

## INDIA

*By G.R.Seshadri*

**T**he Indian economy faced three of its biggest challenges in 2000-01: the sharp rise in international prices of crude oil; uneven distribution of rain which caused simultaneously heavy floods in certain states and severe drought in parts of Bihar, Uttar Pradesh and Gujarat; and a devastating earthquake in Gujarat. The growth in real Gross Domestic Product in the year ended March 2001 is estimated at 6%, against a projection of 6.5%. Inflation was around 8%, against 3.2%, owing to the rise in world oil prices and consequent spurt in costs of transport, fertiliser and petrochemical industries. Industry, in particular, experienced a distinct slowdown, the worst hit being commercial vehicles (mainly trucks), machine tools, cement and automobiles. Agriculture, too, fared badly, with growth being around 1%.

A grave calamity struck the country when an earthquake of unprecedented magnitude struck Gujarat on January 26. This caused a huge loss in terms of human beings, manpower and materials. The material loss was estimated at over Rs250 billion, which offset progress on many fronts as a result of large-scale diversion of resources to meet the calamity. India's lucrative diamond-cutting and polishing industry, which is to a large extent located in Gujarat, suffered a major setback as a result of the earthquake. In Ahmedabad alone, where some 5,000 cutting and polishing businesses flourish, only around 15% were functional at the beginning of February 2001. Restoration of normalcy took quite some time. Gujarat's port, Kandla, suffered too and all export and import work came to a standstill.

The Indian Government is to turn five major ports into companies, the first one being Ennore port near Chennai (formerly, Madras). Ennore, built as a satellite port for Chennai at a cost of Rs10.6 billion, was

commissioned in January 2001. It handles large imports of coal for thermal power production, apart from other shipments, which were choking Chennai port. The other ports slated for turning into companies are: Jawaharlal Nehru port in New Mumbai, which is handling considerable imports of non-ferrous metals; New Mangalore; Murmagao; and Tuticorin.

India has finalised deals with Vietnam, Iraq and Russia for overseas exploration of crude oil. The Oil & Natural Gas Commission (ONGC) Videsh, which handles overseas exploration, will invest Rs80 billion in developing oil fields in Russia. ONGC has also entered into an agreement with Vietnam for deep sea exploration, and development of oil and gas fields in Vietnam. India imports about 110 Mt of crude annually, which accounts for 70% of its requirements. The country's crude refining capacity rose sharply from 69.1 Mt/y in March 1999 to 112 Mt/y in year ended March 2000, and capacity is scheduled to increase further to 155 Mt/y by March 2005.

As part of its liberalisation programme, the Indian Government has decided to reduce its holdings in Minerals & Metals Trading Corp. and State Trading Corp. each to 26% (and later to 16%), from the present holdings of 99% and 91% respectively. It will also dilute its stake in IBP (formerly Indo Burmah Petroleum Co.) from 59.59% to 26%, and offer the shares to a strategic partner. The bidders to IBP will have to invest at least Rs20 billion in oil exploration, refining, pipelines or terminals. The state-owned Bharat Aluminium Co. (BALCO) went under private management in February 2001 after the government overcame stiff resistance to the sale of 51% of its stake to Sterlite Industries for Rs5.5 billion, although a strike ensued.

With the Meghalaya Government having dropped its opposition to the mining of uranium at Domiasiat in the West Khasi Hills, the stage is set for the Uranium Corp. of India (UCIL) finally to begin its operations. The deposit is considered by scientists "the largest, richest, near-surface and low-cost sandstone type uranium deposit" in the country. Spread over a 10 km<sup>2</sup> area at depths of 8-47 m below the surface, the Domiasiat ores are estimated to contain 10,000 t of uranium. At present, UCIL's operations are confined to Jaduguda in Jharkhand (formerly part of Bihar) where uranium mining has given rise to many health hazards.

### **Diamonds**

India has a US\$8.5 billion diamond-processing industry, mainly concentrated on small stones. The industry processes more than 50% of the world's diamonds. According to the Gem & Jewellery Export Council, India's diamond industry accounts for 55% of the world diamond trade by value, 80% by carats and 90% by number of pieces. The gems and jewellery industry is a major export earner for the country, the earnings being estimated at US\$8.4 billion in 2000, against US\$7.33 billion in 1999. To give a fillip to the processing industry, the customs duty on cut and polished coloured gem stones was reduced from 35% to 15%. The customs duty on rough diamonds was reduced to 5%.

