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## EXECUTIVE SUMMARY

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Largest coal producer</td>
<td>India is the 3rd largest producer of coal. Coal production stood at 554.13 million tonnes in FY17 and 425.9 million tonnes in FY18 (up to December 2017). India has the 5th largest estimated coal reserves in the world, standing at 308.802 billion tonnes in FY16.</td>
</tr>
<tr>
<td>Fourth-Largest iron ore producer</td>
<td>India ranks 4th globally in terms of iron ore production. In FY17, production of iron ore stood at 192 million tonnes. India has around 8 per cent of world’s deposit of iron ore.</td>
</tr>
<tr>
<td>Third largest steel producer in 2015</td>
<td>India has become the 3rd largest steel producer in FY17 with the production of finished steel at 83.01 million tonnes. India stood as the 3rd largest crude steel producer in 2016, while its production increased to 97.385 million tonnes in FY17 as compared to 90 million tonnes in FY16. Crude steel production from April to December 2017 stood at 75.498 million tonnes.</td>
</tr>
<tr>
<td>Seventh-largest bauxite reserves</td>
<td>According to Ministry of Mines, India has the 7th largest bauxite reserves which was around 2,908.85 million tonnes in FY17. Aluminium production stood at 1.7 million metric tonnes in FY17 and 1.36 million metric tonnes in FY18 (up to December 2017).</td>
</tr>
<tr>
<td>Long duration mining lease</td>
<td>India has vast mineral potential with mining leases granted for longer durations of 20 to 30 years</td>
</tr>
</tbody>
</table>

*Note: CAGR - Compound Annual Growth Rate*

*Source: Ministry of Coal, Worldsteel.org, BP, Ernst and Young, Aranca Research*
ADVANTAGE INDIA
Rise in infrastructure development and automotive production driving growth in the sector
Power and cement industries also aiding growth in the metals and mining sector
Demand for iron and steel is set to continue, given the strong growth expectations for the residential and commercial building industry

There is significant scope for new mining capacities in iron ore, bauxite and coal
Considerable opportunities for future discoveries of sub-surface deposits
The Ministry of Steel aims to increase the steel production capacity to 300 million tonnes by 2030-31 from 128.28 million tonnes in 2016-2017 indicating new opportunities in the sector
In February 2017, the country’s coal ministry allowed private companies to engage into mining activities for commercial purposes

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
India produces 88 minerals—4 fuel-related minerals, 10 metallic minerals, 50 non-metallic minerals and 24 minor minerals

100 per cent FDI allowed in the mining sector and exploration of metal and non-metal ores under the Automatic Route
Approval of MMDR Bill (2011) to provide better legislative environment for investment and technology
Under the Union Budget 2018-19, the Government added a surcharge of 10 per cent on aggregate duties of customs on imported goods to strengthen the domestic industry.

Notes: FDI - Foreign Direct Investment, MMDR Bill - Mines and Mineral (Development and Regulation) Bill
Source: Data Monitor, RBI, EY, Aranca Research
MARKET OVERVIEW
EVOLUTION OF THE INDIAN INSURANCE SECTOR

- Mining sector received a boost post independence under the impact of successive 5 Year Plans
- Mineral Exploration Corporation established to conduct exploration with focus on coal, iron ore, limestone, dolomite and manganese ore
- Indian mining sector was opened up to Foreign Direct Investment in 1993 after the announcement of the New Mineral Policy
- India is the largest producer of sheet mica, the fourth largest producer of iron ore and has the seventh largest reserve of bauxite in the world in 2015

**Notes(1):** CAGR - Compound Annual Growth Rate

**Source:** World Steel Association (WSA), DIPP, DataMonitor, Aranca Research

1947
- Central Government promulgated Industrial Policy Resolution
- The exploration of minerals was intensified and the Geological Survey of India was strengthened
- Indian Bureau of Mines was established to look after the scientific development of mineral resources

1956
- Mineral Exploration Corporation established to conduct exploration with focus on coal, iron ore, limestone, dolomite and manganese ore
- Indian mining sector was opened up to Foreign Direct Investment in 1993 after the announcement of the New Mineral Policy

1972
- Total finished steel production (alloy and non alloy) in India reached 89.7 million tonnes and stood as the 3rd largest crude steel producer in the world in 2016
- An airborne geophysical survey of the Obvious Geological Potential Area was inaugurated in April 2017 and will cover a 0.2 million sq km area. It is one of most efficient and cost effective methods of resource exploration worldwide.

