the country's economic growth, supplying the raw materials essential for infrastructure, manufacturing, and energy sectors. However, mining activities also pose significant environmental and social challenges, such as habitat destruction, water pollution, air quality degradation, and community displacement. Recognising the need to balance economic benefits with environmental stewardship and social responsibility, Indian mining companies are increasingly adopting sustainable practices.

The focus is now on reducing the environmental footprint, enhancing resource efficiency, and improving community relations to ensure the long-term sustainability of the industry. Rule 35 (2) of the Mineral Conservation and Development Rules, 2017 mandatorily provides for 'Star Rating' of non-coal/ lignite mining leases in the country based on sustainable mining practices. In June 2023, the Ministry of Coal announced the introduction of 'Star Rating' for domestic coal mines as well.

Exhibit 63: Key environmental challenges in Indian mining



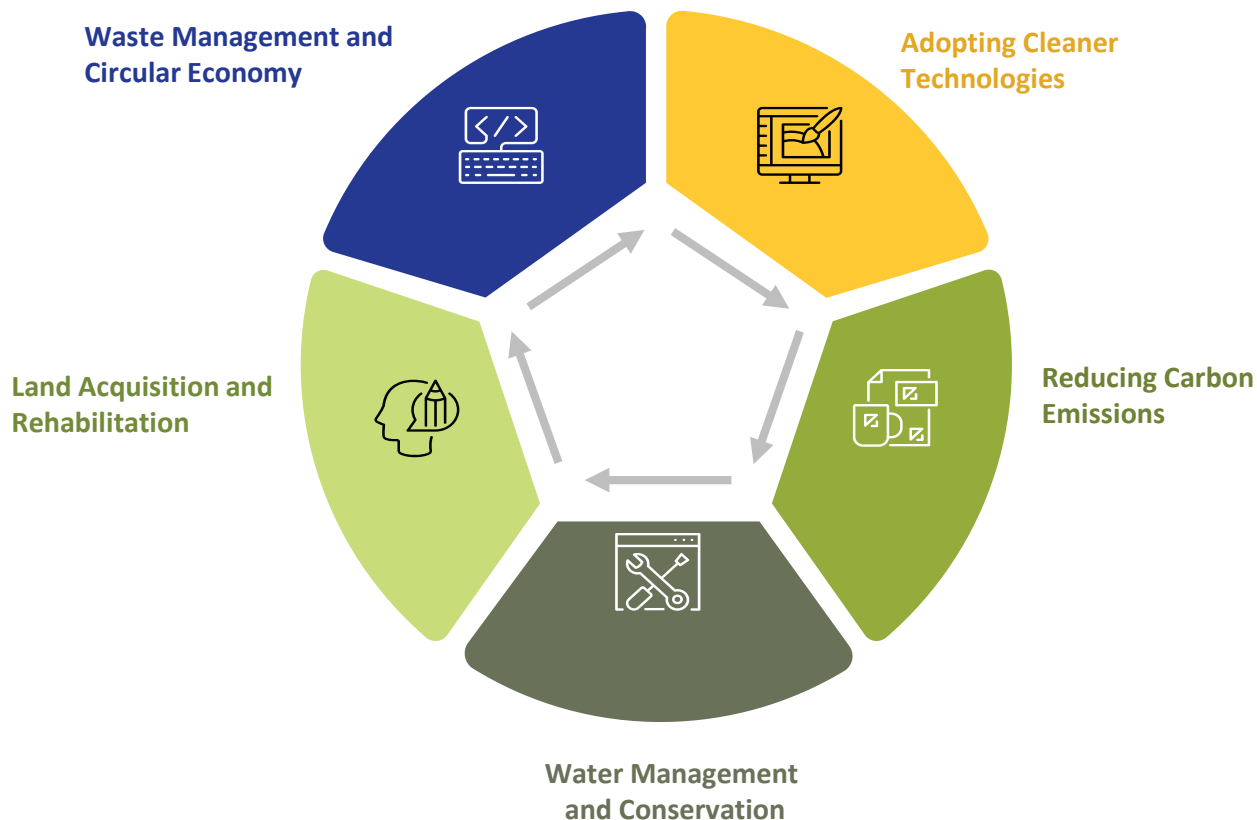
Source: ICRA Research



To reduce the environmental impact of mining activity, Indian mining companies are

increasingly adopting sustainable practices as mentioned below:

Exhibit 64: Five pillars of sustainable mining



Source: Industry reports, ICRA Research

Cleaner technology

Mining technology has evolved over the years and today options are available for companies to adopt mining techniques that reduce the extent of environmental impact. Indian mining

companies are increasingly adopting advanced technologies to enhance operational efficiency and minimise the environmental impact.