The industry received a severe jolt when Bharat Shah, a prominent diamond businessman closely connected to Vijay Kumar & Co. of Antwerp, was arrested for allegedly having links with Indian underworld gangsters based in Dubai and Karachi in the entirely unrelated field of film financing for Bollywood (the Bombay-based film industry). Both the diamond trade and the share markets were seriously dislocated by this unexpected development.

De Beers, the world's leading diamond mining and marketing company, which

already has rights to explore diamond reserves in Karnataka and Andhra Pradesh, has sought permission to explore in three more states. According to Alan Campbell, chief of De Beers India Exploration Ltd, the company has applied for rights in a 30,000 km<sup>2</sup> mining area in Orissa, 30,000 km<sup>2</sup> in the newly created state of Chhattisgarh and 10,000 km<sup>2</sup> in western Maharashtra.

### **Gold**

India, which is the world's largest gold market, imported about 260 t in the nine months to the end of September 2000, compared with 435t in the corresponding period in 1999. Since domestic production from the Hutti mines and other sources is barely 500 kg and India's annual demand is close to 700 t, gold continues to be smuggled, mainly from Nepal, Thailand and Pakistan. According to the World Gold Council, the Indian passion for the yellow metal has grown in leaps and bounds every year, the purchase of gold in 1999 being 838.8 t. In the current budget, the import duty on gold was reduced from Rs400/10 g to Rs250/10 g in a bid to discourage smuggling.

Gold exploration programmes in the greenstone belts of south Karnataka have produced promising results: so far about 40,000 km<sup>2</sup> of greenstone terrain are reported to contain some 950 t of gold, but no state-of-the-art technology has been employed to explore for deep deposits.

### **Coal**

India is the third-largest producer of coal in the world, with reserves estimated at 208,750 Mt to a depth of 1,200 m. The Gondwana deposits in the Bengal-Bihar-Orissa region account for 2,000 Mt, and the Tertiary deposits in Assam and north-east India total 890 Mt. However, reserves of coking coal of metallurgical grade are limited, being estimated at 33,900 Mt and their ash content is high. The output of metallurgical grades is around 40 Mt/y and imports of over 12 Mt/y are necessary to run

the steel and other metallurgical industries. The thermal power plants, major consumers of non-coking coals, require about 220 Mt/y. Current production of coal is a little less than 300 Mt/y but is expected to increase to 350 Mt/y by the end of 2001/02, the end of the ninth 'five-year plan'. Imports may total 20 Mt/y by end of fiscal 2000/01.

Coal production has remained the preserve of the public sector for well over twenty five years but has now been opened to private enterprise. The state-owned Coal India Ltd (CIL) was to offer a 49% stake in a new coal project to private investors. The project, which will supply coal to the National Thermal Power Corp. (NTPC), will be operated by private entrepreneurs. The new project, estimated to cost Rs4.9 billion, will supply some 24 Mt/y of coal for power production.

The bulk of the output came from the state-owned Coal India Ltd, with Singareni Collieries Co., and the captive mines of Indian Iron & Steel Co., Damodar Valley Corp. and Tata Iron & Steel Co., accounting for the remainder. At one time, there were as many as 588 coal mines operational, but over 150 of them have closed down. The bulk of output comes from open-cast mining, with the exception of metallurgical grades which are produced by deep mining in Raniganj in West Bengal.

Coal India Ltd (CIL) and ONGC have formed a joint venture to explore for coal-bed methane in India. It will concentrate on high-grade coal in Raniganj West, Jharia East, West Bokaro, Ramgarh and North Karanpura to identify prospective areas for conducting exploratory drilling.

The World Bank has terminated a loan of about US\$507 million to CIL reportedly at the request of the latter owing to poor demand for coal from the power sector and the onerous terms of the loan. The loan was the second instalment of a total loan of over US\$1 billion which was approved in 1997.

The Mining & Allied Machinery Corp. Ltd (MAMC), which was set up at Durgapur in West Bengal to manufacture mining equipment, has been languishing for a long time, having ceased to be a major supplier of mining equipment. Until 1998/99, only a fraction of its installed capacity for scrapper-chain conveyors, the company's product of pride, was operational. Now the assembly line is closed. With a negative net worth of Rs100.6 billion and negligible sales turnover of Rs77.10 million in 1999/2000, the company has ceased to be a business enterprise.

