Metals and Mining

NOVEMBER 2011

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Advantage India

Demand growth

- Rise in infrastructure development and automotive production driving growth in the sector
- Power and cement industries also aiding overall growth

Attractive opportunity

- There is significant scope for new mining capacities in iron ore, bauxite, and coal
- Untapped metal reserves in India are to the tune of 82 billion tonnes

Advantage India

Competitive advantage

- India holds a fair advantage in cost of production and conversion costs in steel and alumina
- It's strategic location enables convenient exports to developed as well as the fast-developing Asian markets

Policy support

- 100 per cent FDI allowed in the mining sector under the Automatic Route
- Mining lease granted for a long duration of minimum 20 years and up to 30 years

2005
Industry value: USD50.8 billion

2014
Industry value: USD196.5 billion

Source: Datamonitor
Notes: FDI – Foreign Direct Investment

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Evolution of the Indian metals and mining sector

1947

- Mining sector received a boost post independence under the impact of successive Five Year Plans

1956

- Central Government promulgated Industrial Policy Resolution
- The exploration of minerals was intensified and the Geological Survey of India was strengthened
- IBM was established to look after the scientific development of mineral resources

1972

- Mineral Exploration Corporation established to conduct exploration with focus on coal, iron ore, limestone, dolomite and manganese ore

Present

- India is the largest producer of sheet mica, the third largest producer of iron ore and the fifth largest producer of bauxite in the world
- Crude steel production in India has expanded at a CAGR of 7 per cent over 1980-2010

Notes: CAGR – Compound Annual Growth Rate
IBM - The Indian Bureau of Mines

Segments of metals and mining industry

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Iron and steel	Iron and steel segment offers a product mix which includes hot rolled parallel flange beams and columns rails, plates, coils, wire rods, and continuously cast products such as billets, blooms, beam, blank, rounds and slab, and metallics and ferro alloy
Coal	Coal market consists of primary coal (anthracite, bituminous and lignite)
Aluminium	Aluminium segment includes alumina chemicals, primary aluminium, aluminium extrusions, aluminium rolled products
Base metals	Base metal market consists of lead, zinc, copper, nickel and tin
Precious metals and minerals	Precious metals market includes gold, silver, platinum, palladium, rhodium, diamond

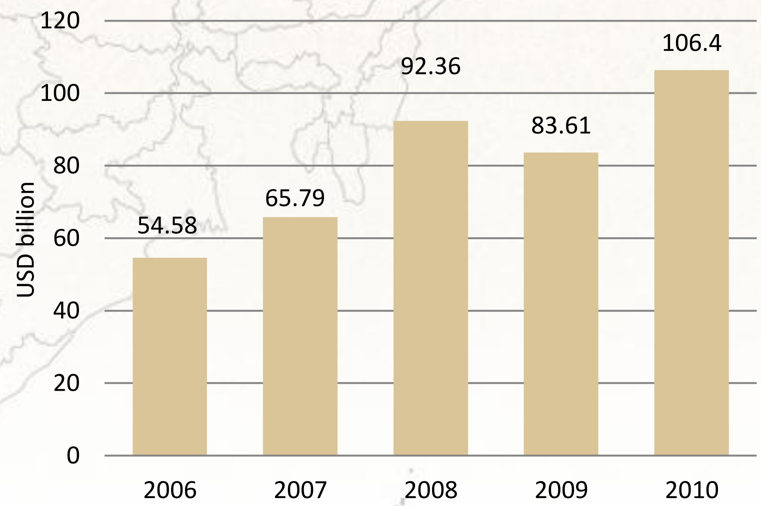
Source: Aranca Research

Iron and steel: the core of metal and mining industry … (1/2)

- India's metal and mining industry grew to USD106.4 billion in 2010, an increase of 27 per cent from 2009
- The CAGR of the industry between 2005-10 was around 16 per cent

Notes: CAGR – Compound Annual Growth Rate

India's metals and mining industry

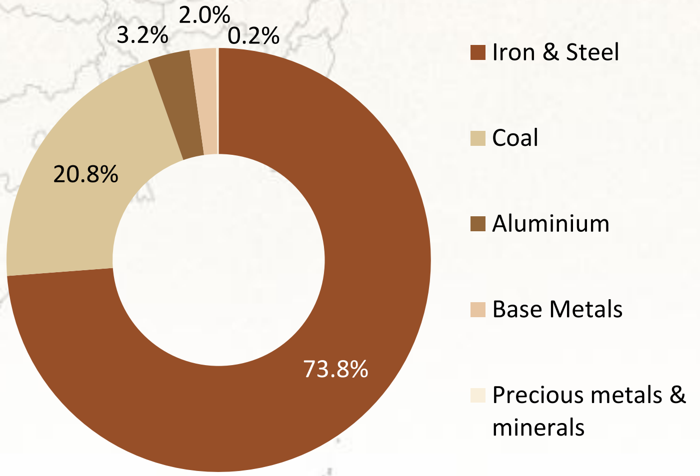


Source: Datamonitor, Aranca Research

Iron and steel: the core of metal and mining industry … (2/2)

