

METALS AND MINING



AUGUST 2013

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EXECUTIVE SUMMARY

Third-largest coal producer

- Coal production has increased at a five-year CAGR of 4.6 per cent to 540 million tonnes in FY2012 making India the third largest producer in the world. Further, India has the fifth-largest coal reserves in the world

Fourth-largest iron ore producer

- Iron ore production expanded at a CAGR of 3.2 per cent during FY07–11. Based on iron ore production, India ranks fourth globally

Second-largest steel producer by 2015

- India is slated to become the second-largest steel producer by 2015. Crude steel production increased at a CAGR of 7.7 per cent over 2005–12

Fifth-largest bauxite reserves

- India has the fifth-largest bauxite reserves, with deposits of about 3 billion tonnes or 5 per cent of world deposits. Aluminium production is estimated to be 4.7 million tonnes per annum during 2012–17

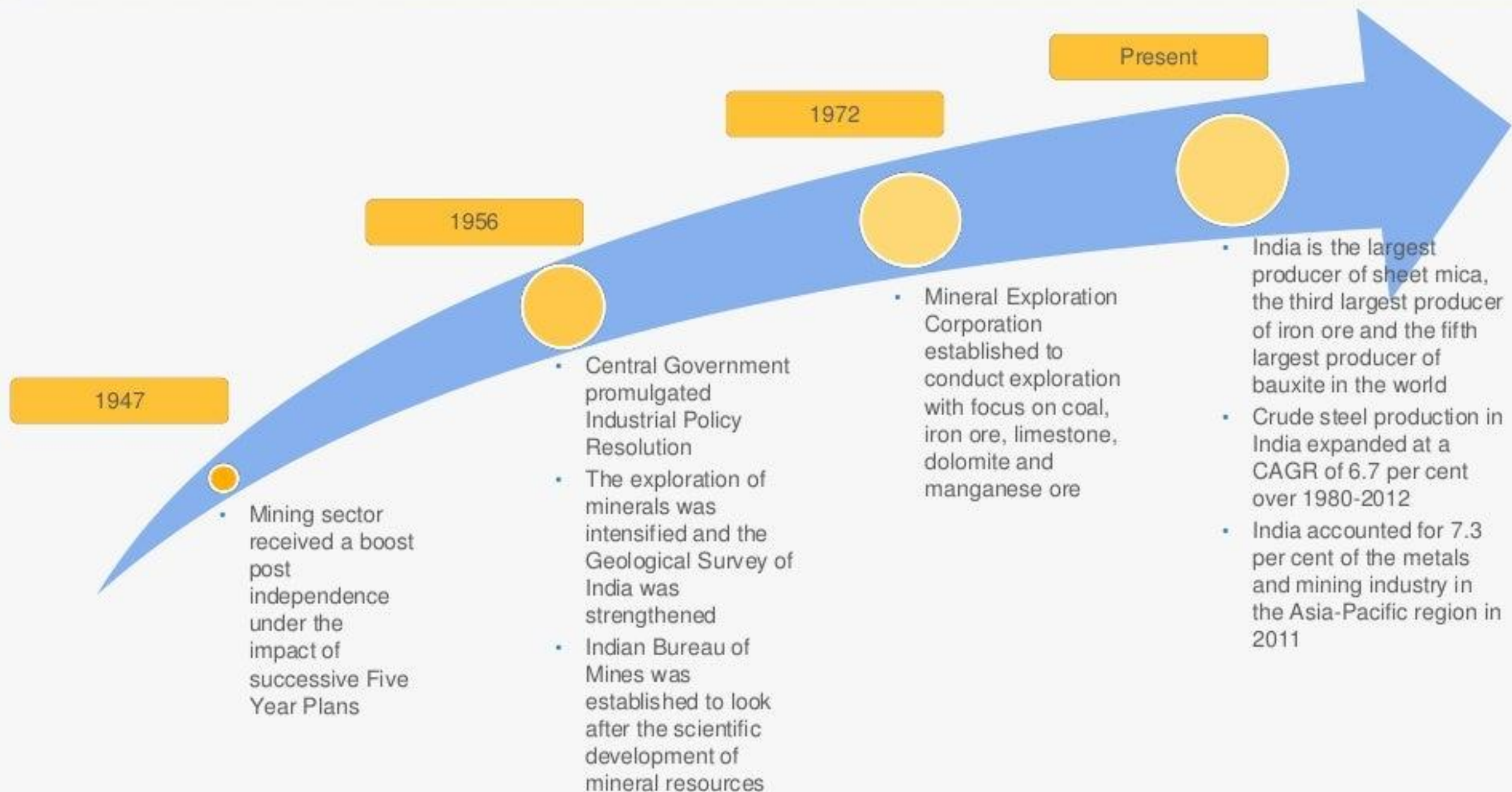
Source: 12th Five-Year Plan; Ernst & Young; Aranca Research