There are also substantial deposits of lignite, estimated at over 29,350 Mt, most of them being located in Tamil Nadu in the Neyveli region. Good deposits also occur in Rajasthan, Gujarat, Kerala, Jammu and Kashmir, and Pondichery. State-owned Neyveli Lignite Corp. (NLC) in Tamil Nadu is the sole producer of lignite. This is used for operating two power plants with a combined capacity of 2,070 MW, a urea plant of 152,000 t/y capacity and a briquetting and carbonisation plant of 262,000 t/y. The production of lignite in the year ending March 2001 is estimated at 23 Mt, against 21 Mt in the previous year.

### Iron Ore

India has plentiful reserves of iron ore, the recoverable deposits of haematite being estimated at 9,800 Mt and magnetite at 3,400 Mt. Of this, high-grade ore with over 65% Fe is estimated at 1,280 Mt, and medium grades with 62-65% are 4,200 Mt. The chief repository of high-grade haematite is Madhya Pradesh (reserves: 630Mt) followed by Orissa (320 Mt), Karnataka (220 Mt) and Bihar (85 Mt). Medium grades (62-65% Fe) occur in Bihar (1,790 Mt), Orissa (1,300 Mt), Madhya Pradesh (485 Mt), Karnataka (440 Mt) and Goa (150 Mt). Metallurgical grade magnetite is found in Karnataka (1,150 Mt), Goa (100 Mt) and Andhra Pradesh (40 Mt).

The chief ore-producing states are Madhya Pradesh (output: 17 Mt/y), Goa (15 Mt/y) Bihar and Karnataka with 12.5 Mt/y each, and Orissa 8 Mt/y.

The state-owned National Mineral Development Corp. (NMDC) works the largest mechanised iron ore mines at Bailadila in Madhya Pradesh and Donimalai in Karnataka. NMDC's total annual sales amounted to some 18 Mt of which 7-8 Mt were exported. About 4.3 Mt were exported to Japan, with the balance going to China and South Korea. The NMDC is proposing to set up a 300,000 t/y pig iron plant in Geedam in the Dantewada district of the newly-formed state of Chhattisgarh. This will be the first project in the world to produce pig iron from iron-ore tailings, which arise in the Bailadila mines; it will use Russian Romelt technology provided by Romelt SAIL India Ltd.

The Chiria mine, considered one of the largest in the world with proven reserves of 2,000 Mt, is languishing for want of funds. Owned by the ailing public sector company, Indian Iron & Steel Co. (IISCO), which is deeply in loss, it depends on finding a joint-venture partner for its modernisation and revival.

Iron ore is a major export commodity but its share in world exports has steadily declined from 7.8% in 1985 to 4.5% in 1999. Iron ore shipments in the year to the end of March 2000 totalled about 19 Mt, against 21.5 Mt in the previous year. This was mainly due to greater competition from Australia and other producers and reduced purchases by Japan and South Korea. The output of iron ore in the year ended March 2001 was estimated at 71 Mt, against 68.5 Mt in 1998/99.

### **Iron and Steel**

Over the years, the Indian steel industry has become the world's tenth-largest producer, with an annual capacity of 34 Mt. It exports 2 Mt/y and is the world's second-largest producer of sponge iron (direct reduction).

The production of finished steel during the year ended March 2001 is estimated at 31 Mt. Although the industry was initially affected by the slowdown in the economy, there was a pick-up towards the later part of the year. Prices of hot-rolled flat products, generally considered the indicator of the state of the steel market, firmed up. The revival of the Asian markets, although limited, helped exports.

The perennially sick Indian Iron & Steel Co. (IISCO), which is owned by the public-sector Steel Authority of India Ltd (SAIL), is scheduled for privatisation. Mitsui of Japan, BHP of Australia, and Tyazhpromexport (TPE) of Russia have been shortlisted for a complete buyout to be completed by March 2001. SAIL had offered a global tender inviting joint-venture participation in IISCO, and several major companies from Japan, Germany, Australia, China and Switzerland, apart from domestic companies, had expressed interest. There has been a change in thinking and a complete sale is now planned. As an integrated steel plant, IISCO offers several intrinsic advantages, notably a wide product-mix, including structural products, light and heavy rails, bars and rods; a captive foundry and a spun-pipe plant; plus rich iron-ore mines.

