

A N N U A L ♦ R E P O R T

1996-97



MINISTRY OF STEEL

*MINISTRY OF STEEL*  
**Annual Report 1996-97**

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## YEAR'S Highlights

- SAIL achieved highest ever pre-tax profits of Rs. 1,318.61 crores during 1995-96. The pre-tax profits for the half year ended 30th September, 1996 were Rs. 414.98 crores (provisional).
- SAIL recorded a turnover of Rs. 14,710 crores during 1995-96, a growth of 6%. The turnover for the first half of 1996-97 was Rs. 6,536 crores (provisional).
- SAIL in four Integrated Steel Plants achieved best ever production of Hot Metal (10.90 MT), Crude steel (9.99 MT) and Saleable Steel (8.92 MT) during 1995-96. During April-October, 1996 the production was 6.656 MT, 5.966 MT and 5.107 MT of Hot Metal, Crude Steel and Saleable Steel respectively.
- SAIL incurred capital expenditure of Rs 2,747 crores on modernisation and other capital schemes in 1995-96 and Rs. 1,317 crores (provisional) during first half of 1996-97 funded without any budgetary support.
- SAIL achieved net mobilisation of deposits (Rs. 155 crores) under the company's public deposit scheme in 1995-96. In the first half of 1996-97 net increase in deposits was approximately Rs. 111 crores. The company also raised Rs. 710 crores during 1995-96 by issue of bonds. SAIL further issued bonds valuing Rs 491 Crores during first half of 1996-97.
- Production of Liquid Steel at VSP crossed 9 million tonnes on 6th December, 1996.
- VSP exported iron and steel worth Rs. 417 crores during April-December, 1996 which is 12% more than the export made in the corresponding period last year.
- VSP achieved reduction in Refractory consumption from 32.11 Kg. per tonne of Liquid Steel to 23.78 Kg in 1995-96.
- Visakhapatnam Steel Plant (VSP) commissioned a Ladle Furnace on 1st April, 1996, thereby effectively addressing the problem of logistic imbalances in transportation of Liquid Steel from Converters to the Continuous Casting Machine.
- VSP synchronised its 4th Turbo Generator on 3rd May, 1996 thereby increasing the captive power generation capacity to 247.5 MW, sufficient for the requirements as well as for exports to APSEB.
- National Mineral Development Corporation Ltd. (NMDC) produced 7.37 million tonnes of Iron Ore during April-October, 1996. The company paid dividend of 20% on paid-up capital amounting to Rs. 26.43 crores for 1995-96, the sixth year in succession.
- Metallurgical & Engineering Consultants (India) Ltd. (MECON) paid dividend @40% for 1995-96. This is the 17th consecutive year MECON has paid dividend.
- Kudremukh Iron Ore Company Limited (KIOCL) declared dividend for 1995-96 at the rate of 3.25%. This was the 4th year in succession for payment of dividend.
- MOIL, who had recorded highest ever sales during 1995-96, maintained this trend reporting (provisional) sales of Rs. 79.07 crores during April-December, 1996, i.e. 121% of their target for the period.
- Highest ever production of 21.4 million tonnes of Finished Steel was recorded by the Indian Steel Industry in 1995-96
- India emerges as the 9th largest producer of Crude Steel in the world during 1996.

## THE YEAR at a glance



*New horizons in steel*

### Production of Steel

Production of Saleable Steel in the four integrated steel plants of Steel Authority of India Ltd. and IISCO during 1995-96 was about 9.18 million tonnes as against the production of 8.96 million tonnes in 1994-95, representing an increase of 2.5 percent. During April-Oct. 1996 the production was 5.25 million tonnes, as compared to 5.12 million tonnes during the corresponding period last year, with an increase of 2.5%.

Production of Saleable Steel in Visakhapatnam Steel Plant was 2.14 million tonnes in 1995-96 as against 1.55 million tonnes in 1994-95. During April-Oct 1996, it was 1.16 million tonnes of saleable steel has been produced in this plant as compared to 1.13 million tonnes produced during the corresponding period last year. TISCO produced 2.70 million tonnes of Saleable Steel in 1995-96 as against 2.45 million tonnes in 1994-95. During April-Oct 1996, it was 1.59 million tonnes of saleable steel as compared to 1.57 million tonnes during the corresponding period

last year. Production of Saleable Steel by the secondary producers was 6.13 million tonnes as against 4.57 million tonnes in 1994-95.

Total production of Saleable Steel in 1995-96 was about 20.40 million tonnes as compared to 17.74 million tonnes in 1994-95, representing an increase of 15 per cent.

### Demand and Availability of Steel

Total demand for finished steel, including requirement for export in 1995-96 was about 22.96 million tonnes. Against this, the domestic production during the year was about 21.40 million tonnes, leaving a gap of 1.56 million tonnes which was met through imports. In the case of Pig Iron, the domestic production was about 2.79 million tonnes against an estimated demand of 2.79 million tonnes. During 1996-97, the estimated demand for Pig Iron and finished steel is 2.4 million tonnes and 24.09 million tonnes respectively. Against this demand availability is expected to be 2.7 million tonnes of Pig Iron and 23.50 million tonnes of finished steel.

### Steel Consumers Council

The Steel Consumers Council was constituted on 31.1.1986 under the Chairmanship of Minister for Steel and Mines to provide a forum for interaction between government and various sections of steel consumers. The main function of the council is to advise and assist the Government in matters relating to availability of steel materials, quality and the market

trend in the iron and steel industry in the country. The last meeting of the council was held at New Delhi on 6th November 1996.

### Performance of SAIL

The production of Saleable Steel in the four integrated and special steel plants of SAIL for 1995-96 was 9.155 million tonnes representing an increase of 3.44% over the production during the corresponding period in 1994-95. During April-October, 1996 the same was 5.297 million tonnes representing an increase of 4% over the corresponding period in 1995-96.

### IISCO

Production of saleable steel in IISCO, a subsidiary of SAIL in 1995-96 was 0.302 million tonnes which was 75% of the target. During April-October, 1996 the saleable steel production was 0.192 million tonnes representing a 6% increase over the corresponding period in 1995-96.

### Working Results of SAIL

The profit before tax of SAIL for the period ended 31 March 1996 was Rs. 1,319 crores as compared to Rs. 1,163 crores in 1994-95. During the first half of 1996-97, SAIL achieved a turnover of Rs. 6,535.98 crores, gross margin of Rs. 1,269.08 crores and a profit before tax of Rs. 414.98 crores as against Rs. 6,509.47 crores, Rs. 1,130.17 crores and Rs. 433.20 crores respectively, for the corresponding period of 1995-96.

### Major Projects of SAIL

#### Capital Schemes

At present there are three steel plants where modernisation works are in progress viz. Durgapur Steel Plant, Rourkela Steel Plant and

Bokaro Steel Plant. The latest position of the modernisation work in these plants and progress of major capital schemes in Bhilai Steel Plant are given below:

#### Durgapur Steel Plant

At Durgapur Steel Plant, major thrust was given on stabilisation of new units like Basic Oxygen Furnace Shop (BOF), Continuous Casting Plant (CCP) and New Sinter Plant, with the commissioning of BF 4 in April, 1996, stabilisation of commercial production from the modernised facilities is in advanced stage.

#### Rourkela Steel Plant

At Rourkela Steel Plant (RSP), Phase-II Modernisation package of Relocation of Dividing line and part packages, namely, Modification of Plate Mill, Reheating Furnace in Plate Mill, Sintering Plant-2 and Concast Shop-I were commissioned. Major emphasis was laid on expeditious completion of balance packages of Phase-II Modernisation.

#### Bokaro Steel Plant

At Bokaro Steel Plant (BSL), the work on Stage-I modernisation is progressing as per schedule. The erection work on the Reheating Furnace No 4 is in advanced stage of completion. The contract for Coal Dust Injection System for BF No 5 was also finalised.

#### Bhilai Steel Plant

For Bhilai Steel Plant (BSP), the contracts for the New Sinter Plant Packages, expansion of Oxygen Plant and Coal Dust Injection for BF-6 were finalised during 1995-96. The construction of Coke Oven Battery No. 10 has been completed during November 1996. The work on Phase-I of modernisation of Rail and Structural Mill has been completed except shut down related activities.



### Salem Steel Plant

At Salem Steel Plant (SSP), operation of Hot Rolling Mill was established in April 1996. The mill would enable rolling of stainless steel and carbon steel slabs at Salem itself.

### Rashtriya Ispat Nigam Limited (Visakhapatnam Steel Plant)

1996-97 is the fourth year of Integrated operation of Visakhapatnam Steel Plant (VSP). In this year VSP has targeted 3.4 million tonnes of Hot Metal, 3 million tonnes of Liquid Steel, and 2.5 million tonnes of Saleable Steel. This represents 100% capacity utilisation for Hot Metal and Liquid Steel, and 96% for Saleable Steel, as against 94.5% in respect of Hot Metal, 79.4% in respect of Liquid Steel and 80.4% in respect of Saleable Steel achieved in the year 1995-96.

VSP has been recording continuous improvement in Technoeconomic Parameters such as reduction in BF Coke Rate from 537.62 kg per tonne of Hot Metal in 1995-96 to 523 kg. at the end of December, 1996, increase in BF productivity from 1.36 tonne per cubic meter per day to 1.49 tonne, reduction in Specific Energy Consumption from 7.73 G.Cal. per tonne of Liquid Steel to 7.50 G. Cal. and increase in the Labour Productivity from 180.17 tonnes of Liquid Steel per Man Year to 208.00.

There has been a continuous and steady improvement in the Gross Sales of VSP over the years. VSP achieved a Gross Sales of Rs. 2,216 crores during the period April-December, 1996 registering a growth of 10% over the corresponding period of the last year.

Taking advantage of its strength in effective operation of Captive Power Plant and the inability indicated by Andhra Pradesh State Electricity Board (APSEB) for meeting the contractual demand of VSP in future,

VSP has installed and synchronized the 4th Turbo Generator of 67.5 MW on 3rd May, 1996. With the commissioning of the 4th Turbo Generator, the capacity of Captive Thermal Power Plant has increased to 247.5 MW. In addition to the Captive Power Plant, units generating power through waste heat, with a capacity of upto 39 MW are also functional in the plant.

Under the organisational restructuring exercise, two units of VSP, the Project Engineering and Consultancy Services (PECS) and the Coke Chemicals Division (COCD) have been operating as strategic business units. Business obtained by PECS during 1995-96 from external agencies was Rs. 11 crores. This is expected to reach a level of Rs 18 crores in 1996-97.

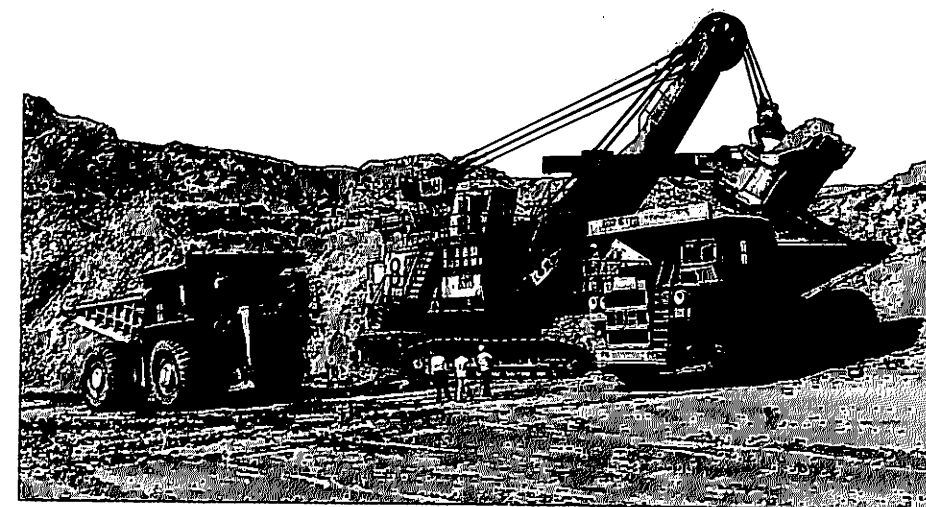
### National Mineral Development Corporation Limited (NMDC)

During the year 1996-97 (upto October, 1996), NMDC produced 7.37 million tonnes of Iron Ore and 17496 carats of diamond. For the year 1995-96, the Company paid a dividend of 20% amounting to Rs. 26.43 crores. This was the sixth year in succession for payment of dividend.

In view of increasing demand for Bailadila Iron Ore, a new Iron Ore Mining Project is being undertaken in this region at Deposit No 10/11A. This Project is designed to produce 5 million tonnes run-of-mine (ROM) Ore per annum.

### Kudremukh Iron Ore Company Limited (KIOCL)

During the year 1995-96, KIOCL produced 6.06 million tonnes and 2.5 million tonnes of iron ore concentrate and pellets respectively. The production of concentrate and pellets was higher by around 6% and



Work in progress at the Iron ore mine

8% respectively over the production achieved during the previous year, viz 1994-95. Production of pellets at 2.5 million tonnes by KIOCL during 1995-96 is the highest ever recorded so far.

During the current year (1996-97), KIOCL has produced till October 1996, 3.31 million tonnes of concentrate and 1.23 million tonnes of pellets against a target of 3.55 million tonnes and 1.35 million tonnes respectively. The production of concentrate and pellets during the corresponding period of the previous year was 3.62 million tonnes and 1.43 million tonnes respectively.

The Company recorded a Gross Margin of Rs. 137.59 crores during 1995-96 as against a target of Rs. 104 crores. The net profit (after tax) earned by KIOCL was Rs. 95.46 crores, which is higher by 50% over the profit earned during 1994-95.

The Company has declared a dividend of 3.25%, as against 3% paid during last year of

the paid-up capital amounting to Rs. 20.62 crores.

The Gross Margin recorded by the Company during April-October 1996 is Rs. 73.07 crores (Prov) against a target of Rs. 57.94 crores, while the net profit (after tax) is Rs. 44.50 crores (Prov) as Against a target of Rs. 30.33 crores.

The performance of KICOL has been severely hampered by severe power cuts imposed by the Karnataka Electricity Board (KEB).

### Electric Arc Furnace Industry

184 Electric Arc Furnace Units with a total installed capacity of 10.44 million tonnes per annum are in existence. Of these as on 30.9.96, 87 units having an annual capacity of 2.359 million tonnes per annum were not in operation.

Production of Ingots/concast billets by EAF units, which are reporting their production to

the office of the Development Commissioner for Iron & Steel, during the last four years is given below:

has been reported to be about 4.4 million tonnes. Additional capacity proposed for implementation is around 2.12 million tonnes per annum.

CATEGORY	(In '000 Tonnes)			
	1993-94	1994-95	1995-96	1996-97 (April-Nov '96)
Mild Steel	962.5	1130.1	1340.9	1016.70
Medium/High Carbon Steel	297.1	434.0	629.3	636.10
Alloy Steel	693.3	818.0	974.9	750.60
Stainless Steel	210.3	291.1	264.9	98.50
Others	—	—	—	59.50
Total Reported	2163.2	2673.2	N.A.	2561.40
Total Estimated	336.1	400.0	N.A.	289.70
Grand Total	2499.3	3073.2	3210.0	2851.10

Note: The above figures do not include production of steel by the Casting Units registered with erstwhile DGTD.

### Pig Iron Industry

The Pig Iron industry profile is constantly undergoing changes, with integrated steel plants, particularly under SAIL, opting for value added products and, more units in the private/secondary sector coming up to fill the gap. Significantly, contribution of secondary sector units, from only 8% during 1991-92 has increased to 38% in 1995-96, and further to 46% during the period April-September 1996. The Secondary Sector Units are also producing foundry grade Pig Iron including low Sulphur, low Phosphorous grade which was hitherto being imported.

As of 31st December 1996, 13 new pig iron plants with a total capacity of 18.4 lakh tonnes per annum have been commissioned in the private/secondary sector. With this, total installed capacity of the Pig Iron units is in excess of the 2 million tonnes mark. Many more units are in the pipeline.

### Iron Ore Export

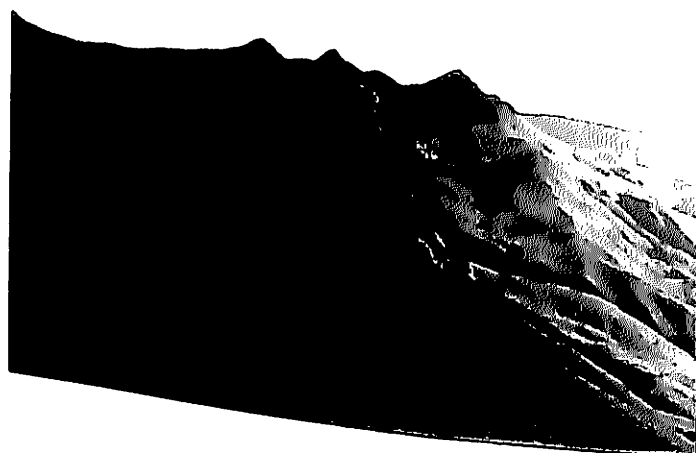
In the year 1995-96, India exported 25.5

*Blasting in progress*

### Sponge Iron Industry

Sponge Iron is a metallic product produced by direct reduction of high grade iron ore or iron ore pellets in the solid state. Also known as Direct Reduced Iron (DRI) or Hot Briquetted Iron (HBI), it contains a large percentage of metallic iron. This is a partial substitute for steel melting scrap used by the secondary steel sector. In view of the present shortfall and projected shortfall in the availability of metallics, production of sponge iron is being encouraged by the Government.