- Iron and steel is the largest segment of the Indian metals and mining industry, accounting for 73.8 per cent of the overall industry value
- The coal segment accounts for 20.8 per cent of the overall metals and mining industry of the nation

Segmentation of metals and mining industry (2010)

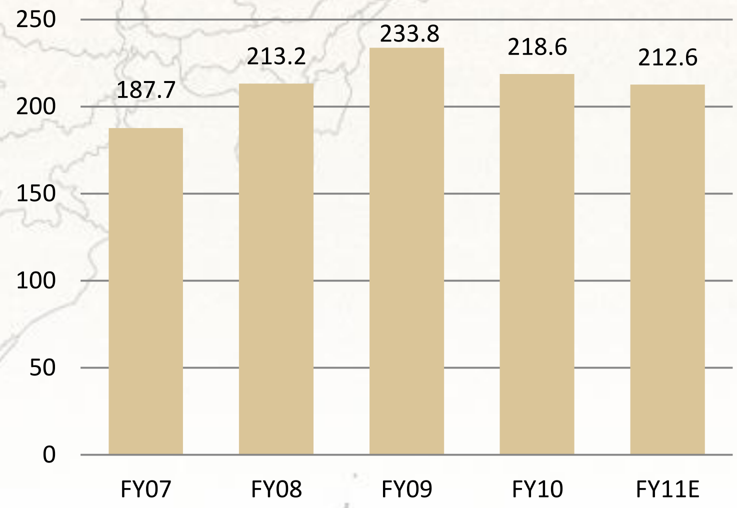


Source: Datamonitor, Aranca Research

Rising steel demand driving growth in iron ore production … (1/2)

- India is the world's fourth largest iron ore producer (global share of 11 percent)
- Iron ore production is estimated to have grown at a CAGR of 3.2 per cent between FY07 to FY11

Iron ore production (billion tonnes)

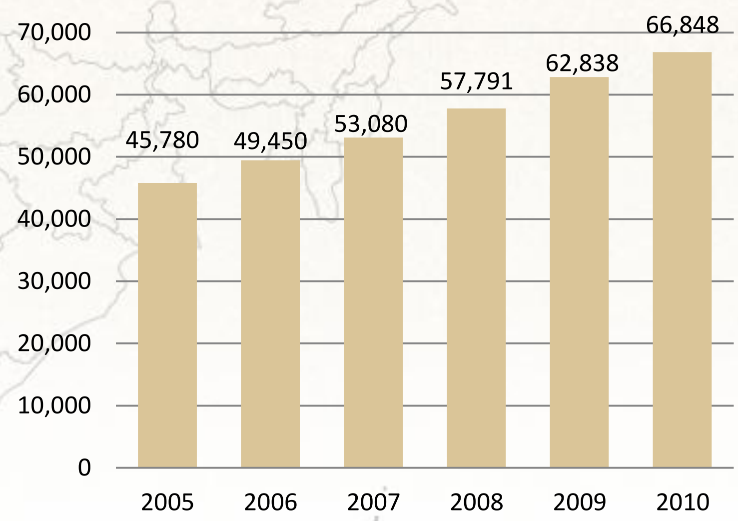


Source: Ministry of Mines - Annual Report 2010-11, Aranca Research

Rising steel demand driving growth in iron ore production … (2/2)

- India is the fifth largest producer of crude steel in the world
- Steel production has grown at a CAGR of 8 per cent between 2005 to 2010

Crude steel production (thousand metric tonnes)

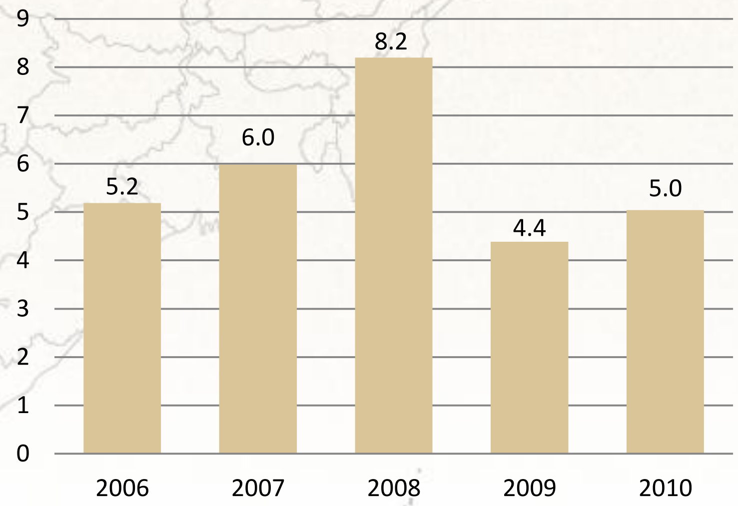


Source: World Steel Association, Aranca Research

Rising demand puts pressure on supply of iron and steel … (1/2)