Source: DataMonitor, Aranca Research

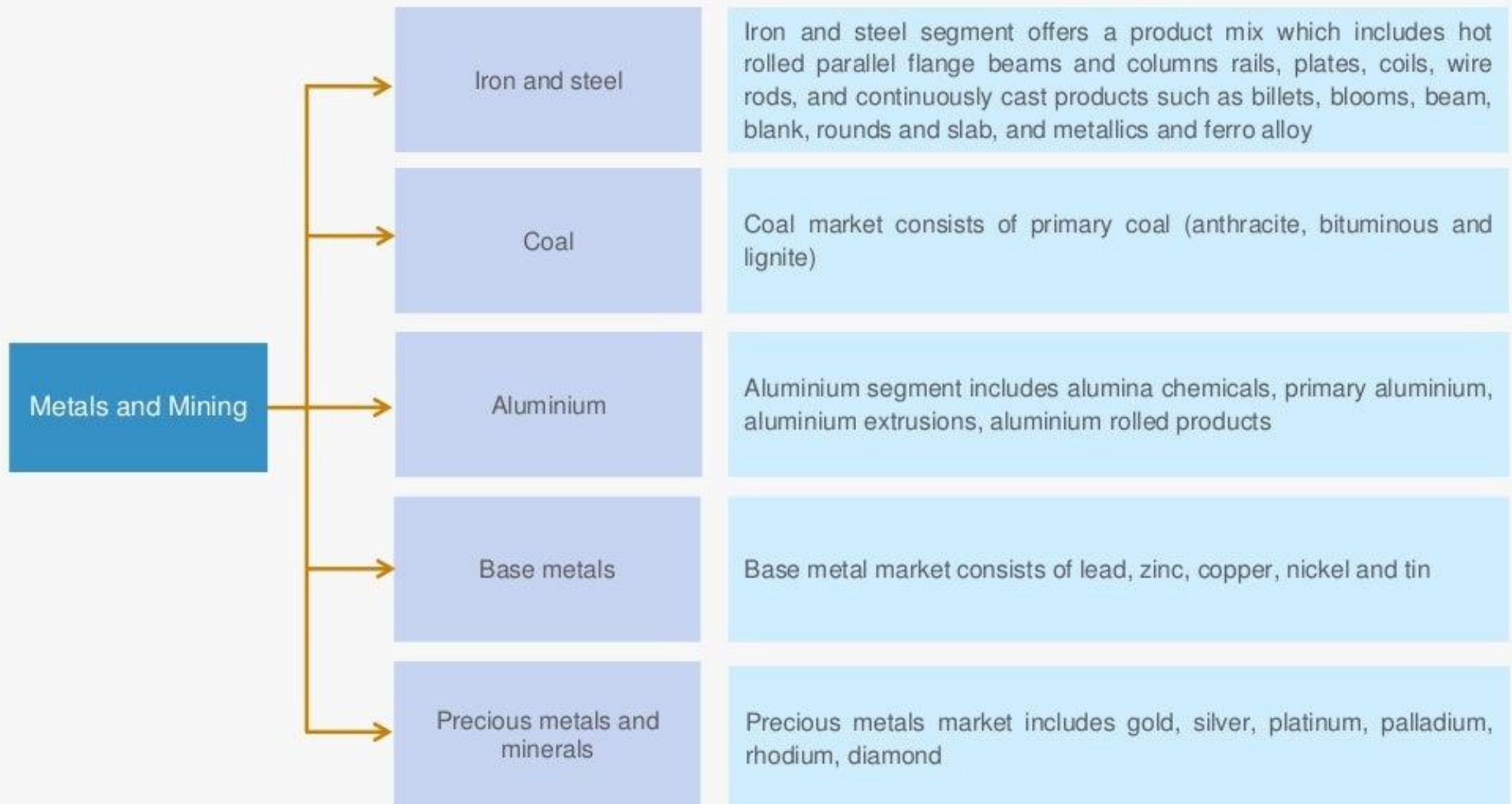
Notes: FDI - Foreign Direct Investment, MMDR Bill - Mines and Mineral (Development and Regulation) Bill

EVOLUTION OF THE INDIAN METALS AND MINING SECTOR



Source: World Steel Association (WSA), DataMonitor
Note: CAGR - Compound Annual Growth Rate

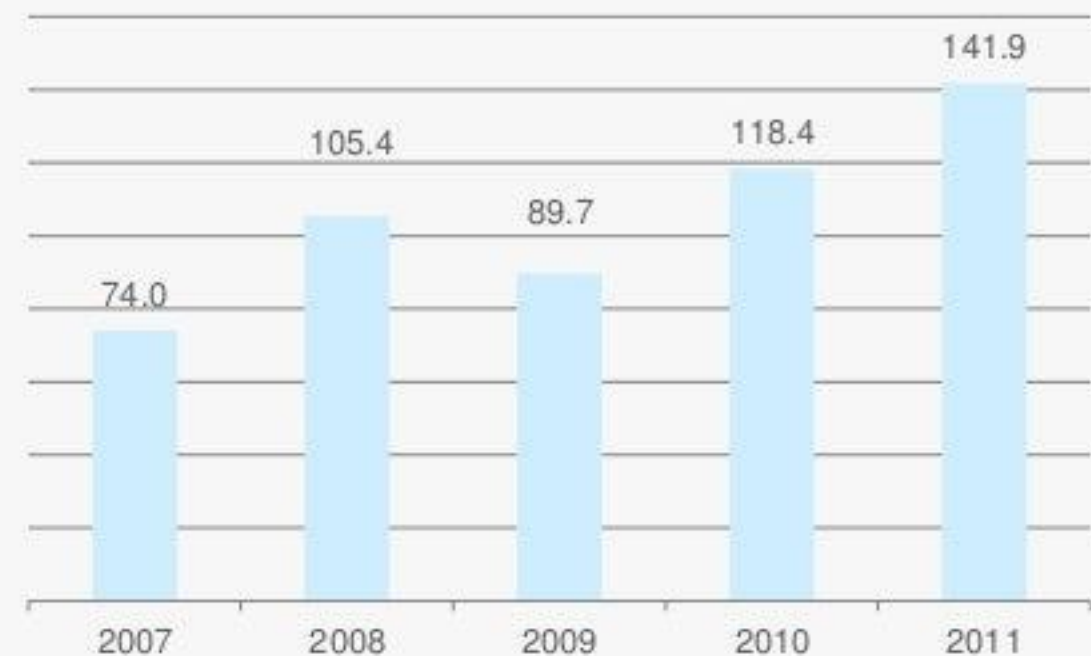
SEGMENTS OF METALS AND MINING INDUSTRY



STRONG GROWTH IN INDIA'S METALS AND MINING SECTOR OVER THE YEARS

- ✳ India's metals and mining industry recorded a strong 19.8 per cent expansion in 2011 to touch USD141.9 billion
- ✳ Much of the above growth in the industry's value can be attributed to higher prices given that production volume growth was relatively lower at 3.2 per cent (total production stood at 716.3 million metric tonnes)
- ✳ Production volumes have been growing steadily over the years – over 2007-11, it registered a CAGR of 5.2 per cent; with prices also rising during this period, the sector's value rose by around 17.7 per cent (CAGR)

