

METAL AND MINING INDUSTRY



ABOUT THE INDUSTRY

India holds a fair advantage in production and conversion costs in steel and alumina. Its strategic location enables export opportunities to develop as well as fast-developing Asian markets. As of FY22, the number of reporting mines in India were estimated at 1,425, of which reporting mines for metallic minerals were estimated at 525 and non-metallic minerals at 720.

Minerals are precious natural resources that serve as essential raw materials for fundamental industries, so the growth of the mining industry is essential for the overall industrial development of a nation. The vast resources of numerous metallic and non-metallic minerals that India is endowed with serve as a foundation for the expansion and advancement of the nation's mining industry. India is largely self-sufficient in metallic minerals including bauxite, chromites, iron ore, and lignite as well as mineral fuels like coal and lignite. The industry has the potential to significantly impact GDP growth, foreign exchange earnings, and give end-use industries like building, infrastructure, automotive, and electricity, among others, a competitive edge by obtaining essential raw materials at reasonable rates.

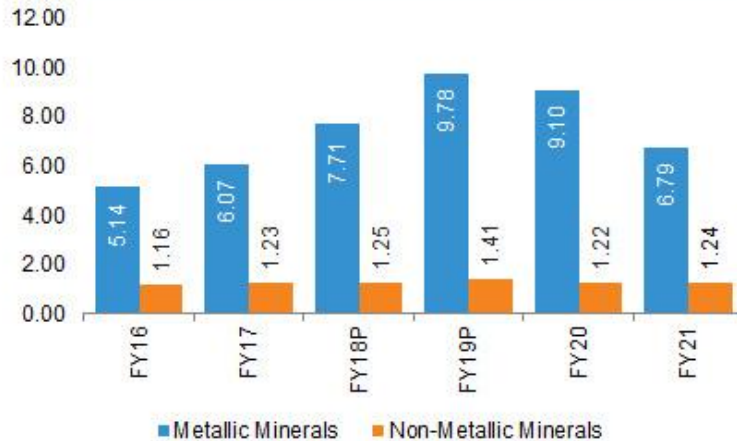
Rise in infrastructure development and automotive production are driving growth. Power and cement industries are also aiding growth for the sector. Demand for iron and steel is set to continue given the strong growth expectations for the residential and commercial building industry. India has large reserves of Iron ore, Bauxite, Chromium, Manganese ore, Baryte, Rare earth and Mineral salts. India has large reserves of Iron ore, Bauxite, Chromium, Manganese ore, Baryte, Rare earth and Mineral salts.

The Metals and Mining sector in India is expected to witness a major reform in the next few years, owing to reforms such as Make in India Campaign, Smart Cities, Rural Electrification, and a focus on building renewable energy projects under the National Electricity Policy as well as the rise in infrastructure development. A major segment or iron & steel industry is the segment of secondary producers which contributes more than 40% to the production of crude steel. The role of secondary steel sector in infrastructure development is immense.

Export duty on Iron ores/ concentrates and iron ore pellets was raised to 50% and 45% respectively. In addition, 15% export duty was imposed on pig iron and several steel products. Recognizing the importance of bringing sustainability in coal mining, a “Sustainable Development Cell” has been created in Ministry of Coal and in all coal PSUs to promote adoption of better environment management practices in coal mines.

MARKET OVERVIEW

Production of metallic and non-metallic minerals (US\$ billion)



Market Size - In December 2022, production level of important minerals were: Coal 833 lakh tonnes, Lignite 35 lakh tonnes, Natural gas (utilized) 2888 million cu. m., Petroleum (crude) 25 lakh tonnes, Bauxite 2272 thousand tonnes, Chromite 340 thousand tonnes, Copper conc. 10 thousand tonnes, Gold 174 kg, Iron ore 251 lakh tonnes, Lead conc. 30 thousand tonnes, Manganese ore 307 thousand tonnes, Zinc conc. 137 thousand tonnes, Limestone 355 lakh tonnes, Phosphorite 170 thousand tonnes, Magnesite 9 thousand tonnes and Diamond 43 carat.

During April-January FY23, the cumulative production of crude steel stood at 103.18 MT, finished steel stood at 98.26 MT and consumption of finished steel stood at 96.38 MT. India's iron ore production stood at 250 MT in FY22, increase of 23% compared with 204 MT in FY21. India's iron ore production stood at 250 MT in FY22, increase of 23% compared with 204 MT in FY21. India's coal production reached a new milestone of 698 Million Tonne (MT) during FY23 (April-January 2023), a 16% y-o-y growth, driven by a 15.2% y-o-y increase in production by Coal India Limited (CIL). The world production of Aluminium during October-December 2021 was about 16.62 million tonnes against world consumption of 16.56 million tonnes.

In 2021-22, coal production in India stood at 777.31 MT (provisional) with a growth of 8.55%. Coal production in India stood at 380.082 MT in 2022-23 (April-October 2022). In FY22, mineral production is estimated at Rs.190,392 crore (US\$ 24.95 billion). India ranks fourth globally in terms of iron ore production. Production of iron ore in FY21 stood at 204.48 million tonnes. From April 2021- January 2022, iron ore production in India stood at 204 million tonnes (MT). In FY20, India had a total number of 878 steel plants producing crude steel. India's crude steel production stood at 71.3 MT in FY23 (until October 2022). The steel production in India is projected to increase by 18% to reach 120 million tonnes (MT) by FY22. In Q3 FY22, production of hot metal, crude steel and saleable steel by SAIL stood at 1.55 MT, 1.44 MT and 1.46 MT, respectively. Combined Aluminium production (primary and secondary) in India stood at 4.1 MT per annum in FY21 becoming the 2nd largest in the world. Aluminium production stood at 3,285,186 tonnes between April 2020 and January 2021. India is the world's second-largest coal producer as of 2021.