The installed capacity of Sponge Iron units in 1988-89 was only 3.3 lakh tonnes. This has now increased to 5.966 million tonnes per annum. The production during 1995-96



million tonnes of Iron Ore. The exports during April-Sept 1996 were 12.74 million tonnes (Provisional).

### Export of Other Mineral

In respect of other minerals, the Government policy has been in the direction of substituting raw ore exports with value-added products like ferro alloys, promoting greater utilisation of the lower grade ores through beneficiation and other means and preserving higher grade ores for domestic use. In keeping with this policy, ceilings were fixed on exports of manganese and other chrome ores.

### Management Information System

The Computerised MIS developed for the Ministry of Steel with the assistance of National Informatics Centre is functional in the areas of Accounting and Budgeting, Section Activity Monitoring System and Industrial Entrepreneurs Memoranda System (IEMs). An integrated MIS has also been developed with the assistance of National Informatics Centre for Steel Wing in the areas of Category wise Production, Export and Import of Steel, Duties and Prices and Performance Monitoring of Public Sector Undertakings. The Computer Centre in the Ministry is equipped with latest Hardware and Software tools and is linked with NICNET for usage of NICMAIL facility and INTERNET Connectivity. Terminals and independent PCs/PC-XTs/PC-ATs & 486-SX based machines have been provided to Senior Officers and various Sections/Divisions in the Ministry. In-house Training Programmes for the staff in computer usage are also being organised by NIC Computer Cell from time to time.

### Research and Development

Both Public and Private Sector Iron and Steel plants continued their Research and De-

velopment Activities to solve their plant-specific problems and also to develop new processes and products. Emphasis was on improving the quality of the steel products, utilisation of wastes, and reduction of energy consumption and cost of production. Development of rule base for effective thermal control of Blast Furnace process by RDCIS, SAIL will help in reduction of Silicon in Hot Metal. SAIL has also developed Super Ferritic Steel which will help in the use of steel in sea water/brine media. Tata Iron and Steel Company Ltd. (TISCO) has been able to develop Vorsyl Separator (along with RRL, Bhopal) for replacing DM Cyclones for Coal beneficiation. It has developed corrosion resistant bars through continuous casting route (so far being produced through ingot route).

### Energy Conservation

Iron and Steel plants, both in the Public and Private Sectors, continued to give thrust on reduction of consumption of energy. Reduction in electrical energy consumption was achieved on introduction of a coke injector in the Alloy Steel Plant for generation of foamy slags. Modification of the reheating furnaces in Forge Shop at ASP with low thermal mass ceramic fiber lining has enabled to achieve an annual saving of 7000 G. Cal.

In SAIL plants, the average consumption of energy in the four integrated steel plants has been 8.49 G. Cal. per tonne of crude steel during April-Sep. 1996 as against 8.68 G. Cal. in 1995-96.

Sunflag Iron & Steel Co. Ltd. achieved energy reduction from 750 KWH to 650 KWH per tonne of crude steel in SMS, and fuel consumption reduced from 35 ltr. per tonne to 27 ltr. per tonne of rolled product. Mahindra Ugine Steel Co. Ltd. consumed 1,685 KWH/tonne of finished products during April-Sep. 1996 against 1,704 KWH/tonne in 1995-96.

### **Welfare of Scheduled Castes and Scheduled Tribes and Minorities**

The Public Sector Undertakings under the administrative control of the Ministry of Steel continued their efforts for filling up the backlog vacancies in respect of Scheduled Castes/Scheduled Tribes/Other Backward Classes.

The Public Sector Undertakings have also continued the process of identifying and implementing programmes aimed at the upliftment of these communities in the peripheral areas around their area of operation.

### **Environmental Management and Pollution Control**

The Iron & Steel Plants have drawn up short-term and long-term action plans for expeditious achievement of pollution control norms, wherever these have not been achieved.

Management of Environment and Pollution Control in SAIL plants and mines continued to get priority attention in the Company's activities during the year 1996-97. The Company had started a major pollution control Action Plan in April, 1992 under which 10 pollution control schemes were completed in 1995-96. Planned and organised afforestation in and around steel plants and mines continued during the first half of 1996-97. Further, the technology upgradation under the on-going modernisation programmes in various SAIL plants will reduce pollution substantially below the norms laid down by environmental regulations. Work relating to installation of Air Pollution Control devices for Open Hearth Furnace of Steel Melting Shop at Bumpur and for Foundaries and Spin Pipe Plant No. 2 and 3 at Kulti Works has been taken up on top priority. To comply with the Environmental Standards set up by Maharashtra Pollution Control Board, Gas

Cleaning Plant for SAF-II of Maharashtra Electros melt Ltd. is being erected at an estimated cost of Rs. 160 lakhs and steps have been taken towards gainful utilisation of slag for producing slag bricks for internal construction. World environment day was observed in all the plants to bring about environment awareness amongst the employees and their wards.

Conservation of environment has been one of the objectives of Visakhapatnam Steel Plant. Till end of November, 1996, 6,538 acres of land has been covered with plantation. Till now 3 million saplings have been planted. Due to massive afforestation, VSP area has become a micro climatic zone by itself. The Rashtriya Ispat Nigam Ltd. has planned an investment of Rs. 12.2 crores on environment and pollution control measures during 1996-97 which is 0.3% of the total revenue expenditure during the year.

The National Mineral Development Corporation Ltd. has incurred an expenditure of Rs. 3.26 Crores in the first half of 1996-97 on environment management and pollution control measures. It has set a target of planting more than one lakh trees in 1996-97.

There is growing awareness amongst the mini steel plants to conform to environmental regulations though the compliance is not up to the mark. However, some units like Bihar Alloy Steel Ltd., Mukund Ltd., Usha Martin Industries Ltd., Essar Gujarat Ltd. etc, are by and large complying with the specified pollution control norms.

### **Implementation of Official Language Policy**

The progressive use of Hindi in the Ministry, its attached and subordinate offices and Public Sector Undertakings has been actively

encouraged. PSUs are encouraged by awarding Chal Vajrayanti, shield and trophies. Under an incentive scheme cash prizes of Rs. 15,000, Rs. 10,000 and Rs. 7,500 are awarded to the writers of original books in Hindi on Steel and its allied subjects.

A Hindi fortnight was organised in the

Ministry from 16th September to 30th September, 1996. Various Hindi competitions were held during this period and winners were awarded cash prizes. An appeal was issued by the Honourable Minister exhorting staff of the Ministry and its PSUs to increase the use of Hindi in their official work.

**1. Global Scenario**

1.1 The international steel industry is on the path of recovery from the recession of the recent past. It enjoyed a fairly good growth in production of crude steel in 1995 at 2.5% over



the previous year, while apparent consumption of finished steel grew at a slightly more modest rate of 1.7% over the same period. In the European Union (EU), the output of hot rolled steel products rose by 3.6% in 1995. Towards the end of the 1995, however, there was a slowdown in rolled steel output in EU as a result of production cutbacks because of sluggish demand. This trend continued in EU during 1996 with crude steel production down by 5.3% in 1996.

1.2 The slow growth in demand in the Western World is expected to be compensated by high growth in demand from the developing countries. The International Iron and Steel Institute (IISI) predicts that the world apparent consumption of finished steel will reach 660 million tonnes in 1996, up by 5 million tonnes from the 1995 level. The driving force behind this

rise will be the fast-growing economies in Asia (excluding Japan and mainland China), restructured East European countries, Russia and the Latin American countries. As a result, prices, which have recently been on a down-swing, may recover and there is likely to be a

strong growth in the demand for raw materials for steel making. World Steel Dynamics predicts a world-wide metallics shortage as a result of a large number of EAF units coming on stream and, consequently, good prospects for the scrap substitutes like DRI.

1.3 The share of world trade in steel as a percentage of total world production has risen from 28.6% in 1990 to 33.4% in 1993. Around 281 million tonnes of steel was traded in 1993. The volume of ocean trade outside regional blocks went up from 43 million tonnes to around 90 million tonnes from 1990 to 1993.

1.4 India has recently opted for a predominantly market-driven economy. It is therefore, strategic for the Indian steel producers to claim a share of the world market by entering the vast and complex trading network. By concentrat-

ing on exporting steel products in which it has a comparative advantage in production, India can carve out a niche for itself in the world market and add to the foreign exchange reserves.

1.5 The domestic demand within the country is projected to rise to 32.68 million tonnes of finished steel by 2001-02; the apparent consumption for 1995-96 (provisional) was 21.65 million tonnes. Such an increase seems to be justified given the strong growth rates for GDP at 6.3% in 1994-95 and 6.2% for 1995-96, respectively, as well as the close link between growth of GDP and the apparent consumption of steel.

**2. Domestic Scenario**

2.1 India continues to enjoy comparative advantages with access to raw materials at relatively low cost and comparatively lower labour costs. The country has an abundance of technical expertise and skilled manpowers. Several important policy changes have been instituted since 1991 to encourage the private sector investment in the steel industry. These are:

- i) removal of iron and steel from the list of industries reserved for the public sector;
- ii) exemption of iron and steel industry from the provisions of compulsory licensing;
- iii) inclusion of iron and steel in the list of high priority industries for purposes of foreign investment;
- iv) de-regulation of pricing and distribution of iron and steel;
- v) reduction of duty on import of capital goods; and

vi) liberalisation of import and export policy.

2.2 The private sector has responded positively to these changes and a number of new units are coming up in various parts of the country. Considerable additional capacity is already being implemented in the private sector with units like Lloyd Steel and Nippon Denro in Maharashtra, Jindal Strips in Madhya Pradesh, Jindal Vijaynagar Steel Ltd. in Karnataka and Malvika Steel in Uttar Pradesh firmly on track in their development plans. In addition, other steel units are also coming up in Karnataka and Orissa. Many other entrepreneurs have also shown keen interest in setting up steel production facilities at various locations.

2.3 In view of the increase in demand projected for the future in the domestic market, many more units are likely to be established in the coming years. In order to facilitate this progress, the Government has responded by decreasing import duties on several inputs for the steel industry during the last few years. For instance, duty on steel melting scrap was reduced from 12.5% to 5% while duty on iron ore pellets was also brought down to 5%. In addition, duties on almost all finished steel products have been reduced in line with the general economic policy, which will make the domestic steel industry more efficient and competitive.

2.4 The great potential for growth of the steel industry in India is borne out by the current low consumption figures. India is currently producing about 21 million tonnes of finished steel annually while its per capita steel consumption was only 17.9 kg. in 1993, one of the lowest in the world. In comparison, the world average per capita consumption was 116 kg in 1993. In countries like the USA, the EC and China the per capita consumption was 35 kg, 267 kg and 88 kg respectively.

2.5 The projections, made by the Ministry of Steel recently, of increase in annual domestic steel demand to 32.68 million tonnes by 2001-02 are based on moderate estimates of growth of GDP (6.05% per annum). Similar growth rates have also been predicted by the National Council of Applied Economic Research (NCAER) and Centre for Monitoring of Indian Economy (CMIE). These projections are conservative considering the rapid increase in the rate of urbanisation, change in the consumption pattern as well as the growth of the rural market.

### 3. Export Perspective

3.1 Trade in steel is also expected to increase significantly all over the world because of the structural change in the global steel industry with developing countries increasing their production, while the developed countries having checked or marginally increased productions. India should take necessary steps to position itself in the global market. Recent projection by the Steel Ministry, have re-affirmed that India has a potential of exporting 6 million tonnes of steel by the turn of the century. These predictions have been justified by the spurt in the export of iron and steel to over 2.0 million tonnes in 1995-96 from 0.37 million tonnes in 1991-92.

3.2 Undoubtedly, India's positioning in the global perspective will depend upon the cost competitiveness of the Indian industry. There must be an increasing focus on quality and cost

consciousness so that efficiency and productivity levels are constantly targetted for improvement. At the same time, the country has to improve its infrastructural facilities so as to invite more foreign investment in the country and reduce export costs. Though India has a distinct comparative advantage in labour costs, improvement of labour efficiency and productivity must also be targetted by the industry. Technological improvement and conformity to world wide standards of environmental safety and control should also be addressed on priority.

3.3 The 9th Five Year Plan will begin in 1997-98. The projections of domestic demand and domestic availability of finished steel and pig iron by the terminal year of the 9th Plan, are as given in the table below:

(In Million Tonnes)				
Financial Year	Total Demand Projection	Estimated Production		Total
		Main Producers	Secondary Producers (Including units under implementation)	
1. FINISHED STEEL				
2001-02	32.68	16.96	15.05	32.01
2. PIG IRON				
2001-02	3.45	1.45	3.20	4.65

3.4 Producer-wise breakup of the production levels indicated above are given in the table below:

	(In Million Tonnes)	
	FINISHED STEEL 2001-02	PIG IRON 2001-02
SAIL	11.45	1.045
TISCO	3.10	-
VSP	2.41	-
TOTAL MAIN PRODUCERS	16.96	1.45
SECONDARY PRODUCERS	15.05	3.20
<b>TOTAL</b>	<b>32.01</b>	<b>4.65</b>

3.5. Actual production of finished steel in 1993-94, 1994-95, 1995-96 and April-December 1996 was as under:

	(In Million Tonnes)			
	1993-94	1994-95	1995-96	1996-97 (Apr-Dec '96)
				Prov
MAIN PRODUCERS	8768	9566	10587	7818
SECONDARY PRODUCERS	6431	8255	10816	8934
<b>TOTAL</b>	<b>15199</b>	<b>17821</b>	<b>21403</b>	<b>16752</b>

3.6 SAIL has already embarked on an ambitious modernisation programme of its plants in Durgapur, Rourkela and Bokaro with the objective of reducing energy consumption, improvement in the quality of processes and products and cost reduction, so as to make its products competitive in the international market. Like wise TISCO has also implemented its Phase-III modernisation programme. Nearly Rs.16,500 crores is planned to be spent by SAIL and VSP, SAIL alone contributing Rs. 15,000 crores in the IX Plan period, on modernisation/expansion.

### 4. Performance During 1996-97

4.1 The estimated domestic availability and apparent consumption of finished steel and pig iron during April-December 1996 are as follows:

### 5. Sources of Finished Steel

	(In Million Tonnes)	
	Finished Steel 1996-97 (April-Dec '96)	Pig Iron (April-Dec '96)
SAIL	5052	510
TISCO	1492	-
VSP	1070	566
TOTAL MAIN PRODUCERS	7818	1337
SECONDARY PRODUCERS	8934	1105
<b>TOTAL</b>	<b>16752</b>	<b>2442</b>

	(In Million Tonnes)			
	ESTIMATED PRODUCTION			
	Main Producers	Secondary Producers	Total	Apparent Consumption
1. FINISHED STEEL	7.82	8.93	16.75	16.42
2. PIG IRON	1.34	1.10	2.44	1.93

## 6. Standing Committee for the Steel Industry

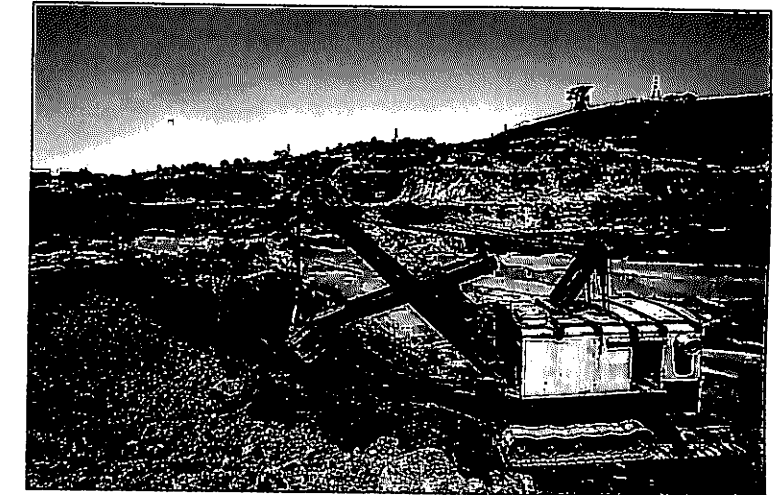
6.1 Based on the recommendation of the Task Force, which had been constituted by the Government to formulate an Action Plan for the growth of the Indian steel industry, Government has constituted a Standing Committee for steel industry in October, 1993. The Committee is headed by Minister of Steel with MPs, Senior Government functionaries, Chief Executives of financial institutions and PSUs, and leading industrialists from the private

sector as its members.

6.2 The functions of the Standing Committee are to review the status of the domestic steel industry periodically and recommend to the Government various policy measures required to achieve the targeted levels of production and to make the Indian steel industry internationally competitive. It will also conceptualise and oversee long and short-term plans for industry. The Committee held one meeting during 1995-96 and discussed various issues relating to the growth of steel industry.

