

INDIA

By G.R. Seshadri

In the year ended March 2002, India's GDP grew by 5.4% against 4% in the previous 12 months, and there were signs of a looming economic crisis. The mounting tensions on the Indo-Pakistan border, with troops massed up in strategic positions, served to divert the country's resources into unproductive activities. Industrial growth was only around 2.5% for the year because of the global economic slowdown and dwindling domestic investments. Out of the 17 major industry classifications, very few registered significant growth. The automobile sector, consumer durables, capital goods and most core sector industries are either experiencing cutbacks in production or facing the prospect of negligible growth.

The events of September 11 in New York made the situation even gloomier, and the growing weaknesses of the financial system, reduced tax revenues and the expected backlash of the global economic slowdown, did not augur well for India's economic recovery. The only bright spots in an otherwise gloomy picture were encouraging reports on agricultural production, containment of inflation at 1.2% and an increase in foreign exchange reserves which soared above US\$53 billion at the end of March, 2002.

The Central Budget for the year beginning April, 2002, has reduced the import duty on copper, zinc and lead from 35% to 25% and on aluminium and tin from 25% to 15%. This has increased the pressure on the producers of copper and zinc (Indo-Gulf Corp., Sterlite Industries, Hindustan Copper and Hindustan Zinc) to reduce prices to meet competition. Plans are in hand to set up an oil behemoth named PetroIndia through the merger of state-owned giants Indian Oil Corp., Gas Authority of India Ltd and Oil & Natural Gas Corp.

British Gas has concluded a deal by which its BG Group has acquired an interest in the

operation of three oil and gas fields, Panna, Mukta and Tapti, off India's west coast. According to Frank Chapman, BG Group chief executive, the fields are "strong producers".

The government has allotted coalbed methane blocks to Reliance Industries Ltd (RIL) and to a combine of Oil & Natural Gas Corp. (ONGC) and Indian Oil Corp. (IOC). The West Sohagpur and East Sohagpur blocks in Madhya Pradesh, which have an estimated potential of 36.8 billion m³, have gone to RIL, while Bokaro and North Karanpura blocks (reserves: 61.5 billion m³) in Jharkhand have gone to the ONGC-IOC combine. The Coal Ministry has mooted a proposal for divesting 26% stake in the public-sector Neyveli Lignite Corp. to ST-CMS power project, promoted by US-based CMS Energy, in Tamil Nadu.

Since the year 2000, the beachsands near Kanyakumari in Tamil Nadu, in the southernmost tip of India have been exploited for ilmenite by VV Minerals. Recoverable reserves are estimated at 5 Mt and VV Minerals has a production capacity 130,000 t/y of sulphate-grade ilmenite.

Four Indian companies have signed agreements with China's largest mineral and metal trading company, China National Metals & Minerals Import & Export Corp. (MinMetals), for the supply of iron ore and aluminium. Kudremukh Iron Ore Co. and MSPL will export iron ore, National Aluminium Co. (Nalco) will export aluminium and the Ispat Group will import coke from MinMetals. The transactions, together, will be worth US\$125 million.

Diamonds

The Indian diamond industry, mainly localised in the processing centres of south Gujarat and Rajasthan, suffered a severe setback after the terrorist attack on the World Trade Center in New York. India is the largest diamond-

processing centre in the global market. Diamond exports run to the tune of Rs360 billion per year, but they have slumped. Exporters were moving over to exporting plain gold and studded jewellery, which became more profitable than importing rough diamonds and re-exporting them as cut and polished diamonds. Surat in Gujarat is the hub of the diamond cutting and polishing industry. Nearly 90% of the total volume of rough diamonds comes to Surat, mostly from Antwerp, for cutting and polishing work. South Africa and other diamond producers are keen to import skills from India and arrange for processing diamonds within their frontiers. Jaipur, which is famous for its precious and semi-precious stones and studded jewellery, suffered a severe recession as a result of a drop in US imports. Exporters were selling to new buyers in the Latin American countries since over 25% of the jewellery bought by US importers are re-exported through Miami to various Latin American countries.