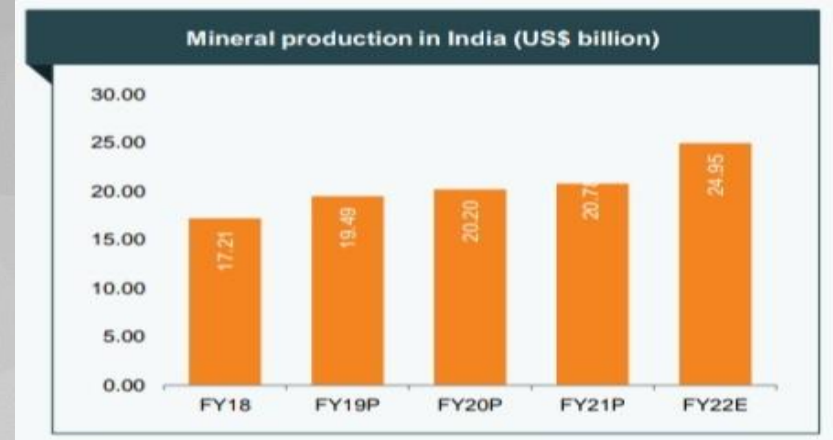
Advantage In India -

1. **Competitive Advantage-** India holds a fair advantage in cost of production and conversion costs in steel and alumina. As of FY22, the number of reporting mines in India were estimated at 1,245, of which reporting mines for metallic minerals were estimated at 525 and non-metallic minerals at 720.
2. **Demand Growth-** In 2023, the mineral's demand is likely to increase by 3%, driven by expanded electrification and overall economic growth in India. Being the third largest energy consuming country in the world, there is always increased demand for power and electricity in the country, and hence the surge in demand for coal. Demand for steel is likely to grow by ~10% as the government's augmented focus on infrastructural development continues with increased construction of roads, railways, airports, etc.

3. Attractive Opportunities- By becoming Aatmanirbhar in producing speciality steel, India will move up the steel value chain and come at par with advanced steel-making countries like Korea and Japan. Under PLI Scheme for Specialty Steel, 67 applications from 30 companies have been selected that will attract committed investment of Rs. 42,500 crore (US\$ 5.1 billion) with a downstream capacity addition of 26 million tonne and employment generation potential of 70,000.

4. Policy Support- Enactment of Mines and Minerals (Development and Regulation) Amendment Act, 2021 enabled captive mines owners (other than atomic minerals) to sell up to 50% of their annual mineral (including coal) production in the open market.

Strong growth in India's metals & mining sector over the years-



Segments of Metal & Mining Industry-

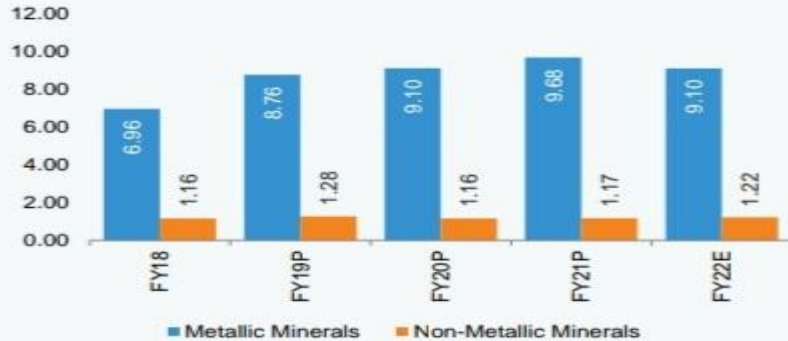


Rising steel demand driving growth-

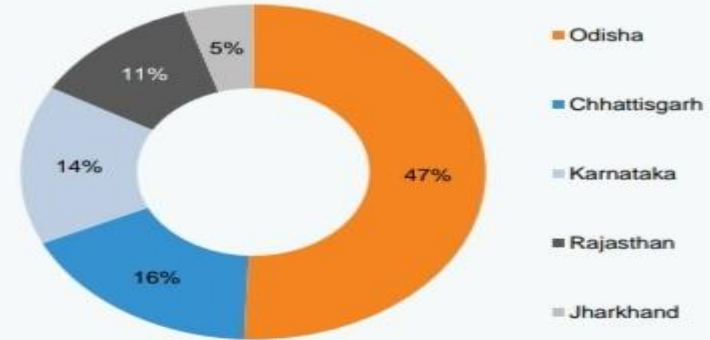
- India is a global force in steel production and the second largest crude steel producer in the world.
- During April-January FY23, the cumulative production of crude steel stood at 103.18 MT, finished steel stood at 98.26 MT and consumption of finished steel stood at 96.38 MT.
- The Indian government's approved National Steel Policy (NSP) 2017 envisages 300 million tonnes (MT) steel-making capacity and 160 kgs per capita steel consumption by 2030-31.
- In August 2022, Tata Steel signed a MoU with the Government of Punjab for setting up a 0.75 MnTPA long products steel plant with a scrap-based electric arc furnace.
- SAIL has supplied about 30000 tonnes of the specialty steel for nation's first indigenously built Aircraft Carrier INS Vikrant for Indian Navy which commissioned on 02nd September, 2022 at Cochin Shipyard Ltd.
- In November 2022, IIT Bombay and JSW Group entered into an exclusive strategic agreement to establish first-of-its-kind, state-of-the-art JSW Technology Hub in India for steel manufacturing in India.
- During April-January FY23, exports of finished steel stood at 53.29 LMT.
- In January 2023, export of finished steel stood at 5.88 LMT increased by 33% M-o-M.
- In December 2022, iron ore exports stood at US\$ 156 million.
- In November 2022, the government has withdrawn the export duty on steel products, iron ore lumps and fines (less than 58% iron content) and iron pellets, while the export duty of iron ore lumps and fines (more than 58% iron content) has been reduced from 50% to 30%. The reversal of the export duty hike is expected to boost the Indian exports of steel products in the near to medium term.
- Demand for steel is expected to grow by around 10% through 2022 amid the government's continued focus on the construction of roads, railways, ports and airports.