## 1. Iron Ore

1.1 Gradewise Distribution of Recoverable Reserves of Hematite Ores, in different states as on 1/4/1990



Iron ore mine — a view

(Unit: In million tonnes)							
Sl. No.	Zone/State	High Grade Ore (Fe + 65%)	Medium Grade Ore (Fe 62-65%)	Low Grade Ore (Fe 62%)	Unclassified	Others/ not known	Blue dust black iron
1.	Zone 'A'						
	Bihar	34.44	1792.05	903.23	186.40	—	50.84
	Orissa	313.43	1287.68	752.09	304.96	—	8.60
	Total:	347.87	3079.73	1655.32	491.36	—	59.44
2.	Zone 'B'						
	Madhya Pradesh	558.61	483.29	516.06	402.01	14.26	71.08
	Maharashtra	0.35	34.66	14.88	126.46	—	—
	Total:	558.96	517.95	530.94	528.47	14.26	71.08
3.	Zone 'C'						
	Karnataka	221.32	437.94	72.47	194.74	1.40	0.55
4.	Zone 'D'						
	Goa Region	13.57	153.41	465.52	80.77	36.69	12.27
5.	Zone 'E'						
	Andhra Pradesh	6.49	5.39	31.79	2.66	0.40	—
	Rajasthan	—	0.20	6.56	2.33	0.50	—
	Total	6.49	5.59	38.35	4.99	0.45	—
GRAND TOTAL		1148.21	4194.62	2762.60	1300.33	52.80	143.34
							9601.90

## RECOVERABLE RESERVES OF IRON ORE MAGNETITE AS ON 1/4/90

Sl. No.	State	Metallurgical Grade	Coal Washery Grade	Foundry Grade	Unclassified	Total
1.	Andhra Pradesh	37.9	—	—	380.0	417.9
2.	Bihar	—	5.0	—	—	5.0
3.	Goa	98.3	—	—	166.2	164.5
4.	Karnataka	1298.9	—	—	1219.3	2518.2
5.	Kerala	35.4	—	—	—	35.4
6.	Rajasthan	—	—	0.5	—	0.5
7.	Tamil Nadu	1.1	—	—	—	1.1
<b>TOTAL: INDIA</b>		<b>1471.6</b>	<b>5.0</b>	<b>0.5</b>	<b>1665.5</b>	<b>3142.6</b>

Note:  
 1. Metallurgical Grade (a) Fe-38% (min) (b) Should be in Oxidized state.  
 2. Coal washery grade: (a) Magnetite content 70% to 75% minimum or as used by the industry.  
 3. Recoverable reserves include proved, probable & possible reserves.

## 1.2 Production

Production of iron ore (including concentrates) during the year 1996-97 is estimated to reach 69.1 million tonnes as against 66.6 million tonnes in the previous year. Statewise production figures indicate that Madhya Pradesh would be the chief iron ore producing State accounting for 18.1 million tonnes (26.2%) of the total production during 1996-97, followed by Goa with 15.4 million tonnes (22.3%), Bihar 13.1 million tonnes (19.0%), Karnataka 13.0 million tonnes (18.8%) and Orissa 9.1 million tonnes (13.2%). The remaining production of about 0.4 million tonnes would be from Andhra Pradesh, Maharashtra, Rajasthan and Haryana.

Despatches of iron ore (including concentrates) for 1996-97 are estimated to reach 63.2 million

tonnes. The share of despatches of iron ore for internal consumption would be 40.4 million tonnes with internal consumption continuing to record significant growth helping in line new capacities coming up in the country.

Production and despatches of iron ore from 1991-92 to 1996-97 are given below:

Year/Period	Qty. (M.T)	Production Value (Rs. crores)	Despatches		
			Total (M.T.)	For Internal Consumption (M.T.)	For Exports (M.T.)
1991-92	58.5	749.95	57.7	25.9	31.8
1992-93	57.5	908.89	54.3	28.2	27.1
1993-94	59.6	1039.39	58.5	28.6	29.9
1994-95	64.5	1186.24	61.7	33.4	28.3
1995-96	66.6	1286.73	61.7	36.2	25.5
1996-97*	69.1	1489.02	63.8	40.4	23.4

\* Estimated (comprise the recorded figures upto Sept. 96 and estimated for Oct. March, 1997.  
 Source: IBM

## 2. Manganese Ore

## 2.1 Reserves

As per the latest inventory the recoverable reserves of manganese ore are estimated at 176 million tonnes. The main reserves found in India are of blast furnace grade. The reserves of ferro-manganese grade are very limited i.e. 12% of the total reserves only.

## 2.2 Production

Production of manganese ore during 1996-97 is estimated to reach 1.87 million tonnes as against 1.80 million tonnes in 1995-96. Orissa, Karnataka, Madhya Pradesh and Maharashtra would be the principal producing states accounting for 34%, 24%, 20% and 17% respectively of the total production of manganese ore in 1996-97.

## 2.3 Despatches

Despatches of manganese ore are estimated at 1.80 million tonne during 1996-97 as indicated below:

Year/Period	Quantity ('000 t)	Production Value (Rs. crores)	Despatches		
			Total	For Internal Consumption ('000 t)	For Exports ('000 t)
1992-93	1640	103.86	1641	1454	187
1993-94	1903	154.76	1675	1559	116
1994-95	1696	134.37	1577	1362	215
1995-96	1681	145.06	1737	1502	235
1996-97	1797	149.83	1707	1476	231
1997*	1873	166.80	1804	1561	243

\* Estimated (Comprise the recorded figures up to Sept. '96 and estimated for 96 to March '97).

## 2.4 Exports

Export policy of manganese ore is decided keeping in view the need for conserving high grade ores. Along with this, effort is also made to replace the export of ores with export of value added items.

For the year 1996-97 the maximum ceilings of manganese ore allowed for exports are as follows:

ITEM	Ceiling for 1996-97 (in lakh tonnes)
i) Medium Grade Manganese Ore/blended ore containing 38% to 46% manganese and more than 0.15% Phos.	1.00
ii) Low grade manganese ore/blended ore containing less than 38% manganese.	3.00
iii) Manganese ore fines below 12 mm in size containing less than 44% manganese.	1.5

Actual Exports during last two years have been as follows:

Year	Quantity (in lakh tonnes)	Value (Rs. in crores)
1994-95	4.16	49.66
1995-96	2.85	33.87
1996-97 (April-Nov. 96)	2.83	40.11



RECOVERABLE RESERVES OF IRON ORE MAGNETITE AS ON 1/4/90						
Sl. No.	State	Metallurgical Grade	Coal Washery Grade	Foundry Grade	Unclassified	Total
1.	Andhra Pradesh	37.9	—	—	—	—
2.	Bihar	—	5.0	—	380.0	417.9
3.	Goa	98.3	—	—	—	5.0
4.	Karnataka	1298.9	—	—	166.2	164.5
5.	Kerala	35.4	—	—	1219.3	2518.2
6.	Rajasthan	—	—	—	—	35.4
7.	Tamil Nadu	1.1	—	0.5	—	0.5
TOTAL: INDIA		1471.6	5.0	0.5	1665.5	3142.6
Note:						
1. Metallurgical Grade (a) Fe-38% (min) (b) Should be in Oxidized state.						
2. Coal washery grade: (a) Magnetite content 70% to 75% minimum or as used by the industry.						
3. Recoverable reserves include proved, probable & possible reserves.						

### 1.2 Production

Production of iron ore (including concentrates) during the year 1996-97 is estimated to reach 69.1 million tonnes as against 66.6 million tonnes in the previous year. Statewise production figures indicate that Madhya Pradesh would be the chief iron ore producing State accounting for 18.1 million tonnes (26.2%) of the total production during 1996-97, followed by Goa with 15.4 million tonnes (22.3%), Bihar 13.1 million tonnes (19.0%), Karnataka 13.0 million tonnes (18.8%) and Orissa 9.1 million tonnes (13.2%). The remaining production of about 0.4 million tonnes would be from Andhra Pradesh, Maharashtra, Rajasthan and Haryana.

Despatches of iron ore (including concentrates) for 1996-97 are estimated to reach 63.2 million

tonnes. The share of despatches of iron ore for internal consumption would be 40.4 million tonnes with internal consumption continuing to record significant growth helping in line new capacities coming up in the country.

Production and despatches of iron ore from 1991-92 to 1996-97 are given below:

Year/ Period	Qty. (M.T)	Production Value (Rs. crores)	Despatches			Year/ Period	Quantity ('000 t)	Production Value (Rs. crores)	Despatches		
			Total (M.T.)	For Internal Consumption (M.T.)	For Exports (M.T.)				Total	For Internal Consumption	For Exports
						11-92	1640	103.86	1641	1454	187
1991-92	58.5	749.95	57.7	25.9	31.8	12-93	1903	154.76	1675	1559	116
1992-93	57.5	908.89	54.3	28.2	27.6	13-94	1696	134.37	1577	1362	215
1993-94	59.6	1039.39	58.5	28.6	29.9	14-95	1681	145.06	1737	1502	235
1994-95	64.5	1186.24	61.7	33.4	28.3	15-96	1797	149.83	1707	1476	231
1995-96	66.6	1286.73	61.7	36.2	25.5	16-97*	1873	166.80	1804	1561	243
1996-97*	69.1	1489.02	63.8	40.4	23.4						

\* Estimated (comprise the recorded figures upto Sept. 96 and estimated for Oct. 96 to March, 1997).

Source: IBM

## 2. Manganese Ore

### 2.1 Reserves

As per the latest inventory the recoverable reserves of manganese ore are estimated at 176 million tonnes. The main reserves found in India are of blast furnace grade. The reserves of ferro-manganese grade are very limited i.e. 12% of the total reserves only.

### 2.2 Production

Production of manganese ore during 1996-97 is estimated to reach 1.87 million tonnes as against 1.80 million tonnes in 1995-96. Orissa, Karnataka, Madhya Pradesh and Maharashtra would be the principal producing states accounting for 34%, 24%, 20% and 17% respectively of the total production of manganese ore in 1996-97.

### 2.3 Despatches

Despatches of manganese ore are estimated at 1.80 million tonne during 1996-97 as indicated below:

### 2.4 Exports

Export policy of manganese ore is decided keeping in view the need for conserving high grade ores. Along with this, effort is also made to replace the export of ores with export of value added items.

For the year 1996-97 the maximum ceilings of manganese ore allowed for exports are as follows:

ITEM	Ceiling for 1996-97 (in lakh tonnes)
i) Medium Grade Manganese Ore/blended ore containing 38% to 46% manganese and more than 0.15% Phos.	1.00
ii) Low grade manganese ore/blended ore containing less than 38% manganese.	3.00
iii) Manganese ore fines below 12 mm in size containing less than 44% manganese.	1.5

Actual Exports during last two years have been as follows:

Year	Quantity (in lakh tonnes)	Value (Rs. in crores)
1994-95	4.16	49.66
1995-96	2.85	33.87
1996-97 (April-Nov. 96)	2.83	40.11



### 3. Chromite Ore

#### 3.1 Reserves

As per the latest inventory, the total recoverable reserves, of chromite are estimated at 88 million tonnes. Orissa is the largest chromite ore producing state in the country accounting for 96% of the total production of chromite ore, followed by Karnataka which produced only 4% of the total production. Small quantities are also produced in Andhra Pradesh and Manipur.

#### 3.2 Production

Production of Chromite in 1996-97 is estimated to reach 18.88 lakh tonnes as against 16.64 lakh tonnes in 1995-96. Orissa would continue to be the leading producing state accounting for 18.19 lakh tonnes (96.3%) of the total production.

#### 3.3 Despatches

Estimated despatches of chromite during 1996-97 are 16.78 lakh tonnes of which 11.62 lakh tonnes (69.3%) would be for internal consumption and 5.16 lakh tonnes (30.7%) for exports.

Production and exports of chromite ore during the year 1991-92 to 1996-97 (estimated) are given below:

Year/ Period	Production		Despatches		
	Quantity ('000 t)	Value (Rs. crores)	Total	For Internal Consumption ( '000 t)	For Exports ( '000 t)
1991-92	1082	205.69			
1992-93	1071	205.72	985	614	371
1993-94	1065	228.31	1055	634	421
1994-95	1138	252.86	1002	685	317
1995-96	1664	363.15	1068	621	447
1996-97*	1888	447.23	1492	1059	433
			1678	1162	516

\* Estimated (Comprise the recorded figures up to Sept '96 and estimated for Oct. '96 to March '97)

#### 3.4 Exports

Keeping in view the limited reserves of chromite ore in the country, only certain grades of ore are allowed for export. Emphasis has been laid on export of beneficiated chromite concentrates. From the years 1993-94, a three year Export Policy has been decided upon by Govt. so as to enable the exporters to establish their presence in the international market. The maximum ceilings for export of chromite ore for 1996-97 are as below:

ITEM	Ceiling for 1996-97 (in lakh tonnes)	
i) Low silica friable/fine Chromite ore with Chromium Oxide not exceeding 52% & Sillica exceeding 4%	3	
ii) Chromite lumps containing Chromium Oxide not exceeding 38%	1	
iii) Beneficiated Chromite concentrates (feed grade to be less than 33%)	No Ceiling	
Actual Exports during last two years have been as follows:		
Year	Quantity (in lakh tonnes)	Value (Rs. in crores)
1994-95	3.40	76.63
1995-96	3.09	110.70
1996-97 (April-Nov. '96)	1.84	91.28

### 4. Ferro Alloys

#### 4.1 Introduction

Ferro alloys are essential additives in steel making used for imparting desired properties to steel. The product mix of ferro alloy industry mainly consists of Ferro Maganese (Fe Mn) Ferro Silicon (Fe Si) and Ferro Chrome (Fe Cr) — called the Bulk ferro alloys. There is another category of ferro alloys, called Noble Ferro alloys, which consist of Ferro Vanadium, Ferro Titanium, Ferro Molybdenum, Ferro Niobium, Ferro Tungston etc, their production being negligible.

The production of ferro alloys in India started in early fifties with the industry growing manifold during the next four decades. The industry is mainly concentrated in four States viz Orissa, Maharashtra, Andhra Pradesh and Karnataka as they are rich in the basic raw materials for the production of the Ferro alloys.

#### 4.2 Installed Capacity & Utilisation

4.2.1 There are 35 large and medium sized units (including four 100% EOUs) with an installed capacity of 1.3 million tonnes (including 2 lakh tonnes of charge chrome capacity of four 100% EOUs). Besides this, there are small scale units having an installed capacity of about 1.80 lakh tonnes per annum.

4.2.2 Ferro Alloy Industry is a highly power intensive industry. High power tariffs, coupled with relatively poor quality of supply is one of the major reasons affecting the production and profitability of ferro alloy industry. Average consumption of power per tonne of different bulk ferro alloy ranges between 2700-4065 kwh in the case of ferro silicon. Due to this, the capacity utilisation in the industry has been in

the vicinity of 50% to 55%. The production of ferro alloy is directly related to the plan of production and growth of steel industry. The production of major bulk ferro alloys during last 4 years and Apr.-Nov. 1996 is as follows:

1992-93	5.8 lakh tonnes
1993-94	4.7 lakh tonnes
1994-95	4.78 lakh tonnes
1995-96	5.73 lakh tonnes
1996-97 (April-Nov. 1996)	4.52 lakh tonnes

#### 4.3. Export of Ferro Alloys

Exports of ferro alloys from India have been showing an upward trend as may be seen from details given below:

Year	Quantity (in lakh tonnes)	Value (Rs. in crores)
1991-92	1.24	235.47
1992-93	1.50	256.00
1993-94	1.68	251.56
1994-95	1.74	257.26
1995-96	1.90	451.55

### 5.0 Coking Coal

Indian Coking Coals have a high ash content mainly due to the dimetary nature of their origin. According to the Ministry of Coal the total coking coal reserves in the country are 29,932.29 million tonnes out of which the proved reserves of coking coal are 15,072.89 million tonnes.

#### 5.1 Consumption

During 1995-96 the consumption of

coking coal in SAIL steel plants (including IISCO), TISCO and VSP was as under:

	(Million Tonnes)		
	SAIL	TISCO	VSP
Indigenous Sources	9.030	1.930	0.905
Imports	5.685	0.883	2.575
<b>Total:</b>	<b>14.715</b>	<b>2.813</b>	<b>3.480</b>

The expected consumption during 1996-97 by these plants is as under:

	(Million Tonnes)		
	SAIL	TISCO	VSP
Indigenous Sources	8.37	2.11	0.92
Imports	6.33	0.73	2.38
<b>Total :</b>	<b>14.70</b>	<b>2.84</b>	<b>3.30</b>

## 5.2 Non-Coking Coal

During the year 1995-96 SAIL steel plants (including IISCO) consumed 4.061 million tonnes of non-coking coal from domestic sources. The consumption in 1996-97 is expected to be 4.300 million tonnes.

During 1995-96, TISCO consumed 1.30 million tonnes of non-coking coal, during 1996-97 consumption is expected to be 1.39 million tonnes.

During 1995-96, VSP consumed 1.147 million tonnes of coal non-coking coal. Consumption during 1996-97 is expected to be 1.40 million tonnes.

## 6. Refractories

1. Refractories are the primary materials used in the internal lining of industrial furnaces

and are classified from the chemical composition angle into — Acid Refractories, Basic Refractories and Neutral Refractories. In steel industry refractories are used for lining of coke oven battery, blast furnaces, steel production furnaces, reheating furnaces, electrical arc furnaces etc. With the technological changes in the steel industry, the major thrust has been on economising on the use of the materials and improving technology in each area of operation/process where refractories are being used. The gradual phasing out of open hearth furnaces, adoption of continuous casting route and modernisation of secondary steel making processes, have lessened the demand for conventional refractories and increased demand for high performance refractories. In general, it can be said that all these improvements have resulted in lowering specific consumption of refractories per tonne of steel.