The total exports of gems and jewellery during the calendar year 2001 amounted to US\$7.2 billion, against US\$8.5 billion in the previous year. Nevertheless, in the world diamond export market, India still has a big lead, with total diamond exports worth US\$5.3 billion in 2001, followed by Israel (US\$2.7 billion) and Belgium (US\$2.5 billion). In the global diamond market, India has a 55% share by value, 80% by weight and 90% in terms of pieces.

Thus India maintained its leading position in the global diamond market at a time when other major diamond-processing countries reported a fall in exports. The Gem & Jewellery Export Promotion Council has urged the Indian Government to introduce an open regime for imports of rough diamonds and rough coloured gemstones with zero duty, and to scrap the licensing system in order to strengthen exports. The government has abolished the duty on import of roughs.

Gold

After the terrorist attack on the US on September 11, share prices all over the world

collapsed and with that came a resurgence in the gold price. India, as the world's largest gold consumer with annual purchases of about 855 t, experienced a temporary increase in demand. Overall, however, in 2000-01, (to end-March) imports amounted to about 600 t as against 650 t in 1999-2000. The rupee price of gold soared briefly after the events of September 11, climbing to Rs4,775/10g from a level of Rs4,350/10g previously. In February 2002, it touched a five-year high of Rs5,000/10g. Official gold imports in 2001 amounted to 593.6 t. Exports of gold jewellery declined to US\$1,100 million from US\$1,208 million in the previous year.

The copper smelter of Indo-Gulf Corp. was able to offer for sale from its precious metals refinery about 2.86 t of 99.99% gold and 10.94 t of silver in the first half of 2000-01, against 5.1 t of gold and 18 t. of silver in 1999-2000.

India's output of gold has been running at around 3,000 kg/y, the main producer being Hutti Gold Mines Co. in Karnataka supplemented with by-product gold from copper smelters. Hutti has plans to raise production from 1,450 kg/y to 3,500 kg/y. It estimates that deposits in the vicinity of its operations could contain as much as 600 t of gold. New deposits with gold concentrations ranging from 0.1 to 2.6 g/t Au were discovered some time ago in the Chitradurga and Sandur districts. Bharat Gold Mines' operations at Kolar were closed down in 2000 as they had become uneconomic.

Coal

India, the world's third largest coal producer, has resources estimated at 212,000 Mt to a depth of 1,200 m. Most of the production comes from open-pit mines, which contribute about 80% of the output. By geographic location, Bihar is the largest repository (69,130 Mt), followed by Orissa (50,450 Mt), Madhya Pradesh (43,430 Mt), West Bengal (25,900 Mt) and Andhra (13,600 Mt).

Geologically, the Gondwana deposits in the Bengal-Bihar-Orissa region account for 2,000

Mt, while the tertiary deposits in Assam and northeast India total 890 Mt. Much of this is thermal coal and resources of metallurgical grade coking coal are limited, being estimated at 33,900 Mt with a high ash content. The output of metallurgical grade coal is around 40 Mt/y and annual imports of over 12 Mt are necessary in order to satisfy fully the needs of India's steel and other metallurgical industries. India's thermal power plants, major consumers of non-coking coals, require about 220 Mt/y. Current production of coal is around 300 Mt/y and this is expected to increase to 350 Mt/y by the end of 2002-03. Imports, mostly of coking coal, total 20 Mt/y.

Coal production was a preserve of the public sector for well over 25 years but the sector has now been opened to private enterprise. The Indian Government, according to the Minister for Coal and Mines, will be setting up a new regulatory body to ensure fair competition between private companies and the public sector. State-owned Coal India Ltd (CIL) is planning to diversify into value-added products and streamline its existing product-mix through mergers and demergers of its subsidiaries. KPMG was asked to draw up a corporate plan for CIL, including measures for further expansion into downstream value-added products such as establishing coal washeries to produce energy-grade coal. The government has mandated the use of low-grade coal containing less than 34% ash for power stations located more than 1,000 km from the production centres.

CIL and its seven coal-producing subsidiaries together extract around 280 Mt/y of which over 200 Mt are supplied to power plants through linkages, while another 20 Mt goes to linked customers in steel, cement and fertiliser sectors. Bharat Coking Coal, Eastern Coalfields and Central Coalfields, which produce the bulk of the prime-grade coal, are incurring heavy financial losses.