Composition of India's metals and mining sector-

Production of metallic and non-metallic minerals (US\$ billion)

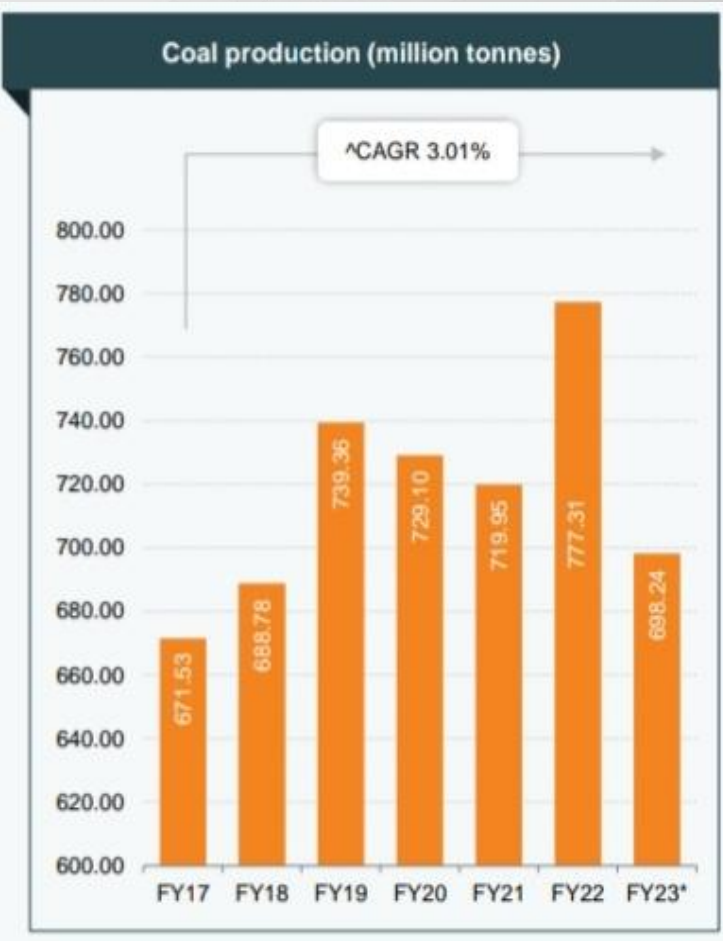


Share of states in mineral production FY22E



- India is home to 1,531 operating mines. Production of as many as 95 minerals is undertaken in India, including 4 fuel minerals, 10 metallic minerals, 23 non-metallic minerals, 3 atomic minerals and 55 minor minerals (including building and other materials).
- The country has large reserves of iron ore, bauxite, chromium, manganese ore, baryte, rare earth and mineral salts.
- Odisha was the leading producer of minerals with 47% market share, followed by Chhattisgarh at 16% and Karnataka at 14%.
- Production of metallic minerals in the country increased from US\$ 6.96 billion in FY18 to US\$ 9.1 billion in FY22E. In the same period, production of non-metallic minerals increased from US\$ 1.16 billion in FY18 to US\$ 1.22 billion in FY22E.
- Iron ore is a key input for production of steel and primary iron.
- India's iron ore production stood at 250 MT in FY22, increase of 23% compared with 204 MT in FY21.

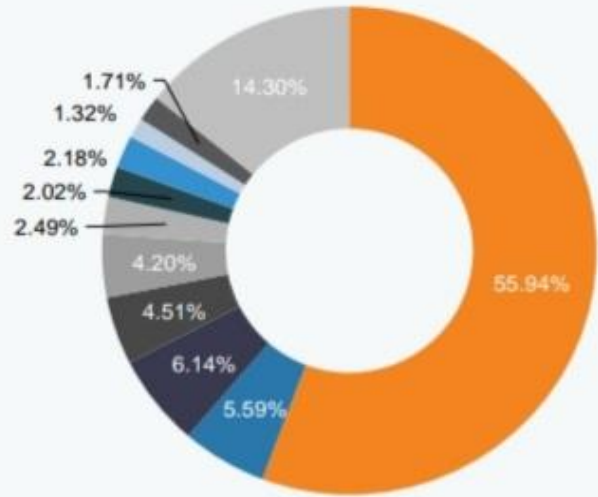
Coal production at raise-



- India's coal production reached a new milestone of 698 Million Tonne (MT) during FY23 (April-January 2023), a 16% y-o-y growth, driven by a 15.2% y-o-y increase in production by Coal India Limited (CIL).
- The power sector continued to be the largest consumer of domestic coal, accounting for the total dispatches of 609 MT during FY23 (April-January 2023), an increase of 10.5% y-o-y.
- Coal production from captive mines increased by 30.7% y-o-y in FY23 (April January 2023) and contributed 13.4% to the total coal production during this period, vs. 11.8% during the same period in FY22.
- By the end of this fiscal year, Coal production is estimated to reach 850–900 MT driven by Coal India Limited's expected ramp-up in production to achieve the Ministry of Coal's target to produce 1 billion tonnes by FY26 and 1.5 billion tonnes by FY30.
- Steady growth in captive coal production was led by the government's support and allowing the sale of up to 50% of the annual production from existing operational captive coal mines in the open market.
- Coal imports increased by 25.6% y-o-y to 192 MT as of FY23
- To reduce dependence on imported coal over the medium-long term, the Government has taken various initiatives including auctioning of coal blocks for commercial mining.

