



Indian liberalization and privatization with specific reference to minerals and metals

by G. D. Kalra

The Indian subcontinent is opening up for geological exploration and mining ventures. This article looks at the achievements so far.

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The Industrial Policy announced in July 1991 is considered a landmark in the liberalization of Indian economy initiated in the 1980s. It purports to change the pattern of industrialization from import substitution to export-promotion and protectionism to opening of markets. The main thrust of the industrial reforms is to accelerate industrial growth and to expose the domestic industry to international competition.

The Government has decided to take a series of initiatives in respect of policies relating to the following five areas.

Industrial licensing

- Comprehensive measures to unshackle Indian industry from myriad administrative and legal controls have been outlined;

- Industrial licensing has been abolished for all industries except 18 industries which include coal, petroleum, sugar, motor cars, cigarettes, hazardous chemicals, drugs and pharmaceuticals and some luxury items;

- Existing registration schemes have been dispensed with;

- Entrepreneurs now would only be required to file an information memorandum on new projects and substantial expansion;

- In cities of less than one million population, there would not be any need for obtaining approval from the Central Government for siting industrial units except for industries subject to compulsory licensing.

In respect to cities with population greater than one million, industries (other than those of non-polluting nature such as electronics computer softwares printing etc.) would be located outside 25 km of periphery except in the pre-designed industrial areas.

- Existing and new industrial units have been provided with broad banding facility to manufacture any article so long as no additional investment in plant and machinery is involved;

- Exemption from licensing apply to all substantial expansions of existing units;

- System of phased manufacturing programme run on an administrative case-by-case basis is not applicable to new projects; and

- Reservation of items for small scale programme is still sustained to further strengthen industrial and agro-industrial employment base.

The bedrock of such package of measures is to allow the entrepreneurs to make investment decision on the basis of their own commercial judgement. This is aligned with the philosophy that the attainment of technological dynamism and industrial competitiveness required that enterprises must have the leverage to respond swiftly to fast changing external conditions that characterise today's industrial world.

Foreign investment/import of capital goods

- Automatic clearance for import of capital goods provided foreign exchange requirements for such imports are ensured through foreign equity. Moreover, capital goods are also permitted at zero customs duty, provided the total foreign exchange involved is recovered through exports within a specified time;

- Direct foreign investment up to 51 per cent as foreign equity is allowed in specified high priority industries. No bottlenecks in clearance of proposals for foreign equity exists;

- Dividends to be expatriated by companies with foreign equity are expected to be met through export earnings over a period of time. Dividends on foreign equity would be monitored by the Reserve Bank of India;

- Foreign equity proposals need not necessarily be accompanied by foreign technology agreement.

An attractive package exists for 100 per cent Export Oriented Units (EOUs) and the Units in the Export Processing Zones (EPZs).

An Investment Promotion and Project Monitoring Cell, commonly known as the Facilitation Cell, has been set up in the Department of Industrial Development.

Foreign technology agreement

The Government now provides automatic approval for technology agreements related to high priority industries within specified parameters. Indian companies are free to negotiate the terms of technology transfer with foreign counterparts according to their own commercial judgement.

Hiring of foreign technicians and foreign testing of indigenously developed technologies also does not require prior clearance as described earlier. This measure is anticipated to induce the Indian industry to develop indigenous competence for the efficient absorption of foreign technology. Greater competitive pressure would also provide the needed initiative to plough back more in research and development than what industry has been doing in the past. The guidelines for financial commitment under foreign technology agreement are as under:

(a) The automatic permission is limited up to a lump sum payment of Rs.10 million, 5 per cent royalty for domestic sales and 8 per cent for exports subject to total payment of 8 per cent of sales over a ten year period from the date of agreement or seven years from the commencement of production. Prescribed royalty rates are net of taxes.

(b) In industries other than in high priority areas, automatic permission is also given, subject to some guidelines, if no foreign exchange is required for any payment.