Production of refractories during the year 1995-1996 is given below:

Refractory item	Production during 1995-96 (Million Tonnes)
Firebricks	241487
High Alumina	248214
Silica	34702
Basic	197033
Special Products	14885
Others	67525
<b>Total</b>	<b>803846</b>

The import of refractory items in 1995-96 stood at 18687 tonnes while exports were of the order of 15142 tonnes. In value terms, export during 1995-96 was Rs. 50 crores and is likely to exceed Rs. 55 crores in 1996-97.

## 1. Availability of Iron & Steel

The availability of iron and steel in the domestic market during 1995-96 and April-October, 1996 is furnished in the following table:

Item	(In Million Tonnes)			
	Finished Steel		Pig Iron	
	1995-96	1996-97 (Upto Oct.'96) (Provisional)	1995-96	1996-97 (Upto Oct.'96) (Provisional)
1. Production				
(a) Main Producers	10.59	6.02	1.73	1.04
(b) Secondary Producers	10.81	6.88	1.06	0.77
2. Import (Estimated)	1.56	0.82	0.01	0.01
3. Total (1+2)	22.96	13.72	2.80	1.82
4. Export	1.12	0.55	0.50	0.17
5. Inter-plant transfers	0.14	0.07	—	—
6. Net Availability	21.70	13.10	2.30	1.65

## 2. Pricing and Distribution

2.1 As a part of the liberalisation measures, Government, on 16th January, 1992, abolished the price and distribution regulation of the Joint Plant Committee (JPC) which had been in existence since 1964. The requirements of Defence, Railways, Small Scale Industries, Exporters of Engineering Goods and the North Eastern Region continue to be met on priority, at prices that may be announced by the producers from time to time. The Development Commissioner for Iron and Steel oversees compliance of this arrangement with assistance from JPC.

2.2 The Development Commissioner for Iron and Steel continues to make allocation of Pig Iron to the designated consumers and the main producers supply the material on the basis of

such allocations. In the case of Steel items, allocations by the Development Commissioner for Iron and Steel are made to the Small Scale Industries Corporations. Small Scale Units which were drawing their materials directly from the main producers continue to do so. The

Development Commissioner also issues Release Orders for supplies to exporters of engineering goods and makes annual supply plans for the North Eastern Region. The requirements of Defence and Railways are met by the main producers directly.

2.3 Considering the special problems in meeting the requirements of consumers in North Eastern Region special efforts continue to be made to ensure that adequate and timely supplies are made to the region.

2.4 The levy on account of the Steel Development Fund (SDF) which ranged from Rs. 350/- to Rs. 500/- per tonne on different products of integrated steel plants was discontinued w.e.f. 21/22.4.1994. The levy on account of Engineering Goods Exports Assistance Fund (EGEAF) which was Rs. 110/- per tonne on Pig Iron and Rs. 300/- per tonne on specified categories of steel produced by the main producers (excluding IISCO) was discontinued with effect from 19.2.96. The JPC cess of Rs. 3 per tonne of steel of certain categories produced by the main producers (excluding IISCO) continues to be added to their ex-works prices.

2.5 After the withdrawal of the Freight Equalisation Scheme the main producers, viz. SAIL, VSP and TISCO, are charging either the actual freight upto stockyard or freight element as existed prior to deregulation (now Rs. 1,670/-per tonne in case of steel and Rs. 1,040 per tonne in case of pig iron) whichever is lower. By this, the freight disadvantage

to the states/areas located nearer the steel plants of main producers has been removed. At the same time the interest of distant states/areas has been protected. The extra cost on this account is borne by the main producers.

2.6 The pricing mechanism of the Joint Plant Committee (JPC) operating from 1964 was abolished with effect from 16th January, 1992. The main producers are now free to determine and announce their prices, which are now governed by market forces of demand and supply.

### 3. Import and Export of Iron and Steel

3.1 The general policy and procedures for export and import of iron and steel, ferro alloys and ferrous scrap are decided by the Commerce Ministry in consultation with the Ministry of Steel.

3.2 With the liberalisation of India's trade policy and commencement of the export-import policy for 5 years (from 1.4.92 to 31.3.97), the policy for import and export of iron and steel materials has also undergone sweeping changes. Import of all items of iron and steel is now freely allowed.

3.3 The advance licensing scheme for import of duty free raw materials, components, intermediates and consumables etc. for purpose of export promotion continues. The advance licensing scheme has been made more flexible particularly with the introduction of value based advance licences.

3.4 Due to picking up of domestic demand, the import of saleable steel in

1994-95 increased to 1.93 million tonnes. The increase in import was mainly in hot rolled coils, cold rolled coils and semis. The import of saleable steel during 1995-96 was of the order of about 1.86 MT. Import during April-August '96 was about 0.58 MT.

3.5 The total imports and the value of steel, pig iron and scrap during the last three years and April-August, '96 are as under:

Category	(Quantity in '000 tonnes)				(Value in Rs. crores)			
	1993-94		1994-95		1995-96		1996-97*	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Saleable Steel	1153	1603	1932.6	2536	1864.4	3175	585.6	1031
Pig Iron	20.9	10	1.1	1	7.7	6	7.2	5
Steel Scrap	754.1	380	1416.5	758	973.8	618	452.8	281

\* (April-August, 1996)

### 4. Exports from Iron and Steel Sector

4.1 Export of all items of iron and steel is freely allowed. Exports of chrome ore, manganese ore and iron ore (partly) are made through designated canalising agencies.

4.2 Export of steel from India started in 1964. However, steel exports have been sporadic. In the year 1976-77, India exported a record 1 million tonne of pig iron and 1.4 million tonnes of steel. Thereafter, exports again declined only to pick up in 1991-92 when main producers exported 3.87 lakh tonnes valued at Rs. 283 crores. As a result of various policy measures taken up by the Government like liberalisation of import-export policy, introduction of flexibility in the advance licensing scheme and convertibility of rupee, the export of iron and steel showed a quantum jump to 22.2 lakh tonnes valued at Rs. 1,678 crores in 1993-94. However, in 1994-95 export of iron and steel declined to 17.86 lakh tonnes valued at

Rs. 1,438 crores, showing a decline of 20% in quantity terms and 14.3% in value terms. The decline was mainly due to increase in domestic demand. In 1995-96, the export has been of the order of 2.0 MT valued at Rs.1,939 crores showing an increase of 12.3% in quantity terms and 35% in value terms. Export of Iron and Steel during April-October, 1996 was provisionally 7.92 lakh tonnes valued at Rs. 771 crores.

4.3 India has been one of the major exporters of iron ore in the world, ranking fourth after Brazil, Australia and CIS, with export of around 30 to 32 million tonnes annually, earning foreign exchange worth about Rs. 1,500 to 1,700 crores.

4.4 Total export of iron, steel and iron ore during 1993-94, 1994-95 and 1995-96 and (April-Oct., '96) are indicated below:

Item	(Quantity in lakh tonnes)			
	1993-94	94-95	95-96	96-97 (Apr-Oct.) (Prov)
Iron Ore*	299	283	255	127.46
Iron & steel products	22.21	17.86	20.06	7.92

\*Source: IBM

### 5. Functions of the Office of Development Commissioner for Iron and Steel

5.1 The Office of Development Commissioner for Iron and Steel (DCI&S) through its Regional Offices continued to perform its advisory, developmental and regulatory functions during the year.

5.2 With the deregulation of distribution and pricing of iron and steel, the major functions of

the Development Commissioner for Iron and Steel are as follows:

(a) Collection, processing and dissemination of basic information relating to the Iron and Steel Industry and to act as the data bank of the Ministry of Steel.

(b) Monitoring of regional price and supply trends and suggesting to the Ministry remedial measures for correcting the imbalances, if any.

(c) Monitoring of import and export of iron and steel materials.

(d) Advice on matters relating to import and export policies of iron and steel.

(e) Management of distribution of iron and steel materials to the newly designated priority

sectors such as Defence, Railways, State Small Industries Corporations, Engineering Goods Exporters and the North Eastern States.

(f) Allocation of materials to the State Small Scale Ind. Corporations.

(g) Allocation of materials to remote areas like North Eastern States.

(h) Assistance to Engineering Goods Export Units through priority allocations and monitoring thereof.

(i) Survey of various segments of Steel Industry.

(j) Rendering assistance to the EAF units and the secondary sector, by way of capacity assessment, assistance in procurement of

indigenous/imported raw material and import substitution measures aimed at overall development of the sector.

(k) Interface between the Government and different consumer groups to facilitate consumer-producer interaction.

(l) Co-ordination for movement of raw materials to Steel Plants.

(m) Vigilance functions to prevent misuse of steel obtained from regulated sources.

## 1. General

Steel Authority of India Ltd. (SAIL) is a Company registered under the Companies Act, 1956 and is an enterprise of the Government of India. It operates and manages five integrated steel plants at Bhilai (Madhya Pradesh), Bokaro (Bihar), Durgapur (West Bengal), Rourkela (Orissa) and Burnpur (West Bengal), a plant of the Indian Iron and Steel Co. Ltd., which is wholly owned subsidiary of SAIL. SAIL has also four Special and Alloy Steels and Ferro-alloys units at Durgapur (West Bengal), Salem (Tamil Nadu), Chandrapur (Maharashtra) and Bhadravati (Karnataka). The plants at Chandrapur and Bhadravati belong to the Maharashtra Elektros melt Limited and Visvesvaraya Iron and Steel Limited respectively which are also subsidiaries of SAIL. The IISCO-Ujjain Pipe and Foundry Company Ltd., a subsidiary of IISCO, was manufacturing Cast Iron Spun Pipes at its works at Ujjain (Madhya Pradesh). Besides, SAIL has seven central units viz. the Research and Development Centre for Iron and Steel (RDCIS), the Centre for Engineering and Technology (CET), the Management Training Institute (MTI) all located at Ranchi, Central Coal Supply Organisation located at Dhanbad, Raw Materials Division, Growth Division and Environment Management Division all located at Calcutta. SAIL Consultancy Division (SCD) functions from New Delhi. The marketing of products of SAIL plants is done through the Central Marketing Organisation (CMO), Calcutta which has a countrywide distribution network.

## Steel Authority of India Limited (Excluding Subsidiaries)

## 2. Finance

### 2.1 Turnover and Profit

The Company recorded the highest ever sales turnover of Rs.14,710.21 crores in 1995-96. The post-tax net profit for the year 1995-96 was Rs.1318.61 crores. The Company had declared a dividend of 6.6% on the paid-up equity share capital for the year ended 31st March, 1996 subject to deduction of tax, wherever applicable. Government of India received Rs. 233.95 crores as dividend on its equity contribution in SAIL for the year 1995-96.

The Gross margin i.e. profit before depreciation and interest and net profit before tax of SAIL for the half year ended 30th September, 1996 was Rs. 1269.08 crores and Rs. 414.98 crores respectively. The company recorded a sales turnover of Rs. 6535.98 crores during the period.



LD converter in operation at a SAIL Steel Plant



*Durgapur's modernised Wheel and Axle Plant*

2.2 The authorised capital of SAIL is Rs.5000 crores. The paid-up capital of the Company was Rs.4,130.40 crores as on 30th September, 1996 which was held to the extent of 85.82% by the Government of India and the balance 14.18% by the financial institutions/GDR-holders/banks/employees/individuals etc. Government has not so far disinvested further share capital of SAIL after March 1996. SAIL has also not raised further equity from the domestic/international market.

2.3 The major factors which have contributed to the improvement in the overall financial performance of the Company during 1995-96, are higher volume of production, better product-mix, improved techno-economic parameters and discontinuation of Engineering Goods Export Assistance Fund (EGEAF) contribution. The improvement in operating margins is de-

spite the escalations in input prices, fluctuations in the Rupee value and higher wage bills pursuant to finalisation of Wage Agreements.

The Company during 1995-96 raised Rs.710 crores through issue of Bonds to various financial institutions, banks, trusts etc. through private placement for financing Company's modernisation and other capital schemes. The Company further issued Bonds of the value of Rs.491 crores during April-September 1996.

2.4 Under the Public Deposit Schemes of the Company, the net deposits (i.e. net of repayments and renewals) as on 31st March, 1996 stood at Rs.1652.56 crores. The net deposits as on 30th September, 1996 stood at Rs.1763.91 crores approximately.

### 2.5 Capital Expenditure

The Company incurred capital expenditure of Rs.2747 crores on Fixed Assets and Capital Work-in-progress in the year 1995-96 and approx. Rs.1317 crores during the period April-September, 1996 which have been financed through internal accruals and borrowings without resorting to any Budgetary support from the Government of India

### 3. Production Performance

3.1 The four integrated steel plants of SAIL at Bhilai, Durgapur, Rourkela and Bokaro ended the year 1995-96 with record output of 10.9 million tonnes of hot metal, 9.99 million tonnes

of crude steel and 8.92 million tonnes of saleable steel. Alloy Steels Plant and Salem Steel Plant recorded best ever production of saleable steel at 239.54 thousand tonnes. The details of production plan and achievement during 1995-96 are as follows :

Item	Target (MT)	Actual (MT)	Fulfilment (%)
Hot Metal	11.45	10.90	95
Crude Steel	10.85	9.99	92
Saleable Steel	8.85	8.92	103

There was continued thrust during first half of 1996-97 on improvements in techno-economic parameters. Despite deterioration in the quality of coking coal from indigenous sources, coke rate in Blast Furnaces was improved at 629 kg. per tonne of hot metal in the four plants. The productivity of Blast Furnaces in SAIL plants was 1.12 T/m<sup>3</sup>/day in the first half of 1996-97.

### 3.2 Production Performance: April-October 1996

The details of production plan and achievement during April-October, 1996 was as follows:

(In Million Tonnes)			
Item	Annual	Actual Target	Fulfilment (%)
<b>4 Integrated Steel Plants</b>			
Hot Metal	6.98	6.66	95
Crude Steel	6.52	5.97	91
Saleable Steel	5.28	5.11	97
<b>Alloy Steel Plants</b>			
Saleable Steel	0.15	0.19	130

3.3 The plantwise production performance of saleable steel during April-October, 1996 is

given here under:

Sl.No.	Plant	Target	Actual	'000 Tonnes Fulfilment(%)
1.	Bhilai Steel Plant	1940	2094	108
2.	Durgapur Steel Plant	756	588	78
3.	Rourkela Steel Plant	689	667	97
4.	Bokaro Steel Plant	1894	1758	93
(A)	Total Four Plants	5279	5107	97
1.	Alloy Steels Plant	101	116	114
2.	Salem Steel Plant	46	74	161
(B)	Total Two Plants	147	190	130
<b>Total SAIL(A+B)</b>		<b>5426</b>	<b>5297</b>	<b>98</b>

### 4. Energy Conservation

The continued emphasis on energy conservation measures helped further in reducing energy consumption per tonne of crude steel for the 9th successive year and has reached a level of 8.68 G.Cal/tcs during 1995-96. During the period April-September, 1996 energy consumption per tonne of crude steel was 8.49 G.Cal/tcs (Provisional).

#### 4.1 Development of Small Scale/ Ancillary Industries

The Company continued to give encouragement to the development of Small Scale and Ancillary Industries. During 1995-96, value of stores and spares items purchased from these units was of the order of Rs.205 crores. During the period April to Sept.96 Rs.71 crores (Prov.) value of stores and spares were purchased from Small scale and Ancillary Industries.

#### 4.2 Captive Power Generation

Captive power generation in SAIL during 1995-96 at an average of 391 MW, met 53% of the Company's total power requirements. Captive power generation during the period April-September, 1996 stood at about 410 MW.



*A panoramic view of the Salem Steel Plant*

to make it market oriented. Apart from it, SAIL continued to give thrust on long term relationship with major customers through Memorandum of Understanding (MOU).

## 5.2 Sales

During 1995-96, the total sales at 8.53 MT was the highest ever sales of steel by SAIL. In addition, about 0.4 MT of Pig Iron was also marketed. Steel products namely, billets, slabs, plates, HR Coils, structurals, CR Coils/Sheets, GP Sheets and Stainless Steel worth Rs.478.95 crores (407 thousand tonnes) were exported to U.S.A., Japan, Korea, Australia and European countries during 1995-96.

During first half of 1996-97, the total sales of steel and pig iron was 3.82 MT and 0.24 MT respectively. The export during this period was of the order of Rs.206.58 crores (183 thousand tonnes).

## 6. Capital Schemes

At present there are three steel plants where modernisation works are in progress viz. Durgapur Steel Plant, Rourkela Steel Plant and Bokaro Steel Plant. The latest position of the modernisation work in these plants and progress of major capital schemes in Bhilai Steel Plant is given below:

### 6.1 Durgapur Steel Plant

At Durgapur Steel Plant, major thrust was given on stabilisation of the new units like Basic

### 4.3 Environment Management

Management of Environment and Pollution Control in Steel Plants and Mines continued to get priority attention in Company's activities during the year 1995-96. In pursuance of this policy the company had started a major Pollution Control Action Plan in April 1992, under which 10 pollution control schemes were completed during the year 1995-96. Further, the technology upgradation under the on-going modernisation programmes at various SAIL plants will reduce the pollution substantially below the norms laid down by environmental regulations. The company continued to give thrust to afforestation at plants and mines during the year 1995-96 and first half of the 1996-97.