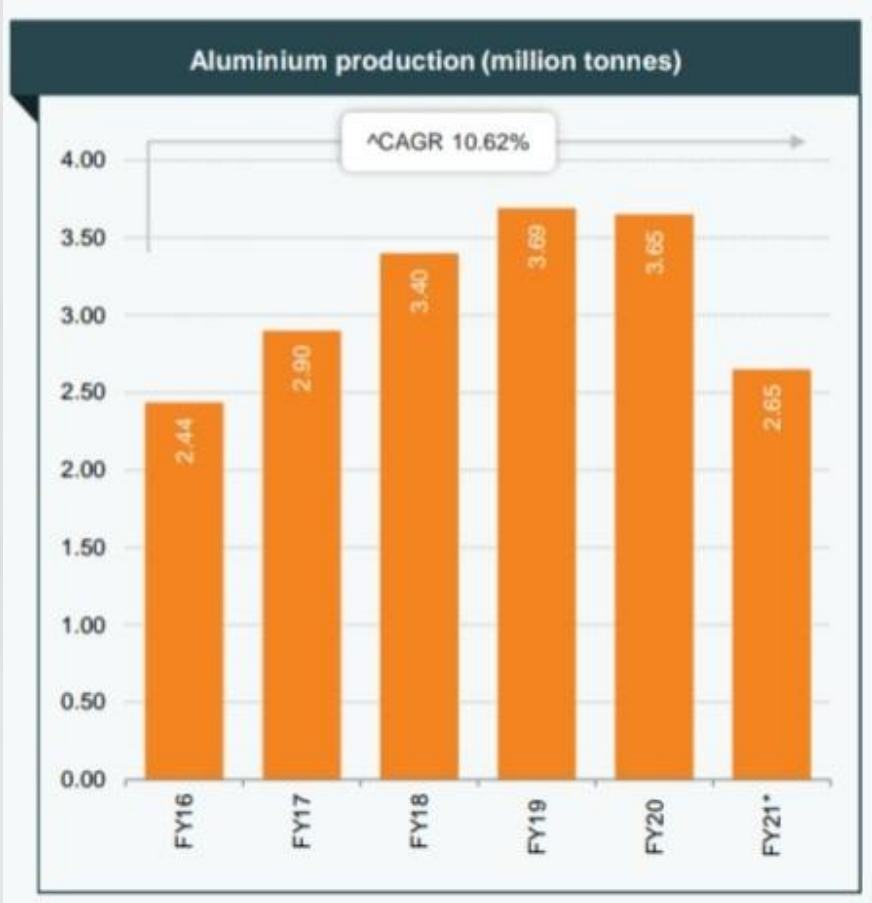
India's role in global Aluminium production-

India's share in global aluminium production (2019E)



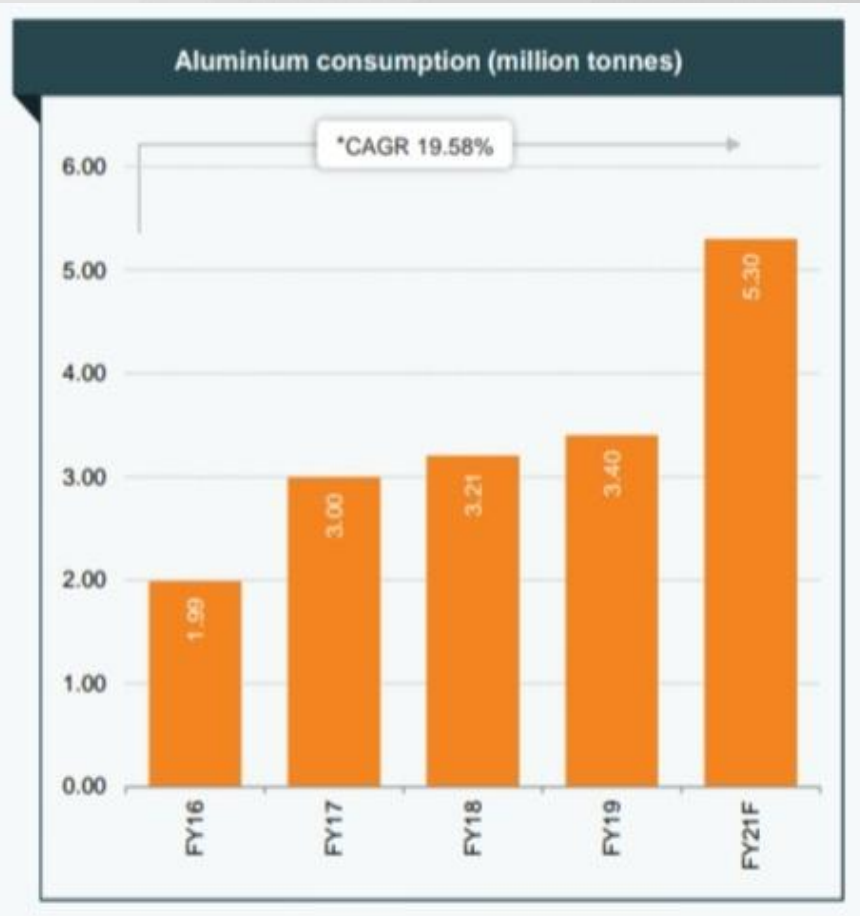
- The world production of Aluminium during October-December 2021 was about 16.62 million tonnes against world consumption of 16.56 million tonnes.
- It was estimated that during January-March 2022, world consumption of Aluminium would be 16.49 million tonnes against world production of around 16.19 million tonnes.
- The share of India in the world production was 6.14 % during October-December 2021.
- The per capita consumption of Aluminium in India is about 2.5 kg, compared to the world average of about 11 kg and China's 24 kg, while many developing countries have already reached 8 kg.
- India is ranked fourth in the world in terms of bauxite reserves and has high quality metallurgical grade bauxite deposits with close to 4 billion tonne reserves.
- India will be the "stand-out growth market" for aluminium consumption in the coming years as it pursues construction projects to resolve an infrastructure deficit, which sees usage more than tripling to 9.5 million tonnes by 2030 from 2.6 million tonnes in 2021.

