



METALS AND MINING

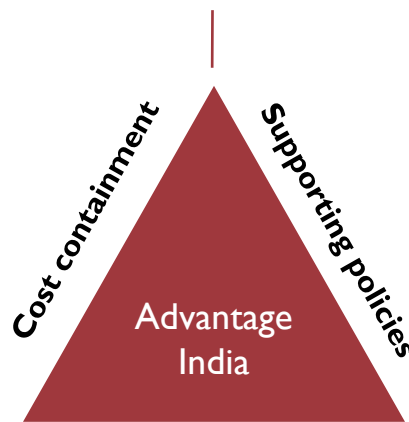
April 2010

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Advantage India

- India offers among the lowest labour and conversion costs worldwide in the production of steel and alumina.
- The country is strategically located, with its proximity to developed European markets and fast-developing Asian markets, for export of steel and aluminium.



- 100 per cent foreign direct investment (FDI) is permitted by the government under the automatic route for mining of metal ores, including precious metals and minerals.
- The government is promoting investments for value-added metal manufacturing and mineral exploration.

Abundant raw material

- India is rich in mineral resources and has large reserves of primary metal ores such as iron ore, bauxite, chromium, manganese and titanium.
 - 24 billion tonnes of iron ore reserves — the fifth-largest reserve base in the world
 - 2.4 billion tonnes of bauxite reserves — the fourth-largest global reserve base
 - 240 million tonnes of manganese reserves — the second-largest reserve base worldwide
 - 57 million tonnes of chromium reserves — the third-largest reserve base in the world
- Deposits of bauxite and iron ore in India rank among the best in the world in terms of their quality and mineability.
- Untapped metal reserves worth 82 billion tonnes.

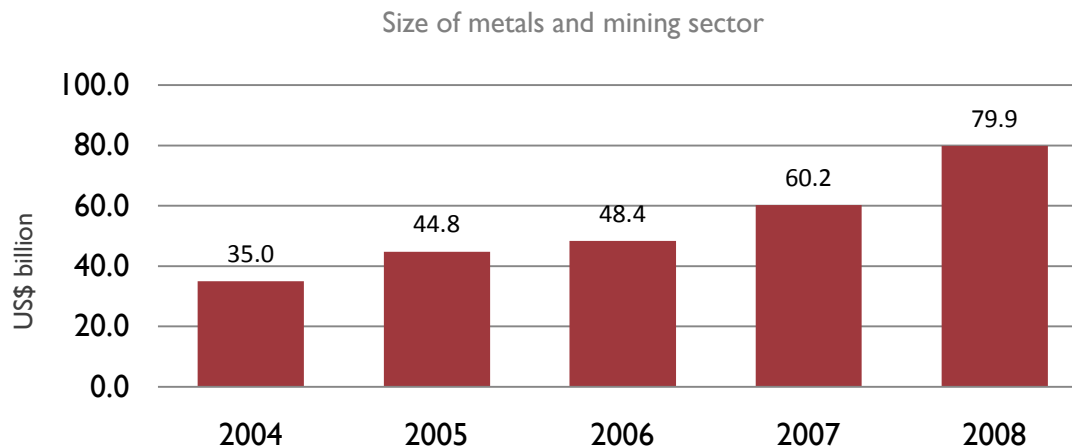
Source: Ministry of Mines, GoI, Annual Report 2008–09

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Market overview

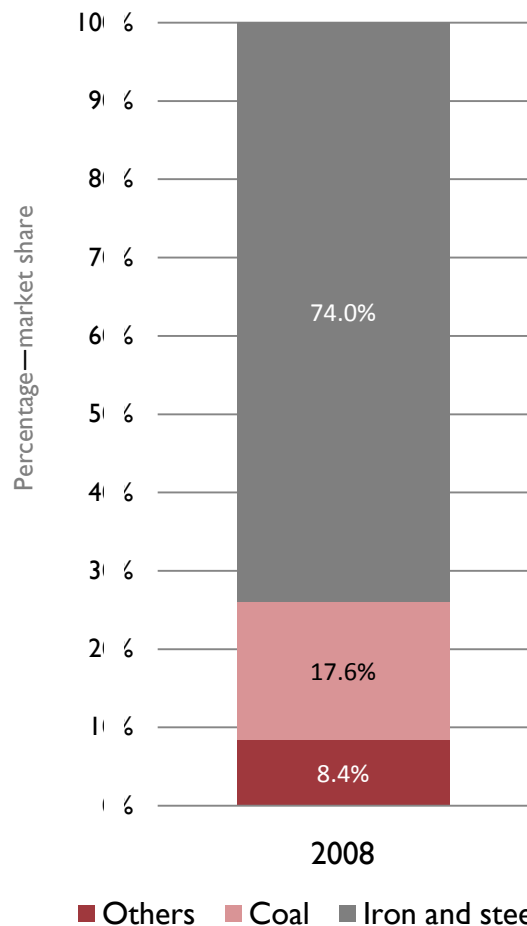
The metals and mining sector* was valued at US\$ 79.9 billion (INR 3,835.4 billion) in 2008, registering a year-on-year growth rate of 32.7 per cent in 2007 and a compound annual growth rate (CAGR) of 22.9 per cent from 2004 to 2008.