2012

2014

2015 onwards
<table>
<thead>
<tr>
<th>SEGMENTS OF METALS AND MINING INDUSTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Metals and mining</strong></td>
</tr>
<tr>
<td><strong>Iron and steel</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td><strong>Coal</strong></td>
</tr>
<tr>
<td>Coal market consists of primary coal (anthracite, bituminous and lignite).</td>
</tr>
<tr>
<td><strong>Aluminium</strong></td>
</tr>
<tr>
<td>Aluminium segment includes primary aluminium, aluminium extrusions, aluminium rolled products, alumina chemicals.</td>
</tr>
<tr>
<td><strong>Bauxite</strong></td>
</tr>
<tr>
<td>Bauxites are sub-divided into 2 basic types based on the processing methods - Tropical bauxite and European bauxite.</td>
</tr>
<tr>
<td><strong>Base metals</strong></td>
</tr>
<tr>
<td>Base metal market consists of lead, zinc, copper, nickel and tin.</td>
</tr>
<tr>
<td><strong>Precious metals and minerals</strong></td>
</tr>
<tr>
<td>Precious metals market includes gold, silver, platinum, palladium, rhodium and diamond.</td>
</tr>
</tbody>
</table>
STRONG GROWTH IN INDIA’S METALS AND MINING SECTOR OVER THE YEARS

- In FY16, India had 1,878 operative mines – excluding mining areas for minor minerals, crude petroleum, natural gas and atomic minerals.
- During 2011-12 to 2016-17, value of ore and mineral imports into India witnessed a growth of 6.1 per cent.
- Due to continuing focus of the government on cutting down the imports of coal, the import demand has now shifted to petcoke. Imports of petcoke are rising due to an increasing number of end users like cement companies opting for petcoke as an alternative to coal.
- Indian scientists have started exploring the seabed in the Indian Ocean for precious minerals including platinum, gold and silver, thereby marking India’s entry into deep sea exploration in the southern India ocean, where countries such as China, Korea and Germany are already present.
- During April – September 2017, India’s mineral output grew by 7.9 per cent year-on-year to reach US$ 17.699 billion. The contribution of coal was the highest at around US$ 6.04 billion (34.10 per cent), followed by crude petroleum at US$ 5.10 billion (28.79 per cent), iron-ore at US$ 2.24 billion (12.63 per cent) and natural gas (utilised) at US$ 2.07 billion (11.68 per cent).

Notes: CAGR - Compound Annual Growth Rate, ¹Up to November 2017, ²CAGR is till FY17
Source: Make in India, Ministry of Mines, Aranca Research
IRON AND STEEL ACCOUNTS FOR A MAJOR SHARE IN INDIA’S METALS AND MINING SECTOR

- In 2016, India stood as the 3rd largest crude steel producer in the world, while the total crude steel production was 88 MMT. Crude Steel output grew 4.6 per cent year-on-year to reach 75.498 million tonnes during April-December 2017.
- India accounted for 5.89 per cent of the total steel production in the world in the year 2016.
- Total finished steel production for sale (alloy+ non-alloy) stood at 79.294 million tonnes during April - December 2017.
- India is expected to overtake Japan to become the world's second largest steel producer by 2019-20, as it aims to achieve 300 million tonnes of annual steel production by 2025-30.
- In FY17, offshore region accounted for 20.20 per cent share in India’s share of states in value of mineral production.
- Steel demand is set to rise in the coming months owing to increased public sector spending by the Government of India.

**Shares in India’s mining sector (In terms of Production Value, FY17)**

- 80.05% Fuel Minerals
- 16.83% Metallic minerals
- 3.12% Non-Metallic Minerals

**India’s share of States in Value of Mineral Production (FY17)**

- 21.62% Offshore region
- 12.03% Odisha
- 11.04% Rajasthan
- 10.92% Chhattisgarh
- 9.57% Jharkhand
- 9.02% Madhya Pradesh
- 8.99% Telangana
- 8.46% Gujarat
- 8.30% Assam
- 7.89% West Bengal
- 7.60% Tamil Nadu
- 7.20% Remaining states

**Notes:** MMT - Million Metric Tonnes, E - Estimated

**Source:** DataMonitor, Ministry of Mines, Aranca Research
Majority (over 85 per cent) of iron ore reserves are of medium to high-grade and are directly used in blast furnace and Direct Reduced Iron (DRI) plants in the form of sized lumps or sinters or pellets.

During April-September 2017, India’s iron ore production stood at 93.091 million tonnes.

In March 2017, Mangal Credit and Fincorp announced plans of diversifying in iron ore mining by acquiring a mine near Goa. The 21 hectare mine consists of iron ore reserve worth US$223.11 million.
Iron ore is a key ingredient in steel production. In FY 2016-17, India became a net exporter of steel, with 8.2 million tonnes of exports, registering a 102 per cent growth over steel exports in the previous fiscal.

With the Indian economy expected to grow by approximately 7 per cent in the years to come, sectors such as infrastructure and automobiles will receive a renewed thrust, which would further generate demand for steel in the country.

Crude steel production reached 97.385 million metric tonnes in FY17, expanding at a CAGR of 6.44 per cent over 2006–17, making it world’s 3rd-largest producer of crude steel, with a global share of 6 per cent. During April-December 2017, crude steel output^ reached 75.498 million metric tonnes.