Growing domestic demand to support Aluminium production-



- Aluminium is a critical for all the key sectors that will aid in India becoming a US\$ 5 trillion economy.
- Increasing infrastructural development and automotive production are the key factors driving the market growth.
- Production of aluminium stood at 33.5 lakh tonnes in FY22 (upto January 2022).
- In January 2022, NALCO produced 40,694 metric tonnes of Aluminium and sold 41,488 metric tonnes of Aluminium metal. ▪ India's Aluminum exports was reported at US\$ 7,950,466.673 in December 2021.
- In 2021, an Indian state committee recommended the expansion of Vedanta Ltd's Lanjigarh Alumina refinery from 1 million tonnes to 6 million tonnes, an investment that would cost the company Rs. 64.83 billion (US\$ 993 million).
- In July 2022, Hindalco Industries Limited signed an MoU with Phinergy and IOC Phinergy Private Limited (IOP) on R&D and pilot production of aluminium plates for Aluminium-Air batteries, and recycling of aluminium, after usage in these batteries.

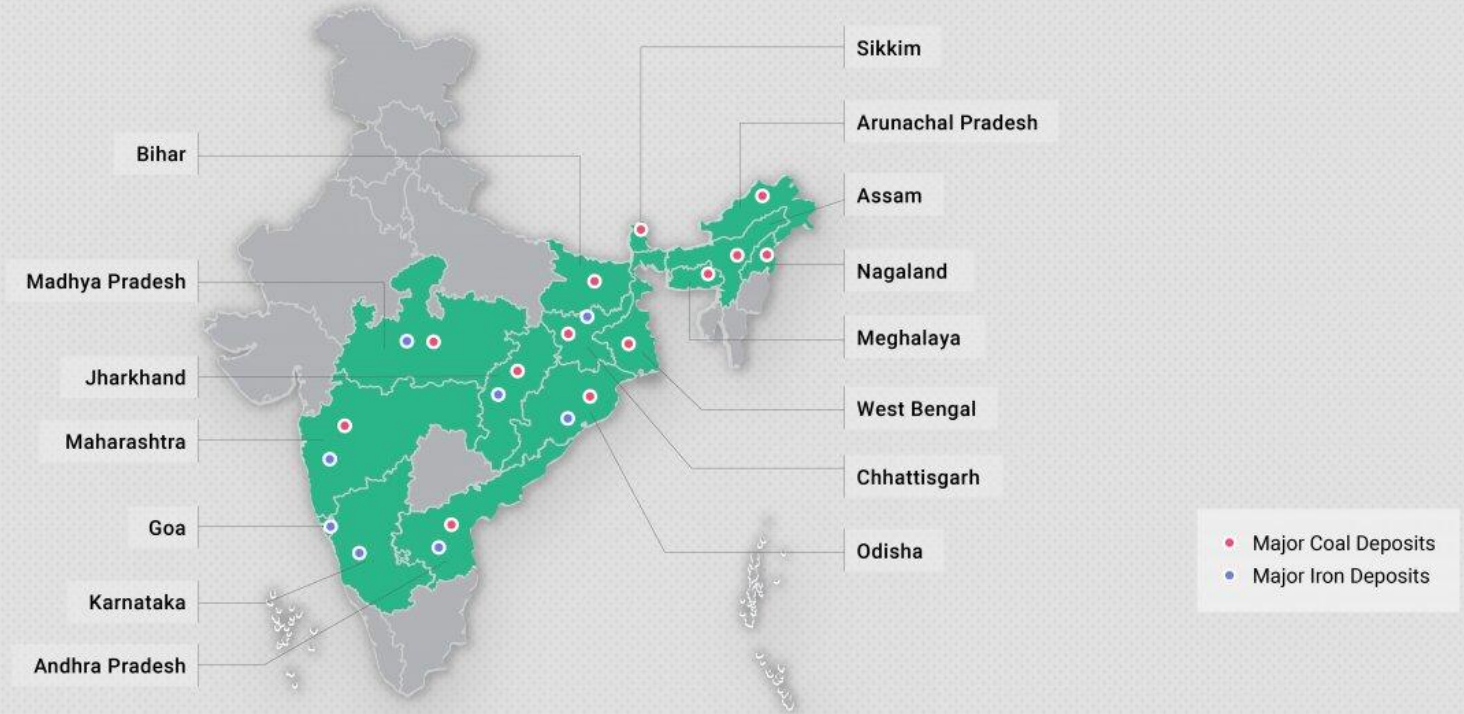
Stronger economic growth to support Aluminium consumption-