Value of India's metals and mining industry
(USD billion)

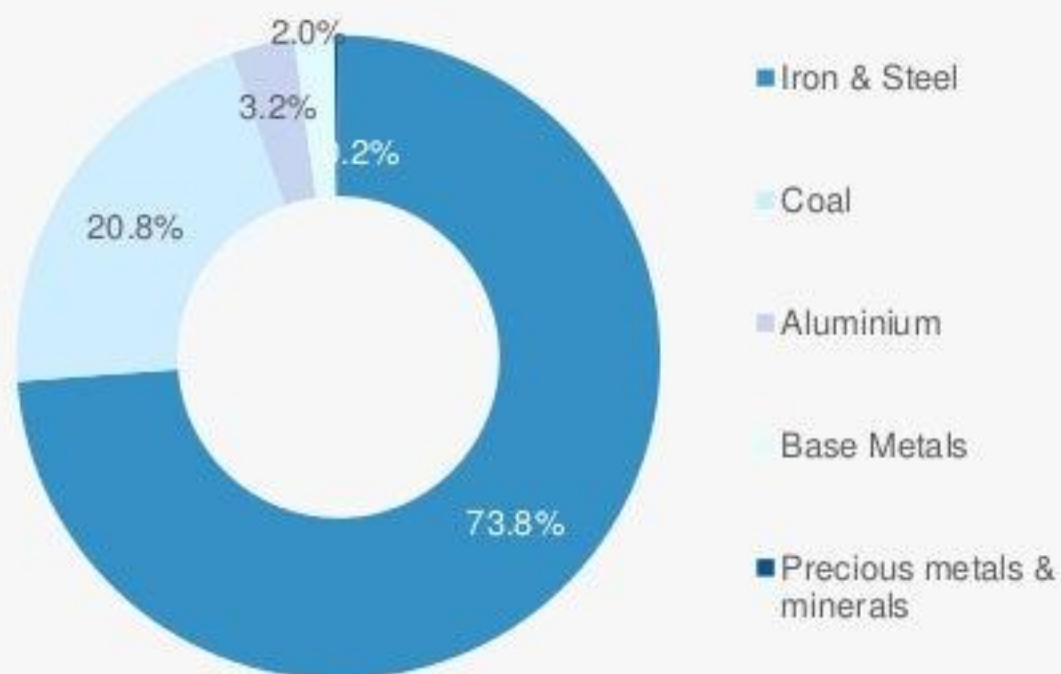


Source: DataMonitor, Aranca Research
Note: CAGR - Compound Annual Growth Rate

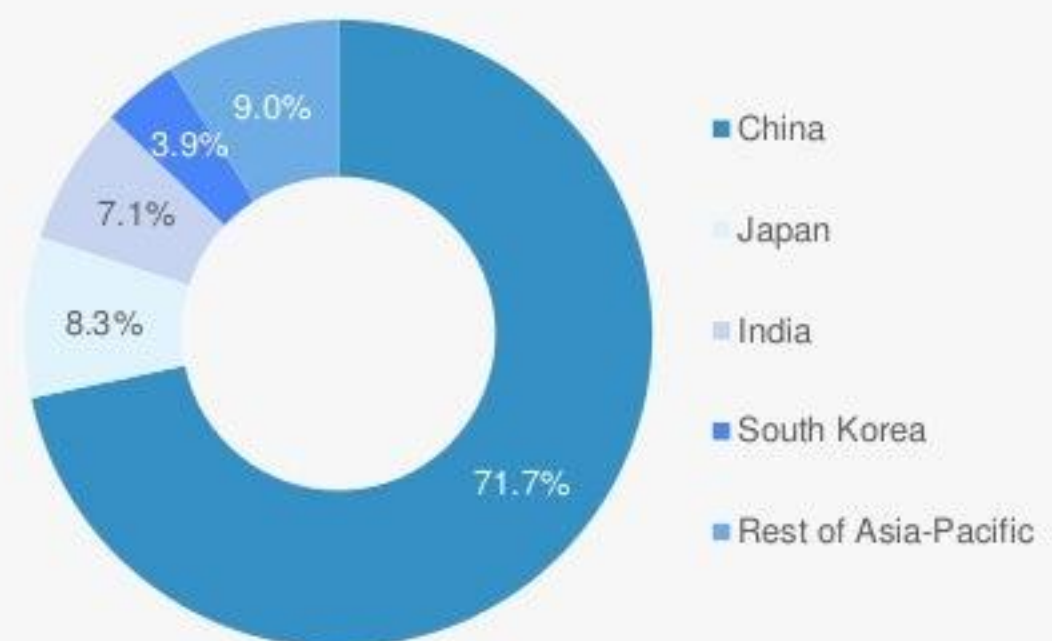
IRON & STEEL ACCOUNTS FOR A MAJOR SHARE IN INDIA'S METALS & MINING SECTOR

- ✳ Iron and steel is the largest segment of the Indian metals and mining industry, accounting for 68.5 per cent of the overall industry value (2011); coal is the other major sub-segment with a 26.5 per cent share
- ✳ India accounted for 7.3 per cent of the metals and mining industry in the Asia-Pacific region in 2011