Public sector policy

- Pre-eminence of public sector in eight core areas like arms and ammunition, atomic energy, mineral oils, rail transport has been retained;

- While reservation of industries for public sector continues to remain, there is now no bar for opening such areas to the private sector selectively;

- Public sector is allowed entry in areas not reserved for it;

- Chronic loss-making public sector units are referred to the Board of Industrial & Financial Reconstruction (BIFR) for formulation of revival or rehabilitation schemes;

- PSUs shareholding is now offered to mutual funds, financial institutions, workers and the general public;

- Professional management for PSUs with greater autonomy is permitted;

- Industrial policy proposes review of public sector investments;

- A social security mechanism to protect workers interest in PSUs under scrutiny is spelt out;

- A new policy to promote workers participation in management and workers cooperative is outlined to make sick units healthy;

MRTP Act 1970

The Monopolies and Restrictive Trade Practices Act (MRTP Act 1970) has been amended to remove the threshold limits of assets of MRTP companies and dominant undertakings. These companies are now free to take measures achieving economics of scale to ensure higher productivity and competitive advantages in the international market.

- There is no need of approval for establishment of new undertakings, expansion of undertakings, merger, amalgamation and takeover and appointment of Directors under certain circumstances;

- Restrictions on acquisition/transfer of shares have been waived.

- Newly empowered MRTP Commission has been set up to guard against monopolistic, restrictive and unfair trade practices.

New mineral policy – March 1993

However, the mining industry was lamenting that it had been by-passed by the tidal wave of liberalization and left untouched in its original backwater. This situation was not permitted to prolong. In line with the New Industrial Policy, the

National Mineral Policy was revised in March 1993 and the mineral sector was also thrown open to private initiative and investment.

The new National Mineral Policy, March 1993, has made a radical departure from the earlier policy of the Government in respect of the following:

1. Thirteen minerals which were exclusively reserved for exploitation and development by the public sector, have been deleted. These minerals are: iron ore, manganese, chrome ore, sulphur, gold, diamond, copper, lead, zinc, molybdenum, tungsten, nickel and platinum. These minerals are now open to the private sector, both domestic and foreign.

2. Foreign equity investment in the mining is being encouraged. Processing units which wish to develop captive mines to secure assured supplies of raw material are allowed equity participation in the manner and to the extent applicable to such processing units. Equity participation in non-captive mines up to 50 per cent is automatically allowed, while enhanced equity holding would be considered on the merit of the case.

3. It is also intended to promote small scale mining of small and isolated deposits of minerals in a scientific and efficient manner while safeguarding vital environment and ecological imperatives.

4. Emphasis in the new policy is on the export of minerals in value added form and recycling of metallic scrap and mineral waste.

5. The new policy also recognises the environmental concerns and lays down that mining operations shall not be ordinarily taken up in identified ecologically fragile and biologically rich areas.

To give effect to the new National Mineral Policy, the Mines and Minerals (Regulation and Development) Act 1957 (MMR&D) has been amended. The amended Act which, inter alia,

- i) includes provisions for devolution of more powers to the provincial Government;

ii) ensures greater stability of tenure in prospecting licenses/mining leases;

iii) facilitates inflow of private capital, both domestic and foreign, and also state-of-the-art technology into the mineral sector. Some of the conspicuous changes which are conducive to the healthy development of the minerals industry are as under:

1. The period for which a prospecting licence can be granted has now been increased to three years initially and these licences can be renewed at the discretion of the State Government further, so that the total period does not exceed five years.

2. The tenure of a mining lease has also been enhanced from 20 to 30 years, with a guaranteed minimum lease of 20 years in the first instance. There is a provision of renewal of mining lease for an additional period of 20 years.

These amendments would be of particular benefit to the captive coal mines in the power sector and other mines having forward linkages with mineral processing industries like steel, cement etc.

The Act has deleted 15 minerals requiring prior approval of the Central Government before Provincial Government could grant a prospecting licence or a mining lease. These minerals are: apatite and phosphate ores, barytes, dolomite, gypsum, kyanite, magnesite, molybdenum, tin, nickel, platinum and other precious metals, sillimanite, silver, sulphur and its ores, tungsten, vanadium ore (excepting the atomic minerals and fuel oils).