## 5. Sales and Marketing Performance

### 5.1 Marketing Strategies

In view of the sluggish demand conditions during first half of 1996-97, dynamic strategies were formulated both in production and commercial areas to meet the market expectation. The product-mix was constantly changed

Oxygen Furnace Shop (BOF), Continuous Casting Plant (CCP) and New Sinter Plant. With the commissioning of B.F. 4 in April, 1996, stabilisation of commercial production from the modernised facilities is in advance stage.



*Bhilai's Merchant Mill*

## 6.2 Rourkela Steel Plant

At Rourkela Steel Plant (RSP), under Phase II Modernisation, turnkey package of Relocation of Dividing line and part packages, namely, Modification of Plate Mill, Reheating Furnace in

*Rourkela Steel Plant - Undergoing massive modernisation*



Plate Mill, Sintering Plant-2 and Concast Shop-I were commissioned. Major emphasis was laid on expeditious completion of balance packages of Phase-II Modernisation.

## 6.3 Bokaro Steel Plant

At Bokaro Steel Plant (BSL), the work on Stage-I Modernisation is progressing as per schedule. The erection work on the Reheating Furnace No.4 is in an advanced stage of completion. The contract for Coal Dust Injection System for BF No.5 was also finalised.

## 6.4 Bhilai Steel Plant

For Bhilai Steel Plant (BSP), the contracts for the New Sinter Plant Packages, expansion of Oxygen Plant-2 and Coal Dust Injection for BF-6 were finalised during 1995-96. The construction of Coke Oven Battery No.10 has been completed during November 1996. The work on Phase-I of modernisation of Rail & Structural Mill has been completed except shut down related activities.

## 6.5 Salem Steel Plant

At Salem Steel Plant (SSP), operation of Hot Rolling Mill was stabilised in April, 1996. The





*Developing new processes, products, SAIL's R&D Centre for Iron & Steel*

was at 2.88 MT in 1995-96 and 1.13 MT during the period April-September, 1996. In order to augment availability of iron ore for Bhilai Steel Plant, the Company plans to develop Rowghat Iron Ore Mines, for which Stage-I environmental clearance was obtained.

## 9. In-house Engineering and Services

9.1 Centre for Engineering & Technology (CET) continued to provide Design & Engineering support to plants/ units for modernisation, implementation of technological upgradation schemes and repairs and re-vamping of units. Some of the major projects implemented with in-house Design and Engineering expertise included Rebuilding of Coke Oven Battery No.4 at BSL, capital repairs of Blast Furnace-1 at Bhilai and completion of Stage I activities for Sinter Plant-3 at Bhilai. In addition, a large number of pollution control and automation schemes engineered by CET have been implemented in the plants. CET has also taken up jobs for steel industry outside SAIL both within India & abroad. CET is also acting as a nodal agency for technology absorption in SAIL.

9.2 SAIL Consultancy Division (SCD) continued to give thrust to establish SAIL as a leading Engineering and Management Consultant in the global market. SAIL entered into new markets viz. Egypt, Iran and Indonesia. To bring about increased awareness of SAIL's capabilities in consultancy area and to understand customer's requirements, an International SAIL Consultancy Customers Meet was organised, which received tremendous response with a large number of Indian client organisations and delegations from foreign countries attending the Meet.

Mill would enable rolling of stainless steel and carbon steel slabs at Salem itself.

## 7. Research & Development

Research and Development Centre of the company pursued 212 R&D projects during 1995-96 and 165 projects during first half of 1996-97. The projects were basically aimed at improvement of the technological performance of the steel plants of SAIL through process optimisation, energy conservation measures, development of new steel products and upgradation of technology. The Centre successfully completed 20 projects upto September, 1996. During first half of 1996-97, one prestigious award was bagged by the centre. 6 patents were filed and 7 copy-rights were also obtained. RDCIS provided consultancy services and know-how to outside organisations.

## 8. Raw Materials

The Company met almost total requirement of its iron ore and half of fluxes requirements from captive sources. SAIL Captive Mines produced 18.29 MT Iron Ore Lumps and Fines during 1995-96 and 9.33 MT during the period of April-September, 1996. Fluxes production

## 10. Human Resources Management Review

SAIL continued its efforts to maximise the contribution of the human resources in attainment of organisational goals. The thrust was on effective utilisation through concerted team working.

### 10.1 Manpower Utilisation

The manpower strength as on 31st March, 1996 and 30.9.1996 was 1,87,504 (comprising 19,745 executives and 1,67,759 non-executives) and 1,85,318 (comprising of 19,688 executives and 1,65,630 non-executives) respectively. The manpower productivity of 92 tonne crude steel per man year was achieved during 1995-96 and it was maintained during April-September, 1996.

### 10.2 Training

Training for developing the competency of employees based on organisational requirements continued. During 1995-96, 1,03,395 employees were trained under on-going company-wide schemes. During 1996-97 (upto September, 1996) approx. 47,500 employees were trained. A Human Resource and Organisational Development programme was launched at Rourkela Steel Plant to support the on-going modernisation programme.

### 10.3 Employees' Welfare

Various welfare measures for the benefits of the employees, like free medical services (including extending mediclaim schemes to retired employees), housing, education for children, facilities of cooperative societies as well as providing avenues for socio-cultural activities were undertaken. On this account, the Company spent an amount of Rs.430 crores during 95-96 and Rs.210 crores during April to Sept.96 (Prov.).

### 10.4 Sports

SAIL sponsored events like Davis Cup, Durand Cup, Subroto Cup etc. SAIL Wards from SAIL Townships won not less than 50 National Medals in Sports. SAIL Handball Academy retained National Juniorship for third year in succession and won Runners up Trophy in Senior Common Wealth Cup at Johannesburg in 1996, which is an outstanding achievement.

### 10.5 Industrial Relations

Harmonious and congenial industrial relations atmosphere was maintained, through healthy on-going dialogue with trade unions and Officer's Associations and utilisation of different joint fora.

### 10.6 Safety

During 1996-97, a National Seminar on Health, Safety & Environment with representatives from SAIL, TISCO & VSP was organised. The Seminar focussed on generating awareness regarding future challenges posed by changes in business environment (new environmental legislations, ISO 14001 etc.) which will have a significant impact on steel industry, and developing strategies to face the same. The seminar also provided a forum for learning through experience sharing by steel producers and outside experts in Health, Safety and Environment.

A five star Safety and Health Management System has been launched based on an agreement between Bokaro Steel Plant and National Safety Council, Australia.

### 10.7 Official Language Policy

The Company continued to vigorously pursue its efforts in implementing the Official Language Policy of the Government.

### 10.8 Scheduled Castes and Scheduled Tribes

The Presidential Directives on Scheduled Castes/Scheduled Tribes continued to be implemented. As on 31st December, 1995, Scheduled Caste and Scheduled Tribe employees were 14.3 per cent, and 10.9 per cent of the total manpower.

### 10.9 Peripheral Development

SAIL has been playing an active role in undertaking various measures like providing drinking water facilities, health care programmes, educational facilities, recreational activities, etc. for the people living in areas near the steel plants/mines. A sum of Rs. 469 lakhs was spent on peripheral development during 95-96 and Rs. 129 lakhs (Prov.) during April to Sept.96.

### 10.10 Suggestion Scheme

The latent creativity of employees continued to be tapped through the company's suggestion scheme. Over 2,50,000 suggestions were received during 1995-96.

### 10.11 Awards

During 1995-96 Bhilai Steel Plant was awarded Prime Minister's Trophy for the best integrated Steel Plant in India for the year 1993-94, for the second successive year. SAIL employees have also bagged two Prime Minister's Shram Bhushan Awards during 1996-97.

## 11. Total Quality Process

The thrust to improve the quality of products and services continued during the year. The number of Quality Circle (QC) Projects implemented during 1996-97 (upto September, 1996) was 4186. SAIL plants won recognition

in the area of Quality at the national level too. Bhilai Steel Plant won the IIM Quality Award in November, 1996.

Wheel & Axle Plant and SMS, BOF and CCP of Durgapur Steel Plant, and Silicon Steel Mill (CRNO Stream) of Rourkela Steel Plant achieved ISO 9002 certification during 1996-97 (upto September, 1996).

## SUBSIDIARIES

### The Indian Iron and Steel Company Limited

The Indian Iron and Steel Company Limited (IISCO) owns and operates an integrated steel plant at Burnpur, captive iron ore mines at Gua and Manoharpur, captive collieries at Chasnalla, Jitpur and Ramnagore, a coal washery at Chasnalla and a large foundry complex at Kulti. The management of IISCO was taken over by the Government of India on the 14th July, 1972. Shares held by the private parties were acquired by the Central Government on 17th July, 1976, the shares held by the public financial institutions etc. were also purchased by the Central Government and subsequently all these shares were transferred to SAIL and IISCO became a wholly owned subsidiary of SAIL on 30th March, 1979. As a part of the physical restructuring of IISCO, the management of Kulti works and also the collieries and ore mines of the Company were taken over by SAIL in January, 1990 in terms of the Power of Attorney executed by IISCO.

## 1. Production Performance

### 1.1 Burnpur Works

During 1995-96 the Steel Plant produced 838.5 thousand tonnes of Hot Metal, 420.9 thousand tonnes of Pig Iron, 329.1 thousand

tonnes of Crude Steel and 302.5 thousand tonnes of Saleable Steel.

Production performance (Burnpur): April to October, 1996

'000/T			
Item	Plan	Actual	Fulfillment(%)
Hot Metal	472	454	96
Crude Steel	205	201	98
Pig Iron	233	193	83
Saleable Steel	208	192	92

### 1.2 Kulti Works

Total Castings output during 1995-96 and 1996-97 (upto September, 1996) was 62.2 thousand tonnes and 27.5 thousand tonnes respectively. Spun Pipes production was 20.6 thousand tonnes and 9.8 thousand tonnes during 1995-96 and 1996-97 (upto September, 1996) respectively.

Special thrust continued on production of new and value added castings like High Chromium Grate Bars, S.G. Iron Eccentric Castings and Blast Furnace Copper Members required by sister Plants and private sector steel plants. C.S. Jolting Table and C.S. Piston in fully matched condition has been successfully developed as an import substitution item for Durgapur Steel Plant. Manganese Steel Bowl Liner has also been successfully developed for NMDC.

### 1.3 Collieries

Total coal raisings from three Captive Collieries was 989 thousand tonnes during 1995-96 and 435 tonnes during 1996-97 (upto September, 1996).

### 1.4 Ores Mines

Iron Ore Lump production was 1160 thousand tonnes and 628 thousand tonnes during 1995-96 and 1996-97 (upto September, 1996) respectively from two Captive Ore Mines. Gua Ore Mines achieved its best ever production of 3419 thousand tonnes of lumps and fines during 1995-96.

## 2. Capital Schemes

During 1995-96 and 1996-97 (upto September, 1996) Company capitalised expenditure of Rs. 54.39 crores and Rs. 21.69 crores towards various Capital Schemes including Additions, Modifications and Replacements. At Burnpur Works 600 TPD Pig Casting Machine No.7 and 50 TPD Oxygen Plant for Steel Melting Shop were commissioned on 29.11.1995 and 30.11.1995 respectively. At Kulti Works augmentation of facilities at Spun Pipe Plant No.3 for production of Heavy Ingot Moulds was completed on 31.3.1996.

## 3. Financial Performance

3.1 During 1995-96 the Company achieved the highest ever turnover at Rs.1038.54 crores. The net loss for the year after charging depreciation (Rs. 23.44 crores) and interest (Rs.10.21 crores) was Rs. 49.05 crores. Increases in prices of coal and salaries and wages were the major factors for the higher loss.

Company achieved sales turnover of Rs. 498.98 crores during April-September, 1996. During this period Company incurred net loss of Rs. 60.37 crores.

Steel Authority of India Ltd. (SAIL) provided Rs. 5.59 crores for Capital Schemes and Rs. 54.00 crores for Working Capital, Waiver of interest of Rs. 98.20 crores was granted by SAIL to the Company during 1995-96. SAIL



provided additional loan of Rs. 12.27 crores during April- September, 1996.

As on 30th September, 1996, the Authorised Share Capital and paid-up Equity Capital of the Company remained at Rs. 550 Crores and Rs. 387.67 crores respectively.

#### 4. Sales & Marketing Performance

##### 4.1 Domestic Sales

In the increasing competition scenario customer satisfaction was the focus of marketing activities of the Company. Product-mix was improved in tune with market demand. Special emphasis was laid on serving the orders of key customers like Railways who had shown greater confidence in the Company with increased offtake of steel and pig iron. During 1995-96 and 1996-97 (upto September, 1996) 320.1 thousand tonnes and 145.2 thousand tonnes of steel respectively were sold. Pig Iron sales stood at 337.9 thousand tonnes during 1995-96 and 121.3 thousand tonnes during 1996-97 (upto September, 1996).

##### 4.2 Exports

During 1995-96, Burnpur Works exported 420 tonnes of Pig Iron, 190 tonnes of Structural and 100 tonnes of Scrap to Bangladesh. Kulti Works exported 230 tonnes of Ingot Moulds to Manila and 591 tonnes of Spun Pipes to Nepal during the same period. Exports during 1996-97 (upto September, 1996) were 113.

#### 5. Environment Management

Environment Management and Pollution Control have become priority areas in the activities of the Company. Environmental Awareness Campaign through observance of World Environment Day and Environment Month was organised. About 19,800 saplings of different

plants were planted in Burnpur and Kulti Townships and Works areas during 1995-96. EIA/EMP study was completed at Chasnalla Colliery.

Works relating to installation of Air Pollution Control devices for Open Hearth Furnaces of Steel Melting Shop at Burnpur Works and for Foundries and Spun Pipe Plant Nos.2 and 3 at Kulti Works have been taken up on top priority.

#### 6. Human Resources Development

The Company continued to give great importance to the development of its human resources to improve efficiency and productivity.

The manpower strength as on 31st March, 1996 and 30th September, 1996, was 30,246 (comprising 1,479 executives and 28,767 non-executives) and 29,748 (comprising 1,450 executives and 28,298 non-executives) respectively.

During 1995-96 a sum of Rs.10.30 crores was received from National Renewal Fund for implementation of Voluntary Retirement Scheme and 262 employees were allowed voluntary retirement. VRS has been continued in 1996-97 also.

Industrial relations remained normal and peaceful during the year.

The thrust towards Safety and Occupational Health continued. About 218 employees were trained on various safety aspects during 1996-97 (upto September, 1996).

The endeavour to make training more result and skill oriented continued during 1996-97 (upto September, 1996) with 1,937 employees trained in various fields including two employees trained abroad.

Scheduled Caste and Scheduled Tribe

employees were 12.09 per cent and 3.34 per cent respectively of the total manpower as on 31.3.1996.

The Company continues to pursue vigorously implementation of the Official Language Policy of the Government. Employees are encouraged to carry out official work in Hindi and liberal incentives for such work are given. Official Language Fortnight Celebrations and Workshops were organised. The Company and the Town Official Language Implementation Committee were awarded "Indira Gandhi Rajbhasha Shield" at the national level. Regional level shields were awarded by the Official Language Department, Government of India.

During 1995-96 and 1996-97 (upto September, 1996) the Company spent Rs. 37.22 crores and Rs.16.61 crores respectively on employees' welfare like maintenance of house, education, medical, social, cultural, co-operatives, transportation and other facilities.

Various sports activities were conducted during 1995-96 for employees and their dependents. In the Steel Plant Sports Board Championship, the Company won 2 gold, 4 silver and 7 bronze medals in different events.

Various welfare activities like providing drinking water facilities, making/repairing roads etc. were undertaken.

The thrust on procurement of stores and spares items from small scale units continued. Burnpur Works placed orders for Rs.3.44 crores on Small Scale Units during 1995-96 and Rs. 2.34 crores during 1996-97 (upto September, 1996).

#### 7. Status on Rehabilitation

Since IISCO became a sick industrial company in terms of the Sick Industrial

Companies(Special Provisions) Act, 1985 (as amended in February, 1994) a reference was made by the Board of Directors of IISCO to BIFR on 22nd June, 1994, as required under Section 15 of the Act, for determination of measures to be adopted with respect to the company. At the hearing held on 17th August, 1994 the Board for Industrial and Financial Reconstruction (BIFR) declared the Company a sick industrial company within the meaning of Section 3(1)(o) of the Sick Industrial Companies (Special Provisions) Act, 1985 and appointed the Industrial Development Bank of India (IDBI) as the Operating Agency for preparation of a rehabilitation report. SAIL is considering revival of IISCO by associating a co-promoter through participation in joint venture with SAIL retaining 51% equity holding and has informed the Board for Industrial and Financial Reconstruction accordingly.

#### IISCO-Ujjain Pipe and Foundry Company Limited

IISCO-Ujjain Pipe and Foundry Company Limited (IISCO-Ujjain) is a wholly owned subsidiary of the Indian Iron & Steel Company Limited, which in turn is a subsidiary of Steel Authority of India Limited. IISCO-Ujjain was manufacturing Cast Iron Spun Pipes in the range of 80 mm to 350 mm dia sizes in its works at Ujjain.

##### 1. Production Performance

Production of Cast Iron Spun Pipes continued to remain suspended.