- Advanced Mining Technologies:**

Surface Miners: These machines enable precise cutting of minerals, reducing the need for drilling and blasting, which in turn minimises dust and noise pollution. For instance, the

National Aluminium Company Limited (NALCO) employs surface miners in its bauxite mines to enhance efficiency and reduce environmental disturbances.

Continuous Miners and Longwall Mining Systems: These technologies are pivotal in underground coal mining, allowing for continuous extraction and helping reduce the

environmental footprint. Coal India Limited has implemented continuous miners in several of its underground mines, leading to increased productivity and reduced surface disruption.

- **Electric and Hybrid Machinery**

Battery Electric Vehicles (BEVs): Hindustan Zinc Limited has pioneered the use of BEVs in its underground operations. In January 2023, the company introduced the Normet Agitator SmartDrive EV into its underground mining operations, marking a significant step towards reducing carbon emissions and promoting sustainable mining practices

Hybrid Excavators: Tata Steel incorporated hybrid hydraulic excavators in its mining operations. These machines combine diesel and electric power, leading to lower fuel consumption and reduced greenhouse gas emissions.

- **Automation and Remote Operations**

Automated Drilling Systems: HZL has implemented automated drilling in its zinc mines, enhancing precision and safety while reducing energy consumption.

efficiency and reducing the environmental impact.

Remote Monitoring and Control: JSW Steel utilises remote monitoring systems in its iron ore mines, allowing for real-time data analysis and operational adjustments, thereby improving

By integrating these advanced technologies, Indian mining companies are not only improving operational efficiency but also significantly reducing their environmental footprint, aligning with global sustainability standards.

Reducing Carbon Emissions

Indian mining companies are increasingly focused on reducing their carbon footprint by adopting renewable energy and energy-efficient technologies. This is in line with global sustainability goals and India's commitments to reducing greenhouse gas emissions. Hindalco, a subsidiary of the Aditya Birla Group, has been making significant investments in **solar energy** to

power its mining and manufacturing operations. JSW Steel has been a pioneer in adopting **energy-efficient technologies** to optimise power usage across its iron ore mines and steel manufacturing facilities. Hindustan Zinc is leveraging **IoT and automation technologies** to optimise energy use in its underground mining operations.

Water Management and Conservation

Leading Indian mining companies like Vedanta and Tata Steel have implemented Zero Liquid Discharge (ZLD) systems, ensuring that all wastewater generated during their operations

is treated, recycled, and reused on-site, thereby preventing any discharge into local water bodies and protecting surrounding ecosystems.

For instance, Vedanta's Lanjigarh alumina refinery and Tata Steel's Jamshedpur plant have successfully integrated ZLD systems, significantly reducing their impact on local water sources. Additionally, these companies have embraced rainwater harvesting and

efficient water recycling systems to minimise their dependence on freshwater sources. These initiatives demonstrate a strong commitment to sustainable water management, contributing to the conservation of vital water resources in mining-intensive areas.

Waste Management and Circular Economy

Indian mining and metals companies are increasingly focusing on waste management and circular economy initiatives to reduce environmental impact and optimise resource utilisation. For example, Tata Steel has been reusing slag generated from its steel production for road construction and as an additive in cement manufacturing, turning what was once considered waste into valuable inputs for infrastructure projects. Similarly, Vedanta has launched various waste-to-wealth initiatives, converting by-products from its aluminium

and zinc operations into commercially-useful materials. Vedanta's red mud and fly ash recycling projects not only reduce waste but also supply materials for cement and brick production. By adopting these practices, companies are not only reducing landfill waste but also contributing to a more sustainable circular economy. This shift is helping the industry lower its environmental footprint while also creating new revenue streams from what would otherwise be waste products.

Land Acquisition and Rehabilitation

Mining activity and its associated degradation of soils, biomass, and local ecosystem makes the land unsuitable for alternate use until initiatives for bio-reclamation of a mined area and reforestation have been undertaken. In this regard, to promote mine tourism, Coal India and

SAIL have developed eco-parks/bio-diversity parks on reclaimed land. Internationally, mining companies like Alcoa have gone a step ahead by implementing not only large-scale reforestation, but also by restoring local species present at a mine site before mining operations began.