During 2016, India’s finished steel consumption stood at 83.5 million tonnes. According to World Steel Association India’s steel demand is expected to grow 6.1 per cent to reach 88.6 million tonnes in 2017.

Notes: CAGR - Compound Annual Growth Rate, FY18* - April to December, ^Provisional
Source: World Steel Association, Aranca Research
RISING DOMESTIC DEMAND PUTS PRESSURE ON SUPPLY OF IRON AND STEEL … (1/2)

- In FY17, India’s iron and steel exports were valued at US$ 8.7 billion. During FY10-17, India’s exports of iron and steel increased at a CAGR of 9.84 per cent. The figure stood at US$ 7.4 billion during April-November 2017.

- The new government would start stalled projects, after it pushes large flagship projects, including the freight and industrial corridors, to boost the demand for steel, which is expected to grow by 15 per cent annually after FY17.

- Government of India imposes 30 per cent export duty on all iron ore forms (Except the low grade iron ore) and 5 per cent export duty is levied on iron ore pellets.

Notes: CAGR - Compound Annual Growth Rate, FY18' – Data from April – November 2017, ²CAGR is till FY17, mt: million tonne; kt: kilo tonne

Source: Ministry of Commerce, DGFT – Directorate General of Foreign Trade, Aranca Research
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 4.3 per cent over FY10-16). India imported iron ore worth US$ 323.66 million and US$ 350.99 million in FY17 and FY18 respectively.

India’s iron and steel imports grew at a CAGR of 4.3 per cent to reach US$ 8.3 billion in FY17. Imports during April-November 2017 stood at US$ 7.1 billion.

Notes: CAGR - Compound Annual Growth Rate, ¹Up to November 2017, ²CAGR is till FY17
Source: Ministry of Commerce, DGFT – Directorate General of Foreign Trade, Aranca Research, DGCIS
In 2016, India contributed around 11 per cent of the world’s production of coal. India’s coal production in 2016 stood at 647.54 million tonnes.

Coal India Ltd (CIL), a Government of India enterprise, is the world’s largest coal company based on raw coal production and coal reserves.

Source: BP Statistical Review of World Energy 2016, World Coal Production, Aranca Research
COAL PRODUCTION GROWING AT A STEADY PACE

- 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.
- During FY2016-17 (till October)*, 22 million tonnes of coal linkages have been auctioned for the non-regulated sector.
- India’s coal production grew at a CAGR of 3.08 per cent between FY09 and FY17 to reach 661 million tonnes. Coal production during April-December 2017 stood at 425.9 million tonnes.

**Notes:** CAGR - Compound Annual Growth Rate, *Up to December 2017, **CAGR is till FY17, *As per latest data available

**Source:** Ministry of Mines, Aranca Research
KEY GEOLOGICAL COAL AND IRON ORE DEPOSITS IN INDIA

States with major coal deposits (as of 2016-17)
- Jharkhand (80,716 mt)
- Odisha (63,973 mt)
- Chhattisgarh (52,533 mt)
- West Bengal (28,242 mt)
- Andhra Pradesh (22,468 mt)
- Madhya Pradesh (25,673 mt)
- Maharashtra (10,964 mt)
- States with lower coal deposits
  - Uttar Pradesh (1000 mt)
  - Meghalaya (570 mt)
  - Assam (515 mt)
  - Nagaland (316 mt)*
  - Bihar (160 mt)*
  - Sikkim (101 mt)*
  - Arunachal Pradesh (90 mt)*

States with major iron ore deposits (as of 2015)*
- 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)

Note: *As per latest data available
Source: Geological Survey of India, Indian Bureau of Mines, Aranca Research
INDIA’S ROLE IN GLOBAL ALUMINIUM PRODUCTION

- Currently, aluminium is the 2nd most used metal in the world after steel and the third most available element in the earth constituting almost 7.3 per cent by mass.

- The principal user segment in India for aluminium continues to be electrical and electronics sector followed by the automotive and transportation, building, construction, packaging, consumer durables, industrial and other applications including defence.

- According to Ministry of Mines, India has the 7th largest bauxite reserves which was around 2,908.85 million tonnes in FY17*.