The Act has removed restrictions on equity holding by foreign nationals in a mining company. As of now, any company registered or incorporated in India can apply for a prospecting licence or a mining lease to the concerned Provincial Government.

Achievements of liberalisation

Liberalisation measures introduced over the past four years have started yielding results. These are discernible in the following areas:

Table 1. Disbursements of term loans by All India Financial Institutions (FIIs) and capital market operations

	1991 – 92	1993 – 94	1994 – 95 (April – December)
FIIs			
Loan sanctioned (Rs million)	231 460	414 440	445 450
Loans disbursed (Rs million)	158 890	258 320	199 460
Capital Market			
No. of issues	517	1 143	1 032
Amount raised (Rs million)	57 570	219 820	113 810

1. GDP growth rate of 5.3 per cent has been recorded in the year 1994 – 95, against a growth of 0.9 per cent in 1991.

2. The industrial production has gone up from 0.9 per cent in 1991 – 92 to 8.1 per cent in 1994 – 95. The manufacturing sector showed a turn round by growing at the rate of 8.2 per cent in 1994 – 95 against a negative growth rate of 0.8 per cent in the year 1991 – 92.

3. The mining sector during the same period grew at a rate of 6.6 per cent against 0.6 per cent in 1991 – 92 and electricity at the rate of 8.7 per cent against 8.5 per cent growth in 1991 – 92.

4. The agricultural sector registered a satisfactory growth of 2.4 per cent last year, compared to a negative growth rate of 2 per cent.

5. The growth rate of services sector was 5.5 per cent.

6. Exports grew at a rate of 18.4 per cent in 1994 – 95 against negative growth of 1.5 per cent in 1991 – 92 and imports at the rate of 21.8 per cent in 1994 – 95 compared to 10.8 per cent in 1991 – 92.

7. The foreign exchange reserves hit the dizzy heights of US\$ 20 billion by the end of 1994 – 95 which had plummeted to a low of US\$ 1 billion in July 1991. This enabled the Finance Minister to announce full convertibility of rupee for current account transactions.

8. The average inflation rate worked out to about 9.6 per cent for the year 1994

– 95. Presently, it is hovering around 8 per cent.

9. The industry today is pre-occupied with technological upgradation and capacity expansion to levels of economies of scale operable abroad. This has created a large demand for capital goods and finances.

This has evoked a strong positive response from domestic as well as foreign investors. This is evident from sanction and disbursements of term loans by All India Financial Institutions (FIIs) and capital market operations (Table 1).

10. Toning down of Foreign Exchange Regulation Act (FERA) and liberalisation of foreign investment policy with 51 per cent equity has attracted many MNCs. Companies like Coca Cola, IBM etc., which had stopped investments in the 1970s, have started to invest again.

The approvals of foreign direct investment (FDI) in value terms rose rapidly from Rs. 5,341.1 million in 1991 to Rs. 14,187.9 million in 1994. But the actual inflows which were Rs. 3514 million in 1991 rose to 29,716.5 million in 1994. Of these, more than 80 per cent of the approvals were given in the priority sectors such as power generation, oil refinery, electrical equipment, chemicals and export related sectors (Table 2).

The number of 100 per cent foreign owned companies approved by the Government from August 1991 to 31 May

Table 2. Foreign Direct Investment (FDI) in India

	FDI Approved		FDI actual inflows (Rs million)
	Number	Amount (Rs million)	
1991	289	5 341.1	3 514.3
1992	692	38 875.4	6 751.8
1993	785	88 593.3	17 858.5
1994	1040	141 871.9	29 716.5
1995 (up to May 31)	915	74 729.6	28 623.7

1995 was 158 with Rs. 49,759.3 million of foreign investment approved.

11. From December 1991, the Government initiated disinvestment of Public Sector undertakings. During the current financial year, the Government intends to disinvest Rs. 700 billion equity of central public sector which accounted for Rs. 1 593 070 million investment 1993 – 94. The incremental approach to disinvestment was reflected in four rounds of disinvestment although there was no open commitment to bring the share holding below 51 per cent. Some of the Provinces have begun to privatise State-owned public sector enterprises.