Shares in India's metals and mining industry (2011)



India's share in the metals and mining industry in Asia-Pacific (2011)



Source: DataMonitor, Aranca Research

IRON ORE: PRODUCTION REMAINS STRONG

- ✳ India is the world's fourth largest iron ore producer (global share of 11 per cent)
- ✳ Iron ore production is estimated to have increased at a CAGR of 3.2 per cent during FY07–11. Total production in FY13 stood at 140.1 million tonnes
- ✳ Private sector accounted for 67 per cent of India's total iron ore production in FY12
- ✳ In FY12, Odisha, Karnataka, Chhattisgarh, Goa, and Jharkhand accounted for 97 per cent of India's total iron ore production

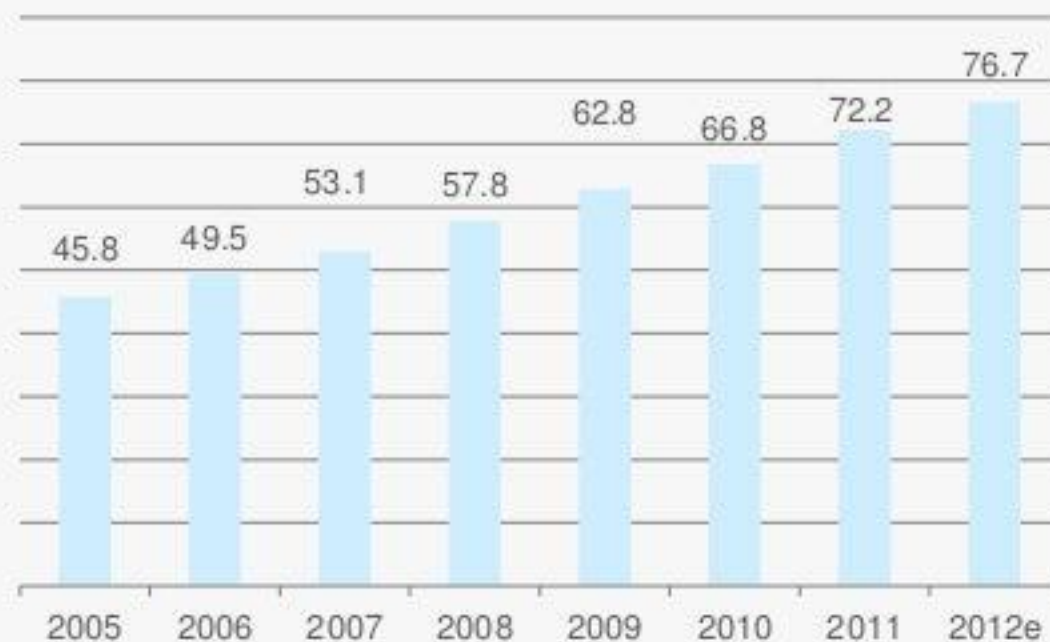


Source: Ministry of Mines (Annual Report 2011–12);
Aranca Research

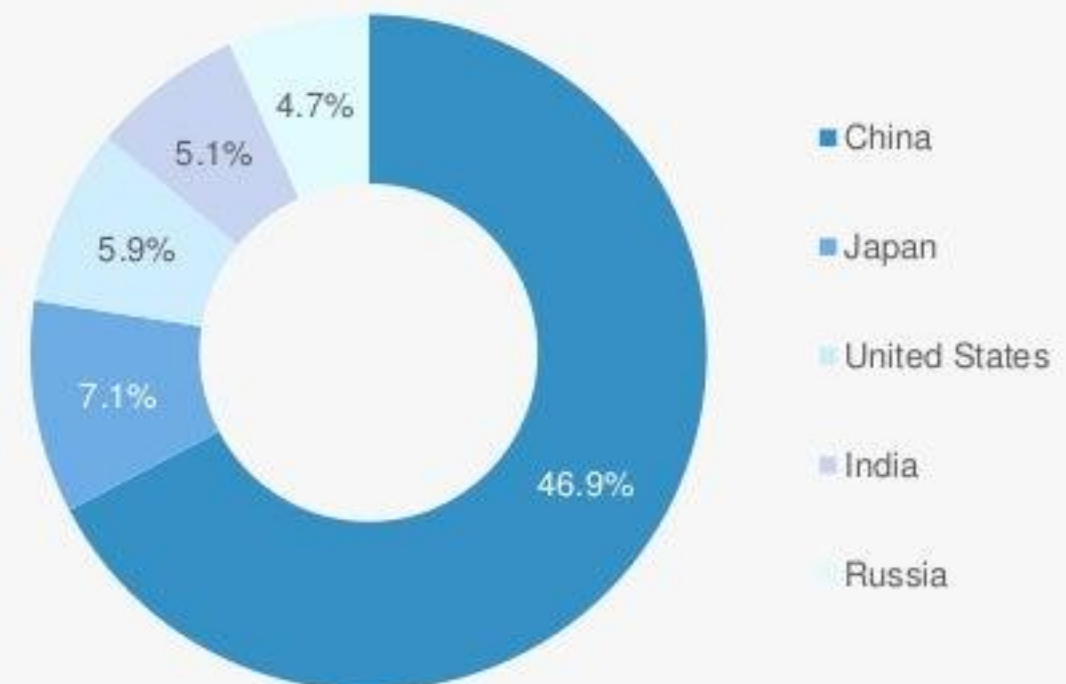
RIISING STEEL DEMAND DRIVING GROWTH IN IRON ORE PRODUCTION

- ✳ Given that iron ore is a key ingredient in steel production, the expansion in iron ore production in India can be linked to the country's fast-expanding steel sector
- ✳ Crude steel production is estimated to reach 76.7 million metric tonnes in 2012, expanding at a CAGR of 7.7 per cent over 2005–12. Production in Q1 2013 is estimated at 19.8 million metric tonnes
- ✳ India is the world's fourth-largest producer of crude steel (2012), with a global share of 5.1 per cent