- India is the world's third largest exporter of iron ore
- In March 2011, freight charges and taxes on iron ore exports were increased to boost domestic supplies

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

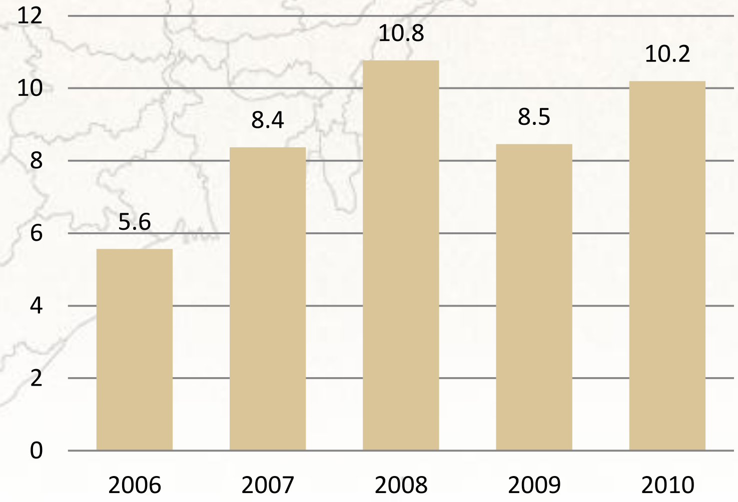


Source: International Trade Centre, Aranca Research

Rising demand puts pressure on supply of iron and steel … (2/2)

- Steel industry is the biggest consumer of iron ore
- Iron ore imports grew at a CAGR of 16.2 per cent over 2006-10
- India has turned into a net importer of steel due to strong growth in the manufacturing sector and rise in infrastructure projects

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



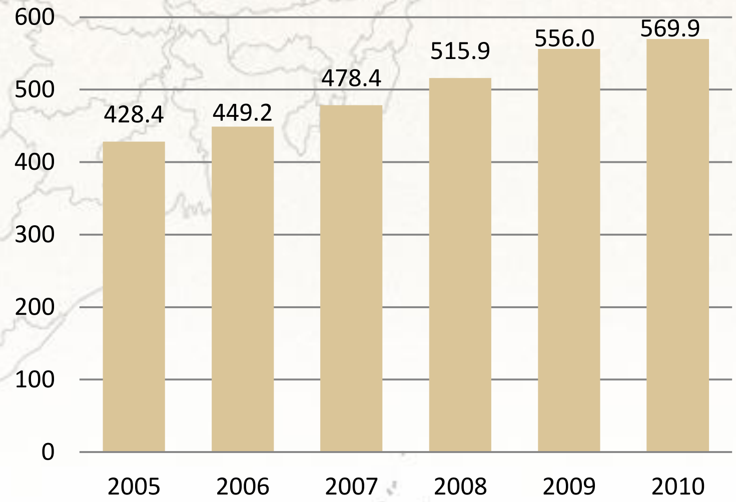
Source: International Trade Centre, Aranca Research

Coal: production growing at a steady pace … (1/2)

- Coal production recorded a CAGR of 6 per cent over FY05-10
- Indian coal production 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

Notes: CAGR – Compound Annual Growth Rate

Coal production (million tonnes)

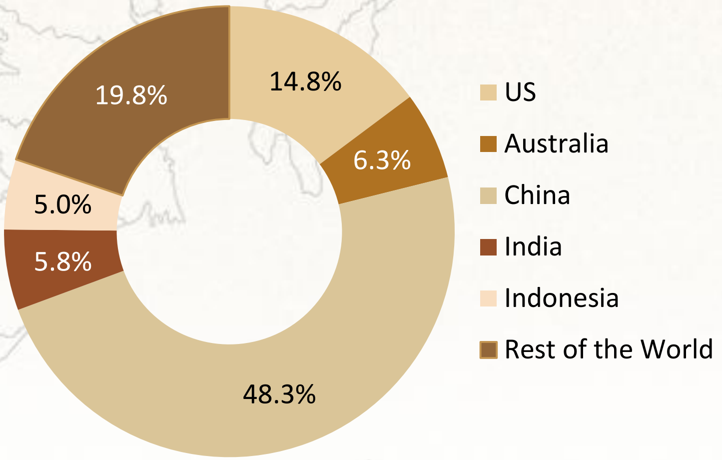


Source: BP - Statistical review of world energy 2011, Aranca Research

Coal: production growing at a steady pace … (2/2)

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

Share in world total (2010)



Source: BP - Statistical review of world energy 2011, Aranca Research

Major metals and mining players in the country

Segment	Major Player	Market Share	Other players
Iron and Steel	National Mineral Development Corporation Ltd.	NA	Sesa Goa, SAIL, Orissa Minerals
Coal	Coal India Limited	80%	Bharat Coking Coal, Reliance Natural Resources, Northern Coalfields
Aluminium	HINDALCO (Aditya Birla Group)	60%	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 have been 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 along with seeking more licence blocks in Mozambique