Note: ICRA - Information Credit Rating Agency Ltd., FY17* - as per latest data available
Source: World Bureau of Metal Statistics (WBMS), Aluminium Association of India, Economist Intelligence Unit (EIU), ICRA Management Consulting Services Ltd (IMaCS), Aranca Research
GROWING DOMESTIC DEMAND TO SUPPORT ALUMINIUM PRODUCTION

- Demand for aluminium is expected to pick up as the scenario improves for user industries, like power, infrastructure and transportation.
- Production of aluminium stood at 2.8 million metric tonnes during FY17 and it is estimated to reach 3.33 million tonnes per annum in FY20.
- Total imports of aluminium and aluminium products in India during FY17 stood at US$ 3.55 billion, whereas, in FY18 it reached US$ 2.52 billion.
- National Aluminium Company (NALCO), a central government-owned entity, is set to join the club of million-tonne producers in the metal segment by 2020. NALCO has readied an about US$ 3.72 billion investments for increasing its alumina, aluminium and power production capacities.
- In April 2017, NALCO readied about US$ 3.72 billion investments for increasing its alumina, aluminium and power production capacities, the other update fine

Aluminium production (million metric tonnes)

Note: ICRA - Information Credit Rating Agency Ltd, CAGR - Compound Annual Growth Rate E- Estimated, FY18 - Data from April to October 2017
STRONGER ECONOMIC GROWTH TO SUPPORT ALUMINIUM CONSUMPTION

- Demand of aluminium in India is expected to grow at 17-18 per cent per annum and this will be driven by growth in sectors like electricity, transport, building, construction and packaging.
- Consumption of aluminium in India is estimated at 3.4 million tonnes in FY17, and is forecasted to reach 5.3 million tonnes by 2020.

**Note:** CAGR - Compound Annual Growth Rate, Note E – Estimate, \(^1\)CAGR is till FY17

**Source:** WBMS, EIU, Aranca Research
## MAJOR METALS AND MINING PLAYERS IN THE COUNTRY

<table>
<thead>
<tr>
<th>Segment</th>
<th>Major player</th>
<th>Market share</th>
<th>Other players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron and Steel</td>
<td>NA</td>
<td>Sesa Goa, SAIL, Orissa Minerals</td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>80 per cent</td>
<td>Singareni Collieries Company, Reliance Natural Resources</td>
<td></td>
</tr>
<tr>
<td>Aluminium</td>
<td>60 per cent</td>
<td>National Aluminium Company (NALCO), Bharat Aluminium Company (BALCO)</td>
<td></td>
</tr>
</tbody>
</table>
### NOTABLE TRENDS IN THE METALS AND MINING SECTOR

<table>
<thead>
<tr>
<th>Trend</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captive mining for coal</td>
<td>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, fertilizers and steel units. As per government, US$ 271.27 million of revenue was generated from e-auction of 31 coal mines till January 2017.</td>
</tr>
<tr>
<td>Longer duration leases</td>
<td>In the last few years, India has seen a significant growth in minerals with the government granting leases for longer durations of 20 to 30 years.</td>
</tr>
<tr>
<td>Focus on domestic market</td>
<td>The demand for metal and metal products is rising in the domestic market with India being a net importer in the metals segment.</td>
</tr>
<tr>
<td>Overseas ventures</td>
<td>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. Adani Enterprises’ Carmichael coal plant aims to make its first shipment by March 2020.</td>
</tr>
<tr>
<td>Outlook of Metal and Mining</td>
<td>In September 2017, the index of mineral production increased 2.1 per cent y-o-y to 94.5 and the total value of mineral production was estimated at US$ 2.91 billion. The index of mineral production of quarrying and mining sector for March (new Series 2011-12=100) 2017, which stood at 127.2 was 9.7 per cent higher as compared to the levels in March 2016. The cumulative growth for April-March 2016-17 over the period of previous year has been 5.3 per cent.</td>
</tr>
</tbody>
</table>

**Notes:** MT - Metric Tonnes  
**Source:** Aranca Research, Mining Global Inc.
### Porter’s Five Forces Framework Analysis

**Threat of Substitutes**
- Threat of substitute products is low

**Bargaining Power of Suppliers**
- Highly regulated industry
- Difficult to get mining permits

**Competitive Rivalry**
- Commodity prices are set internationally and individual players have no control over it
- Competition is high to identify commodity reserves leading to more market share

**Threat of New Entrants**
- Exploration and development of mines requires large capital investment

**Bargaining Power of Buyers**
- Demand/supply imbalance determines the price of commodities.
- Major customers typically negotiate prices based on current market levels

*Source: Aranca Research*
STategies Adopted
## NOTABLE TRENDS IN THE METALS AND MINING SECTOR