Crude steel production (million metric tonnes)



Shares in global crude steel production (2012)



Source: World Steel Association, Aranca Research
Note: e - Estimate

RISING DOMESTIC DEMAND PUTS PRESSURE ON SUPPLY OF IRON AND STEEL ... (1/2)

- ✳ India is the world's third largest exporter of iron ore
- ✳ With rising domestic demand-supply gap and to make domestic supplies more attractive, the government on March 2011 hiked freight charges and taxes on iron ore exports
- ✳ India's Iron and steel exports increased at a CAGR of 4.2 per cent to USD8.1 billion in FY13

India's exports of iron and steel (USD billion)



Source: Ministry of Commerce, Aranca Research

RIISING DOMESTIC DEMAND PUTS PRESSURE ON SUPPLY OF IRON AND STEEL ... (2/2)

- ✳ India has turned into a net importer of iron and steel due to strong growth in the manufacturing sector and rising infrastructure projects
- ✳ India's transition into a net importer of steel despite the strong growth in domestic steel production shows the demand potential of the sector
- ✳ The impact of strong growth in domestic steel production has been most felt in the iron ore sector; with steel firms' ever rising demand for the raw material, India's imports of iron ore has been growing steadily (for example, iron and steel imports increased at a CAGR of 8.4 per cent over FY08-13)

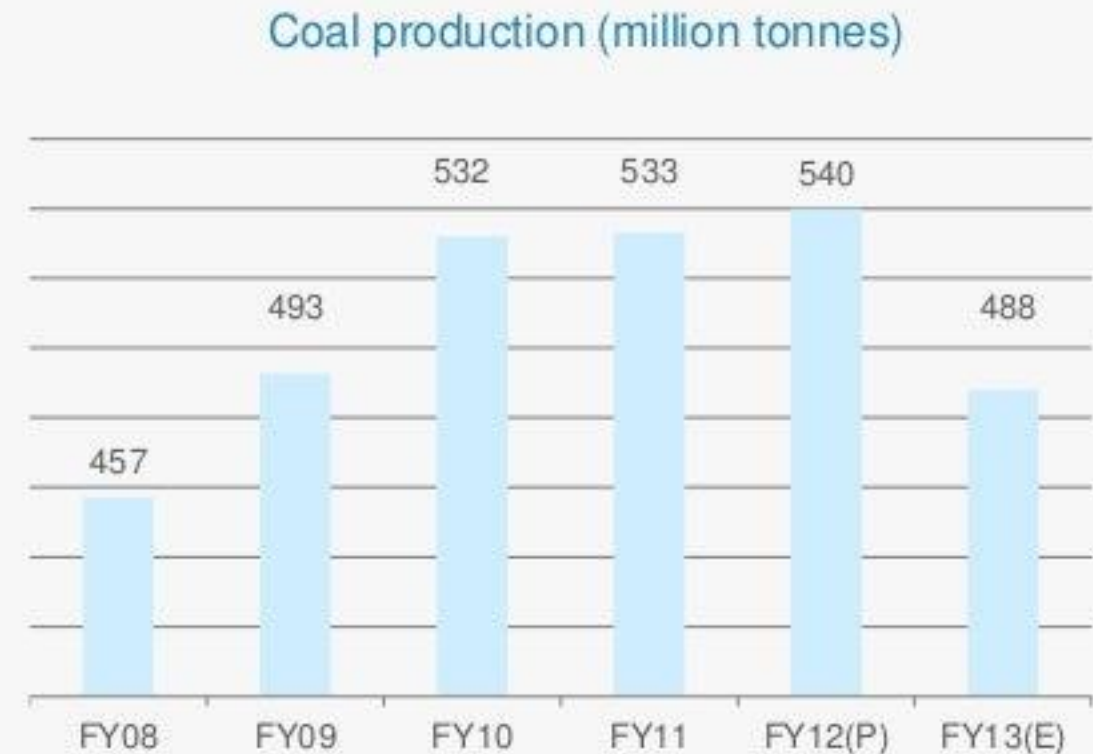
India's imports of iron and steel (USD billion)



Source: Reserve Bank of India, Aranca Research

COAL PRODUCTION GROWING AT A STEADY PACE

- ✳ Coal production recorded a CAGR of 4.3 per cent over FY08-12
- ✳ In the coming years, coal production in the country is likely to receive a boost as the government plans to replace the country's captive mining policy in coal and iron ore with an open bidding one



Source: Ministry of Mines, Aranca Research
Note: CAGR - Compound Annual Growth Rate,
P - Provisional, E - Estimate

INDIA'S ROLE IN GLOBAL COAL PRODUCTION

- ✳ India is the world's fourth-largest producer of coal and has the fifth-largest reserves globally
- ✳ Coal India Ltd (CIL), a Government of India enterprise, is the world's largest coal company based on raw coal production and coal reserves

Shares in global coal production (2011)