Notes: MT – Metric Tonnes

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Strong fundamentals and policy support aiding growth

Higher demand for metals

- Growing infrastructure investments
- Sustained growth in India's automotive sector
- Aluminium and coal benefiting from rising power production
- Rising production of cement increasing demand for coal

Inviting →

Policy support

- Relaxed FDI norms
- Allowing private ownership
- Reduced customs duty

Resulting in →

Increasing investments

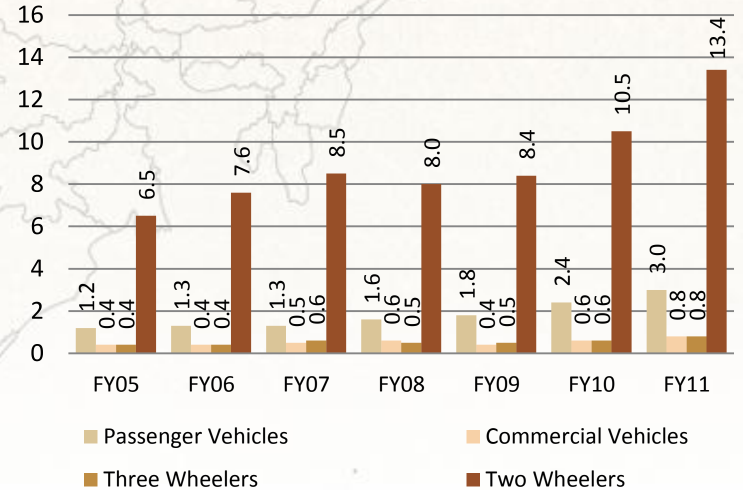
- M&A value of metal and mining increased at a CAGR of 55 per cent from 2008 to 2010
- Increased Foreign Direct Investment

Power and automotive production fuelling demand … (1/2)

- Automotives production has increased at a CAGR of 13.3 per cent over FY05-11
- Sustained growth in India's automotive sector is driving the demand for both steel and aluminium
- India is expected to become the world's seventh-largest automobile market by 2016 and the third largest by 2030

Notes: FY – Indian Financial Year (April – March)

Total production of automobiles in India (million units)

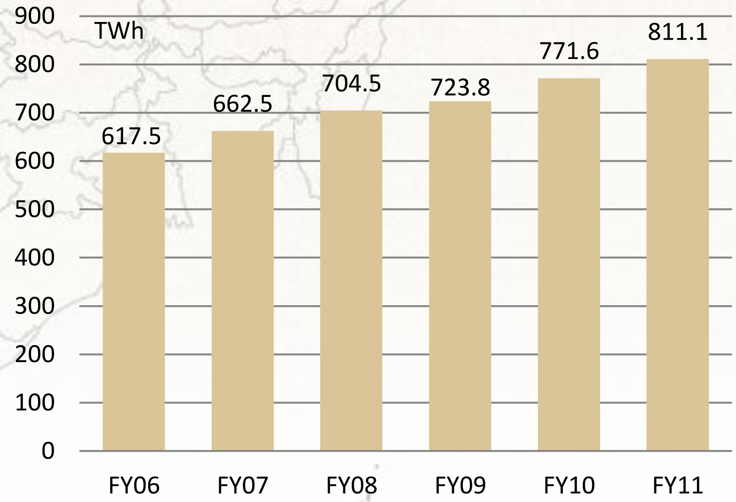


Source : SIAM, Aranca Research

Power and automotive production fuelling demand … (2/2)

- The power sector accounts for a large share of the consumption of aluminium and coal in the country
- Power supply in India has increased at a CAGR of 5.6 per cent during FY06-11
- In the Eleventh Plan, India is expected to add around 60,000 MW of generation capacity, at an investment of USD11.5 billion

Power generation in India

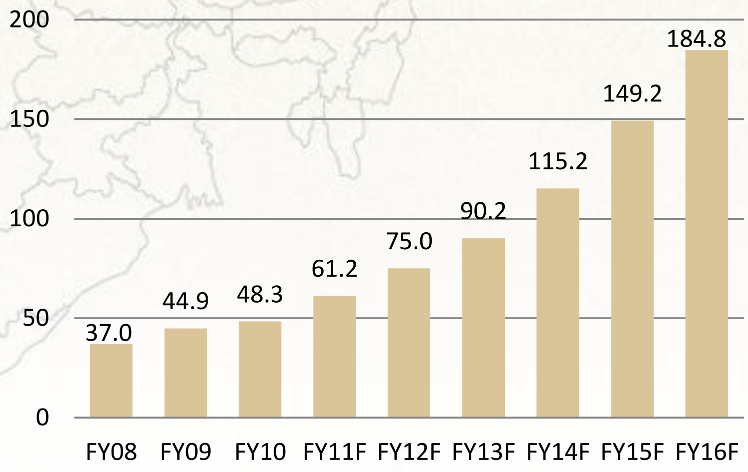


Source : Central Electricity Authority (CEA), Aranca Research
Notes: TWh- Terawatt-hour