<table>
<thead>
<tr>
<th>Cost optimisation</th>
<th>Focus on technology</th>
<th>Build strategic alliances</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Players in the industry are trying to minimise cost to gain competitive advantage</td>
<td>▪ Players in the industry are focusing on optimising technology to increase process efficiency</td>
<td>▪ Alliance with global and domestic players help companies to improve their operational performance through technological improvement and cost optimisation</td>
</tr>
<tr>
<td>▪ For example, SAIL is trying to reduce cost by</td>
<td>▪ Coal India Ltd is focusing on making best use of technology. It has ambitious plans of using GPS/GPRS based vehicle tracking system to enhance productivity. It also has services such as E-Auction, E-Procurement of goods and services</td>
<td></td>
</tr>
<tr>
<td>▪ Entering into MoU for coal bed methane and propane gas to reduce cost of energy</td>
<td>▪ The Ministry of Mines has put in motion the Mining Surveillance System (MSS), a pan-India surveillance network using latest satellite technology, to check illegal mining.</td>
<td></td>
</tr>
<tr>
<td>▪ Optimisation of the input resources, increasing operating efficiency for handling the assets available with the company, reducing overhead costs and stabilisation of newly formed operation units</td>
<td>▪ During October 2016, MSTC Limited, one of the country’s leading e-commerce service providers launched ‘M3 Metal Mandi’, a virtual market for metal transactions. The portal primarily aims to benefit micro small and medium enterprises (MSMEs).</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- MoU – Memorandum of Understanding, GPS – Global Positioning System, GPRS - General Packet Radio Service
- Source: SAIL Company website, Business Standard, Aranca Research

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*For updated information, please visit [www.ibef.org](http://www.ibef.org)*
GROWTH DRIVERS
STRONG FUNDAMENTALS AND POLICY SUPPORT AIDING GROWTH

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

Policy support
- Relaxed FDI norms
- Allowing private ownership
- Reduced customs duty
- Tax and other incentives

Innovation
- Expanding research and development and distribution facilities in India
- Use of modern technology
- Providing support to global projects from India

Increasing investments
- Increasing FDI
- Increasing private participation

Notes: M&A - Mergers and Acquisitions, FDI - Foreign Direct Investment
Source: Aranca Research
The power sector accounts for a large share of the consumption of coal in the country.

In FY17, power generation in India was 1160 TWh. Power generation in India expanded at a CAGR of 5.11 per cent during FY08–17. During April-December 2017, power generation stood at 907 TWh.

In December 2017, total power generation capacity stood at 333,549.82 MW.

In the 11th Plan, India is estimated to have added around 60,000 MW of generation capacity at an investment of US$ 11.5 billion.

To meet growing power demand, the Power Ministry has targeted capacity addition of 88,537 MW in the 12th Plan (2012-17) period.

With a huge reserve of coal, around 67 per cent of total power generation was done through thermal power plants, while hydro, renewable and nuclear plants contributed 13.6 per cent, 17.4 per cent and 2.1 per cent respectively in FY17.

In December 2017, utilisation capacity of coal and lignite based power plants in India rose to 59.05 per cent from 57.93 per cent in September 2016.

Note: TWh - Terawatt-hour, P - Provisional, CAGR – Compounded Annual Growth Rate, ¹From April to December 2017, ²CAGR is till FY17

Source: Ministry of Power, Central Electricity Authority (CEA), Aranca Research
India is witnessing a sustained growth in infrastructure build up. The construction industry has been witness to a strong growth wave powered by large spends on housing, road, ports, water supply, rail transport and airport development.

Infrastructure projects continue to provide lucrative business opportunities for steel, zinc and aluminium producers.

In March 2017, Hindustan Zinc is planning to commission its 1st Zinc fumer plant at Chanderiya with an investment of US$ 84.78 million for extracting metals from waste. Commissioning of the plant will improve recovery of zinc from 96.8 per cent to 97.5 per cent, adding about 3000 tonnes of zinc from 1 smelter per annum.

India’s infrastructure sector is expected to grow at a CAGR of 35.65 per cent over FY08-25. Also, it has been estimated that India is going to require US$ 4.5 trillion* of investment by 2040 for infrastructure development.

In Union Budget 2018-19, Government of India has allocated US$ 92.22 billion for infrastructure sector.

Source: Business Monitor International’s (BMI) Report on infrastructure industry in India; Aranca Research Estimates

Note: F - Forecasts (by BMI), CAGR – Compounded Annual Growth Rate, *Economic Survey 2017-18
A FAST-EXPANDING CONSTRUCTION SECTOR HAS AIDED GROWTH ... (2/2)

- Growth in the sector is set to increase in the next few years; forecasts put the CAGR for FY12-17 at 11.93 per cent
- Iron and steel being a core component of the real estate sector, demand for these metals is set to continue given strong growth expectations for the residential and commercial building industry
- Total housing shortage in the country stood at about 18.78 million at the start of the Twelfth Five Year Plan. This provides a big investment opportunity for residential building construction in coming years

![Residential and non-residential building industry (US$ billion)](chart)

**Note:** E - Estimated  
**F** - Forecasts (by BMI)  
**CAGR** – Compounded Annual Growth Rate  
**YoY** – Year on Year  
**Source:** Business Monitor International’s (BMI) Report on infrastructure industry in India, Aranca Research
### FAVOURABLE POLICIES ARE SUPPORTING THE SECTOR GROWTH