CIL has teamed up with global mining majors such as Joy Global of the US and Ruhrkohle (RAG) of Germany to mine Indian coal on a

revenue-sharing basis in order to get around the cash crisis. South Eastern Coalfields (SECL) possesses three projects so far identified for revenue-sharing on contract basis. Under the scheme, revenue from sales of 50% of the rated production of the identified mines under contract will go to SECL.

Iron Ore

India's iron ore deposits are abundant and recoverable reserves are estimated at 9,800 Mt of haematite ore and 3,400 Mt of magnetite ore. High-grade ore reserves (over 65% Fe) are estimated at 1,280 Mt, while medium-grade reserves (62-65% Fe) are estimated at 4,200 Mt.

The major repositories of high-grade haematite are in Madhya Pradesh (reserves: 630 Mt) 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 major 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).

State-owned National Mineral Development Corp. (NMDC) possesses the largest mechanised iron-ore mines at Bailadila in Madhya Pradesh and Donimalai in Karnataka, with a total capacity to produce 18 Mt/y. Exports account for about 8 Mt/y, the buyers being Japan, South Korea and China. There is a proposal to expand capacity to 32 Mt/y at a cost of around Rs15 billion. The NMDC is setting up a 300,000 t/y Romelt steel plant at Geedam in the Dantewada district of the newly-formed state of Chhattisgarh. This will use fines/slimes arising at the Bailadila mines. (NMDC also proposes to undertake gold and diamond exploration in southern Africa. It plans to set up a wholly-owned subsidiary in Tanzania and a gold venture in Madagascar.)

The Chiria deposit, considered one of the largest in the world with proven reserves of

2,000 Mt, remains underdeveloped for want of funds. It is owned by the ailing public sector company, Indian Iron & Steel Co. (IISCO), which is deeply in the red and needs a joint venture partner if it is to be modernised and revived.

Iron ore is a major export commodity but India's share in world exports has steadily declined from 7.8% in 1985 to 4% in 2000. Iron-ore shipments in the year ended 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 71 Mt, against 68.5 Mt in 1998-99. This year, state-owned Minerals & Metals Corp. (MMTC) will be exporting 1.0 to 1.2 Mt of iron ore to China Iron & Steel Group Trade Corp. (previously known as CMIEC) following a memorandum of understanding between the two parties.

Iron and Steel

The Indian steel industry suffered huge losses amounting to over Rs30 billion during April-December 2001. The six major companies, including Steel Authority of India Ltd (SAIL), Ispat Industries (Vishakapatnam steel plant), Essar Steel, Jindal Vijaynagar Steel and Jindal Iron & Steel Co. were deeply in debt. The exceptions were Tata Iron & Steel Co. (Tisco) and Bhushan Steel; both of which reported profits. Tisco, however, reported a decline in net profits by 73% to Rs826 million. (mainly because of employee downsizing costs). SAIL and Ispat Industries, both government-owned companies, made losses of Rs12.9 billion and Rs4.22 billion respectively. Rises in input costs and a steep drop in sales accounted for the poor performances.

A fall in international steel prices of over 25%, and a 30% decline in the domestic price of flat products since their peak two years ago compounded the situation. With the US imposing tariffs on all steel imports early this year, a major worry now for the Indian steel industry is the prospect of steel exports

reaching India from countries such as Japan and South Korea.

The central budget for the year beginning April 2002 has tried to help the industry by reducing the customs duty by 10% on a number of refractory raw materials including natural graphite powder, silicon, sintered alumina, fused zirconia and boron carbide. The import duty on graphite electrodes (of more than 625 mm (25") diameter) has also been reduced from 25% to 15%. Also, the domestic steel industry has been worried about imports of seconds and defective items, and in order to secure a level playing field, the customs duty on them has been raised to 40%.

The US imposed antidumping duties as high as 43.53% on Indian hot-rolled (HR) coils, making it difficult for the steel industry to tide over the demand recession. In 2000, the US imported HR steel worth US\$210 million. Accordingly, India's largest private sector steel-maker, 90-year old Tisco, cut cold-rolled steel production to 70,000 t/mth in the July-September quarter to take account of poor demand.

The company is proposing a brownfield expansion at Jamshedpur, adjacent to its existing plant. The project is expected to cost Rs15 billion and will be funded equally out of internal accruals and debt. It will be a relatively cheap expansion and should bring about a balance in the operations. The new capacity would be commissioned in three to four years' time. The company's target is to produce 1.0 Mt of cold-rolled products in the year ending March 2002, out of a total target of 3.5 Mt for all steel products.