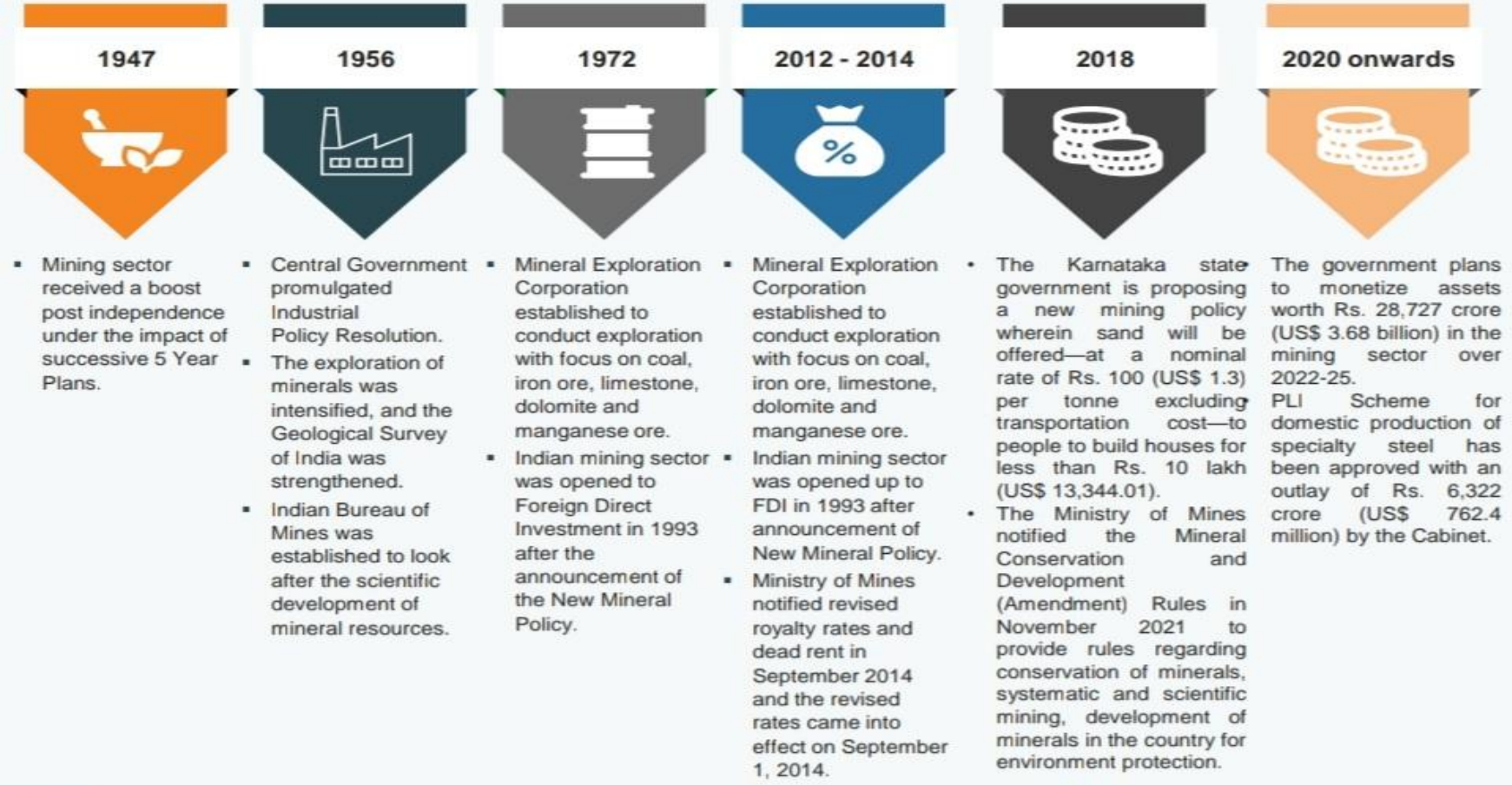
- Extensive growth in electric vehicles, renewables, modern infrastructure, energy efficient consumer goods and greater dependence on strategic sectors such as aerospace defence, will drive Aluminium consumption to grow at a CAGR of more than 10%.
- The global Aluminium consumption has been driven majorly by India and China having growth rate of approximately 10% till pre COVID times.
- Last decade has seen India's consumption almost double from 2.2 million tons in FY11 to about 4 million tons in FY19.
- India's Aluminium demand is estimated to double again by the year 2025 with current resilient GDP growth rate driven by increasing urbanization and push for boosting domestic infrastructure, automotive, aviation, defence, and power sectors.
- Aluminium consumption is expected to reach 7.2 million tonnes in the next five years.

MAJOR MINING STATES

Coal and Iron Deposits



EVOLUTION OF THE INDIAN MINING SECTOR



KEY PLAYERS OF METAL AND MINING IN THE COUNTRY

NMDC LIMITED



It's a major player in Iron and Steel production which was incorporated in 1958 producing about 32 MT of Iron ore.

HINDALCO INDUSTRIES LTD



Hindalco is a major aluminium producer with 60% market share producing 3235 MT of alumina.

VEDANTA LIMITED



Vedanta is a major producer of precious metals and minerals with operations expanding across globe.

COAL INDIA



Coal India Limited

Coal India is the major coal producer in the country with 80% market share with average 79 MT of production

INVESTMENTS & DEVELOPMENTS

- The index of mineral production of mining and quarrying sector for the month of December 2022 stood at 107.4, 9.8% higher as compared to the level in the month of December 2021.
- In FY23 (until December 2022), the combined index of eight core industries stood at 152.2 driven by the production of coal, refinery products, fertilizers, steel, electricity and cement industries.
- As data from the Ministry of Statistics and Programme Implementation (MOSPI), India's mining GDP increased from Rs. 739.90 billion (US\$ 8.98 billion) in the fourth quarter of 2020 to Rs. 913.03 billion (US\$ 11.09 billion) in the first quarter of 2021.
- In August 2022, Tata Steel signed a MoU with the Government of Punjab for setting up a 0.75 MnTPA long products steel plant with a scrap-based electric arc furnace.
- GVA from mining and quarrying stood at US\$ 43.3 billion in FY22, as per the advance estimates
- In FY23, Vedanta's aluminium division will focus on backward integration and put two of its mines in Odisha into production.
- The index of mineral production of mining and quarrying sector for the month of September 2022 stood at 99.5.
- Between April 2000-June 2022, FDI inflows in the metallurgical industry stood at US\$ 17.07 billion, followed by the mining (US\$ 3.40 billion), diamond & gold ornaments (US\$ 1.21 billion) and coal production (US\$ 27.73 million) industries.
- As of October 31, 2022, India's total installed electricity generation capacity stood at 408,714.84 MW.
- In February 2021, ArcelorMittal-Nippon Steel India, in agreement with the Odisha government, has planned to set up an integrated steel plant (with 12 MT capacity) in the state's Kendrapada district for Rs. 50,000 crore (US\$ 6.89 billion)
- In February 2021, two new iron ore mines were inaugurated in Odisha, with a production capacity of 15 lakh tonnes per month and ~275 million tonnes of consolidated iron ore reserves. These mines will bring in ~Rs. 5000 crore (US\$ 679.28 million) in annual revenue for the state and employment opportunities for locals.