<table>
<thead>
<tr>
<th>The Mines and Minerals (Development and Regulation) Amendment Act, 2015</th>
<th>- The MMDR Act of 1957, witnessed amendments in 2015 for the promotion and development of the mining industry in India, that includes making auctions the sole method for the allotment of mineral concessions and mandating the establishment of District Mineral Foundation (DMF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxed FDI norms</td>
<td>- FDI of 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</td>
</tr>
<tr>
<td></td>
<td>- FDI caps for coal and lignite has been increased to 100 per cent under the automatic route</td>
</tr>
<tr>
<td>Allowing private ownership</td>
<td>- Government of India is encouraging private ownership for steel operations and other high priority industry</td>
</tr>
<tr>
<td>Investment incentives</td>
<td>- Profits of companies producing specified metals are given tax concession under the Income Tax Act</td>
</tr>
<tr>
<td></td>
<td>- Low custom duty on the capital equipment used for minerals</td>
</tr>
<tr>
<td></td>
<td>- Companies who do mining in backward districts are eligible for complete tax holiday for a period of 5 years from the commencement of production and 30 per cent tax holiday for 5 years thereafter</td>
</tr>
<tr>
<td>Reduced custom duty</td>
<td>- Government of India significantly reduced the duty payable on finished steel products and has streamlined the associated approval process</td>
</tr>
<tr>
<td>Skill Development Plan for the Mining Sector (2016-22)</td>
<td>- Focuses on upgradation of the skill sets to foster adaptation of new state of art technology</td>
</tr>
<tr>
<td></td>
<td>- Aims to increase the capacity and quality of training infrastructure and trainers to address human resource needs</td>
</tr>
</tbody>
</table>

- In August 2017, Ministry of Mines had constituted a committee to revisit National Mineral Policy 2008 and announce a fresh and more effective, meaningful and implementable policy. Comments were invited from the general public and other entities concerned in January 2018.

**Notes:**
- FDI - Foreign Direct Investment
- **Source:** Aranca Research
## MMDR ACT

### General restrictions and concessions
- Reservation of areas for PSUs removed
- State governments to set up special courts to expedite prosecution in illegal mining
- Statutory Coordination cum Empowered Committee at central and state levels to decide upon stringent penalties for offences

### Process of revenue collection and usage
- Central government to establish National Mineral Fund; respective state governments to establish State Mineral Fund(s)
- District Mineral Foundation will be set up by the state government which will work for the interest and benefit of persons or families affected by mining related operation in the district and will be managed by a governing council
- The mining tax collected will be spent within the district

### Relaxation on duties
- The Basic Customs Duty (BCD) on
  - ships imported for breaking up is being reduced from 5 per cent to 2.5 per cent
  - coal-tar pitch is being reduced from 10 per cent to 5 per cent
  - battery waste and battery scrap is being reduced from 10 per cent to 5 per cent
  - steel grade limestone and steel grade dolomite is being reduced from 5 per cent to 2.5 per cent

**Notes:** FDI - Foreign Direct Investment  
**Source:** Aranca Research
MINERAL AUCTION RULES, 2015

Mining Leases
- Mining auctions conducted under the ambit of state government.
- Types of lease granted:
  - Mining lease - where evidence of mineral contents is established
  - Composite lease - combination of a prospecting licence and a mining lease

Net Worth Requirements
- For annual average production up to
  - Rs 2 crore (US$ 311,090)– net worth required: Rs 50 lakh (US$ 77,773)
  - Rs 20 crore (US$ 3.11 million)– net worth required: Rs 10 crore (US$ 1.56 million)
- Small bidders can include value of unencumbered immovable property in net worth

Auction Modalities
- Auctions are conducted electronically and bidding is done over two rounds
- The first round requires bidders to furnish technical details and initial offer which has to be equal to or higher than the set ‘Reserve Price’.
- The highest bid in the first round acts as the ‘reserve price’ for the second round in which only technically qualified bidders participate.
FDI up to 100 per cent is allowed in exploration, mining, minerals processing and metallurgy under the automatic route for all non-fuel and non-atomic minerals including diamonds and precious stones.

During April 2000 – September 2017, cumulative FDI inflows into the metals and mining sector stood at US$ 13.79 billion.

The sector accounted for 3.86 per cent of total cumulative FDI inflows during the period April 2000 – September 2017.