Also, Tisco plans to invest over Rs25 billion (US\$531 million) to diversify into other metals and mining, while continuing to cut costs in its core steel business. In particular, the company plans to diversify into making titanium dioxide pigment and ferro-chrome, and commercial coal mining. Since the rate of return in steel is lower than the cost of capital, diversification into more profitable areas has become necessary. The bulk of the

investment (Rs20 billion) would be in Tamil Nadu to produce titanium dioxide. The company plans to mine near Tuticorin port, about 300,000 t/y ilmenite, completing the project in five to seven years. Other projects will seek to produce 120,000 t/y of ferro-chrome abroad at one of three sites in Australia, South Africa or Mozambique.

In the 12 months to March 31, 2001, Tisco sold 3.4 Mt of steel and in June last year it commissioned a galvanising plant which is expected to produce 200,000 t of steel in the current year 400,000 t in 2002-03. Tisco's overall target for 2001-02 is 3.54 Mt. In the next five to ten years, titanium products will be big business for the company. The greenfield steel project at Gopalpur has been deferred owing to environmental problems, although land has been acquired for the purpose. In April this year, (2002) Tisco entered into a strategic alliance with Nippon Steel Corp. of Japan and Arcelor of Europe to produce steel for the automobile industry.

Tisco closed down its ferro-chrome unit at Joda (capacity:20,000 t/y) because of uneconomic power costs. For the same reason several ferro-chrome units in Orissa, which hosts close to 98% of the country's chrome ore deposits, had to close. Jindal Strips, the largest stainless steel company is planning to close down its high-carbon ferro-chrome unit in Orissa (capacity: 40,000 t/y) because of prohibitive power costs. Other ferro-chrome producers, apart from Tisco's remaining facility at Bamnival (capacity: 50,000 t/y), are Indian Charge Chrome and Nava Bharat Alloys.

SAIL, India's biggest steel producer, has firmed up plans to increase its total capacity to over 10 Mt/y. This is to be achieved by de-bottlenecking operations. Among the existing blast furnaces, one is currently closed and the capacity augmentation is to be implemented in the operational blast furnaces. SAIL has put on the market new corrosion-resistant structural products manufactured by the Bhilai Steel Plant. This product substitutes the

relatively costly chrome and nickel by phosphorous and carbon without compromising on quality.

SAIL is an umbrella organisation which accounts for half the steel made in India. It is deeply in debt, the losses sustained in 1998-99 and 1999-2000 being of the order of Rs32.9 billion, pushing the high-profile company to the brink of 'industrial sickness'. Losses in the fiscal year ended March 2001 continued, albeit on a reduced scale. The only two companies among its four integrated steel plants which have fared well are Bhilai steel plant and Bokaro. The losses made by the Rourkela and Durgapur plants plus the burden of such perennially sick units as the Alloy Steel plant in Durgapur, the Salem Steel plant, and Visvesvaraya Iron & Steel plant, meant that SAIL was the worst loss-maker among India's public-sector companies. In an effort to pay off the interest on loans from financial institutions and banks needed for modernisation and expansion of its units, SAIL had to sell off the residential quarters of its constituent units. The steel giant was to pay Rs7,350 million last year as interest which would come from disposing of power plants at Durgapur and Rourkela. These power plants were to be hived off into joint ventures with another public sector undertaking, the National Thermal Power Corp. The sum of Rs23 billion which has to be paid as interest in the current financial year, (2001-2), was to come from the sale of power plants at Bokaro, the Salem Steel plant and further residential quarters.

SAIL's exports of saleable steel amounted to 3.3 Mt in 2001-02, hotrolled coil, skelp and strip accounting for 1.4 Mt. Hot-rolled products and steel wire ropes, which constitute almost 50% of the country's steel exports, have attracted antidumping proceedings in the US. The chronically sick Indian Iron & Steel Co. (IISCO) which is owned by SAIL was on the chopping block. A complete sale was anticipated. As an integrated steel plant, IISCO offered several intrinsic advantages including a wide product-mix, including structurals, light and heavy rails, bars and

rods, a captive foundry and a spun-pipe plant, and also rich iron-ore mines.