Growing construction industry steers the demand for metals … (1/2)

- Key infrastructure projects continue to provide lucrative business opportunities for steel, zinc and aluminium producers
- Infrastructure industry has grown at a CAGR of 14.3 per cent from FY08 to FY10

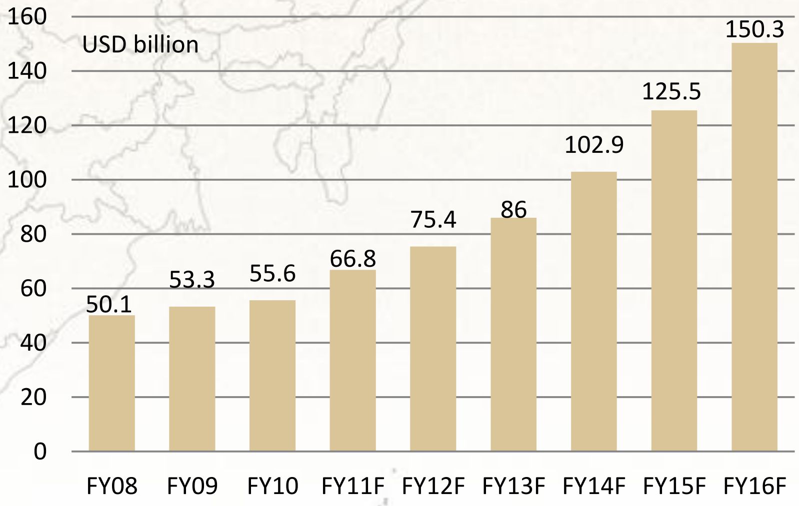
Infrastructure industry (USD billion)



Growing construction industry steers the demand for metals … (2/2)

- Residential and non-residential building industry has grown at a CAGR of 5.3 per cent from FY08 to FY10
- It is likely to increase at CAGR of 17.6 per cent over FY12-16
- Iron and steel being a core component of the real estate sector, rise in demand in the residential and commercial building industry will lead to increase in the demand for these metals

Residential and non-residential building industry

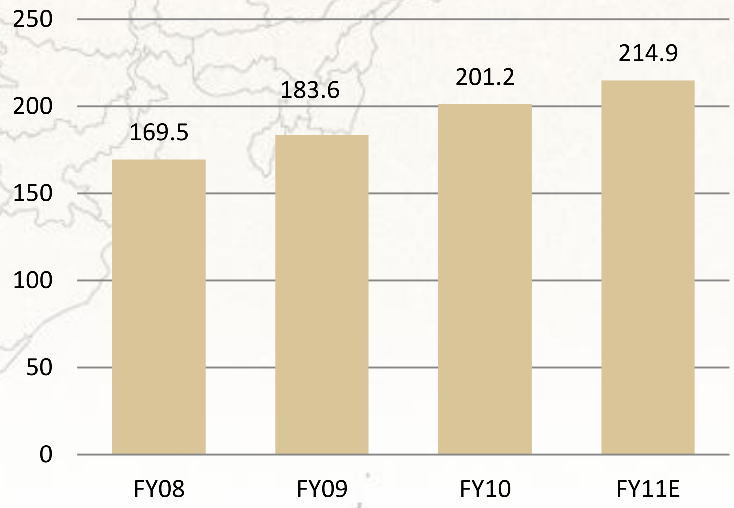


Source : Business Monitor International (BMI) report on infrastructure industry in India, Aranca Research

Rising cement production stimulates demand for coal … (1/2)

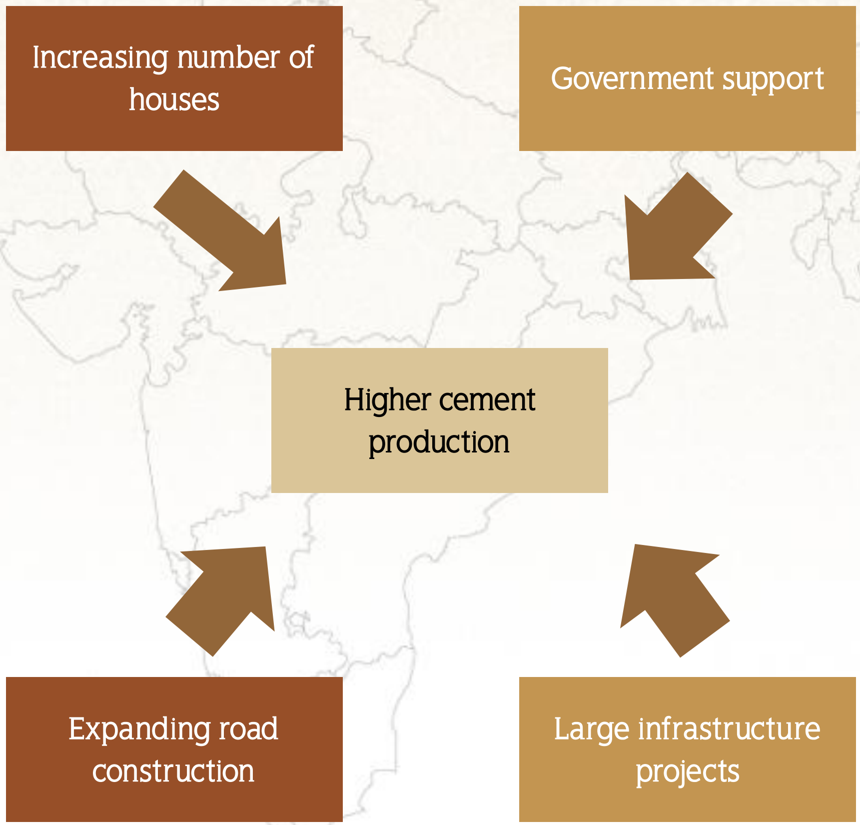
- The production of cement increased at a CAGR of 8.2 per cent between FY08-11
- India is the world's second-largest producer of cement and a major consumer of coal
- By FY13, the sector is expected to add additional capacity of 92.3 million tonnes