SAIL, an umbrella organisation which accounts for half the steel made in India, is deeply in loss, those sustained in 1998/99 and 1999/2000 being of the order of Rs32.9 billion. The loss in the fiscal year ended March 2000 is expected to go up by about Rs10.0 billion. The only two units among its four integrated steel plants which have fared well are Bhilai and Bokaro. The losses made by the Rourkela and Durgapur plants, plus the burden of such perennially sick units as Alloy Steel Plant in Durgapur, the Salem Steel Plant, and Visvesvaraya Iron & Steel Plant, brought SAIL the ignominy of being the worst loss-maker among India's public-sector companies. In an effort to pay off the interest on loans taken from financial institutions and banks for modernisation and



expansion of its units, SAIL decided to sell the residential quarters of its constituent units. The steel giant has to pay Rs7.35 billion this year as interest, which is expected to come from disposing of power plants at Durgapur and Rourkela. These power plants were to be moved into joint ventures with another public-sector undertaking, the National Thermal Power Corp. The sum of Rs23.0 billion which has to be paid as interest in the next financial year, 2001/02, would come from the sale of power plants at Bokaro, the Salem Steel Plant and the quarters in residential communities.

Exports of saleable steel amounted to 3.1 Mt in 1999/2000, and hot-rolled coil, skelp and strip amounted to 1.4 Mt. Hot-rolled products and steel wire ropes, which constitute almost 50% of the country's steel exports, have attracted anti-dumping proceedings from the US.

Tata Iron & Steel Co. (Tisco) was on the verge of taking over the 63-year old Indian Steel & Wire Products (ISWP), which owed the former Rs410 million in power charges and interest. Tisco's output of steel is estimated at 3.4 Mt in the year ended March 2001. Its six captive collieries in the Jharia division of Dhanbad district produce some 5 Mt/y of coal, 3.5 Mt being used for its own plant and the remainder was sold to the SAIL. The company also has collieries at West Bokaro with raw coal production capacity of 4 Mt/y. Tisco has recently modernised its Jamshedpur facilities, including its cold-rolling mill (capacity: 1.2 Mt/y) at a cost of Rs7.0 billion. Further, it is drastically changing its product-mix in a bid to improve profitability and will focus on cold-rolled products. The company is also planning to acquire control of the Salem Stainless Steel Plant through a joint venture with Usinor of France. A marketing tie-up with Usinor is also on the cards to widen the markets for Tisco's products abroad.

Tisco is branching off into allied industries by setting up a unit for producing titanium at

Tuticorin port based on the titanium ore resources in the coastal region of Tamil Nadu in southern India. India has 20% of the world's titanium reserves. Later the company would take up production of rutile. Tisco has also decided to set up a ferrochrome plant with a capacity of 120,000 t/y at Gladstone near Brisbane in Queensland (Australia) at a cost of US\$75 million; the company has been guaranteed power, a major input, for 15 years at prices which are one-fifth of the mainstream power costs in India.

The new steel manufacturers, including Jindal Vijaynagar Steel Ltd. (JVSL), Essar, and Ispat, were in financial crisis in 2000, owing to low steel prices prevailing both in the domestic and international markets. JVSL is deeply in debt and was unable to service its debt of Rs12.0 billion without assistance from financial institutions. The company has set up a state-of-the-art steel complex at Bellary in Karnataka with an annual capacity of 1.5 Mt/y.

### Aluminium

Hindalco Ltd, flagship company of the Aditya Birla group, has drawn up a three-year investment plan involving an outlay of Rs18.0 billion, for the expansion of smelter and alumina capacities and addition of power generation capacities. According to Hindalco's president, Mr A.K.Agarwala, who will also be the vice-chairman of the recently acquired Indian Aluminium Co (Indal), Hindalco's smelter capacity will be raised from 242,000 t/y to 342,000 t/y and that of alumina from 450,000 t/y to 660,000 t/y. Hindalco will also set up power plants with a capacity of 150 MW, thereby raising total generating capacity from 610 MW to 760 MW. Although Indal will function as a subsidiary of Hindalco, a combined annual turnover of Rs100.0 billion is envisaged in the next three years.