Jindal Steel & Power proposes to set up a 1 Mt/y sponge iron plant in Orissa at a cost of Rs13 billion. The plant will utilise locally available iron ore from the company's captive mines. The company is also planning to add coal mining to its portfolio if proposals to fuel the sponge iron plant with piped-in gasified coal are implemented.

Aluminium

Aluminium is the only metal in the non-ferrous group for which India has abundant ore resources. The reserves of high-grade bauxite are placed at 2,620 Mt, which at the current consumption rate of 6 Mt/y, can last for over 400 years. Of this tonnage, as much as 1,500 Mt is located in eastern India in Orissa, whilst 600 Mt occurs in neighbouring Andhra Pradesh. Bauxite also exists in sizeable quantities in Gujarat (which produces for export), Madhya Pradesh, Karnataka, Tamil Nadu, Goa and Maharashtra. India's production of bauxite has been around 5.8 Mt/y.

With the decentralisation of bauxite exports some years ago, exploitation of low- and medium-grade bauxite in Kutch (in Gujarat) by private producers received a fillip to meet export demand in the Middle East. Kutch has some 30 Mt of mineable bauxite, of which 4 Mt are of high grade.

The US giant Alcoa is proposing to set up an integrated 1Mt/y alumina plant and a 350,000 t/y smelter at an estimated cost of US\$2 billion (without a captive power plant). The project envisages exports of 30% of the alumina produced and utilisation of the balance for domestic refining. India, according to experts, offers a competitive advantage of 10 to 15% in aluminium production.

In a joint venture with US companies, Jeffrey's and Ambassador Group International, Gujarat Mineral Development Corp. (GMDC) is to establish a 750,000 t/y alumina refinery at a cost of Rs7 billion near Mandvi in the Kutch

district of Gujarat state. The refinery will be based on the bauxite deposits of Kutch and Jamnagar districts. GMDC's stake in the project will be 6%. India's aluminium output capacity is slated to rise by 50% to 1.08 Mt/y over the next three years. The capacity to produce alumina, the intermediate product, will correspondingly rise by over 55% to 2.8 Mt/y.

In the face of China's large-scale exports of aluminium, Indian producers have found it difficult to push their products in the world markets. Nevertheless, major producers are undertaking expansions, the country's annual aluminium production is expected to rise to about 900,000 t in the fiscal year ending March 2004 from about 640,000 t in 2000-01. Domestic demand in the year ended March 2001 was 70,000 t and exports totalled 140,000 t. The country also imports about 50,000 to 70,000 t/y of the metal. Demand is likely to grow by 5% to 7% annually over the next few years. The power, automobile and infrastructure sectors are major users of aluminium.

India's largest aluminium maker, Hindalco Industries, is expanding the capacity of its aluminium smelter at Renukoot in Uttar Pradesh from 242,000 t/y to 342,000 t/y. This brownfield expansion project is likely to be completed by 2002-03. Correspondingly, its alumina refining capacity will be raised by 210,000 t/y. This major expansion is being undertaken at a cost of Rs18 billion (US\$382 million). Its ninth potline was commissioned during the year. An additional 15,000 t/y of smelting capacity was expected to go on stream in 2001-2.

The company will augment its captive power generating capacity at Renusagar to 796 MW. In the beginning of fiscal year 2000, in an all cash deal, Hindalco Industries acquired from Alcan a controlling stake (54.6%) in Indian Aluminium Co. (Indal), the largest producer of aluminium fabrications, at a cost of Rs10 billion. Subsequently, Hindalco increased its shareholding to 74.6% by making an open buy-back offer to other Indal shareholders.

Indal plans to double the annual production capacity of its Hirakud smelter in Orissa from 45,000 t/y to 90,000 t/y in about a year by shifting, in the first phase, half of 400 electrolytic pots lying idle at Belgaum in Karnataka state. With the completion of this job, the production capacity of Indal's Hirakud smelter will rise to about 60,000 t/y from 30,000 t/y. In the second phase, the remaining 200 pots would be moved out of Belgaum. The closure of the Belgaum smelter came about as a result of the total stoppage of power supply to the plant owing to severe power shortages in Karnataka. Indal also operates a 13,000 t/y aluminium smelter at Alupuram in Kerala. At present, the company has an alumina refinery of 88,000 t/y capacity at Muri in Jharkhand, and this is being raised to 100,000 t/y by improving efficiencies. Also, it has an alumina capacity of 300,000 t/y at Belgaum in Karnataka, where an expansion to 400,000 t/y is proposed. Indal also operates a 13,000 t/y aluminium smelter at Alupuram in Kerala. In the financial year ended March 31, 2001, the company produced 44,000 t of aluminium.