Cement production in India (million tonnes)



Source: CMA, Edelweiss research

Rising cement production stimulates demand for coal … (2/2)



Source: Aranca Research

India has a distinct competitive advantage over its peers

- India has an edge over South Korea, Japan and Philippines in mining ratings within the Asia Pacific region while it competes with Australia, Malaysia, China, and Indonesia

	Limits of potential returns			Risks to realisation of returns			
	Mining Industry	Country structure	Limits	Market risks	Country risk	Risks	Mining rating
India	45.0	47.9	46.0	55.2	53.5	54.4	48.5
South Korea	15.0	67.4	33.3	68.7	70.3	69.5	44.2
Japan	10.0	63.6	28.8	76.4	77.3	76.8	43.2
Philippines	12.5	50.3	25.7	53.7	39.5	46.6	32.0

Source : India mining, report by BMI, Aranca Research
Note: Description of each given in Appendix

Strong policy support gives metal and mining sector a boost

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
Relaxed FDI norms	• FDI up to 100 per cent is permitted under the Automatic Route to explore and exploit all non-fuel and non-atomic minerals and process all metals as well as for metallurgy • FDI caps for coal and lignite has been increased to 100 per cent under the automatic route
Approved NMP	• In a positive move for the sector, in 2008, the Indian Cabinet approved the National Mineral Policy (NMP) 2008, to boost FDI in mining
MMDR Bill, 2011	• Government has proposed a new mining bill (Mines and Minerals Development Bill, 2011) that calls for mining firms to share either profits or amount equivalent to royalties with the local communities • The proposed bill is expected to make it easier to win local approval and smoothen the land acquisition process

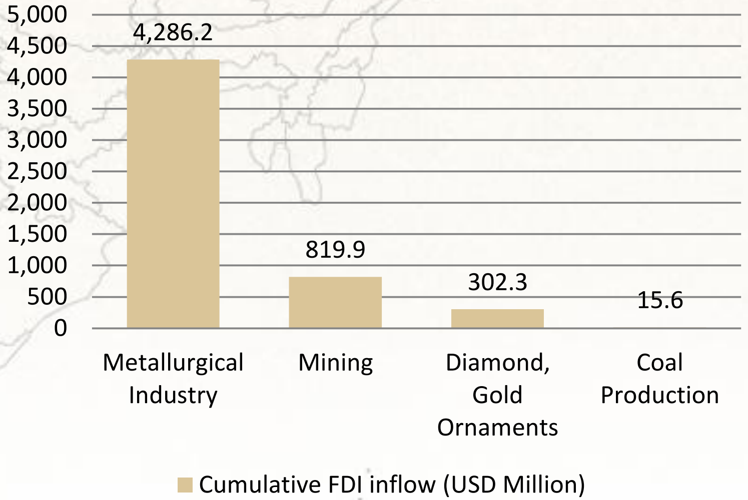
Notes: FDI – Foreign Direct Investment

Foreign investments flowing in; rise in plan expenditure … (1/2)

- FDI inflows into metals and mining industry between Apr 2000 and April 2011 was USD5.4 billion
- Metals and mining industry accounted for 4 per cent of the total cumulative FDI between April 2000-11

Notes: FDI – Foreign Direct Investment

FDI inflows (Apr2000–April2011): Metals and mining sector



Source : Department of Industrial Policy & Promotion, Aranca Research

Foreign investments flowing in; rise in plan expenditure … (2/2)

- M&A value of metal and mining increased at a CAGR of 55 per cent from 2008 to 2010
- In 2010, M&A deal value in the mining sector stood at USD2.0 billion, accounting for 24.9 per cent of the total M&A deal value