GOVERNMENT INITIATIVES

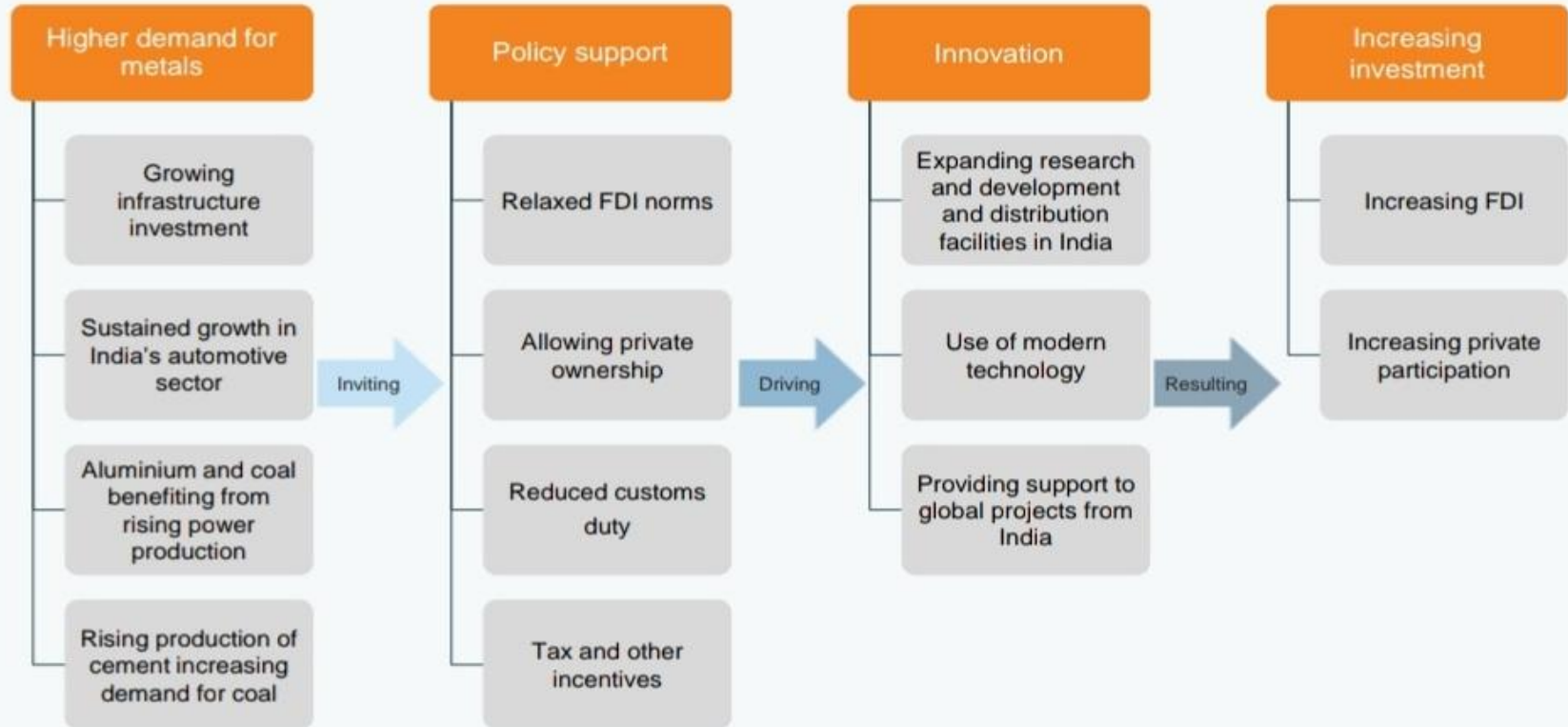
- The government plans to monetize assets worth Rs. 28,727 crore (US\$ 3.68 billion) in the mining sector over 2022-25.
- In 2022, PLI Scheme for domestic production of specialty steel has been approved with an outlay of Rs.6,322 crore (US\$ 762.4 million) by the Cabinet.
- Mines and Minerals (Development and Regulation) Amendment Act, 2021, notified on 28.03.2021, for giving boost to mineral production, improving ease of doing business in the country and increasing contribution of mineral production to GDP.
- Enactment of Mines and Minerals (Development and Regulation) Amendment Act, 2021 enabled captive mines owners (other than atomic minerals) to sell up to 50% of their annual mineral (including coal) production in the open market.
- Import duty on Anthracite/Pulverized Coal Injection (PCI) coal, Coke and Semi-coke and Ferro-Nickel were reduced to zero.
- Export duty on Iron ores/ concentrates and iron ore pellets was raised to 50% and 45% respectively.
- In addition, 15% export duty was imposed on pig iron and several steel products.
- District Mineral Foundation (DMF) has been established in 622 districts of 23 States and a total of Rs. 71,128.71 Crore (US\$ 8.5 billion) has been collected till October 2022 under DMF.
- The government plans to monetise assets worth Rs. 28,727 crore (US\$ 3.68 billion) in the mining sector over 2022-25.
- In Union Budget 2021, the government reduced customs duty to 7.5% on semis, flat and long products of non-alloy, alloy and stainless steels to provide relief to MSMEs.
- To boost recycling of copper, government announced reduction of import duty on copper scrap from 5% to 2.5%.

NOTABLE TRENDS IN METAL AND MINING SECTOR

- **Captive mining for coal-** Steady growth in captive coal production was led by the government's support and allowing the sale of up to 50% of the annual production from existing operational captive coal mines in the open market.
- **Longer duration lease-** India has seen a significant growth in minerals with the Government granting lease for longer duration, between 20-30 years.
- **Focus on domestic market-** As per data from the Ministry of Statistics and Programme Implementation (MOSPI), India's mining GDP increased from Rs. 739.90 billion (US\$ 8.98 billion) in the fourth quarter of 2020 to Rs. 913.03 billion (US\$ 11.09 billion) in the first quarter of 2021.
- **Overseas ventures-** Three Indian state-run companies, National Aluminium Co Ltd, Hindustan Copper Ltd and Mineral Exploration Corp formed a joint venture to buy mining assets overseas that have minerals such as lithium and cobalt, which are used in the manufacture of batteries for electric vehicles.
- **Outlook of metal and mining-** The index of mineral production of mining and quarrying sector for the month of December 2022 stood at 107.4, 9.8% higher as compared to the level in the month of December 2021.
- **International Collaboration-** Innovative mineral exploration activities using state-of-the-art technology by Geological Survey of India (GSI), stepped up efforts by Khanij Bidesh India Limited (KABIL) to source strategic minerals from countries like Australia, Argentina and Chile.
- **Build strategic alliances-** In February 2023, ArcelorMittal - Nippon Steel is investing Rs. 60,000 crore (US\$ 7.3 billion) to expand its steelmaking capacity in Hazira to 15MT a year from 9MT.
- **Focus on technology-** By accelerating digital transformation, metals and mining players can boost throughput, simplify processes, lower costs, improve metal recovery and yield, and reduce supply chain complexity.
- **Cost optimisation-** Optimising input resources, operating efficiency for handling assets available with the company, reducing overhead costs and stabilising newly formed operation units.