Indal has increased its interest in Utkal Alumina International Ltd's Rs430 billion greenfield project in Orissa from 20% to a majority holding of 55%. Until recently, Alcan of Canada and Norsk Hydro of Norway held 35% and 45%, respectively. Indal acquired its additional 35% stake from Norsk by paying US\$6 million. It is reliably learnt that Norsk would be selling its remaining 10% stake to Alcan. The Utkal project, located at Doragurha in the Rayagada district of Orissa, would have a capacity of 1.5 Mt/y with provision for subsequent expansion to 2.5 Mt/y. It is to be based on the high-grade bauxite deposits of Baphlimali. The project envisages a 50 MW co-generation plant and separate loading facilities at Visakhapatnam port. This will be an export-orientated project. The project has been delayed by various environmental issues since 1999.

Indal has also raised its stake in Annapurna Foils Ltd (AFL), Hyderabad, to over 90%, which may be a prelude to delisting the

company from the stock exchanges. This company was to be merged with Indal, which will add 4,000 t/y foil capacity to Indal's own 6,000 t/y at Kalwa near Mumbai, and give the Aditya Birla group control over 20,000 t/y of foil, including Hindalco's 10,000 t/y plant at Silvassa on the west coast. Last year, foil led Hindalco's topline growth in turnover, followed by rolled products and redraw products. Extrusions fared poorly.

The government-owned National Aluminium Co. (Nalco) will complete most of its Rs45 billion expansion projects by May next year. It proposes to raise production capacity of its aluminium smelter at Angul in Orissa from 230,000 t/y to 345,000 t/y. Nalco produced 230,500 t of aluminium in the year ended March 2001, compared with 212,600 t a year earlier. The company also plans to lift power generation capacity from 720 MW to 960 MW at a cost of Rs5 billion. Initially, the capacity will go up to 840 MW by May 2002. The company has already increased the capacity of its alumina refinery at Damanjodi in Orissa to 1.58 Mt/y from 800,000 t/y. Commercial production was to have begun by October 2001.

Nalco plans to produce 1.14 Mt of alumina in the current fiscal year ended March 2002. Output rose to 939,000 t in 2000-01 from 886,000 t in the previous year. The alumina refinery draws its bauxite from the Panchpatmali mines in Damanjodi. It has already doubled bauxite mining capacity to 4.8 Mt/y. The company exports nearly half of its alumina output and in 2001-02 it proposed to ship 650,000-700,000 t, against 495,700 t in the previous year.

The government is proposing part-privatisation of the company by offering for sale up to 30% equity to the public. Although the government initially wanted to complete its programme of disinvestment by June 2002 it had to defer action until August/September 2002 since Nalco's shares are severely depressed on the stock markets. By offloading 30% of its stake, its equity holding will be brought down from 87.13% to 57.13%. In view

of Nalco's improved performance and the near-completion of its expansion projects, the government's proposal to sell part of its stake at a later date is likely to prove profitable. The French aluminium major Pechiney has expressed an interest in acquiring a strategic stake, and has proposed setting up a greenfield alumina refinery at a cost of US\$750 million in bauxite-rich Orissa as soon as it secures the mining rights. Pechiney, which had earlier provided technology to Nalco, has sounded the latter for a possible joint venture in alumina production. Nalco plans to set up alumina refineries in Qatar and Guinea in joint venture with Pechiney.