Source: Metals & Mining in India, November 2009, Datamonitor

*For the purpose of this report, the metals and mining sector comprises the aluminium segment (only production of primary aluminum is considered), the base metals segment (consisting of lead, zinc, copper, nickel and tin), the coal segment (consisting of primary coal — anthracite, bituminous and lignite), the iron and steel segment (consisting of production of crude steel, pig iron and direct reduced iron), and the precious metals and minerals segment (consisting of gold, silver, platinum, palladium, rhodium, and industrial and gem-quality diamonds).

Market segments



Iron and steel

- The production of sponge iron and pig iron was 20.8 million tonnes and 5.3 million tonnes, respectively, in 2008–09.
- The production of finished steel and crude steel was 56.4 million tonnes and 54.5 million tonnes, respectively, in 2008–09.

Coal

- Total coal production, including raw coal and lignite stood at 490 million tonnes in 2007–08.

Others — base metals, aluminium, precious metals and minerals

- The production of bauxite, and copper, lead and zinc concentrate was 23.08 million tonnes, 159,000 tonnes, 126,000 tonnes and 1,036,000 tonnes, respectively, in 2007–08.
- Gold production stood at 2,858 kg in 2007–08.

Sources: Metals & Mining in India, November 2009, Datamonitor; Ministry of Steel, GoI, Annual Report 2008–09; Ministry of Coal, GoI, Annual Report 2007–08; Ministry of Mines, GoI, Annual Report 2008–09

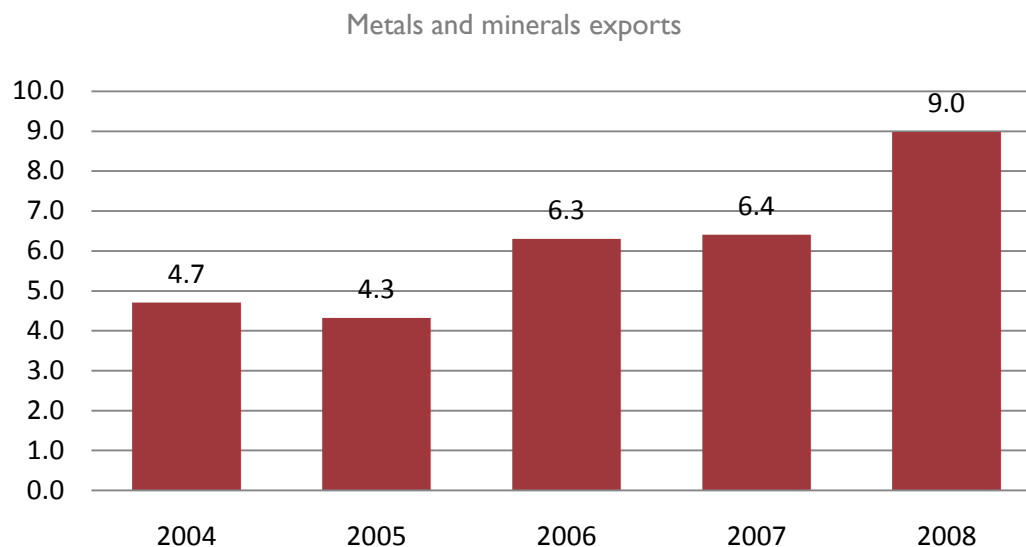
Overview of operational mines across states

- India's mining industry is comprises a large number of small operational mines.
- The number of mines that reported mineral production (excluding minor minerals, petroleum, natural gas and atomic minerals) in India was 2,954 in 2008–09.