Source: BP Statistical Review of World Energy June 2012,
Aranca Research

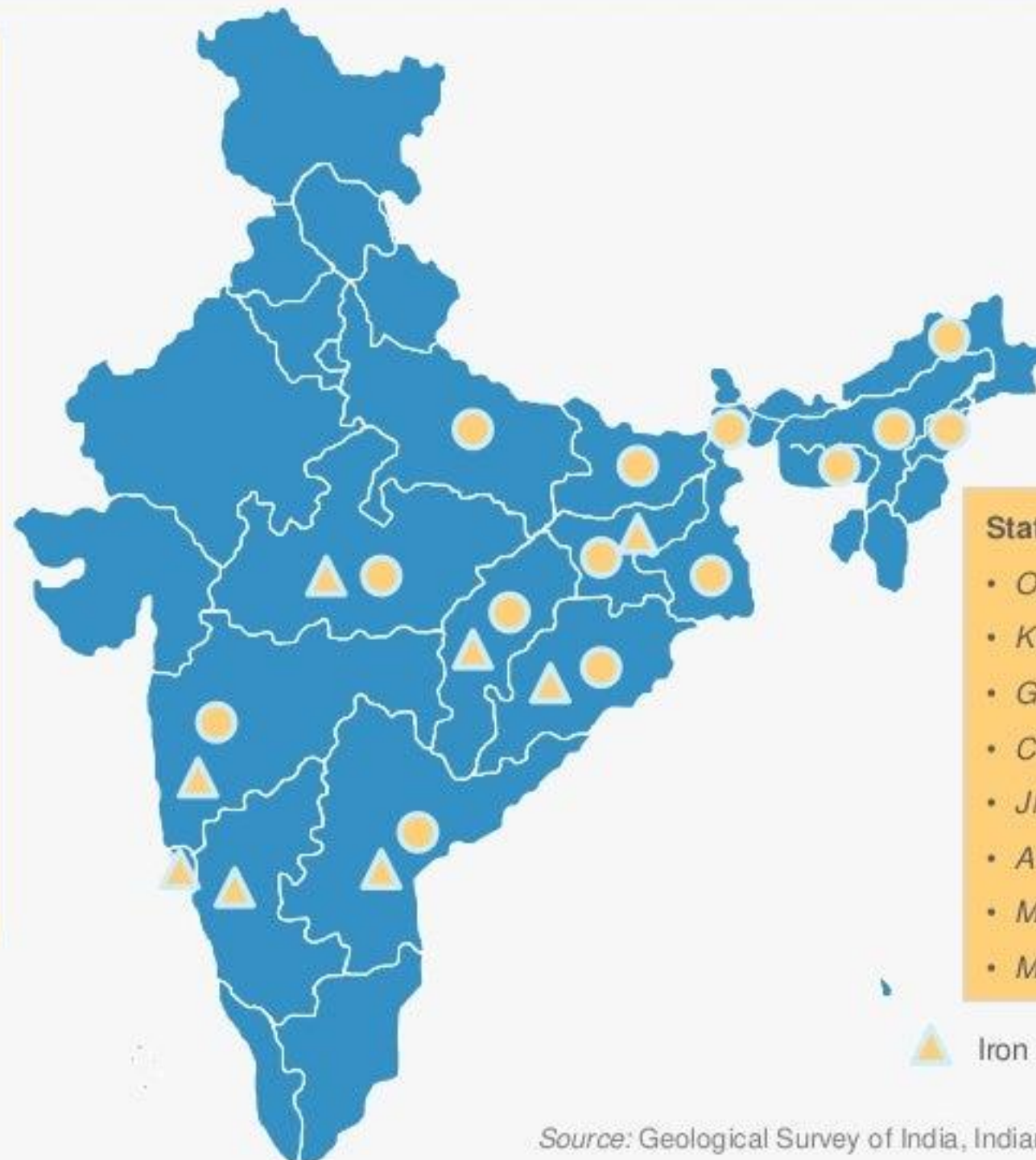
KEY GEOLOGICAL COAL AND IRON ORE DEPOSITS IN INDIA

States with major coal deposits

- Jharkhand (76,963 mt)
- Odisha (66,307 mt)
- Chhattisgarh (46,682 mt)
- West Bengal (29,853 mt)
- Andhra Pradesh (22,016 mt)
- Madhya Pradesh (21,988 mt)
- Maharashtra (10,308 mt)

States with lower coal deposits

- Uttar Pradesh (1062 mt)
- Meghalaya (577 mt)
- Assam (387 mt)
- Nagaland (316 mt)
- Bihar (160 mt)
- Sikkim (101 mt)
- Arunachal Pradesh (90 mt)



States with iron ore deposits

- Odisha (44.8 mt)
- Karnataka (34.3 mt)
- Goa (3.7 mt)
- Chhattisgarh (3.4 mt)
- Jharkhand (3.2 mt)
- Andhra Pradesh (0.8 mt)
- Madhya Pradesh (0.3 mt)
- Maharashtra (0.1 mt)

● Coal deposits in million tonnes (mt)

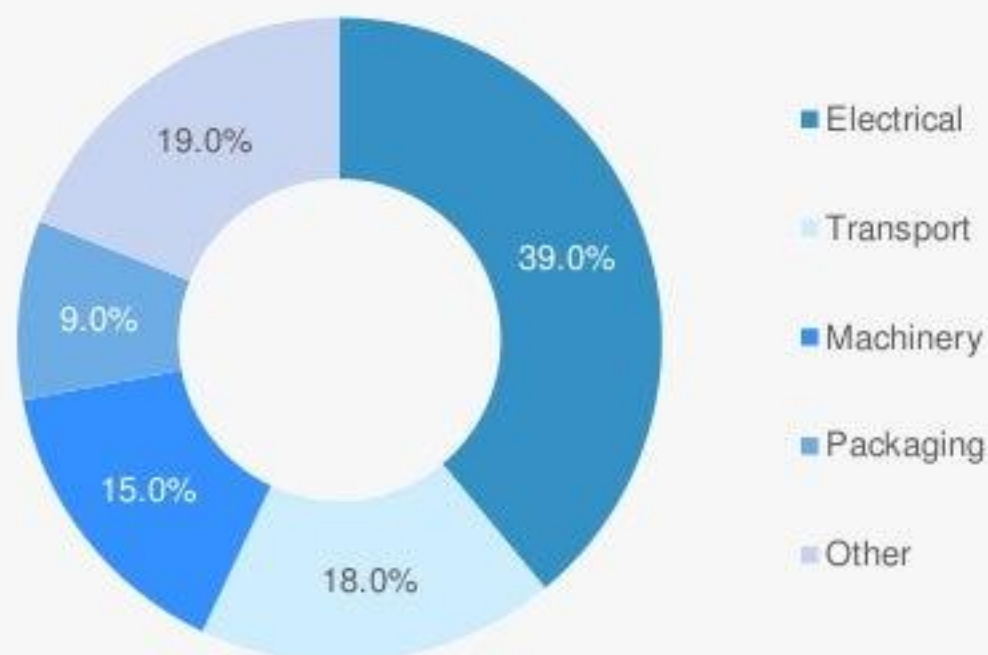
▲ Iron ore deposits in million tonnes (mt)