Source: Department of Industrial Policy and Promotion, Aranca Research
## M&A activities (till January 2018)

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Target</th>
<th>Acquisition price (US$ million)</th>
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</thead>
<tbody>
<tr>
<td>Balasore Alloys</td>
<td>Zimbabwe Alloys</td>
<td>90</td>
</tr>
<tr>
<td>Mr Anil Agarwal</td>
<td>Anglo American (Partial stake purchased)</td>
<td>2,000</td>
</tr>
<tr>
<td>JSW Energy Ltd</td>
<td>Jindal Steel and Power Ltd</td>
<td>976</td>
</tr>
<tr>
<td>SAIL</td>
<td>Reiterated its interest to acquire majority stake in Neelachal Ispat</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Nigam Ltd (NINL) in Jajpur, Odisha</td>
<td></td>
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<tr>
<td>Joint Venture between Vedanta Resources and</td>
<td>Merger of Sterlite Industries (Indian subsidiary of Vedanta Resources )</td>
<td>3,900</td>
</tr>
<tr>
<td>Sesa Goa</td>
<td>and Sesa Goa</td>
<td></td>
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<tr>
<td>GVK Power and Infrastructure Ltd</td>
<td>Hancock Coal-Queensland Coal</td>
<td>1,260.0</td>
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<tr>
<td>Sesa Goa Ltd</td>
<td>Cairn India Ltd</td>
<td>1,175.9</td>
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<tr>
<td>JFE Steel Corp</td>
<td>JSW Steel Ltd</td>
<td>1,029.1</td>
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<tr>
<td>Lanco Resources Australia</td>
<td>Griffin Coal Mining Co Pty Ltd</td>
<td>722.7</td>
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<tr>
<td>Vedanta</td>
<td>Cairn India</td>
<td>1,560</td>
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<tr>
<td>Oil and Natural Gas Corporation (ONGC)</td>
<td>Gujarat State Petroleum – KG Basin</td>
<td>1,195.26</td>
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<tr>
<td>Tata Steel Ltd</td>
<td>Brahmani River Pellets Ltd</td>
<td>132.35</td>
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</tbody>
</table>

*Source: Thomson Banker, Deal Tracker, Aranca Research*
OPPORTUNITIES
### Untapped market with strong growth potential
- India’s per capita steel consumption was 61 kg in 2016 compared with the global average of 208 kg
- Rural per capita steel consumption is likely to reach around 20 kg from 13 kg currently
- An amount equal to US$ 25 billion to US$ 33 billion is expected to be invested in steel sector over the next 6-7 years

### Scope for new mining capacities in iron ore, bauxite and coal
- India has the world’s seventh largest reserve base of bauxite and fourth largest base of iron ore respectively, and accounts for about 7 per cent and 11 per cent respectively, of total world production
- Moreover, India has the world’s fifth largest coal reserves and accounts for 7.5 per cent of total global 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

### Expansion of product line by existing players
- The 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, beams, blanks, rounds and slabs as well as metallics and ferro alloy. Looking at the expected growth in sector, existing manufacturers have a huge opportunity to expand their product line in new segments

**Source:** WSA, Ernst and Young, Aranca Research
OPPORTUNITIES IN THE IRON ORE SECTOR

Exploration in proposed exploration zones

- Odisha: Bonai (Keonjhar belt) and Tomka (Daitari and Umerkoke belts)
- Jharkhand: All major high-grade ore deposits contain low-grade lateritic ores
- Karnataka: Bagalkot, Tumkur, and Chitradurga districts
- Maharashtra: Sindhudurg, Gadchiroli and Gondia
- Chhattisgarh: All 14 deposits of Bailadila range, Dantewada district
- Andhra Pradesh: Kadapa, Kurnool, Karimnagar, Adilabad, and Guntur districts

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

- Mineral production reached US$ 38.35 billion in FY17
  - Pelletisation capacity is about 27.64 MTPA
  - Sintering capacity is about 39 MTPA
- Scope for domestic and foreign firms in upcoming PPP opportunities
  - Joint Venture or technical participation with midcap players with lease/license and seeking capital, expertise and technology
  - Through the auction route, players can get access to coal mines and iron ore reserves
  - Introduction of mines and minerals (Development and Regulation) Amendment Bill, 2015 to encourage investments and introducing viable mining practices
  - Auction of 34 mineral blocks (17 Limestone blocks, 8 Bauxite blocks, 5 Iron Ore blocks, 2 Copper blocks, 2 Manganese blocks) is expected to be completed by March 2018.

Notes: MT - Metric Tonnes, MTPA - Metric Tonnes Per Annum
Source: PwC, Aranca Research
CASE STUDIES
COAL INDIA LIMITED (CIL): LEADER IN MINING INDUSTRY IN INDIA … (1/2)

- In FY17, CIL produced 499.49 MT of non-coking coal and 54.65 MT of coking coal, rising from 485.05 MT and 53.7 MT in year 2016.
- CIL aims to increase its output to 1 billion metric tonne (MT) by FY19 from 554.14 MT in FY17.
- Revenue increased at a ²CAGR of 1.34 per cent to US$ 11.84 billion over FY09–17. In H1 of FY 18, revenue stood at US$ 5.56 billion.
- In March 2017, Coal India Ltd and its subsidiary Central Coalfields Ltd permitted a share buyback plan for 521,000 fully paid equity shares of face value of US$149.04.