GROWTH DRIVERS-

Strong fundamentals and policy supporting growth

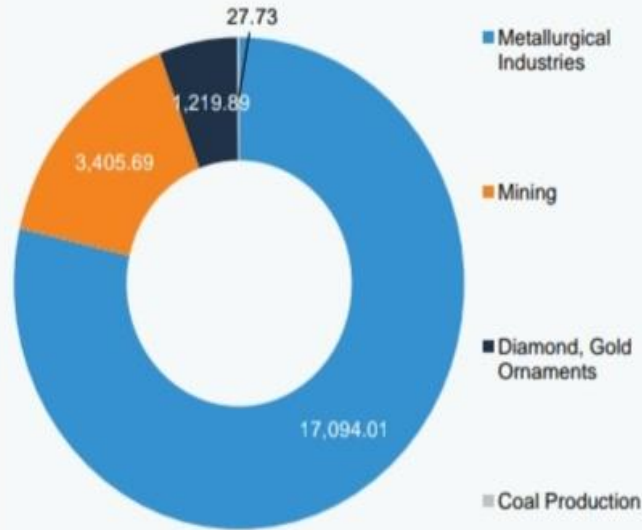


FAVOURABLE POLICIES SUPPORTING SECTOR GROWTH-

- **Mines and Minerals Development & Regulation Act 2021-** For increasing mineral production and operationalization of mines, increasing employment & investment in the mining sector, maintaining continuity in mining operations.
- **National Mineral Policy 2019-** To bring more transparency, better regulation and enforcement, balanced socio-economic growth along with sustainable mining practices.
- **Relaxed FDI norms-** FDI up to 100% is allowed in exploration, mining, minerals processing metallurgy & exploration of metal & non-metal ores under the automatic route for all non-fuel and nonatomic minerals including diamonds and precious stones.
- **Allowing private ownership-** Government of India is encouraging private ownership for steel operations and other high priority industry.
- **Reduced custom duty-** Government of India significantly reduced the duty payable on finished steel products and has streamlined the associated approval process.
- **Skill Development Plan for the Mining Sector (2016-22)-** Focus on upgradation of skill sets to foster adaptation of new state of art technology & Increase the capacity and quality of training infrastructure and trainers to address human resource needs.
- **Bank Loans-** State Bank of India (SBI) is planning to introduce a policy to lend loans to the coal miners before the landmark auction.
- **Relaxation on duties-** In November 2022, the government removed export duties on steel and stainless steel to strengthen the nation's steel sector, and allow it to firmly establish its position in the global market.
- **Process of revenue collection and usage-** District Mineral Foundation (DMF) has been established in 622 districts of 23 States and a total of Rs. 71,128.71 Crore (US\$ 8.5 billion) has been collected till October 2022 under DMF.
- **General restrictions and concessions-** To ensure ease of doing business, restriction on transfer of mineral concessions are removed and now mineral concession can be transferred without any transfer charge.
- **Auction modalities-** In order to facilitate the auction of large area blocks, global positioning system has been allowed for identification and demarcation of the area where a composite licence is proposed to be granted through auction.

FOREIGN INVESTMENTS FLOWING-

FDI equity inflow in the sector from April 2000 to September 2022 (US\$ million)



- FDI up to 100% is allowed in exploration, mining, minerals processing metallurgy and exploration of metal and non-metal ores under the automatic route for all non-fuel and non-atomic minerals including diamonds and precious stones.
- The metals and mining sector received third highest inflows from foreign investors in FY 2023.
- In January 2023, Vedanta announced that its board had approved the sale of its international zinc assets in South Africa and Namibia to subsidiary Hindustan Zinc (HZL) for US\$ 2.98 billion.
- Between April 2000-September 2022, FDI inflows in the metallurgical industry stood at US\$ 17.09 billion, followed by the mining (US\$ 3.40 billion), diamond & gold ornaments (US\$ 1.21 billion) and coal production (US\$ 27.73 million) industries.
- In March 2022, MOU with detailed collaborative framework was between KABIL, India and Critical Mineral Office (CMO), Department of Industry, Science and Resources (DISER), Govt. of Australia for carrying out joint due diligence and further joint investment in Li & Co mineral assets of Australia.
- In February 2023, Essar Capital Limited, investment manager of Essar Global Fund Limited, announced to set up steel plants in Odisha and a facility to import liquefied natural gas (LNG) at Hazira in Gujarat.

Major Mergers & Acquisitions-		
Acquirer	Target	Acquisition Price (US\$ Billion)
JSW Steel Ltd	Bhushan Power and Steel (BPSL)	2.69
ArcelorMittal	Essar Steel	6.01
Tata Steel	Bhushan Steel	7.04
Mr. Anil Agarwal	Anglo American (Partial stake purchased)	2.0
JSW Energy Ltd	Jindal Steel and Power Ltd	0.97
GVK Power and Infrastructure Ltd	Hancock Coal-Queensland Coal	1.26
Sesa Goa Ltd	Cairn India Ltd	1.18
JFE Steel Corp	JSW Steel Ltd	1.03
Vedanta	Cairn India	1.56
Oil and Natural Gas Corporation (ONGC)	Gujarat State Petroleum - KG Basin	1.20

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