Source: Geological Survey of India, Indian Bureau of Mines, Aranca Research

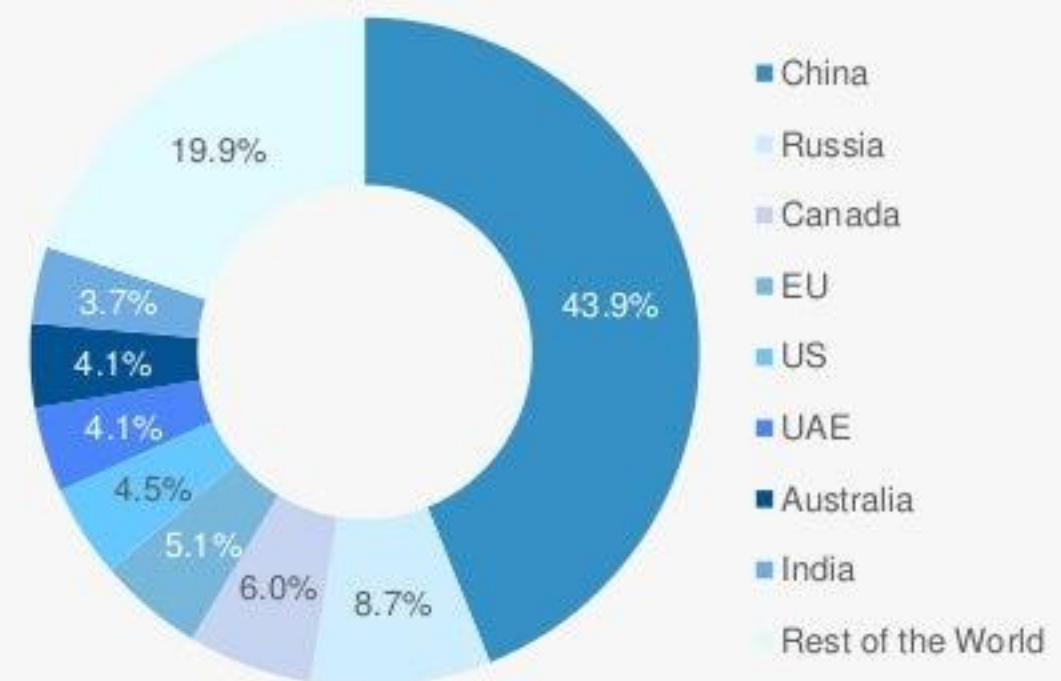
INDIA'S ROLE IN GLOBAL ALUMINIUM PRODUCTION

- ✳ Currently, aluminium is the second most used metal in the world after steel and the third most available element in the earth constituting almost 7.3% by mass
- ✳ India has 3.3 billion tonnes of bauxite reserves, the fifth-largest deposit of bauxite globally

Aluminium demand by sector (2011)



India's share in global aluminium production (2012)

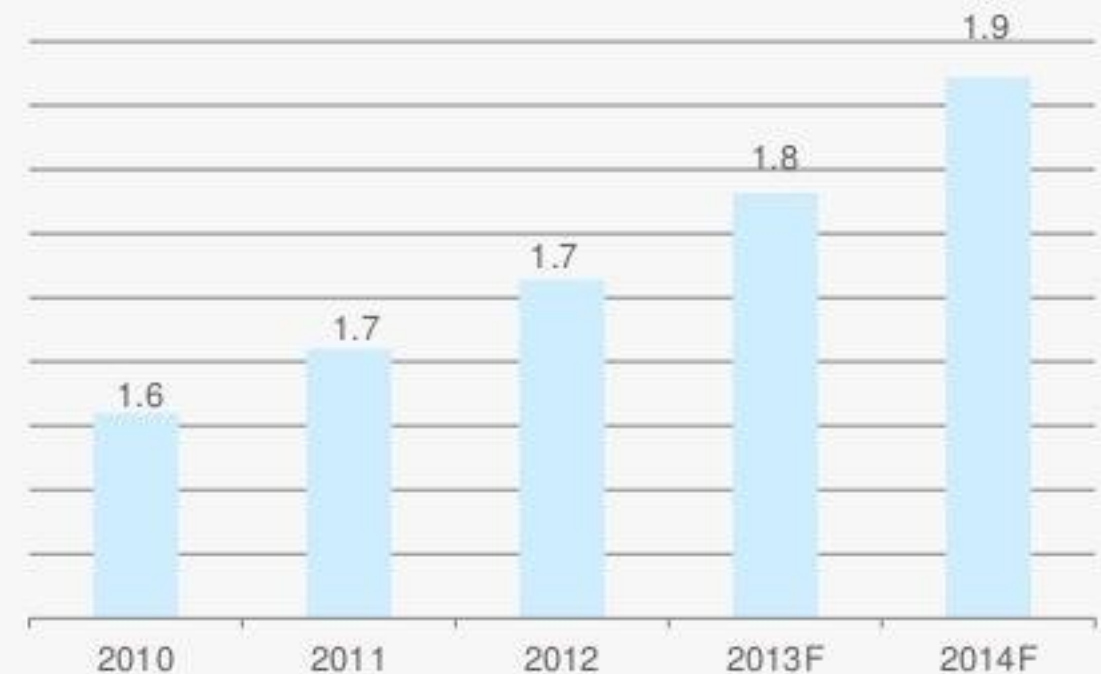


Source: World Bureau of Metal Statistics (WBMS), Economist Intelligence Unit (EIU), ICRA Management Consulting Services Ltd (IMaCS), Aranca Research
Note: ICRA - Information Credit Rating Agency Ltd