Note: MT - Million Tonnes, CAGR - Compound Annual Growth Rate, 2016 – Data from April to March for the year, ¹From April to September 2017, ²CAGR till FY17
Source: Bloomberg, Aranca Research
COAL INDIA LIMITED (CIL): LEADER IN MINING INDUSTRY IN INDIA … (2/2)

- The company’s strategic overseas ventures with Colombia and US enabled it to meet India’s rising energy demand
- CIL has drawn up a 5 year investment plan (2012-17) worth US$ 10.67 billion, half of which would be capital investments, including the acquisition of overseas coal assets
- Government has recently allocated 116 coal blocks to CIL for expansion.
- Non-Coking Coal production increased at a CAGR of 3.6 per cent over 2011-17, whereas, Coking coal production rose at a CAGR of 4.06 per cent.
- In FY17, Coal India Ltd. produced 554.14 million tonnes of coal, growing at a YoY of 2.86 per cent in comparison to 2016.
- During the first 7 months of FY17, the company produced 273.57 million tonnes (MT) of coal
- In September 2016, the company signed an MoU with Indian Council of Forestry Research and Education (ICFRE) for effective monitoring of environment related issues in coal mining projects.

Note: CAGR - Compound Annual Growth Rate, MT - Million Tonnes
Source: CIL Company website, Aranca Research
STEEL AUTHORITY OF INDIA LTD (SAIL): A STORY OF STEEL … (1/2)

- SAIL's revenue reached US$ 7.89 billion in FY17.
- The company was awarded Golden Peacock Award for corporate governance in 2016 by the Institute of Directors (IOD).
- In 2017, SAIL signed a strategic pact with POSCO for collaboration on technical services for its plant in West Bengal.
- Revenues of the firm reached US$ 3.92 billion during April-September 2017.

Note: SAIL – Steel Authority of India Ltd, FY18* - April to September 2017
Source: Company website, Aranca Research

![Revenues (US$ billion)](chart.png)
SAIL was largest steel producer in India in FY17.

It was also awarded the “Best in CSR and Sustainability as well as the most eco-friendly Public Sector Unit (PSU) among all Maharatna category” at the 2014 India Today Group PSU Awards.

Sale of saleable steel by SAIL, reached 13.14 million tonnes, by FY17.

**Note:** SAIL – Steel Authority of India Ltd.

**Source:** Company website, Aranca Research
INDUSTRY ASSOCIATIONS
<table>
<thead>
<tr>
<th>Agency</th>
<th>Contact Information</th>
</tr>
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<tbody>
<tr>
<td>SAIL – Steel Authority of India Ltd.</td>
<td>118, 1st Floor, Ramanashree Arcade</td>
</tr>
<tr>
<td></td>
<td>18, M. G. Road</td>
</tr>
<tr>
<td></td>
<td>Bengaluru, Karnataka-560 001</td>
</tr>
<tr>
<td></td>
<td>Phone: 91- 80-25582197, 25582757</td>
</tr>
<tr>
<td></td>
<td>Fax: 91-80-25594535</td>
</tr>
<tr>
<td></td>
<td>E-mail: <a href="mailto:aluminium@eth.net">aluminium@eth.net</a></td>
</tr>
<tr>
<td>Federation of Indian Mineral Industries</td>
<td>FIMI House, B-311, Okhla Industrial Area</td>
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<tr>
<td></td>
<td>Phase-I, New Delhi-110 020</td>
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<tr>
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<td></td>
<td>E-mail: <a href="mailto:fimi@fedmin.com">fimi@fedmin.com</a></td>
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<tr>
<td>Indian Stainless Steel Development Association</td>
<td>L -22/4, DLF Phase-II</td>
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<tr>
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<td></td>
<td>E-mail: <a href="mailto:nissda@gmail.com">nissda@gmail.com</a></td>
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APPENDIX

- BMI’s Mining Business Environment Ratings
  - Market structure: It takes into consideration mining output in US$ billion, sector value growth, per cent y-o-y, mining sector, per cent of GDP
  - Country structure: It takes into consideration labour market infrastructure, physical infrastructure, 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
- US$: US Dollar
- Wherever applicable, numbers have been rounded off to the nearest whole number
## Exchange Rates

### Exchange Rates (Fiscal Year)

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<th>Year INR</th>
<th>INR Equivalent of one US$</th>
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<td>2005–06</td>
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<td>45.14</td>
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<td>2007–08</td>
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<td>2008–09</td>
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<td>2009–10</td>
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<td>2011–12</td>
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<td>Q1 2017–18</td>
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<td>Q2 2017–18</td>
<td>64.29</td>
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<td>Q3 2017–18</td>
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### Exchange Rates (Calendar Year)

<table>
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<td>2016</td>
<td>67.21</td>
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<tr>
<td>2017</td>
<td>65.12</td>
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**Source:** Reserve bank of India, Average for the year
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