State	Number of mines
Gujarat	433
Andhra Pradesh	406
Madhya Pradesh	298
Jharkhand	298
Rajasthan	252
Orissa	236
Karnataka	230
Tamil Nadu	159
Maharashtra	154
Chhattisgarh	150
West Bengal	113

Source: Ministry of Mines, Gol, Annual Report 2008–09

Exports

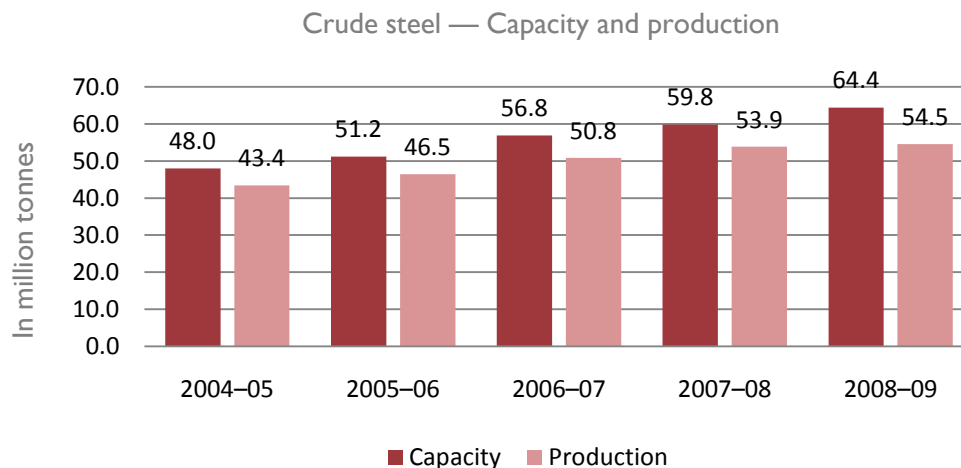


- Metal and mineral exports from India grew by 40.3 per cent from calendar year 2007 to calendar year 2008.
- Metal and mineral exports accounted for 4.9 per cent of the country's total exports in 2008.

Source: International Trade Centre website, www.trademap.org, accessed January 16, 2010

Domestic demand — iron and steel ... (1/4)

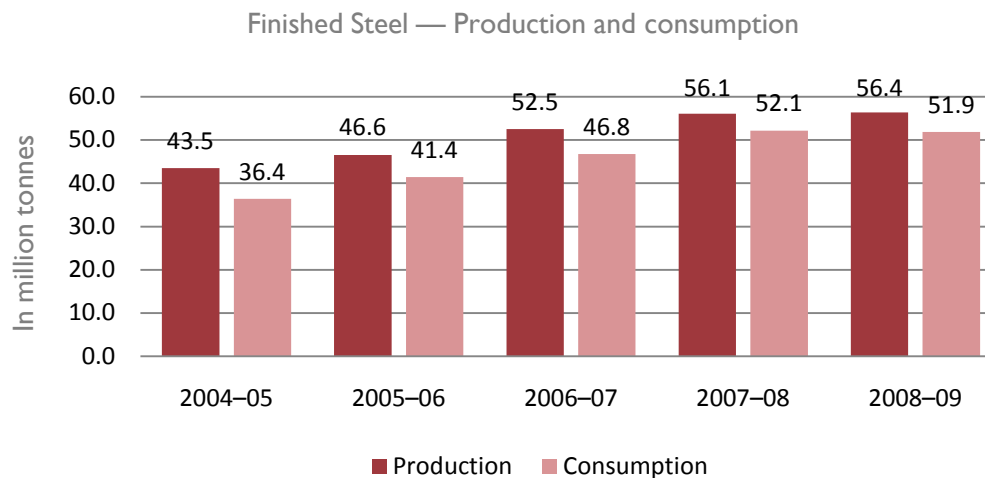
- India's per capita steel consumption stood at 46 kg in 2008.
- The domestic demand for steel is estimated to grow at an annual average rate of more than 10 per cent in the next five years.
- In 2008–09, the installed capacity of crude steel was estimated at 64.4 million tonnes. With production reaching 54.5 million tonnes, the sector recorded 85 per cent capacity utilisation.



Source: Ministry of Steel, GoI, Annual Report 2008–09

Domestic demand — iron and steel ... (2/4)

- Finished steel consumption grew at a CAGR of 9.3 per cent, as compared to a production CAGR of 6.7 per cent between 2004–05 and 2008–09.