12. In continuance of the trend towards import tariff rationalisation, the peak tariff has been reduced from 85 per cent in 1993 – 94 to 65 per cent in 1994 – 95 and 50 per cent in 1995 – 96. Import duties on capital goods have been reduced to 15 per cent on export related capital goods 25 per cent for project imports and most capital goods and continuation of concessional duties at 20 per cent for power projects.

13. Several initiatives have been taken to reform the banking system and encourage competition by allowing new private sector (both domestic and foreign) banks. Interest rates on bank loans (except small loans) have been completely deregulated and there is less pre-emption of banks funds by the Government at interest rates below market rates. The SLR presently

stands reduced to 31.5 per cent to make more credit available for the commercial sector.

14. Efforts have been made to modernise the Indian Capital market with the result that:

i) firms are now free to issue capital and price new issues according to prevailing market conditions, subject only to guidelines of the Securities and Exchange Board of India (SEBI).

ii) Indian companies have also been allowed access to international capital markets by issuing equity abroad through mechanism of global depository receipts.

iii) Foreign institutional investors have been allowed to invest directly in the Indian capital markets. Market capitalisation is estimated at over \$106 billion making India among the leading emerging markets in this respect.

15. The insurance sector in India, however, has remained a monopoly of the public sector. A high level committee appointed by the Government recommended that insurance should be opened to the private sector, including foreign investors. The Government is expected to announce its response to these recommendations shortly.

16. The barriers to Indian firms acquiring full packages of technology from abroad on a continuing basis have been removed. The Technology Policy Statement of 1993 set the target for spending on research, development and engineer-

ing (R, D & E) at 2 per cent of GDP by the year 2000, against 0.83 per cent in 1992 – 93. A substantial portion of R&D expenditure was erstwhile targeted for Defence and Space. The present thrust is for a substantial increase in the private sector contribution to national R, D & E expenditure through incentives and other measures.

17. As a result of the Uruguay Round agreement, the Indian Patents Act of 1970 has been amended in a major way to allow for product patents in the pharmaceutical (bio-technology), food processing and chemical industries.

18. The turnout of scientific and technical personnel from India's centers of higher education is quantitatively impressive but its composition does not match India's new requirements and ambitions. The Government is looking forward to privatisation of higher education. Industry's involvement is increasing, given the Government policy to increase its support.

19. The 1992 policy statement on environment and development lays down a mix of regulatory and promotional measures which could be taken to integrate environmental considerations with industrial growth. Fiscal incentives such as accelerated rate of depreciation have also been used in recent years to encourage the wider use of pollution control equipment.

20. The telecommunications sector has been opened up with the announcement of the New Telecoms Policy in May 1994. This has resulted in a spurt in private sector (domestic and foreign) involvement in both basic and value added telecom services.

Minerals and metals sector

The mineral sector has grown in consonance with the overall industrial growth under the liberalised economic policy. This is reflected through enhancement of output of principal minerals and metals over the period.

Table 3. India's output of principal minerals

	1991 – 92	1992 – 93	1993 – 94
Coal (Mt)	229.30	238.00	249.00
Iron ore (Mt)	57.46	57.60	60.00
Bauxite (Mt)	4.70	4.98	6.20
Finished steel (Mt)	14.15	14.55	17.24
Aluminium (kt)	507.10	484.90	466.00
Copper (kt)	45.27	45.28	40.90
Zinc (kt)	102.70	126.75	143.80
Primary lead (kt)	30.40	38.65	37.00

At present, India produces 64 minerals (4 fuel minerals, 11 metallic and 49 non-metallic minerals) besides a host of atomic and minor minerals. The total value of mineral production has consistently increased over the past four decades and has risen from Rs.700 million in 1950 to 236,420 million in 1993 – 94. Minerals are the third largest export earning sector after textile, gems and jewellery.

The share of the mineral sector in the gross domestic product (GDP) of the country increased to 3 per cent in 1992 – 93 as compared to 2 per cent in 1980 – 81. It accounts for 11.46 per cent share of the index of industrial production. The contribution of the mineral sector, however, will be much more if the value addition in respect of refined metals is also taken into account.