##### 2. Financial Performance

During 1995-96 the turnover of the Company was Rs. 33.63 lakhs which was out of disposal of old stocks. The net loss for 1995-96 was Rs. 378.64 lakhs. The increase in loss is mainly due to full absorption of the balance of

Deferred Revenue Expenditure and provision for Gratuity assuming all employees would have retired.

### 3. Industrial Relations

Industrial relations during the year remained normal.

The manpower strength as on 31st March, 1996 and as on 30th September, 1996, was 191 and 190 respectively comprising only of non-executives.

### 4. Welfare Schemes

Out of a sum of Rs.1.20 crores received during 1995-96 from National Renewal Fund for implementation of Voluntary Retirement Scheme a sum of Rs.1.16 crores was utilised and 66 employees were given Voluntary Retirement.

### 5. Use of Hindi

The Company continued to pursue its efforts in implementing the Official Language Policy of the Government.

### 6. Status on Rehabilitation

Consequent to IISCO-Ujjain Pipe and Foundry Company Ltd. becoming a sick industrial company in terms of the Sick Industrial Companies (Special Provisions) Act, 1985 (as amended in February, 1994), a reference was made to the BIFR on 25th March, 1994, as required under Section 15 of the Act, for determination of measures to be adopted with respect to the Company. At the hearing held on 7th July, 1994 the Board for Industrial and Financial Reconstruction (BIFR) declared the Company a sick industrial company within the meaning of Section 3(1)(o) of the Sick Industrial Companies (Special Provisions) Act, 1985 and appointed the Industrial Reconstruction

Bank of India (IRBI) as the Operating Agency for preparation of a rehabilitation report. However, as it had not been possible to work out a feasible rehabilitation proposal by the operating agency, the BIFR came to the prima-facie opinion that the company would not be viable without infusion of substantial funds which were not forthcoming. Accordingly, the BIFR directed that a show cause notice be issued to the company as to why it should not be wound up. However, after considering the submissions made by the workers' representatives, the BIFR in its hearing on 13th February, 1996 directed the workers' representatives to submit their proposal for revival of the company through a workers' cooperative in case they were interested, by 31st March, 1996. The workers failed to put-up any viable revival scheme. Accordingly, the BIFR confirmed its opinion that it was just and equitable to wind it up and directed that the said opinion be furnished to the concerned High Court for further necessary action in accordance with law.

### Maharashtra Elektros melt Ltd.

Maharashtra Elektros melt Limited is a subsidiary of SAIL, situated in Chandrapur, Maharashtra and is a major producer of Ferro Manganese and Silico Manganese. It is also diversifying into other Ferro Alloys.

### 1. Financial Performance

During 1995-96, the Company achieved the highest ever turnover of Rs.16,474.62 lakhs since its inception and posted a Profit of Rs.148.99 lakhs after tax. The turnover and profit of the Company during April-September '96 was Rs. 9,084 lakhs (Prov.) and Rs.11.38 lakhs (Prov.) respectively.

The authorised share capital of the Company is Rs.10 crores and subscribed and paid up capital is Rs.5 crores. SAIL holds approx 96% of the paid-up capital.

## 2. Production Performance

2.1 The production of all grades of Ferro Alloys during 1995-96 was as under:

	(Tonnes)
	1995-96
High Carbon Ferro Manganese	58736
Silico Manganese	30979
Medium Carbon Ferro Manganese	1473

### 2.2 Production Performance: April to September, 1996

Item	Plan	Actual	(Tonnes) Fulfilment(%)
HC Ferro Manganese	26850	28808	107
Silico Manganese	15355	16336	106
MC Ferro Manganese	900	778	86

## 3. Research & Development

Energy Conservation & Energy Audit at MEL is under active consideration for implementation.

## 4. Environment

Management of environment and pollution control in Plant premises continued to get top priority in Company's activities. To keep the environment clean for ecological protection, thrust was given in the areas of green belt development in and around the Plant premises, solid waste management, stack emission and monitoring of various environmental parameters.

To comply with the Environment Standards set-up by Maharashtra Pollution Control Board, Gas Cleaning Plant for SAF-II is being

erected at an estimated cost of Rs.160 lakhs. This would enhance availability of Clean Gas for gainful utilisation as a fuel at Sintering Plant and Lime Kiln etc.

Continuous steps were taken towards gainful utilisation of slag for producing slag bricks for various internal construction purposes by replacing red-clay bricks.

## 5. Sales & Marketing Performance

Continuous efforts were made to meet the goal of customer- satisfaction by extending various commercial facilities. The sale of different grades of Ferro Alloys during 1995-96 and 1996-97 (up to September, 1996) was 93159 tonnes and 43932 tonnes respectively.

## 6. Human Resources Management Review

MEL gives great importance to the development of its Human Resource and makes all out efforts to ensure that these are tuned towards meeting the challenges thrown up in the new economic environment. The thrust has been on achieving the goal of higher productivity through optimum utilisation of manpower.

The manpower strength as on 31st March, 1996 was 1080 (comprising of 163 executives and 917 non-executives) and as on 30th September, 1996 was 1067 (comprising of 155 executives and 912 non-executives). The number of Scheduled Castes and Scheduled Tribes were 141, and 50 respectively as on 30.3.96.

A total of 790 employees have been trained during 1995-96. Further, 410 employees were trained on Safety, Environment, ISO and on cultivating a culture of customer satisfaction. 442 employees were given training during April-Sept., 1996.

100% literacy has been achieved in respect of Female Contract Labours. Literacy drive has been started for Contract Labours. All permanent employees have already been covered under literacy drive and they have become literate.

The Industrial Relation remained satisfactory throughout the year.

Welfare activities in areas of Medical, Education, Working condition, Canteen, Sports, Township improvements have been maintained and improved. All settlements in respect of retiring employees have been done on the day of retirement.

## 7. Quality

Ferro Alloy Products Shop of MEL was certified as per ISO 9002 standards in August, 1996 by M/s. IRQA, UK.

## Visvesvaraya Iron and Steel Limited

Visvesvaraya Iron and Steel Limited situated at Bhadravati, Karnataka is a subsidiary of Steel Authority of India Limited. It is a major producer of special and alloy steels, mild steel and ferro alloys.

## 1. Financial Performance

During 1995-96 and 1996-97 (up to September 1996), Company has recorded a turnover of Rs. 266.54 crores (including Rs. 55.36 crores relating to production during trial run operation of Blast Furnace which has been capitalised) and Rs. 127.80 crores respectively. The loss for the year 1995-96 and 1996-97 (upto September, 1996) was Rs. 37.38 crores and Rs. 5.71 crores after providing for depreciation and interest. Input escalation including increase in fuel escalation charges coupled with frequent power cuts, higher wage bill

pursuant to finalisation of wage agreement and revision in Dearness Allowance compensation formula with retrospective effect are some of the major factors responsible for the loss.

The capital base of the Company was strengthened during 1995-96 by increasing the Authorised Share Capital from Rs. 150 crores to Rs. 200 crores. Further, during 1995-96, the paid-up capital of the Company was increased from Rs. 126.92 crores to Rs. 200 crores by issuing additional equity shares of Rs. 23.08 crores in May 1995 and Rs. 50 crores during March 1996. There has been no increase in the share capital during 1996-97 (up to September, 1996).

In order to face the stiff competition from new units which have come up in the recent past in private sector, assistance has been sought from Government of Karnataka, in terms of certain reliefs and concessions e.g. exemption from sales tax, purchase tax, turnover tax, entry tax, royalty etc. for the newly set up Blast Furnace.

## 2. Production Performance

The Company produced 62,522 tonnes and 30,101 tonnes of alloy and special steel, 77,539 tonnes and 41,857 tonnes of pig iron and ferro silicon of 10,437 tonnes and 3,824 tonnes during 1995-96 and 1996-97 (up to September, 1996) respectively.

## 3. Sales & Marketing Performance

During 1995-96 and 1996-97 (upto September, 1996), the Company marketed about 64 thousand tonnes and 27 thousand tonnes of alloy and special steels, 63.2 thousand tonnes and 27 thousand tonnes of pig iron, 9.4 thousand tonnes and 3.2 thousand tonnes of ferro silicon respectively. Sales of ferro silicon was

low on account of lower production due to single furnace operation.

## 4. Capital Schemes Review

During 1995-96 and 1996-97 (up to September 1996), the Company incurred capital expenditure of Rs. 4057.33 lakhs and Rs. 262.55 lakhs respectively on fixed assets and capital work-in-progress.

Operation of the newly built Blast Furnace was stabilised during 1995-96. To support continuous operations of the Blast Furnace, a 6 MW DG set was also commissioned during 1995-96.

The 12 MVA Ferro Silicon Furnace has also been stabilised after modernisation and is now operating to its capacity. Modernisation of the other furnace is in progress.

In addition to the above, in order to augment the secondary refining facilities in the steel melting shop, two existing Electric Arc Furnaces (EAFs) have been converted into Ladle Refining Furnaces (LRFs), an in-house venture.

## 5. Human Resources Management Review

Total manpower strength as on 31.3.1996 was 6174 (comprising 498 executives and 5676 non-executives) and 6110 employees as on 30.9.96 (comprising 485 Executives and 5625 Non Executives). Percentage of SC/ST to total employment was 12.68 approx. as on 31.3.1996. For enhancing efficiency of work force, the Company continued to lay stress on imparting training to both executives and non-executives. National Renewal Fund has provided an amount of Rs. 3 crores for operating the VR Scheme during 1995-96 and 86 employees have been granted VR under the

scheme. VISL bagged one *Shram Vir Award* during 1995-96. Industrial relations continued to be cordial.

## 6. Total Quality Process

The thrust on achieving Total Quality Process continued in the Company. It received the coveted ISO-9002 certification for its Alloy & Special Steel products through forged route during 1995-96.

## 7. Environment Management

The Company continued to put thrust on Environment Management for a clear and pollution free environment and for maintaining ecology. Air pollution control equipments for 20 T EAF and LRF No. 3 have been provided in SMS, and are under trial run. Action has been taken to develop a "Green Belt" in and around the plant and township. Already, over 10,000 trees have been planted and are being nurtured regularly. The World Environment Day, Environment Month & Earth Day etc. were observed and Eco Clubs were set up to bring about the environment awareness amongst the employees and their wards.

## 8. VISL — a Potential Sick Company

Consequent to its registered as a potentially sick industrial company with BIFR in September, 1995, all possible efforts are being made with a view to improving the net-worth position of the Company so as to avoid the Company becoming a Sick Company. These include increase in the paid-up capital of the Company from Rs. 126.92 crores to Rs. 200 crores by issuing additional equity shares of Rs. 23.08 crores in May 1995 and Rs. 50 crores during March 1996. These were initially offered as rights issue to Steel Authority of India Limited (SAIL) and Government of Karnataka (GOK),

the two shareholders. However, since GOK did not subscribe to the issue offered during May 1995 and renounced its rights in favour of SAIL, the entire additional share capital of Rs. 23.08 crores was subscribed by SAIL. The

ratio of share-holding between SAIL and GOK after this issue stands altered from 60:40 to 66:34 respectively. The subsequent issue of shares worth Rs. 50 crores was shared by SAIL and GOK in the revised ratio.

## RASHTRIYA ISPAT NIGAM LIMITED (VISAKHAPATNAM STEEL PLANT)

### 1.0 Introduction

Visakhapatnam Steel Plant, the country's first shore based Plant and sixth Public Sector Integrated Steel Plant, has been built with a capacity to produce 3 mtpa of Liquid Steel. VSP was commissioned in August 1992 and dedicated to the Nation by the Hon'ble Prime Minister of India.

The Plant has been built to exacting international standards in design and engineering and incorporates extensive Energy Saving and Pollution Control Measures. The Plant has been well conceived with an excellent plant layout which would allow expansion of the plant to over 10 mtpa capacity.

### 2.0 Production Performance

#### 2.1 Growth in Production & Capacity Utilization

Production and Capacity Utilization (CU) have registered a sustained and impressive growth over the years. Details during 1994-95 and 1995-96 are as under:

(Million Tonnes)							
Item	Rated Capacity	Production	1994-95 % Growth Over Prev. Year	%Cap. Utl.	Production	1995-96 % Growth Over Prev. Year	% Cap. Utl.
Hot Metal	3400	2836	20	83	3213	13	95
Liquid Steel	3000	1940	43	65	2381	23	79
Saleable Steel	2656	1560	32	59	2136	37	80
Pig Iron	556	848	—	153	771	—	139

2.2 The following production targets fixed for the year 1996-97 are aimed at achieving 100%, 100% and 96% of rated capacities and growth of 6%, 26% and 19% over the previous year in respect of hot metal, liquid steel and saleable steel respectively:

(Million Tonnes)					
1996-97					
Item	Target	%Cap. Utl.	%Growth over Prev. Year	Actual	(Apr.-Dec '96) %Growth Over Prev. Year Corresponding period
Hot Metal	3400	100	6	2387	2
Liquid Steel	3000	100	26	1708	3
Saleable Steel	2550	96	19	1522	-1.5
Pig-Iron for sale	301	54	—	581	—

### 3.0 Techno-economic Performance

There has been consistent improvement in the Techno-economic performance. Performance

with respect to some of the important Techno-Economic Parameters are as under:

producer and exporter of steel in the country. During the period April-December, 1996 of the

PARAMETERS	DPR NORM	ACTUAL 1995-96	ACTUAL 1995-96 (Apr. Dec.95)	TARGET 1996-97	ACTUAL 1996-97 (Apr. Dec.96)
COKE RATE (DRY) (Kg/Thm)	625	532.73	538	540	524
SPECIFIC ENERGY CONSUMPTION (G.Cal/TLS)	7.78	7.60	7.86	7.65	7.74
BF. PRODUCTIVITY (T/Cum./Day)	1.52	1.39	1.35	1.49	1.38
LABOUR PRODUCTIVITY (T/M/Yr.)	231	180.35	177	222	180

#### 4.0 Marketing

There has been a continuous and steady improvement in the Gross Sales of VSP over the years. During 1996-97 the target for Gross Sales has been fixed at Rs. 3627 crores as against the Gross Sales of Rs. 3039 crores during 1995-96 registering a growth of 19%. Despite the prevailing market conditions, VSP achieved Gross Sales of Rs. 2192 crores during the period April-December, 1996 as against the Gross Sales of Rs. 2015 crores during the corresponding period last year, thereby registering a growth of 10%.

On the export front, the performance of VSP has been impressive since commissioning of the Plant. During 1995-96, 1.025 million tonnes of Iron & Steel products were exported which earned a foreign exchange of Rs. 707 crores, i.e. 56% more than that earned in 1994-95. VSP exported more than a million tonnes of Iron & Steel products in a year for the second time during 1995-96 and became the single largest

current financial year VSP exported Iron & Steel products worth Rs. 417 crores as against Rs. 371 crores during the corresponding period last year, registering a growth of 12%.

#### 5.0 Financial Performance

Visakhapatnam Steel Plant has been suffering heavy losses due to low capacity utilisation coupled with high incidence of capital related charges viz. interest and depreciation. During 1994-95 the company earned a cash profit of Rs. 51 crores for the first time and this has gone up to Rs. 226 crores in 1995-96. During the period April-December, 1996 VSP has earned a cash profit of Rs. 77.60 crores as against Rs. 78.83 crores earned during the corresponding period last year. The decrease in the cash profit during the period April-December, 1996 is due to increase in the actual interest from Rs. 304.80 crores to Rs. 340.80 crores. The financial performance of VSP during 1994-95, 1995-96

and April-December, 1996 of the current financial year is given below:

ciency in power requirements. It has since been commissioned.

Particulars	1994-95 Actual	1995-96 Actual	1996-97 Target	Apr.-Dec '96 Actual	(Rs. in crores) Apr.-Dec '95 Actual
TURNOVER	2208.57	3038.57	3627.00	2191.71	2014.71
GROSS MARGIN	416.34	632.96	651.00	418.04	383.63
CASH PROFIT	50.37	225.85	181.00	77.60	78.83
NET LOSS	-364.28	-204.27	-273.00	-266.74	-258.52

#### 6.0 Energy Conservation

6.1 There has been a continuous thrust on Energy conservation in VSP, which has helped in continuous reduction in the Specific Energy consumption over the years. Details are as under:

Year	Plan	Actual	%Improvement (G.Cal/TLS)
1993-94	8.82	8.32	-
1994-95	8.15	7.80	6.8
1995-96	7.78	7.60	2.6
1996-97 (Apr-Dec '96)	7.71	7.74	1.5*

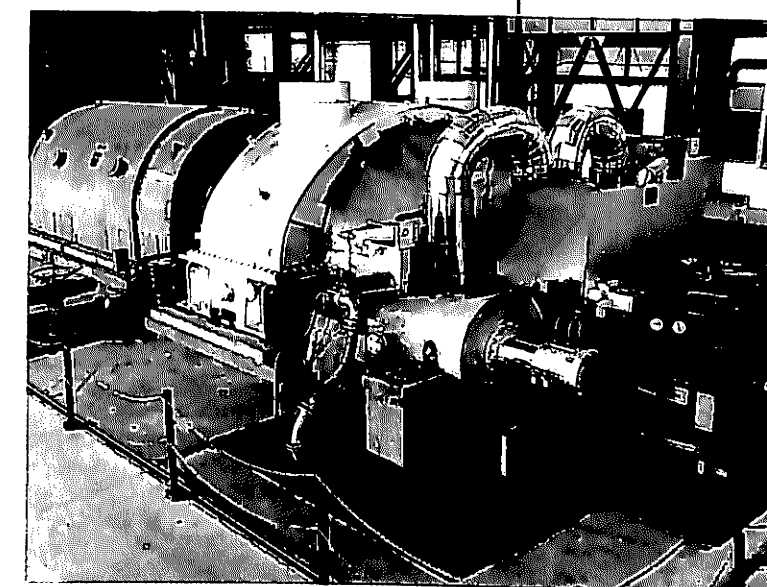
\*Compared to 1995-96 up to December.