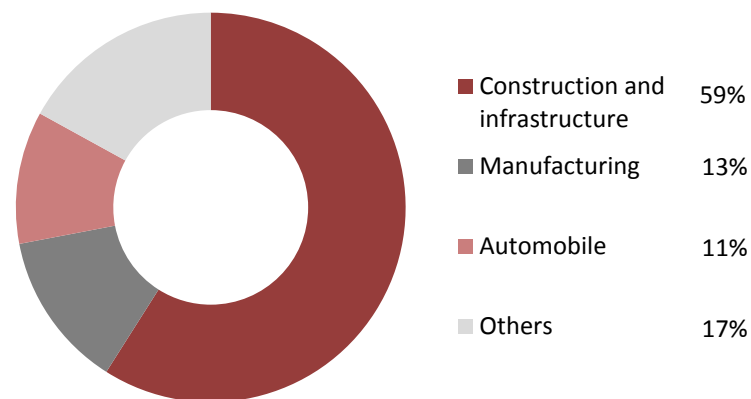


Source: Ministry of Steel, Gol, Annual Report 2008–09

Domestic demand — iron and steel ... (3/4)

- About 35 per cent of the total steel was produced by the public sector, 35 per cent by large private manufacturers and 30 per cent by small players.
- The production capacity of steel is estimated to reach 124 million tonnes by 2011–12.
- Long products constituted 57 per cent of the total finished steel consumption and the remaining 43 per cent comprised flat products in 2007–08.

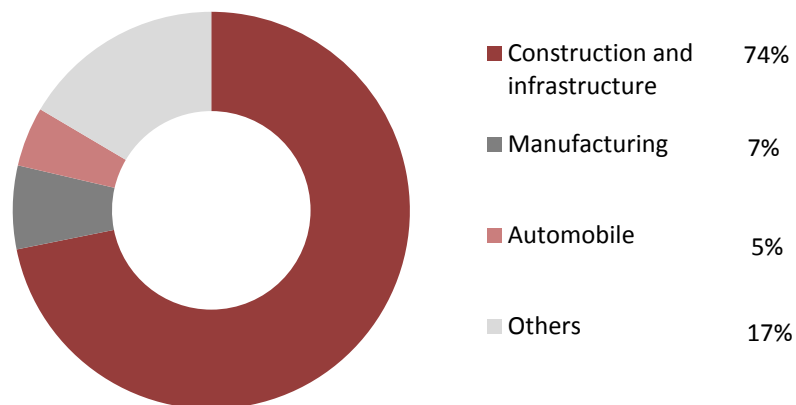
Sector-wise consumption of finished steel (2007–08)



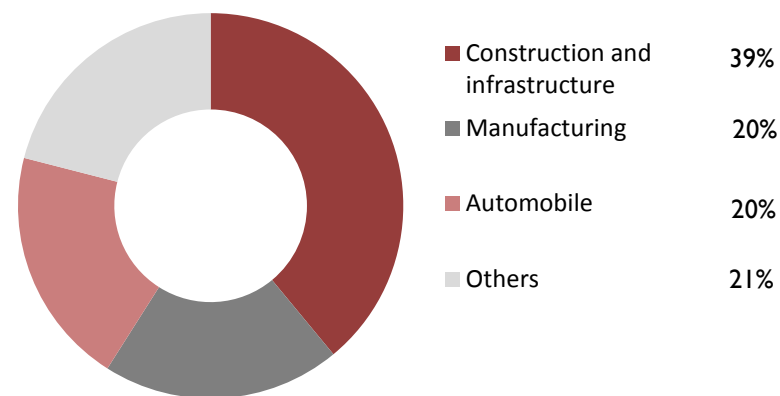
Sources: Ministry of Steel, GoI, Annual Report 2008–09; JSW Steel, Annual Report 2007–08

Domestic demand — iron and steel ... (4/4)

Long product consumption (2007–08)



Flat product consumption (2007–08)



Sources: Ministry of Steel, Gol, Annual Report 2008–09; JSW Steel, Annual Report 2007–08

Domestic demand — aluminium ... (1/2)

- India's bauxite reserves are estimated to be 7.5 per cent of global deposits and the country's installed capacity is approximately 3 per cent, making it self sufficient in its domestic and export markets.
- Wire rods and rolled aluminium products constitute more than half of total aluminium production.

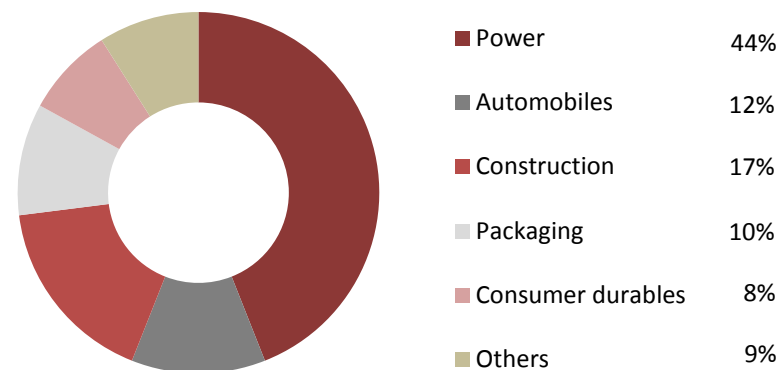


Source: Aluminium Commodity Briefcase, Ernst & Young, March 2009

Domestic demand — aluminium ... (2/2)

- The power sector was the biggest consumer of aluminum wire rods in 2007–08. This increasing demand for power is further expected to drive aluminium consumption.
- In the automobile sector, aluminum is used to manufacture engine components, gearbox cases, brake casing, radiators, cylinder heads, transmission housing and other structural components.