Bharat Aluminium Co. (Balco) is proposing to more than double its smelter capacity at Korba in Chhattisgarh from 100,000 t/y to 150,000 t/y in the first phase and to 250,000 t/y subsequently. This company, which was fully government-owned until early 2001, is now privatised with 51% of its capital sold to the Sterlite group of industries. (Its plant was closed for two months in early 2001 because of a strike by its employees against this sale). It also produces 200,000 t/y of alumina and plans to increase this to 350,000 t/y. Balco has been scouting for global technology providers for its expansion projects and plans to raise money abroad to fund its expansion. According to Mr Anil Agarwal, Sterlite's chairman, the group will also seek a listing on the London Stock Exchange in the second half of 2002. An expansion to 300,000-400,000 t/y is envisaged by 2005. The project work has started. Balco teams visited countries such as Australia, China and Switzerland to source the right technology. It is expected to complete the project in 15 months. Balco also plans to increase the capacity of its power plant to 370 MW from 270 MW.

As a result of the prolonged strike at the Korba smelter, the liquid aluminium in the electrolytic pots solidified and damaged the pots. For some months, the plant was producing about 7,000 t of aluminium every month against the rated capacity of 8,300 t and the normal

production level was not achieved until February 2002.

The company is finding it difficult to secure fresh mining leases in Orissa and Chhattisgarh in view of the provincial governments' hostility. Hence, it is trying to obtain bauxite supplies from state-owned Mineral Exploration Corp. Ltd (MECL) by entering into a long-term contract.

Madras Aluminium Co. (Malco), now in the Sterlite fold, has an annual capacity to produce about 30,000 t of aluminium. Its operations have been hampered by inadequate power supplies in Tamil Nadu.

Copper

With an annual consumption increase of over 8% resulting from strong growth in sectors such as telecommunications, power, construction and transportation, the Indian copper industry is poised to meet a demand of 500,000 t by 2004. The current demand is estimated at 330,000 t/y, but in view of the increase in domestic production, the need for imports has declined from 60,000 t/y to less than 30,000 t/y. Demand is expected to grow by 5% in 2002-03.

There are two major producers, Indo-Gulf Corp.'s Birla Copper and Sterlite Industries, each with an annual smelter capacity of 120,000 t. The third copper producer, state-owned Hindustan Copper Ltd (HCL), which is the oldest, has a total capacity of about 40,000 t/y. It has 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 HCL's mines in the Mosaboni group in Bihar, namely, Pathorgora, Kenduadih, Badia and Banalopa, have had to be closed since they are uneconomic and only the Surda mines are functional.

The government has decided to privatise HCL by disinvestment. It has proposed to offload its entire 98.5% stake in HCL to a strategic partner. International players such as Phelps

Dodge of the US and Metdist of the UK, as well as Birla Copper and Sterlite Industries, have expressed an interest in acquiring control over HCL. Phelps Dodge and Lord Raj Kumar Bagri's company Metdist, a large metals trading firm, have joined forces to bid for a majority stake. Metdist is already involved in setting up a copper smelter and refinery at Pipavav port in Gujarat with assistance from Mitsubishi. Glencore International has also bid for a stake in HCL. The final choice is likely to be between Birla Copper and Sterlite Industries.

With HCL production falling, the increase in domestic demand for copper will have to be met by Birla Copper and Sterlite Industries, both of whom are operating well above their name-plate capacities. The Rs2.3 billion Birla Copper smelter located at Dahej in the Bharuch district of Gujarat produces cathodes and continuous cast copper rods. Last year, the plant produced about 110,500 t of anodes, 109,000 t of cathodes and 72,000 t of continuous cast rods, and exported around 23,000 t of copper.

In September 2000, the company commissioned its 400,000 t/y di-ammonium phosphate plant at Dahej. The precious metals refinery was also commissioned and produced around 78,000 oz of gold and 280,000 oz of silver during 2001.

Birla exports copper to Japan, Korea, Thailand, Saudi Arabia and Malaysia, and works on a conversion basis, deriving its revenue from treatment and refining charges, duty differential between raw material and finished goods and by-product sales. To widen its raw materials base, Birla Copper is considering lease agreements on copper mines in South America, Indonesia and Australia. The company has also been trying to secure technology from Ausmelt of Australia for raising its capacity by 70,000 t/y. Buoyed by its export performance, Birla Copper is proposing to register itself with the London Metal Exchange.

Sterlite is operating at 120,000 t/y capacity. Both the big producers have in hand ambitious expansion plans. Birla Copper is proposing to raise production by 50%, taking its smelter capacity to 150,000 t/y.