#### 6.2 Action Plan for the Year 1996-97

Following action plan has been drawn for Energy Conservation during the year 1996-97:

i) Commissioning of Turbo Generator No.4 (67.5MW), which is a step towards self-suffi-

ii) Connection of 7 ATA Streamline from Coke Oven to Thermal Power Plant for optimising steam utilisation.



Turbo generator in Captive Power Plant of VSP

iii) Increasing the Blast Furnace Temperature in Blast Furnaces from 1011° to 1015° celcius.

#### 6.3 Expenditure on Energy Conservation

Expenditure on Energy Conservation has

been as follows:

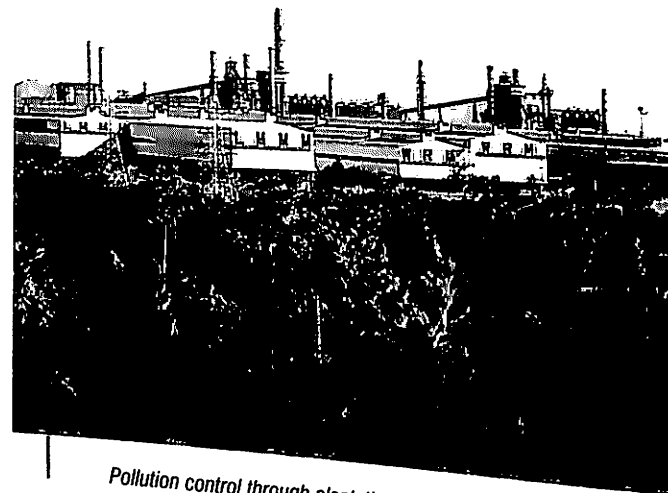
Year	Amount (Rs. crores) spent on EC measures	Percentage of total investment (Maintenance Budget)
1993-94	1.72	0.81
1994-95	1.99	0.80
1995-96	0.85	0.60
1996-97 (Apr-Sep '96)	0.72	0.36

## 7.0 Pollution Control & Environment Management

### 7.1 Pollution Control

VSP has taken elaborate measures to combat air and water pollution caused due to emissions, effluents etc. from the Integrated Steel Plant. The Cost of Pollution Control facilities is of the order of 8% of the total equipment cost.

Air and Water quality is being monitored as



Pollution control through plantation

per the stipulation of State and Central Pollution Control Boards and it is ensured that ambient Air Quality in and around VSP remains well within the stipulated standards. The stacks are being monitored as per the frequency laid down by State Pollution Control Board. All the emissions from the stacks are within the standards. Water effluents are being monitored daily. Effluent quality is generally within the standards.

### 7.2 Afforestation

To create a healthy environment for the inhabitants of Steel Township and the surrounding neighbourhood, VSP has assigned top priority to tree plantation. Conservation of environment has been one of the objectives of VSP and a comprehensive plan for afforesting 8,895 acres of land has been envisaged. Till end of November, 1996, 6,538 acres of land has been covered with plantation. Salient features of afforestation activities are:

- 39% of total land of VSP earmarked for afforestation
- Block plantation inside the plant and also within the township area
- Development of peripheral greenbelt on VSP boundary
- Hill afforestation, reclamation of eroded and saline areas
- Shelter belt plantation in coastal sandy area

Starting from 1986 till date, three million saplings have been planted.

Due to the massive afforestation work, VSP area has become a microclimatic zone by itself with

the temperature being much less than that in the Visakhapatnam Town.

### 7.3 Investment on Environment & Pollution Control

Following investment has been made by VSP on Environment and Pollution Control during 1995-96 and 1996-97 (Plan):

Particulars	1995-96 (Actual)	1996-97 (Plan)
Total Revenue Expenditure (Incl. Depreciation)	Rs. 3409 crs.	Rs. 3919 crs.
Total Revenue Expenditure on Pollution Control	Rs. 10 crs. (0.3%)	Rs. 12.2 crs. (0.3%)

### 8.0 Safety

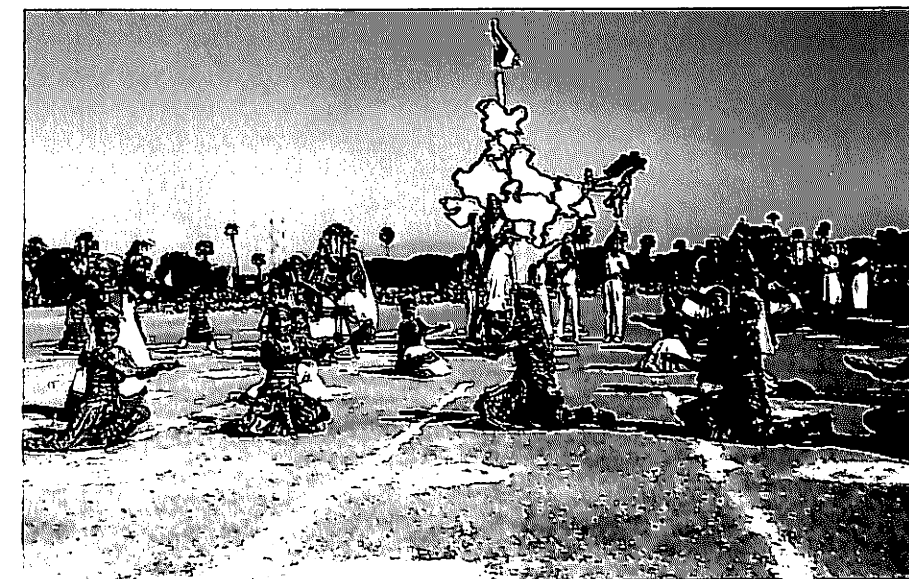
Safety has always been accorded high priority in VSP. The policy on "Occupational Safety & Health" has been formulated in 1990 itself, when commissioning of major units was commenced. A number of activities are being un-

dertaken continuously for wide propagation of Safety among the employees as well as contract workers. Intensive training is being imparted to inculcate safe working habits.

For safety of contractors' workmen, there is a system of imparting safety induction training before the commencement of any work. Height-passes are also issued to workmen, who are required to work at heights after giving them suitable training. Further, a comprehensive training programme on "Safety in Steel Plant for contractors' workers" is also being organised regularly.

### 9.0 Industrial Relations

During 1996-97 (till December, 1996), the Industrial Relations in VSP have been peaceful with a climate of good understanding. As a result, the mandays lost have been kept all time low in the recent past. An integrated approach in dealing with IR issues has been adopted to usher in a climate of cooperation and collaboration between the management and the unions, and amongst the major unions. To begin with,



A cultural evening at Vizag



a tri-partite settlement was signed introducing a Joint Consultative Machinery for consultation with 3 major unions. The Joint Consultative Machinery with participation of all the 3 major unions has helped to broaden the base of workers' participation. The machinery provides scope for joint consultation and developing consensus on vital issues in all major areas like production, productivity, quality, safety, corporate affairs and also other related issues.

While the participative forums, viz. Corporate Business Information Forum, Plant Level Standing Committee, Plant Level Production Committee, Shop Level Production Committee, Shop Level Safety Committee, Canteen Committee, Provident Fund Trust, etc. have been strengthened to discuss and amicably settle issues of collective nature, focus has also been given for speedy redressal of individual grievances through a comprehensive grievance redressal system with specific time

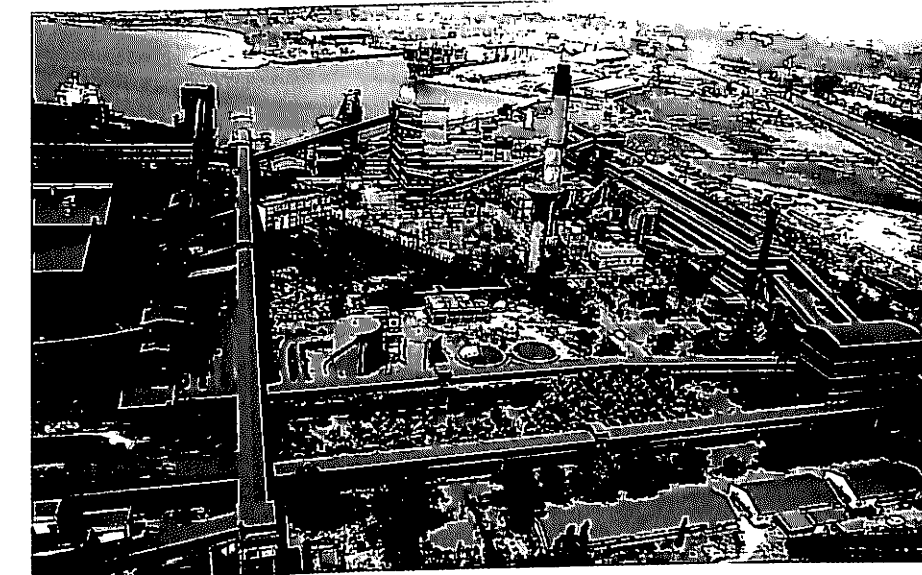
frames at each stage for reducing the total cycle time of redressal.

Productivity improvement measures like re-deployment of 200 workers in the unskilled category from the offices to production areas were implemented smoothly.

With a view to strengthen the social security net, two important schemes, viz. superannuation benefit scheme and family benefit scheme were introduced for the benefit of employees.

## 10.0 Perspective Views

In order to decrease the coke rate in Blast Furnaces and reduce consumption of imported coking coal, VSP is taking up Coal Dust Injection. VSP is also envisaging combined blowing to increase lining life of Converters and improve quality of steel.



An aerial view of the Pellet Plant at Mangalore

## 1.0 General

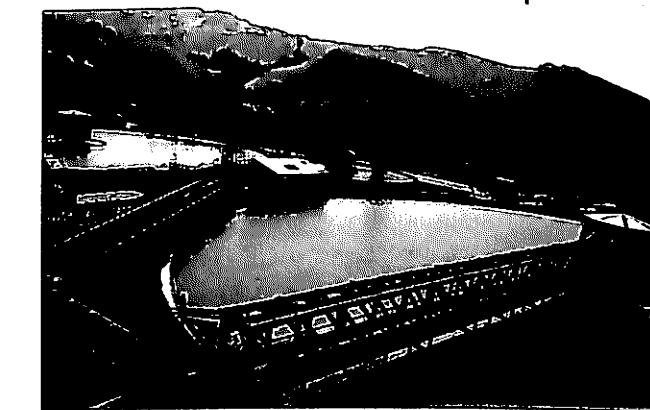
1.1 The Kudremukh Iron Ore Company Limited (KIOCL), a Government of India Undertaking and the country's largest 100% EOU, was established in April, 1976 to meet the long term requirements of Iran. An Iron Ore Concentrate Plant of 7.5 million tonnes capacity was set up at Kudremukh. This project was to be financed in full by Iran. However, as Iran stopped further loan disbursements after paying US \$255 million, the project was completed as per schedule with the funds provided by Government of India.

1.2 While the project was commissioned on schedule, consequent upon the political developments in Iran, they did not lift any quantity of concentrate. As a diversification measure, the Government approved the construction of a 3 million tonnes per year capacity Pellet Plant in Mangalore in May, 1981. The plant went into commercial production in 1987 and is now exporting both Blast Furnace and DR grade Pellets to many countries including Turkey, Australia, Indonesia, China, Taiwan,

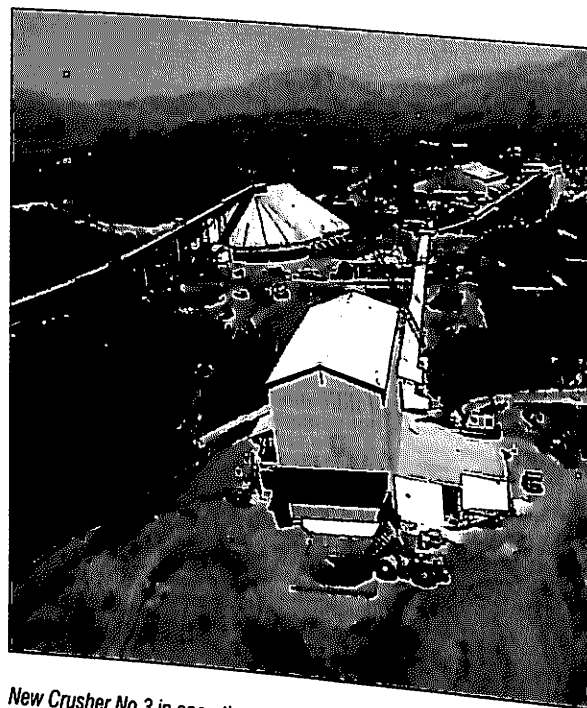
etc., and also to domestic Sponge Iron units such as M/s. Vikram Ispat, Essar Steel & Nippon Denro.

## 2.0 Production

2.1 A target of 6.3 million tonnes and 2.5 million tonnes has been set for production of Iron Ore Concentrate and Iron Ore Pellets respectively during the year 1996-97. As against a target of 3.550 million tonnes of Iron Ore



Concentrate Plant Thickener at the Kudremukh Project



*New Crusher No 3 in operation at the Kudremukh Project*

Concentrate fixed for the period April to October, 1996, the actual production was 3.315 million tonnes which represents 93% target fulfilment. Production of pellets during the period April to October, 1996 was targetted at 1.350 million tonnes and the actual production during this period was 1.23 million tonnes reflecting 91% target fulfilment.

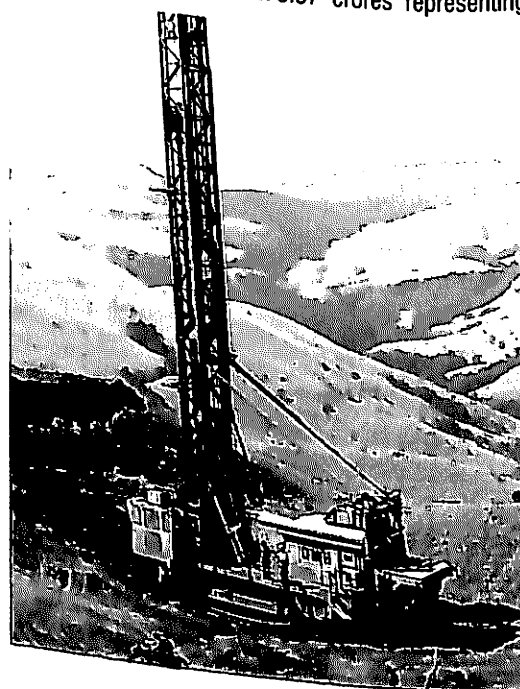
2.2 The shortfall in production of concentrate and pellets upto October, 1996 during the current year was due to power restrictions/peak load restrictions during evening hours imposed by the Karnataka Electricity Board and the shutdown of the Pellet Plant, which had to be advanced for technical reasons, from September 11th to October 7th 1996.

### 3.0 Exports

3.1 During the year 1995-96, total shipments were 6.230 million tonnes

comprising 3.650 million tonnes of concentrate and 2.580 million tonnes of pellets. For the year 1996-97, a target of 3.6 million tonnes of concentrate and 2.5 million tonnes of pellets has been fixed. As against a target of 2.016 million tonnes of concentrate and 1.350 million tonnes of pellets fixed for the period April, 1996 to October, 1996, actual shipments were 1.996 million tonnes of concentrate and 1.240 million tonnes of pellets representing 99% and 92% of the relevant targets respectively.

3.2 Total sales for the year 1995-96 were Rs. 478.48 crores. Projected sales for the year 1996-97 is Rs. 490.67 crores. As against a target of Rs. 265.87 crores fixed for the period April, 1996 to October, 1996, actual sales were Rs. 273.57 crores representing



103% of the target.

3.3 The export earnings during the last five years from 1991-92 and upto October, 1996 during 1996-97 are detailed below:

Year	(Rs. in lakhs)		
	Concentrate	Pellets	Total
1996-97 (Upto October 1996)	12656	14701	27357
1995-96	20676	27172	47848
1994-95	16729	20205	36934
1993-94	21022	20647	41669
1992-93	18551	12839	31390
1991-92	18882	20399	39281

### 4.0 Financial Performance

An overview of the financial performance of KIOCL during the year 1996-97 upto October, 1996 together with actuals for the previous three years, is indicated below:

Particulars	(Rs. in lakhs)			
	1996-97 (Upto October 1996)	1995-96	1994-95	1993-94
Total value of sales	27357	47848	36934	41669
Gross margin	7307	13759	8820	11161
Total profit on account of operations of the year	5109	10585	6656	9487
Inventories (excluding finished stock)	11813	11776	9940	9622

### 5.0 Manpower Position

As on 30th September, 1996, the total number of employees in KIOCL were as follows:

Group	Total No. of Employees including SC, ST as on 30th September, 1996	SC in position	ST in position
'A'	497	49	13
'B'	239	12	01
'C'	1525	187	45
'D'	172	51	25
'D' (Sweepers)	45	36	04
<b>Total</b>	<b>2478</b>	<b>335</b>	<b>88</b>

### 6.0 Workers' Participation in Management

The Works Committees in the plants of the Company are functioning effectively and joint



Plant and Shop Councils have contributed to the improved industrial relations as well as workers' participation.