Since Indal's smelter at Belgaum is lying idle owing to the power shortage in Karnataka, the company proposes to shift 400 pots to its plant at Hirakud in Orissa, which state has

surplus power. Initially 200 pots will be shifted which will add about 30,000 t/y of capacity to Hirakud and later the remaining pots will be transferred, thus raising Hirakud's total capacity to 90,000 t/y by early 2002.

The government sold 51% of its stake in the profit-making Bharat Aluminium Co. Ltd (Balco), a government company, to Anil Agarwal's Sterlite Industries for Rs5.52 billion in March 2001. Other competitors in this acquisition bid were the Indian aluminium major Hindalco Industries Ltd and US-based Alcoa Inc. Balco operates a 100,000 t/y smelter at Korba in Madhya Pradesh. Its main handicap has been the declining supplies of ore from the Amarkantak mines and the absence of a reliable supply base. Sterlite's successful bid for Balco is viewed in some quarters as revenge for Hindalco's takeover last year of Indian Aluminium Co., after Sterlite made an unsuccessful bid to acquire Indal from its former Canadian owners, Alcan Inc. Under the new dispensation, Balco's capacity may be increased from 100,000 t/y to 250,000 t/y, according to a company spokesman. Since 49% of Balco is still owned by the government, Sterlite will not be free to consolidate all its aluminium operations under one umbrella.

Madras Aluminium Co (Malco), which had a 25,000 t/y smelter at Mettur in south India, is already in the Sterlite fold, and its capacity has been enlarged to 35,000 t/y through de-bottlenecking. India Foils, which had earlier been taken over by Malco, has now become a Sterlite company, which is using the aluminium foils unit primarily as a captive source for aluminium cable wrap for jelly-filled telephone cables. The company proposes to spin off its foils unit as a separate wholly-owned subsidiary. The foils division plans to make use of its full potential by entering into other outlets for foil such as pharmaceuticals and packaged foods. Its annual volume has risen to 4,960 t.

Another public-sector unit, which is the biggest producer, National Aluminium Co. Ltd (Nalco), has embarked on a Rs16.6 billion expansion plan by commissioning the first phase of its mining and alumina refining projects in Orissa state. The company is doubling its bauxite-mining capacity, from 2.4 Mt/y to 4.8 Mt/y, and expanding its alumina-refining capacity to 1.575 Mt/y. According to Nalco's chairman and managing director, Mr P. Parvatisen, the expansion plan envisages modernisation and de-bottlenecking of the existing two streams of alumina production of 400,000 t/y each, and adding another alumina production stream with a capacity of 525,000 t/y by April 2001. The modernisation and de-bottlenecking of the existing streams will increase the company's alumina output by 30%.

Aluminium production capacity will be raised from 230,000 t/y to 345,000 t/y. To support increased smelter capacity, power generation capacity is proposed to be increased from 720 MW to 840 MW. The investment envisaged for the smelter and power expansion projects is Rs20.6 billion. The company also has a proposal to set up a plant at a cost of Rs50.0 billion near Chintapally, in the Visakhapatnam district of Andhra Pradesh. The area is endowed with rich reserves of metallurgical-grade bauxite estimated at 500 Mt. It has great export potential. Nalco has been active on the export market, the shipments of alumina in 1999/2000 being 470,000 t and of aluminium 95,000 t.

### **Copper**

Indian copper demand has been growing at a compound annual rate of over 8%, driven by exponential growth in sectors like telecommunication, power, construction and transportation, and is expected to reach 500,000 t by 2004. Demand in the year ended March 2001 is estimated at 330,000 t, but in view of the increase in indigenous production imports may drop by half to 30,000 t. There are two major participants,

Indo-Gulf Corp.'s Birla Copper and Sterlite Industries, each with an annual smelter capacity of 100,000 t.