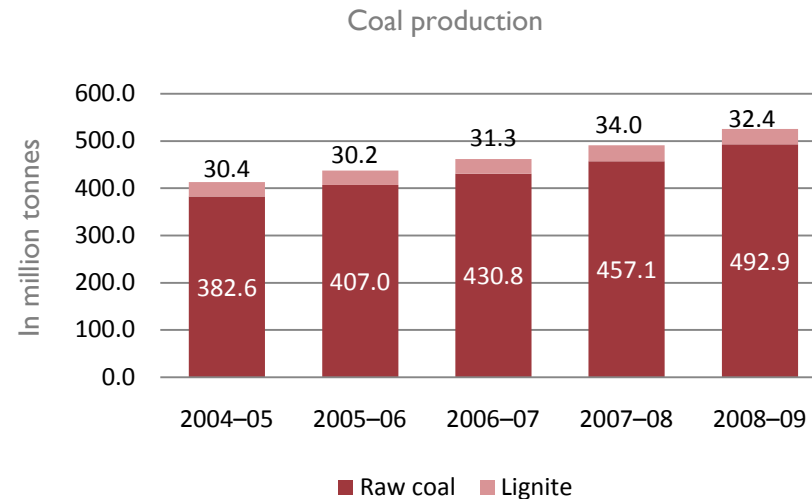
Sector-wise consumption of aluminium (2007–08)



Source: Aluminium Commodity Briefcase, Ernst & Young, March 2009

Domestic demand — coal ... (1/2)

- Total coal production, including raw coal and lignite, stood at 525.3 million tonnes in 2008–09 and grew at a CAGR of 6.2 per cent from 2004–05 to 2008–09.
- Coal mining in India is predominantly carried out by open cast mining, with 81 per cent of the total domestic production being mined open cast.
- Non-coking coal production constitutes 93.2 per cent of total raw coal production (consisting of metallurgical coal, coking coal and non-coking coal) in the country.

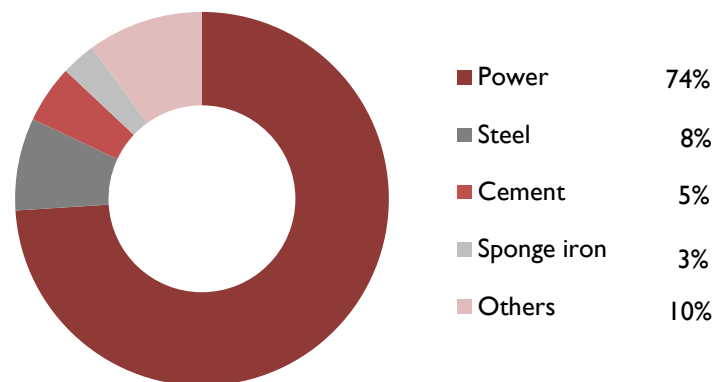


Source: “Provisional Coal Statistics 2008–09”, Ministry of Coal, GoI

Domestic demand — coal ... (2/2)

- The power segment is the largest consumer of coal, and the trend is expected to continue due to the sustained growth of power demand and the government’s mission of ‘Power for all’* by 2012.

Sector-wise consumption of coal (2007–08)



Source: “Provisional Coal Statistics 2008–09”, Ministry of Coal, GoI

*The Government of India has a mission of ‘POWER FOR ALL BY 2012’. This mission would require that our installed generation capacity should be at least 2, 00,000 MW by 2012 from the present level of 1,14,000 MW.

Growth drivers... (1/3)

The metals and mining sector is dependent on other sectors such as power, infrastructure, automobiles, etc., for end consumption, and the growth of the sector is directly dependent on the growth of these end-user segments.

Power sector

- The power sector accounts for a large share of the consumption of aluminium and coal in the country.
- The Electricity Act 2003, the National Electricity Policy and the National Tariff Policy have created a conducive business environment for attracting investments in the power sector.
- In the Eleventh Plan, India is expected to add around 60,000 MW of generation capacity, with the total expenditure on these projects estimated to be about US\$ 100 billion by 2011-12.
- Restructuring of State Electricity Boards (SEBs), a strong focus on transmission and distribution (T&D) and opening up of the power sector to the private sector is expected to significantly increase power generation, translating into increased demand and higher consumption of input material such as coal and aluminium.