Recommendations

The Indian mining sector is poised for transformative growth, driven by a series of progressive reforms, increasing global demand for minerals, and the country's ambitious economic vision. Recent changes in the regulatory framework, such as amendments to the MMDR Act and the liberalisation of key sectors, have created a more transparent and investor-friendly environment. These reforms aim to attract private investments, enhance exploration efforts, and streamline the allocation of mineral resources, positioning India as a significant player in the global mining landscape.

However, despite these advancements, the sector still faces key challenges that must be addressed to unlock its full potential. Complex regulatory processes, delays in obtaining environmental clearances, and land acquisition issues continue to impede the swift operationalisation of mining projects. To remain competitive, India needs to focus on reducing bureaucratic hurdles, expediting project approvals, and ensuring clarity in policies to encourage both domestic and foreign investments. Additionally, optimising logistics infrastructure through investments in rail networks, coastal shipping, and slurry pipelines will be critical to improving efficiency in mineral transportation.

Sustainability in mining is no longer optional but essential for the industry's long-term viability. Leading companies are already making strides in adopting cleaner technologies, waste management practices, and water conservation measures. To further this progress, there is a pressing need for the widespread adoption of

sustainable mining practices, such as zero liquid discharge systems, circular economy initiatives, and responsible mine closures. Emphasising the exploration and development of critical minerals like lithium, cobalt, and rare earth elements is also crucial for supporting India's energy transition and technology sectors, reducing reliance on imports, and enhancing self-reliance.

Furthermore, a stronger focus on social sustainability is vital. Mining companies must prioritise building trust with local communities by ensuring fair rehabilitation, creating local employment opportunities, and engaging in meaningful corporate social responsibility initiatives. Ensuring that the benefits of mining extend to local populations will not only secure a social licence to operate but also contribute to inclusive development in mining regions.

Looking ahead, the Indian mining industry holds tremendous potential to contribute to the nation's GDP, generate employment, and support infrastructure and industrial growth. By continuing to implement reforms, investing in sustainable practices, and leveraging technological advancements, India can fully realise the potential of its mineral wealth. A collaborative approach between the Government, private sector, and stakeholders will be crucial in navigating challenges and driving the mining sector toward a future that is not only economically prosperous but also socially inclusive and environmentally sustainable.

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About ASSOCHAM

The Knowledge Architect of Corporate India

The Associated Chambers of Commerce & Industry of India (ASSOCHAM) is the country's oldest apex chamber. It brings in actionable insights to strengthen the Indian ecosystem, leveraging its network of more than 4,50,000 members, of which MSMEs represent a large segment. With a strong presence in states, and key cities globally, ASSOCHAM also has more than 400 associations, federations, and regional chambers in its fold.

Aligned with the vision of creating a New India, ASSOCHAM works as a conduit between the industry and the Government. The Chamber is an agile and forward-looking institution, leading various initiatives to enhance the global competitiveness of the Indian industry, while strengthening the domestic ecosystem.

With more than 100 national and regional sector councils, ASSOCHAM is an impactful representative of the Indian industry. These Councils are led by well-known industry leaders, academicians, economists and independent professionals. The Chamber focuses on aligning critical needs and interests of the industry with the growth aspirations of the nation.

ASSOCHAM is driving four strategic priorities – Sustainability, Empowerment, Entrepreneurship and Digitisation. The Chamber believes that affirmative action in these areas would help drive an inclusive and sustainable socio-economic growth for the country.

ASSOCHAM is working hand in hand with the government, regulators, and national and international think tanks to contribute to the policy making process and share vital feedback on implementation of decisions of far-reaching consequences. In line with its focus on being future-ready, the Chamber is building a strong network of knowledge architects. Thus, ASSOCHAM is all set to redefine the dynamics of growth and development in the technology-driven 'Knowledge-Based Economy'. The Chamber aims to empower stakeholders in the Indian economy by inculcating knowledge that will be the catalyst of growth in the dynamic global environment.

The Chamber also supports civil society through citizenship programmes, to drive inclusive development. ASSOCHAM's member network leads initiatives in various segments such as empowerment, healthcare, education and skilling, hygiene, affirmative action, road safety, livelihood, life skills, sustainability, to name a few.



The Associated Chambers of Commerce and Industry of India

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