A third copper producer, state-owned Hindustan Copper Ltd (HCL), is the oldest, and has a total capacity of about 40,000 t/y distributed over two facilities, one at Khetri in Rajasthan, and another at Ghatsila in Bihar. It has performed poorly and has been incurring losses over the past few years. Four of the mines in the Mosaboni group in Bihar, namely, Pathorgora, Kenduadih, Badia and Banalopa, had to be closed since they were uneconomical and only the Surda mines are functional. The government has decided to pull out of HCL, and international investors such as Phelps Dodge Corp., of the US, and Metdist of the UK, as well as local groups such as Birla Copper and Sterlite Industries, have expressed interest in acquiring control. Phelps Dodge and Lord Raj Kumar Bagri's Metdist, a large metals trading company, have joined hands to bid for majority stake in HCL. Metdist is already involved in setting up a copper smelter and refinery at the port of Pipavav in Gujarat with assistance from Mitsubishi. Glencore International has also bid for a stake in HCL. Under the government's disinvestment programme, it is proposed to offer 51% of the stake by disposing of two units of HCL, namely, the Khetri facility and the Talaja continuous casting plant in Maharashtra, both of which are profitable units.

With Hindustan Copper turning out poor production, the increase in demand within the country will have to be met by Birla Copper (a subsidiary of Indo-Gulf Fertilisers) and Sterlite Industries, two major producers, both of whom were operating well above their name-plate capacities. The Rs2.3 billion Birla Copper plant located at Dahej in the Bharuch district of Gujarat produces cathodes, continuous cast copper rods and precious metals, apart from sulphuric acid, phosphoric acid, di-ammonium phosphate and other phosphatic fertilisers. The plant produces about 110,500 t of anodes,

109,000 t of cathodes and 72,000 t of continuous cast rods annually. Birla Copper commissioned its 400,000 t/y di-ammonium phosphate plant in September 2000 at Dahej. The precious metals refinery was also commissioned and it produced around 78,000 oz of gold and 280,000 oz of silver during the year. The company also exported around 10,000 t of copper to Japan, Korea, Thailand, Saudi Arabia and Malaysia. The company works on a conversion basis and derives its revenue from treatment and refining charges, duty differential between raw material and finished goods and by-product sales. The company operated at 110% of capacity during the year.

Sterlite is operating at 120,000 t/y capacity. Both the big producers have in hand ambitious expansion plans, and the first phase of expansion may begin from April 2001. Both have plans to increase their output by 50% in 2001. Birla Copper is proposing to raise production by 50%, taking its smelter capacity to 150,000 t/y.

In September 2000 the Agarwals, promoters of Sterlite Industries Ltd, have demerged their copper and cable businesses into two different companies, and Sterlite Copper has become a stand-alone copper company. Its annual last year production capacity is being increased to 150,000 t with an incremental investment of Rs1.0 billion. The company, which has plans to acquire copper mines, is the lowest-cost producer in the country, the cost working out to US\$0.11-0.12/lb. Sterlite will acquire two Australian copper mines at a cost of around US\$43.5 million. The two mines, Mount Lyell in Tasmania and Thalanga (copper-lead-zinc) in Queensland, have a combined output capacity of 180,000-200,000 t/y copper concentrates. Sterlite is already deriving about half its smelter feed from the two mines. The company exported over 16,000 t of copper cathode in 2000.

Steel tycoon Lakshmi N. Mittal was partnering the Binani group and the Al

Baraka group of Saudi Arabia to initiate a slow-moving copper mining venture in Zambia. The copper-mining project acquired some time ago by Binani Industries, was to have operated through a joint venture company incorporated in Malaysia, the total investment envisaged being US\$125 million. The two copper mines of Luanshya and Baluba, operated by Roan Antelope and acquired from Zambia Consolidated Copper Mines were to produce 110,000 t/y of copper and 2,400 t/y of cobalt. However, last November Roan Antelope was placed in receivership after non-payment of power bills. Binani's existing adjoining smelter produces around 50,000 t/y of copper and 1,000 t/y of cobalt.

The outlook for the copper industry has been positive, in view of the strong growth in the telecom cables sector, growing offtake for power projects, and the preference for continuous-cast (CC) rods in the winding-wire industry. The demand growth has been 8% per annum. India's imports of copper have been around 80,000t in recent years, but this may decline to 15,000 t in the year ended March 2001.

### **Zinc**

India's total identified lead-zinc resources are estimated at 390 Mt, of which 170 Mt containing 8.16% zinc and 2.17% lead are mineable. The deposits are concentrated mainly in Rajasthan and they are held under lease by Hindustan Zinc Ltd (HZL), a public sector venture. A major multi-metal deposit occurs in the Rampura-Agucha belt in the Bhilwara district and estimates place the reserves at 60.5 Mt at 13.5% zinc and 1.93% lead. HZL exploits five lead-zinc mines with a total capacity of 3.5 Mt/y, but the two major operations are the mines at Zawar (capacity: 1.2 Mt/y) and Rajpura-Dariba (720,000 t/y). The smelter at Visakhapatnam uses imported concentrates.