Growth drivers... (2/3)

Infrastructure sector

- India's construction sector is considered to be the second largest in the country after agriculture, employing approximately 14 per cent of its total working population.
- There has been an increasing demand for construction activity across all the segments including infrastructure, real estate and industrial construction.
- According to the 2001 census, the country's housing shortage was estimated at 25 million. The National Housing Bank estimates that the total housing requirement for the Eleventh Plan Period (2007–2012) will be 45 million dwelling units, which will require an investment of US\$ 2.08 billion (INR 100 billion).
- Key infrastructure projects such as bridges and urban construction, power projects, railways, airport modernisation, real estate development, etc., are attracting huge domestic and foreign investments. These provide attractive business opportunities for steel manufacturers.
- The Eleventh Plan has allocated investments worth US\$ 490 billion for the country's core infrastructure sector comprising power, roads, highways, railways, ports, airports, mining and irrigation.

Growth drivers... (3/3)

Automotive sector

- India's automotive sector is a major consumer of steel and aluminium. The sustained growth in this sector is driving the demand for both steel and aluminium.
- India is the world's second-largest manufacturer of two wheelers and the fifth-largest manufacturer of commercial vehicles.
- In 2009, India emerged as Asia's fourth-largest exporter of automobiles.
- The country's auto-component segment is well established, with more than 500 companies in the organised sector and about 10,000 firms in the unorganised sector.

Cement sector

- The cement sector in India is one of the major consumers of coal. The demand for cement is steadily increasing with the rise in construction activity, thereby driving the demand for coal.
- Cement production in 2008–09 was 181.6 million tonnes (by large plants), growing at a rate of 6.8 per cent in 2007–08.

Source: Indian Engineering and Construction Industry Study — Financial Year 2007–08, Ernst & Young

Sources: Department of Heavy Industries, GoI, Annual Report 2008–09; "Aam Aadmi Awaas", National Housing Bank website, www.nhb.org.in, accessed January 19, 2010

Key trends

R&D and upgrading of technology

- Metal manufacturers are increasing their R&D expenditure and focussing on technology-driven processes to improve their productivity and reduce costs.
- Five patents filed by JSW Steel in 2008–09
- Waste conversion to usable resource, fuel rate reduction, etc.

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.
- Domestic and foreign companies are increasingly focussing on tapping the domestic market to meet this growing demand.

Captive mining

- Captive mining for coal is permitted for setting up coal washeries and for specified end uses, including setting up of power plants, fertilisers and steel units.
- 198 coal blocks, with geological reserves of about 42 billion tonnes, have been allocated by the government, under the captive route, to various public and private sector companies.

Sources: JSW Steel, Annual Report 2008–09; “NTPC to delve into contract mining”, *The Economic Times*, April 23, 2009

Key players — iron and steel

Company	Sales (2008–09) US\$ billion (INR billion)	Products
Tata Steel Ltd	31 (1,488)	Finished steel (non-alloy steel)
Steel Authority Of India Ltd	11.11 (533)	Finished steel (non-alloy steel)
J S W Steel Ltd	3.71 (179)	Hot rolled coils, strips, sheets
Jindal Steel & Power Ltd	2.47 (119)	Iron and steel
Ispat Industries Ltd	1.98 (95)	Hot rolled coils, strips, sheets
Welspun-Gujarat Stahl Rohren Ltd	1.38 (66)	Tubes and pipes
J S L Ltd	1.13 (54)	Flat products
Bhushan Steel Ltd	1.11 (53)	Cold rolled coils, strips, sheets
Uttam Galva Steels Ltd	0.94 (45)	Flat products
K E C International Ltd	0.73 (35)	Heavy structurals