Source: Thomson Banker, Deal tracker, Aranca Research

M&A activities		
Acquirer	Target	Acquisition Price (USD million)
JFE Steel Corporation	JSW Energy Ltd	1,029.1
Coal Mining Co Pty Ltd	Lanco Resources Australia Griffin	722.7
Hindustan Zinc Ltd	Anglo American PLC-Skorpion	698.0
Hindustan Zinc Ltd	Lisheen Mining, Killoran Lishee	546.0
JSW Steel Ltd	Ispat Industries Ltd	474.4
Jindal Steel & Power Mauritius	Shadeed Iron & Steel Co LLC	464.0

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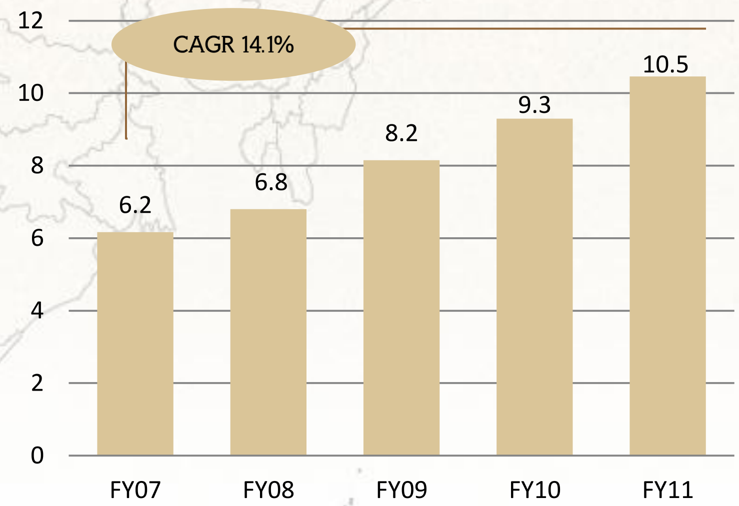
Coal India Limited: Leader in mining industry in India … (1/2)

- CIL signed a MoU with Ministry of Coal in 2011, wherein CIL targets to produce 461.5 million tonnes of coal
- CIL also signed MoU with Shipping Corporation of India in 2010 to create comprehensive end-to-end logistic solution from starting point to the end point

Notes: CAGR – Compound Annual Growth Rate, MoU – Memorandum of Understanding, FY – Indian financial year (April – March)

Revenues (USD billion)



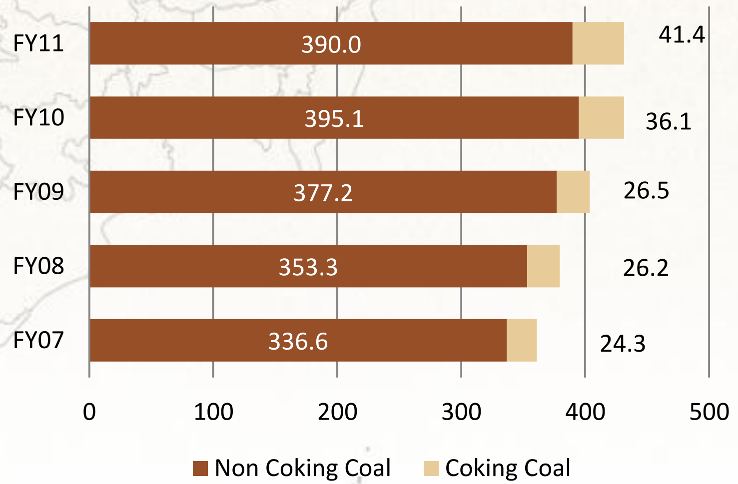
Source: Datamonitor, Aranca Research

- Set up in 1967, Coal India Limited (CIL) is the largest coal mining company in India
- Coal India contributes around 85 per cent of the coal production in India

Coal India Limited: Leader in mining industry in India … (2/2)

- The company's strategic overseas ventures with Colombia and US enables it to meet India's rising energy demand
- CIL was recognised with "Scope Award 2007-08" for excellence and outstanding contribution to the public sector management

Coal Production (in million tonnes)



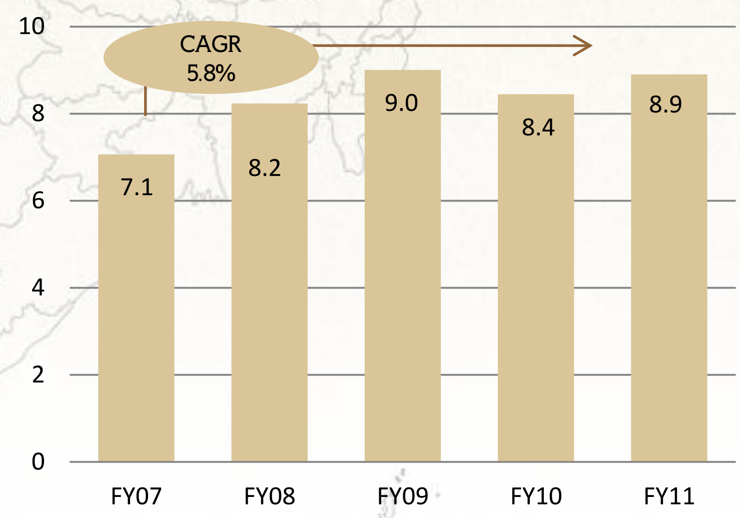
Source: Company Website, Aranca Research