The Sterlite group is mainly concerned with the smelting and refining of copper and aluminium, and telecommunication cables. In September 2000, Sterlite Industries Ltd split into two separate companies, with Sterlite Copper now a stand-alone copper company. Its copper smelter in Tuticorin uses MIM technology and is increasing its annual production capacity to 150,000 t through an incremental investment of Rs1,000 million. The company also plans to develop its upstream activities. Under a contract worth A\$25 million, Thalanga Copper Mines, part of Sterlite Industries of India, has engaged the services of Australian mining company Brandrill to help develop Rewards Deep underground copper mines in Queensland. The contract would run for 20 months and would include an area of about 3 km². TCM would be a joint venture for parent company Sterlite group, which has undertaken to develop the mine in a joint venture with BML Holdings Pty Ltd.

In an apparent bid to facilitate its access to international markets in order to raise funds, Sterlite is seeking a buy-back of its shares. According to a company official, "since purchase of the company's shares would lead to a reduction in rupee capital, it would be easier to raise funds abroad". The company's chairman, Mr Anil Agarwal proposes to seek a listing of the company's shares on the London Stock Exchange which could pave the way for raising funds abroad for acquisition of copper mines in Latin America and Australia.

Zinc

The Indian Government has offered for sale a 26% stake in Hindustan Zinc Ltd (HZL), part of its 75.92% equity holding in the company. Of the four companies who originally bid, Indo-Gulf Corp. of the Aditya Birla Group and Binani Industries opted out, leaving Sterlite

Industries and Metdist in the field. At the end of March, the Indian government decided to sell its 26% stake in HZL to Sterlite Industries for Rs4.45 billion.

HZL has control over mines producing over 3.5 Mt/y of zinc-lead ores, four smelters with a combined capacity of 169,000 t/y of zinc and 43,000 t/y of lead, and a phosphate rock mine. The company's mines are located in Rajasthan, Andhra Pradesh and Orissa. Under the terms of the bid stipulated by the Securities and Exchange Board of India, the successful bidder must make an open offer for a further 20% interest in HZL. It is reported that the successful bidder must also undertake to establish a greenfield smelter within five years of taking over the company. The new 100,000 t/y smelter, estimated to cost Rs12.5 billion, could be built at Kapasan in Rajasthan.

At present, HZL operates seven mines and four smelters and ranks as one of the world's lowest cost producers of zinc and lead, mainly because of high ore grades and low labour costs. In the last financial year, it earned Rs1.76 billion and expects to earn a turnover of Rs1.72 billion in the current financial year.

The other significant zinc producer, Binani Zinc, has a smelter in Cochin, originally set up in collaboration with Cominco of Canada. It is planning to raise annual capacity from 30,000 t to 38,000 t, and eventually to 100,000 t/y.

Lead

India's output of lead is around 70,000 t/y, both from primary producers and from scrap/residue-based secondary units. Domestic demand is much higher, around 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. HZL's lead 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). Indian Lead has two units, one in Calcutta and the other at Thane, near Mumbai, each with a capacity of 12,000 t/y. Both units treat imported concentrates.

HZL's lead smelter at Tundoo in Bihar, which also produces silver, has been faring very poorly, and is to be closed. The lead smelter at Visakhapatnam has remained closed for some time owing to environmental problems with the Andhra Pradesh government. It is a loss-making unit and the costs of installing environmentally-friendly equipment would be prohibitive. HZL is expected to sell its Agnigundala mine in Andhra Pradesh to a private company.

Binani Industries, which had a plan to establish a 25,000 t/y lead recycling plant (from batteries) at Wada in Maharashtra under the name of Binani Lead, was to commence operations by mid-2001 and subsequently follow this with a 125,000 t/y capacity smelter. Engitec Technologies of Italy supplied the technology for the recycling plant.

Production of Principal Minerals and Metals ('000 t except where stated)

	1999-00	2000-01	2001-02 ^e
Coal (Mt)	270	308.6	300
Crude Oil (Mt)	32	32.5	31.7
Iron Ore (Mt)	68.5	71	72
Finished Steel (Mt)	24.8	29.3	30
Aluminium	620.8	643.0	625.0
Copper	236	237	270.0
Primary Zinc	180	178	205.0
Primary Lead	45	46	50.0

^e estimate