Source: Prowess, January 19, 2010, Centre for Monitoring Indian Economy

Key players — non-ferrous metals

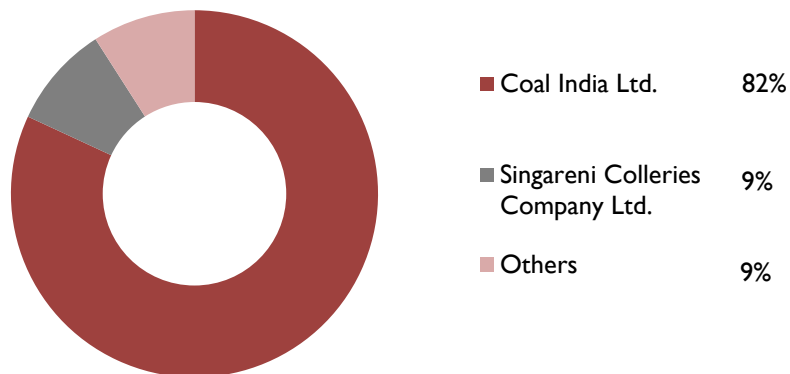
Company	Sales (2008–09) US\$ billion (INR billion)	Products
Hindalco Industries Ltd	13.8 (662.3)	Aluminium and aluminium products
Sterlite Industries (India) Ltd	5.21 (250.27)	Copper and copper products
Binani Industries Ltd	0.56 (26.95)	Other non-ferrous metals
Ess Dee Aluminium Ltd	0.1 (4.8)	Aluminium and aluminium products
Man Aluminium Ltd	0.009 (0.45)	Aluminium and aluminium products

Source: Prowess, January 19, 2010, Centre for Monitoring Indian Economy

Key players — coal... (1/2)

- Major players in India’s coal industry include state-owned companies, and private sector participation is limited to captive mining.
- Coal India Ltd (CIL) is the largest domestic player, with eight wholly owned subsidiary companies that have mining operations in eight states, accounting for 82 per cent of the country’s total coal production.

Player-wise coal production (2008–09)



Key players — coal... (2/2)

Company	Sales US\$ billion (INR billion)	Production (million tonnes) 2008–09
Coal India Ltd	9.54 (458) in 2008–09	403.7
Singareni Collieries Company Ltd	1.007 (48) in 2007–08	44.5

Sources: “Provisional Coal Statistics 2008–09,” Ministry of Coal, GoI; Coal India Ltd, Annual Report 2008–09; Singareni Collieries Corporation Ltd, Annual Report 2007–08

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Industry infrastructure — Special Economic Zones (SEZs)

Developers	Location	Product
Viraj Profiles Ltd	Thane, Maharashtra	Steel
Jindal Stainless Ltd	Kalinga Nagar, Orissa	Steel
SAIL Salem SEZ Private Ltd	Salem, Tamil Nadu	Steel
JSW Bengal Steel Ltd	West Medinipur, West Bengal	Steel
Anrak Aluminium Ltd	Visakhapatnam, Andhra Pradesh	Aluminium
JSW Aluminium Ltd	Visakhapatnam, Andhra Pradesh	Aluminium
Maharashtra Industrial Development Corporation	Aurangabad, Maharashtra	Aluminium
Vedanta Alumina Ltd	Jharsuguda, Orissa	Aluminium
Hindalco Industries Ltd	Sambalpur, Orissa	Aluminium
Madhya Pradesh Audyogik Kendra Vikas (Jabalpur) Ltd	Jabalpur, Madhya Pradesh	Minerals
Saraf Agencies Private Ltd	Ganjam, Orissa	Minerals

Source: "Formal approvals granted in the Board of Approvals after coming into force of SEZ Rules as on January 15, 2009", *SEZIndia* website, www.sezindia.nic.in, accessed January 5, 2010

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Investments

- The largest inbound deal announced in India was the 29 per cent acquisition of Uttam Galva Steels Ltd by Arcelor Mittal for US\$ 82.3 million on September 4, 2009.
- The largest outbound deal announced was the 100 per cent acquisition of Asarco Inc by Sterlite Industries India Ltd for US\$ 1700 million on March 6, 2009.
- The largest domestic deal announced was the acquisition of VS Dempo & Co Pvt Ltd by Sesa Goa Ltd for US\$ 367.6 million on June 11, 2009.

M&A scenario — details		
Period: January 1, 2009 to November 30, 2009		
Deal type	No of deals	Deal value (US\$ million)
Inbound	4	82.3
Outbound	7	1700
Domestic	21	367.6

Cumulative FDI inflows	
Period: April 2000 to January 2010	
Sector	US\$ million
Metallurgical industries	3,073.4
Mining	711.5
Diamond and gold ornaments	274.2
Coal production	15.6
Total	4,074.7

Sources: “Transactions”, Bloomberg, accessed December 4, 2009; “Fact Sheet On Foreign Direct Investment (FDI)”, Department of Industrial Policy and Promotion website, www.dipp.nic.in, accessed January 7, 2010; Ernst & Young analysis

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Policy and regulatory framework... (1/3)

- FDI up to 100 per cent is permitted under the automatic route for exploration and exploitation of all non-fuel and non-atomic minerals in India.
- FDI up to 100 per cent is permitted under the automatic route for metallurgy and processing of all metals.