Steel Authority of India Ltd: A story of steel … (1/2)

- SAIL has entered into a Joint Venture with POSCO, Korea; Kobe Steel Limited, Japan; Rashtriya Ispat Nigam Ltd; Larsen & Toubro Ltd; National Mineral Development Corporation; Hindustan Prefab Ltd; and IRCON International Limited, Turkey
- SAIL employees bagged the maximum number of Viswakarma Awards declared in Aug 2009

Notes: Viswakarma Award is for outstanding achievement or good performance on the part of workers in increasing productivity, quality, safety, working conditions, import substitution etc
CAGR – Compounded Annual Growth Rate

Revenues (USD billion)



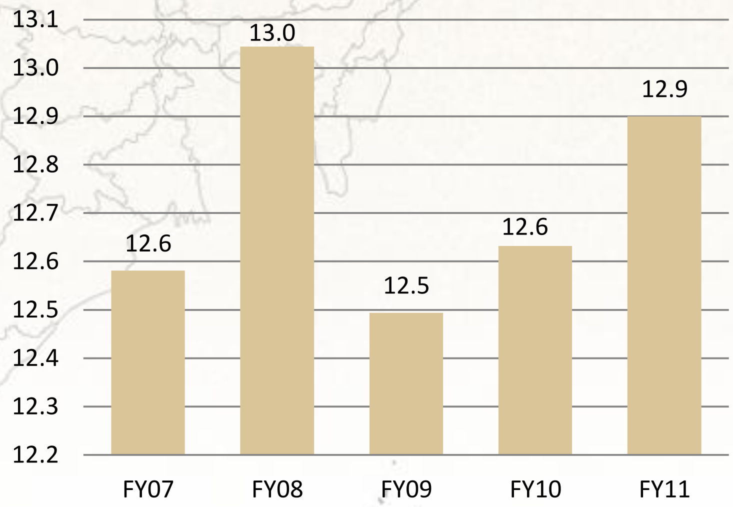
Source: Company website, Aranca Research

- Incorporated in 1954, Steel Authority of India Ltd (SAIL) is India's second largest producer of iron ore

Steel Authority of India Ltd: A story of steel … (2/2)

- It also won the Gold Trophy of "SCOPE Meritorious Award for R&D, Technology Development & Innovation" for 2007-08
- It was also awarded the "Corporate Social Responsibility & Responsiveness" by the President of India in FY09

Total saleable steel production (million tonnes)



Source: Company website, Aranca Research

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Opportunities

Untapped market with strong growth potential

- India's per capita steel consumption was 48 kg in 2009, much lower than the global average of 197 kg
- Rural per capita steel consumption is likely to double to 4 kg by 2015
- By FY12, a shortfall is expected in domestic supply of steel worth 3-8 million tonnes

Scope for new mining capacities in iron ore, bauxite and coal

- India has the world's fifth-largest reserve base of bauxite and fourth-largest base of iron ore respectively, and accounts for about 7 per cent and 10 per cent respectively, of total world production
- India also has the fourth-largest global reserve base of coal, and accounts for 7.5 per cent of the total world production

Rapid growth of user-industries to drive demand for metals and minerals

- Strong long-term demand from the steel industry is expected to further boost the iron ore industry
- Increasing power production is likely to catapult demand for coal
- Booming construction, automobiles, and packaging industries are expected to lend substantial support to the metals and mining sector

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Fax: 91-11- 26814593
E-mail: fimi@fedmin.com

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Fax: 91-124 - 4375509
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Appendix

BMI's Mining Business Environment Ratings

- **Market structure:** it takes into consideration mining output in USD billion, sector value growth, % y-o-y r, mining sector, % of GDP
- **Country structure:** it takes into consideration labour market infrastructure, physical infrastructure r, tax, and scope of state
- **Market risks:** it considers metals prices, 5-year, forecast average, metals price forecast, average 5-year growth, regulatory framework, legal framework
- **Country risk:** it considers, long-term external risk, corruption, bureaucracy , long-term policy continuity
- **Mining ratings:** it shows the overall scores of the above indicators

Glossary

- **CAGR:** Compound Annual Growth Rate
- **FDI:** Foreign Direct Investment
- **FY:** Indian Financial Year (April to March)
  - So FY10 implies April 2009 to March 2010
- **GOI:** Government of India
- **IBM :** The Indian Bureau of Mines
- **MoU:** Memorandum of Understanding
- **PPP:** It could denote two things (mentioned in the presentation accordingly) –
  - Purchasing Power Parity (used in calculating per-capita GDP)
  - Public Private Partnership (a type of joint venture between the public and private sectors)
- **PE:** Private Equity
- **USD:** US Dollar
  - Conversion rate used: USD1= INR48
- Wherever applicable, numbers have been rounded off to the nearest whole number

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