The rate of growth of the mineral sector has generally been higher than that of the Indian economy. For instance, while the GDP growth rate was 4.3 per cent in 1992 – 93, that of the mineral sector was 5 per cent. Of this, fuel minerals accounted for 88 per cent, metallic minerals 9 per cent and non-metallic minerals for the rest. About 800 000 persons are directly employed in the mining sector (Source: Indian Bureau of Mines – IBM).

The following measures have proved catalyst in hastening the process of improving the efficiency of mineral production and setting up of minerals based industries:

A. Both customs duty and excise duty have been reduced on certain items:

- the import duty on steel ingots has been progressively reduced from 75 – 80 per cent to 20 per cent.
- the import duty on primary non-ferrous metals like copper, zinc and lead has been slashed to 35 per cent.
- import duties on all ores and concentrates have been sealed down to a uniform 10 per cent. Similarly, iron ore pellets now bear customs duty of 10 per cent against 15 per cent previously and steel melting scrap a flat 10 per cent.

B. While the import duty on coking coal was brought down to zero level, the same on non-coking thermal coal was slashed from 85 per cent to 25 per cent.

This is intended to:

- provide an element of competitiveness to the otherwise highly insulated coal sector;
- make available imported coal to the coast based thermal power stations envisaged by the private sector;
- make available adequate coking coal of the desired quality to the steel plants proposed in the private sector in the face of lean domestic resources.

C. Leases for captive mines are now available for both coal and iron ore. Nearly 72 coal mining blocks have been identified to serve as captive mine for thermal power stations planned in the private sector.

D. In the petroleum sector, the Government sector has approved 72 foreign investment proposals aggregating to about Rs. 49 000 million during the period August 1991 to March 1995. Apart, the Government has approved 34 projects for marketing of petroleum products during the same period. This is the sector which was erstwhile reserved exclusively for the private sector.

MINERAL ENDOWMENT AND MINERAL INDUSTRY STATUS

Gold

India's output of gold in 1993 was around 1875 kg., whereas imports aggregated an estimated 175 t spurred by the Government decision in 1992 to permit non-resident Indians to bring 5 kg/head at a concessional duty of Rs. 22/gm. This has not deterred the contraband trade in gold, which is estimated to be at a par with official imports. Silver imports are likely to be around 4 kt.

The major gold deposit in Kolar deposits is Karnataka have turned uneconomical. The mining operations are under cessation. The Geological Survey of India (GSI) has located 4 Mt. of ore averaging 4 gm/t of gold in Chigargemta and Mallappakonda area of Chittor district in Andhra Pradesh. The other deposits located by GSI so far are too small to deserve any reference.

Diamond

India is the worlds largest diamond cutting and polishing nation accounting for 83 per cent of the worlds diamonds. It adds value to smaller roughs which would otherwise not have had a market.

Due to limited availability from domestic resources satisfying only 1 per cent to 1.5 per cent of demand, joint ventures for mining of diamonds and gem stones in India and abroad with Indian companies are receiving attention. The trade in imports of diamonds is steadily getting larger.

Coal and lignite – energy rich

Coal is India's principal energy source as there are limited reserves of oil and gas. The total reserves of coal are placed at 194 000 Mt. Coking coal reserves are limited at some 33 900 Mt. The coking properties of these reserves are poor and ash content high, with the results that India has to import coking coal, notably from Australia. 40 per cent of the requirement of coking coal are imported from abroad, which makes up the short-fall in requirement and sweetens the indigenously low quality coking coal.

In January 1994, India signed a memorandum of understanding with China to obtain help in modernising its underground coal mines. Under the agreement, China would provide its longwall technology to exploit coal of higher grades from underground operations. Following this, an agreement has been signed between Singareni Collieries Limited and Chinese National Coal Mining Equipment Corporation for supply of two long wall packages (production at Singareni has stagnated at around 18 Mt over the past three years).

The Planning Commission has estimated the demand for coal at 311 Mt/year at the end of 1996/97. India has been negotiating a massive 500 MUSD loan from the World Bank for the development of coal mines. It succeeded in its pursuit in 1994 – 95.