Policy and regulatory framework... (2/3)

- State governments grant mineral concessions, such as a Reconnaissance Permit (RP), Prospecting Licence (PL) and Mining Lease (ML), for all minerals located within the boundary of the state, under the terms of the Mines and Minerals Development and Regulation Act, 1957 (MMDR Act).
 - An RP is granted for preliminary prospecting of a mineral through regional, aerial, geophysical or geochemical surveys and geological mapping. An RP is granted for a maximum period of three years.
 - A PL is granted for undertaking operations to explore , locate or prove mineral deposits. A PL for any mineral or prescribed group of associated minerals is granted for a maximum period of three years.
 - An ML is granted for undertaking operations to mine any mineral. An ML for any mineral or prescribed group of associated minerals is granted for a minimum period of 20 years and a maximum period of 30 years. MLs can be renewed for periods not exceeding 20 years. Prior approval of the Central Government is mandatory in respect of any mineral specified in the first schedule to the MMDR Act, 1957.

Policy and regulatory framework... (3/3)

- The National Steel Policy (NSP) was announced in November 2005, with the aim to provide a roadmap for the growth and development of the Indian steel industry.
 - The policy seeks to facilitate the removal of procedural and policy bottlenecks that adversely affect the availability of production input, increased investment in R&D, and the creation of roads railway and port infrastructure.
- In the Eleventh Plan, the Planning Commission has approved a total outlay of US\$ 9.5 billion (INR 456.1 billion) for the development and promotion of the iron and steel sector.
 - The 'Scheme for promotion of research and development in iron and steel sector' has been approved by the government, with a budgetary provision of US\$ 24.6 million (INR 1,180 million) for its implementation.

Source: "Investing in India", Department of Industrial Policy & Promotion website, www.dipp.gov.in, accessed January 8, 2010

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Opportunities... (1/2)

Steel

- The working group on the steel industry, set up by the Planning Commission for the Eleventh Plan, has projected a total demand of 70.3 million tonnes for finished steel and total production of 80.2 million tonnes of crude steel by 2011–12. According to the Ministry of Steel estimates, these targets are likely to be surpassed, translating to opportunities for capacity addition for production.
- The mega expansion plans of leading domestic producers, in the form of greenfield and brownfield projects in different parts of the country, are indicative of mature phase of the Indian steel industry.
- Posco (from South Korea) is setting up a 12 million tonnes integrated steel plant in Orissa, and the Mittal Group has also announced its plans to set up its 12 million tonnes integrated steel unit in the state.
- India's per capita steel consumption is comparatively low at 49 kg as compared to the global average of 198 kg in 2008. The NSP aspires to double rural per capita steel consumption to 4 kg per person in the next few years.
- This will present an attractive opportunity for the industry to expand its existing capacities and create further greenfield capacities, owing to the fact that about 70 per cent of India's population is rural.

Opportunities... (2/2)

Aluminium

- Aluminium wire rods and cables offer an attractive market for exploration, since the power segment, which is the primary consumer of this product group, is poised for strong growth.
- Aluminum is extensively used in the packaging industry in the form of packaging material for personal care products and pharmaceutical formulations, as well as processed foods in the form of tubes, containers, cans, bottle caps and foils. With changing consumer preferences, the use of these products is increasing, thereby enhancing opportunities for exploration of this market segment.
- In the construction space, players are exploring increased usage of aluminium in the form of doorframes, roofing, partitions, ceilings and building hardware.

Source: Indian Engineering and Construction Industry Study — Financial Year 2007–08, Ernst & Young

Sources: JSW Steel, Annual Report 2008–09; Ministry of Steel, Gol, Annual Report 2008–09

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Industry associations

Aluminium Association of India

118, 1st Floor, Ramanashree Arcade
18, M. G. Road
Bengaluru, Karnataka-560 001
Phone: 91- 80-25582197, 25582757
Fax: 91-80-25594535
E-mail: aluminium@eth.net

Federation of Indian Mineral Industries

FIMI House, B-311, Okhla Industrial Area
Phase-I, New Delhi-110 020
Phone: 91-11-26814596
Fax: 91-11-26814593
E-mail: fimi@fedmin.com

Indian Stainless Steel Development Association

L -22/4, DLF Phase-II
Gurgaon, Haryana-122 002
Phone: 91-124-4375501
Fax: 91-124 - 4375509
E-mail: nissda@gmail.com

Note

Wherever applicable, numbers in the report have been rounded off to the nearest whole number.

Conversion rate used: US\$ 1 = INR 48

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