GROWING DOMESTIC DEMAND TO SUPPORT ALUMINIUM PRODUCTION

- ✳ Aluminium production is estimated to be 4.7 million tonnes per annum during 2012–17. Output growth is expected to average around 4.5 per cent in 2013–14
- ✳ India's primary aluminium production capacity is expected to increase from 1.7 tonnes per annum (tpa) in 2012 to 4.7 tpa by end-2017, with much of the expansion in capacity and production targeted for export markets

Aluminium production in 2012 (million tonnes)

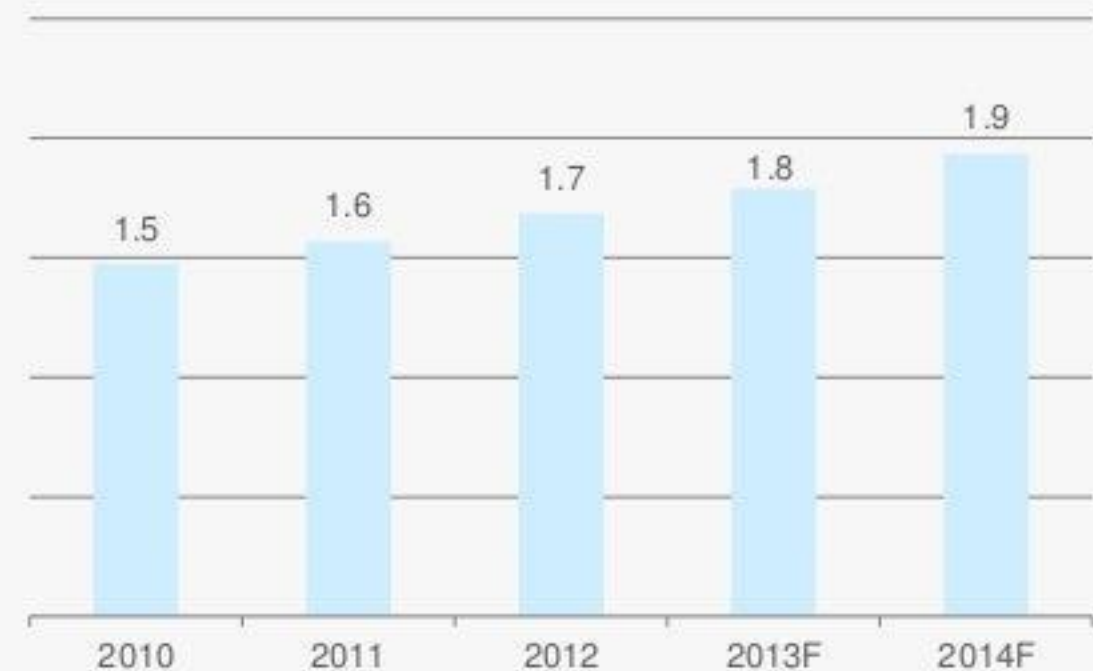


Source: World Bureau of Metal Statistics (WBMS),
12th Five Year Plan, EIU, ICRA Management Consulting Services Ltd
(IMaCS), Aranca Research
Note: ICRA - Information Credit Rating Agency Ltd

STRONGER ECONOMIC GROWTH TO SUPPORT ALUMINIUM CONSUMPTION

- ✳ The growth in global aluminium consumption averaged 6.8 per cent in 2012, while consumption in India rose 7.5 per cent in the same year
- ✳ During 2007–11, world aluminium consumption expanded at an estimated CAGR of 4.6 per cent
- ✳ Growth is forecast to average just over 7 per cent in 2013–14
- ✳ Aluminium's main markets are China (which represented 41.4 per cent of worldwide demand in 2011), followed by the US (9.6 per cent), Germany (5 per cent), Japan (4.6 per cent), and India (3.7 per cent)

Aluminium consumption (million tonnes)



Source: WBMS, EIU, Aranca Research

MAJOR METALS AND MINING PLAYERS IN THE COUNTRY

Segment	Major Player	Market Share	Other players
Iron and Steel		NA	Sesa Goa, SAIL, Orissa Minerals
Coal		80 per cent	Singareni Collieries Company, Reliance Natural Resources
Aluminium		60 per cent	National Aluminium Company (NALCO), Bharat Aluminium Company (BALCO)

NOTABLE TRENDS IN THE METALS AND MINING SECTOR

Captive mining for coal

- In captive mining for coal, companies are permitted to set up coal washeries and for specified end uses, including the setting up of power plants, fertilisers and steel units
- Under the captive route, the government has allocated 198 coal blocks with geological reserves of about 42 billion tonnes to various public and private sector companies

Focus on domestic market

- The demand for metal and metal products is rising in the domestic market with India being a net importer in the metals segment
- In March 2011, freight charges and taxes on iron ore exports were increased to boost domestic supplies

Overseas ventures

- In search of greater mineral opportunities, an increasing number of Indian mining companies are venturing overseas in a bid to secure stable, long-term supplies of minerals especially in the areas of coal and iron ore
- Coal India plans to export 10 MT of coal from Mozambique to India in the next 10 years; the company is seeking more license blocks in Mozambique

Note: MT - Metric Tonnes