Nippon Denro Ispat, the flagship company of the Mohan Mittal Group, will be the first joint stock company to enter into large scale coal mining in the newly liberalised environment. Four mining blocks close to Nagpur are to be taken on lessee from Coal India Ltd. The mines are estimated to have total extractable reserves of 380 Mt. Coal India Limited is expected to offer mining blocks to at least two other companies, namely Calcutta Electric Supply Company and Kalinga Power Corporation, this year.

India's lignite reserves are placed at 6 500 Mt of which about 80 per cent occurs in Tamil Nadu. The Neyveli Lignite

Corporation (NLC), a central Government enterprise, is the sole producer of lignite from its integrated complexes consisting of two mines (capacity 1 717 Mt/year), two thermal power stations, a fertilizer plant and a briquetting and carbonization plant.

Iron ore-rich for export and domestic steel industry

India is rich in iron ore. Reserves of hematite ores are estimated at 10,270 Mt and magnetite at 1700 Mt. Output of iron ore in 1993 – 94 was around 60 Mt although total production capacity is 67 Mt/year. Domestic consumption is in the region of 24.5 Mt and the industry is heavily dependent on export orders from Japan. Goa continues to be the chief producer, followed by Madhya Pradesh, Karnataka, Bihar and Orissa. While the mines in Madhya Pradesh, Bihar and Orissa meet the needs of domestic steel plants, the production from Goa and Karnataka is exported.

China and India have signed an agreement to establish joint ventures for production of iron ore and coking coal in both countries.

The Kudremukh Iron Ore Company Limited (KIOCL) exports both magnetite concentrates (4.05 Mt) and pellets (2.15 Mt) respectively.

The National Mineral Development Corporation (NMDC) operates the country's largest mines at Bailadila in M.P. and Donimalai in Karnataka. NMDCs output from the two mines is around 9 Mt/year and this is proposed to be doubled by 1996 – 97. The reserves of Bailadilla deposits are placed at 2000 Mt of which 1200 Mt are proven.

Nippon Denro Ispat is the first private sector to be granted lease of 11-B deposit of Bailadilla by NMDC for development of a captive mine as well as for export.

India's crude steel production during 1993 – 94 was about 18 Mt. Notwithstanding the modest growth of world demand for steel and declining demand in developed countries, the Indian steel in-

dustry is poised for more than double steel production by the year 2000. The expansion would be primarily through green field steel plants envisaged by the private sector and expansion/modernisation of the public sector plants. Further multiplication of public sector steel plants is frozen.

Before the economic reforms of 1991, the integrated steel plants were subjected to extensive pricing and distribution controls. The new policy has created a liberal environment, abolishing licensing and price control and ending the policy of reserving steel for investment by the public sector only. If the infrastructural support to the steel in the form of ports, railways and power is ensured, it should be possible to realise the fast growth planned.

Manganese and chromite

Manganese and chromite reserves can also sustain much higher growth – both are essential inputs in the steel industry.

An interesting development has taken place in respect of rationalisation of the chromite lease held by TISCO which had a lease over an area of 1261.476 hectares. This encompasses practically the entire mineralized zone. Taking into consideration their requirements of chromite as input for their captive ferro-chrome/charge chrome plant, the Government has decided to slash down the area to 651 hectares and distribute the balance to other ferro-chrome producers. Such a step was never taken earlier and is the result of reforms that are crystallising.

Adequate bauxite and aluminium

India has substantial resources of bauxite to support its drive to become a global player in aluminium. The reserves of bauxite are placed at 2700 Mt of which 1 500 Mt occur on the East Coast in Orissa and 600 Mt in Andhra Pradesh alone.

Before the 1991 reforms, protection from foreign competition was provided by imposing high customs duties on waste and scrap (85 per cent) and wrought products (105 per cent). The do-

mestic regulatory regime had a stifling effect on the industry through price control, distribution mechanism and limitation on captive capacity of downstream value added products.

The aluminium price decontrol of 1989 was a major step forward in the direction of policy reforms for the industry. The situation has undergone dramatic change in the 1990s as the regulatory environment has been dismantled, excise duties have been lowered and customs duties have also been cut. The industry is going through a process of restructuring to respond to the new challenges.