International mining giant BHP Ltd of Australia, which had entered into an understanding with Hindustan Zinc Ltd (HZL)

in 1996 for exploration and development of base and precious metals both in India and abroad, has decided to cancel its joint venture partnership with HZL. Although over 200 anomalies have been discovered by the company, BHP was reportedly unhappy with the exploration exercise undertaken in Rajasthan. HZL is the country's largest zinc producer, with facilities located in three different places: Chanderiya (70,000 t/y), Udaipur (49,000 t/y) and Visakhapatnam (30,000 t/y).

The Indian Government has appointed Banque Nationale de Paris-Paribas as its global adviser for sale of 27% of its equity holding in HZL to a strategic partner, as a step towards privatisation. This will reduce the government's interest in the company from 76% to 49%. Binani Industries Ltd, India's sole private-sector zinc producer (capacity: 30,000 t/y), which runs an import-based smelter at Alwaye, near Cochin in Kerala, and has expressed interest in acquiring a stake in HZL. Others interested in HZL are a consortium led by Allied Deals plc of Britain and Glencore International AG of Switzerland. As a first step, HZL proposes closure of its loss-making units and disposing of uneconomic mines.

The government has accepted a proposal of HZL to put up a new 100,000 t/y smelter at Kapasan in northern Rajasthan. Estimated to cost around Rs12 billion, the project may take four years for completion. The cost of the project will be met through ploughed-back funds and market borrowings. Demand for zinc is estimated at about 270,000 t/y.

Binani Industries is proposing a Rs5.0 billion expansion of its production at its zinc smelter near Cochin in Kerala. The expansion of the plant to 100,000 t/y will be achieved in two stages over a seven-year period. The first stage will be from the current 30,000 t/y to 75,000 t/y to be completed by March 2004, while the second stage is proposed to be completed by 2007. In April, 2001, the company made its zinc business into a



separate concern, Binani Zinc. Apart from the two main producers, there is a small unit in the private sector, Indo-Zinc Ltd with a capacity of 4,500 t/y at Pithampur in Madhya Pradesh, which utilises dross, scrap and residues.

### Lead

India produces about 70,000 t/y of lead, both from primary producers and scrap/residue-based secondary units. Domestic demand is of the order of 170,000 t/y, making large-scale imports necessary. The total smelting capacity in the country is 89,000 t/y consisting of 65,000 t/y of HZL and 24,000 t/y of Indian Lead Ltd (ILL). HZL's smelters are located at Chanderiya in Rajasthan (capacity: 35,000 t/y), Visakhapatnam (capacity: 22,000 t/y) and Tundoo in Bihar (8,000 t/y). ILL has two units, one in Calcutta and the other at Thane, near Mumbai, each with a capacity of 12,000 t/y. Both the units are based on imported concentrates.

HZL's lead smelter at Tundoo in Bihar, which also produces silver, is deeply in loss and this is to be closed. The lead smelter at Visakhapatnam, which has remained closed for the past year owing to environmental

problems with the Andhra Pradesh Government, will also be shut down because of the prohibitive costs of installing environment-friendly equipment; this plant, too, is a loss-making unit. HZL will also sell its Agnigundala mine in Andhra Pradesh to a private company.

Binani Industries has a proposal to establish a 25,000 t/y lead recycling plant (from batteries) at Wada in Maharashtra state under the name of Binani Lead, which may commence operations by mid-2001 and this is to be followed later by a smelter of 125,000 t/y capacity. Technology for the recycling plant will be provided by Engitec Technologies of Italy.

<b>Production Of Principal Minerals &amp; Metals '000t</b>			
	<b>1998-99</b>	<b>1999-00</b>	<b>2000-01 <sup>e</sup></b>
Coal	292,000	270,000	280,000
Crude Oil	33,300	32,000	32,000
Iron Ore	67,000	68.5,000	71,000
Finished Steel <sup>1</sup>	3,800	24.8,000	31,000
Aluminium	536.8	620.8	665
Copper	160	236	237
Primary Zinc	170	180	175
Primary Lead	31	45	45.5

<sup>1</sup> including secondary output