India's consumption of aluminium per head is very low at 0.57 kg compared with 5 – 7 kg for the Asia-Pacific region. Rapid growth in the power sector through private initiatives, packaging and consumer durables is expected to provide a buoyant domestic market for aluminium. As the industry restructures itself to improve its cost competitiveness, export markets would automatically be exploited.

National Aluminium Company (NALCO), which was set up in the 1980s in the public sector, has already proved itself to be the lowest cost producer of alumina in the world. Indian Aluminium (INDAL) in alliance with Tata Industries and Hydro Aluminium of Norway and Larsen & Toubro in alliance with Alcoa of USA, are each planning export oriented alumina plants of 1 million tonne capacity to be located in Orissa. For a primary smelting sector, a major constraint is the availability of power which account for 60 per cent of inputs costs of aluminium smelting.

Copper

India has limited copper reserves of 565 Mt, averaging 1.11 per cent copper spread over some 35 deposits. More than 90 per cent of the reserves are confined to Bihar, MP and Rajasthan.

There are 17 working mines, ten of which are operated by the State owned Hindustan Copper Limited (HCL). In-

dia's production of copper cathodes in 1993 – 94 was placed at 40 000t against total smelting capacity of 47 500t distributed with smelter at Khetri Rajasthan (31 000 t/y) and another at Ghatsila in Bihar (16 500 t/y).

The company is experiencing severe financial problems because of the drastic reduction in the duty on imported copper and fluctuations in LME copper prices. It has asked for Government assistance, as it may have to close the Malanjkhand Copper mine in MP which was commissioned in 1992. HCL also plans to close three uneconomical mines; the Mosaboni mine in Bihar; the Dariba mine in Rajasthan and its Kyanite mine in Ghatsila in Bihar.

The company has decided to gradually shift its emphasis from mining to processing copper. Its Continuous Cast (CC) Rod plant at Taloja (near Bombay) based on imported ingot copper is a step in that direction. It also proposes to take up production of value-added items and sophisticated copper alloys to maximise earnings.

The consumption of copper is estimated to touch a mark of 300 000 t/y by 2000. The limited indigenous copper ore resources underline the need for exploring other options such as:

1. expansion of existing smelter capacities and setting up of new smelters based on imported copper concentrates.
2. creation of secondary metal capacity based on copper scrap, residues etc.
3. establishment of joint ventures for copper mining and smelting in other countries for import of the metal.

Delicensing of processing of copper has given fillip to the industry. Three copper projects are being developed by the private sector. One by Sterlite Industries Limited (capacity 60 000t/y), the second by A.V. Birlas Indo-Gulf Fertilisers and Chemical Corporation (capacity 100 000 t/y) and the third by Mideast (capacity 150 000 t/y). All three projects would be based on imported concentrates.

Zinc, lead and cadmium

India's zinc and lead resources are estimated at 385 Mt, of which 167 Mt containing 8.16 per cent zinc and 2.17 per cent lead are mineable. The bulk of the deposits occur in Rajasthan. The Rampur-Agucha belt in Bhilwara district has major multimetal deposits, the estimated reserves being 60.5 Mt averaging 13.5 per cent zinc and 1.9 per cent lead.

With the commissioning of the integrated Rampura-Agucha mining complex and lead-zinc smelter at Chaderiya in Rajasthan, near self-sufficiency has been achieved in the two metals. Despite a total zinc production capacity of 169 000 t/y, output in 1993 – 94 as been some 143 800t. Hindustan Zinc Limited, the largest producer, has a capacity of 149 000 t/y zinc and 65 000 t/y of lead. HZL exploits seven mines and operates four smelters – two zinc and two lead.

BHP Minerals, Niugini Mining and other overseas companies have shown interest in joint venture projects in India with HZL as partner.

Binani Zinc Limited (BZL) in the private sector plans to raise its production capacity from 20 000 t/y to 30 000 t/y with corresponding increases in the capacity for cadmium and sulphuric acid. To improve the extraction and recovery of zinc and cadmium, a modernisation programme is already in hand. BZL processes imported zinc concentrates.

India reached self sufficiency in lead with the start-up of the integrated project consisting of Rampur-Agucha mines of 3 000 t/d in Bhilwara district of Rajasthan and the lead zinc smelter with a capacity of 70 000 t/y of zinc and 35 000 t/y of lead in Chittorgarh district. Apart from this, HZL has a lead smelter of 8000 t/y at Katrasgarh in Bihar and a lead smelter of 22 000 t/y and zinc smelter of 30 000 t/y at Viaskhapatnam – both based on imported concentrates.

Limestone and cement industry

The cement industry in India has undergone a major transformation in the

1980s, recording significant modernisation and rapid growth. The cement price decontrol of 1989 brought a sea change and relieved the industry of:

- sale of cement (50 per cent) as levy quota at a price fixed by the Government.
- Sectoral distribution as pre-determined by the Cement Controller and
- Fixed return on net worth which was linked with capacity utilisation under the administered price formula.

India is the fifth largest cement manufacturer in the world, accounting for about 4 per cent (65 mt) of world production.

While cement consumption per head in India remains much lower than in many other developing economies, faster growth of GDP under the new liberalised economic regime is expected to raise the domestic consumption of cement in India. The rapid rise in the importance of the Asian market in the world trade in cement in the 1990s, also promises medium term opportunities for cement exports from India.

India aspires to produce 100 Mt/y of cement by 2000; one tenth is targetted for export. The principal constraints arise from the quality of coal, power and railway services. But these constraints are eminently surmountable with proper investment in the infrastructure sector.

The Government is conscious of this fact and has shifted development of infrastructure to one of its topmost priorities. It should then be possible to exploit the abundance of limestone deposits, clay, gypsum, steel slag and fly ash in a fast growing market for cement.

The Federation of India Mineral Industries (FIMI) has identified 26 minerals (excluding traditional minerals like iron ore, manganese ore, fuels, mica and precious and semi-precious stones) which have bright prospects of exports in the prevailing atmosphere of globalisation and economic liberalisation. These minerals at present account for 37 per cent of export earnings from the mineral sector.

Emerging scenario – prospects and opportunities

The new economic policy has posed both challenges and opportunities. In terms of geological endowment and investment opportunities, India's mineral sector is now well poised for a big thrust. While considering the time lag between discovery and eventual extraction of minerals, there is need for priority investment in the field of exploration and development of new minerals deposits.

In the Indian sub-continent, eight major techno-stratigraphic terrains have been identified from the point of view of mineral potential. These provide the right type of geological environment for the discovery of mineral deposits of gold, diamond, base metals, rare earths etc. These resources largely lie as hidden treasures due to lack of adequate exploratory investigations. There is also ample scope for advanced exploration in and around the already identified prospects in the country. Hi-tech exploration is thus the present need of the country.

In the sphere of mining and processing, the mineral sector presents a unique blend of small scale and large scale mining operations. While the country has successfully developed several high capacity open cast mines in coal and lignite (up to 10 Mt/y), in regard to metalliferous mines, there seems to be wide technology gaps in respect to productivity, process efficiency and by products recovery. The fact remains that the country is yet to fully tap its potential in utilising a large number of existing low grade deposits.

There is ample scope for substituting the export of unprocessed raw materials by value addition.

The liberalisation measures initiated by the Government are founded on the basic postulate of free flow of technology and investment. Relaxation of the regulatory regime and controls make the Indian economy more friendly investment wise. Attractions are particularly provided by a large and growing domestic market, in-

creasing per capita consumption of minerals and a good resource base.

Mineral legislative framework has now been amended to be both conducive and flexing for attracting foreign capital and technical know-how.

Mining is now an eligible activity for obtaining financial support from financial institutions for projects which have a substantial component of mining machinery, equipment and buildings. With free convertibility of the Indian rupee on the current account, both Indian and foreign banks would be willing to finance projects. India has generated active interest among foreign investors and a number of technical and financial collaborations. Substantial investments through formation of joint ventures are expected. ■