## 7.0 Safety Measures

A Safety Department is functioning effectively. Pit Safety Committees with Workers' representatives meet regularly to discuss various Safety Measures. Safety rules have been compiled for each work area, covering all safety aspects. All employees have been provided with these booklets. As per the practice, "Safety Week" was observed during the year.

## 8.0 Progressive Use of Official Language

The Company follows the directives issued by the Government of India regarding progressive use of Hindi for official purposes. Hindi teaching programmes for the employees are a part of training programme of the Company. Cash awards and increments are given to those who perform well in these programmes. The Company's House magazine is published in English, Hindi and Kannada languages.

## 1. Background

1.1 Established in 1962, MANGANESE ORE (INDIA) LIMITED (MOIL) is the largest producer of Manganese Ore in India. At the time of inception, 49% shares were held by the Central Province Manganese Ore Co. Limited (CPMO) and the remaining 51% in equal proportion by Govt. of India and the State Govt. of Madhya Pradesh and Maharashtra, subsequently, in 1977, the shares held by CPMO in MOIL were acquired by Govt. of India and MOIL became wholly owned Government company with effect from October 1977. As on 31.3.1996, the Government of India held 81.57% shares in MOIL with State Governments of Maharashtra and Madhya Pradesh holding 9.62% and 8.81% shares respectively.

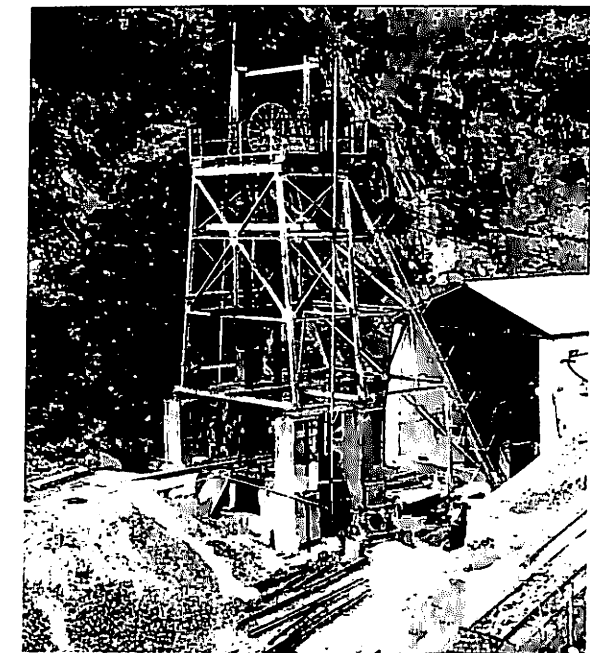
1.2 MOIL produces and sells different grades of Manganese Ore. These are —

- High Grade Ores for production of Ferro Manganese,
- Blast Furnace grade ore required for production of Hot metal and,
- Dioxide Ore for production of Dry Battery Cells.

1.3 MOIL has set up a plant based on indigenous technology to manufacture ELECTROLYTIC MANGANESE DIOXIDE. This product is also used for the manufacture of dry battery cells.

## 2. Finance

2.1 The Authorised capital of the company is Rs. 30.00 crores and paid-up capital was



Vertical Shaft – Beldongri Mine – MOIL

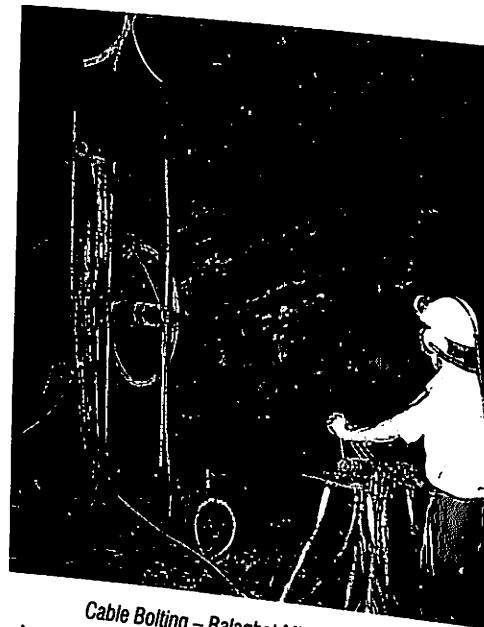
Rs. 15.33 crores as on 31.10.1996.

## 3. Performance

### 3.1 Operating and Financial Results

The Physical and Financial Performance of the company during 1995-96 and 1996-97 (Provisional up to October 1996) are given below:

	1995-96 (Actual)	1996-97 Up to 31.10.96 (Provisional)
1. Production (lakh tonnes)	6.60	3.63
2. Turnover (Rs. in crores)	103.72	61.50
3. Profit before tax (Rs. in crores)	19.72	17.68



Cable Bolting - Balaghat Mine - MOIL

### 3.2 Productivity

The productivity (output per manshift in tonnes) during 1996-97 till October 96, was 0.338, as against 0.295 in 1995-96.

### 3.3 Conservation of Energy

Consistent with the National Policy of conserving energy and also to contain the cost of

production, the company has embarked upon an economy drive in this sphere. Various steps, including energy audit have been taken to conserve energy and minimise power consumption.

### 3.4 Repayment of Government Loans

The Company repaid during 1996-97 to Govt. of India Rs. 18.04 lakhs (Rs. 56.22 lakhs in 1995-96) towards principal of plan loans and Rs. 10.97 lakhs (Rs. 46.25 lakhs in 1995-96) towards interest as per approved repayment schedule for 1996-97.

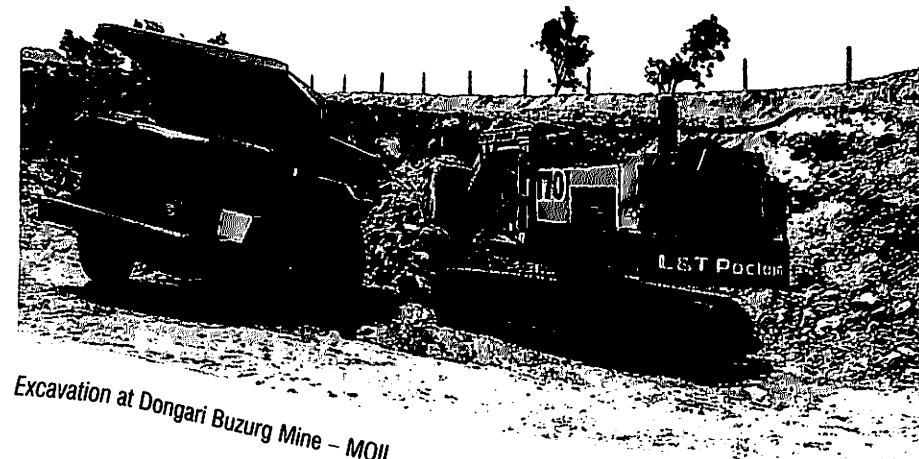
## 4. Progress of Capital

### 4.1 Schemes/Implementations of Projects

The work of phase II deepening of Holmes Shaft up to 93 meters at Balaghat Mine has been completed.

## 5. Research and Development and Technology Upgradation

5.1 MOIL has undertaken several Research and Development Schemes for technology



Excavation at Dongari Buzurg Mine - MOIL

upgradation and conservation and optimum utilisation of valuable mineral resources. These schemes detailed below were undertaken to cut down cost of production, improving productivity and safety.

1. Use of Cable Bolting and Steel Roof Support in underground mine.

2. Use of Sand Stowing in underground Mines in place of manual filling.

3. Use of long hole drilling and blasting for improving stope productivity.

4. Improvement in underground mining support methods including Geotechnical investigation and cavability studies.

5. Diamond drilling to locate new Manganese bearing areas and prove further reserves in the existing leasehold areas.

6. Beneficiation of medium and low grade ores as well as medium grade dioxide ore to battery grade.

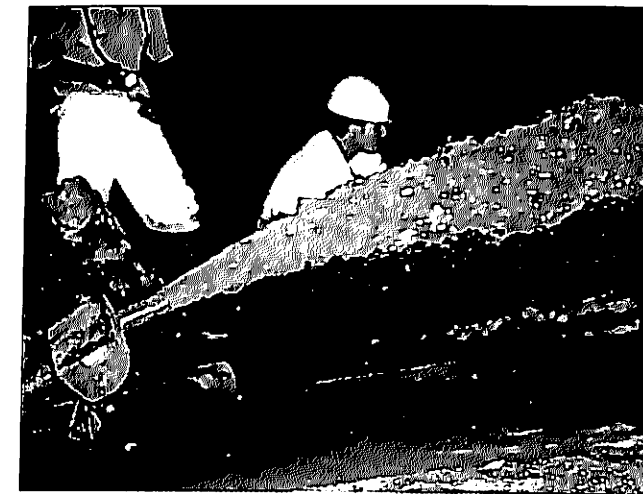
7. Introduction of Air Decking System in open cast heavy blasting.

8. Introduction of rock bolting in underground mines in conjunction with cable bolting to eliminate timber support altogether.

## 6. Diversification Plans

6.1 As a part of diversification programme, MOIL is planning/implementing the following projects/schemes to meet the future challenges.

1. The capacity of the existing EMD plant is



Sand Stowing in an underground mine - MOIL

being enhanced from 700 TPA to 800 TPA.

2. Setting up of another plant to manufacture Electrolytic Manganese Dioxide (EMD)-1200 TPA at a cost of Rs. 9 crores in the year 1997-98.

3. Preliminary work for setting up of a plant to manufacture Manganese Sulphate Salt at a cost of Rs. 50 lakhs has started.

4. Preliminary work to set up its own plant to manufacture 10,000 TPA Silico Manganese/Ferro Manganese at Balaghat mine using Balaghat fines at a cost of Rs. 90 lakhs.

5. Setting up of another high Intensity Magnetic Separation at a cost of Rs. 90 lakhs.

6. Setting up of a Mechanised Jigging Plant at Balaghat mine at a cost of Rs. 1.00 crore.

## 7. Cost Reduction Plans

7.1 The company has introduced several cost reduction measures some of which are as follows:

1. Improvement in productivity.

2. Proper manpower planning and introduction of Voluntary Retirement scheme (without replacement) to reduce surplus manpower.

3. Judicious mechanisation of various mining operations.

4. Avoidance of wasteful expenditure.

## 8. Safety Measures

8.1 With the continuous depletion of near surface ore deposits, mining is progressively being extended to deeper horizons and extraction is increasingly done through underground working. This requires extra attention to be paid to various aspects such as, support system, ventilation and efficient filling of the voids arising out of extraction of ore. Continuous emphasis is laid on training of employees and mine working & are regularly inspected by members of Pit Safety Committees, Workman Inspectors, Safety officer and G.M. (Safety). Safety weeks are observed and exhibitions are held to inculcate safety habits to ensure safe working. Safety Committee meetings are regularly held during which any unsafe act committed/observed is discussed to avoid recurrence.

8.2 The company has won two National Safety Awards viz,

i) The winners prize under the National Safety Award (Mines) scheme for the year 1994 instituted by Govt. of India for achieving the lowest injury frequency rate for its Kandri mine and,

ii) Runners prize for the lowest accident free period for its Balaghat mine. The Company has also put up good performance in Regional Safety Competitions and won 44 prizes including the best overall prize in underground and semi-mechanised opencast mines for the year 1995-96.

## 9. Workers' Participation in Management

9.1 The Company has set up a mechanism for the association of workers representatives from the grass root level to the Apex Council which functions at the Corporate level, with workers and Management representatives under the chairmanship of the Chairman- cum- Managing Director to review and find solution to major problems. There is continuing effort to strengthen this arrangement. In addition, works/ Canteen/Grievance committees are functioning satisfactorily at each unit. The members of these committees are from different sections of employees.

## 10. Environmental Protection

10.1 The Company is conscious of its responsibility towards protection of environment in its leasehold areas. During 1995-96, 69,000 saplings were planted at different mines with a survival rate of about 75%. The sericulture project at Gumgaon Mine has been further extended to make it commercially viable.

## 11. Progressive Use/Awards for Implementation of Hindi

11.1 In order to ensure progressive use of Hindi and implementation of Official Language Act, effective by steps have been taken by the Hindi Cell, functioning at the Corporate Office of the company.

11.2 To encourage the use of Hindi at all levels various competitions are organised during "Hindi Week" and the winners are suitably rewarded. Facilities for learning Hindi have been made available to employees who are not proficient in the language.

11.3 The Company has also bagged the Indira Gandhi Rajbhasha Award for 1994-95 (2nd

position) for "Kha Region". The award was presented by the Hon'ble President of India.

## 12. Social Commitment

12.1 MOIL had adopted a Tribal village viz. Gondi, close to Ukwa Mine in Madhya Pradesh. The Company has introduced a wide range of development activities such as repair of roads, construction of houses for homeless tribals, construction of school building to impart education to tribal children etc. as a part of their ongoing efforts to promote social welfare.

## 13. Personnel

13.1 The composition of the work force of the

Company as on 31st October, 1996, was as under:

Group	S.C.	S.T.	O.B.C.	Others	Total
A	17	4	17	184	222
B	16	5	21	140	182
C	309	373	448	631	1761
D	1134	1748	2197	1020	6099
<b>Total</b>	<b>1476</b>	<b>2130</b>	<b>2683</b>	<b>1975</b>	<b>8264</b>

Out of the total number of 8264 employees, 1333 are women.

## BHARAT REFRACTORIES LIMITED (BRL)

### 1.0 Background

1.1 Bharat Refractories Limited (BRL), was incorporated on 22nd July, 1974 and at present it has the following units:

(i) Bhandaridah Refractories Plant at Bhandaridah;

(ii) Ranchi Road Refractories Plant at Ramgarh; and

(iii) Bhilai Refractories Plant at Bhilai.

India Firebricks & Insulation Company Limited (IFICO) situated at Ramgarh was transferred as subsidiary of Bharat Refractories Limited w.e.f. 1st May, 1978. The Company and its subsidiary are engaged in the manufacture and supply of various kinds of refractories not only to the integrated Steel Plants but also to the mini steel plants.

### 2.0 Capital Structure

2.1 The authorised share capital of the Company is Rs. 55.00 crores against which the paid-up capital as on 31st March, 1996 was Rs. 51.80 crores. Share money pending allotment as on that date was Rs. 97.00 lakh.

### 3.0 Performance

3.1 The production performance of the different units of the Company as well as its subsidiary company IFICO Limited during 1995-96 and 1996-97 (up to September,

1996) was as follows:

	Quantity in tonnes Value Rs. in lakhs			
	1995-96		1996-97 (Up to Sept. '96)	
	Actual Qty	Value	Actual Qty	Value
Bhandaridah Ref. Plant (BhRP)	23334	2192.45	10531	1212.65
Ranchi Road Ref. Plant (RRRP)	6482	1863.70	3182	907.67
Bhilai Ref. Plant (BRP)	33936	4236.97	13533	2100.75
Total of BRL	63752	8293.12	27246	4221.07
India Firebricks & Insu. Company Limited (IFICO)	21585	1664.27	9440	1182.17
<b>Grand Total</b>	<b>85337</b>	<b>9957.39</b>	<b>36686</b>	<b>5403.24</b>

3.2 During 1995-96, profit before interest and depreciation in respect of BRL amounted to Rs. 349.87 lakh. After providing for interest and depreciation to the tune of Rs. 145.61 lakh and Rs. 351.22 lakh respectively, it incurred a net loss of Rs. 146.96 lakh. During the year 1996-97 (up to Sept '96), the Company had incurred a net loss of Rs. 409.97 lakhs (provisional).

3.3 During 1995-96, the subsidiary IFICO incurred a net loss of Rs. 524.69 lakh. For the year 1996-97 (up to September, 1996), the net loss was of Rs. 14.57 lakh (provisional).

### 4.0 Major Assignments

#### 4.1 Domestic

(i) The Company has emerged as a major supplier of Manganese Carbon Brick (MCB) to

SAIL Steel Plants;

(ii) On obtaining a throughput of 2,60,000 tonne hot metal in the Blast Furnace at Bokaro Steel Plant as on 1.6.1996 with the Castable imported from M/s Plibrico, France, the technology agreement for transfer of know-how from Plibrico, France has been signed on 20.6.1996. However due to resource crunch, Company could not make much headway in setting up facilities for production of refractories for Continuous Casting of Steel

### 4.2 Overseas

(i) Bharat Refractories Limited has been able to adapt successfully, the technical know-how acquired from KRC for various items of high performance refractories. Except for Spinel and Magnesia Spinel bricks, the technology of which could not be adapted due to constraints of firing facilities, commercial production of all other items, namely, Magnesia-Carbon bricks (MCB), Slide Gate Refractories, Gunning Repair Materials and Cast Mixes for Steel Ladle have already stabilised;

(ii) The Company has also started commercial production of Coke Oven Silica Bricks with know-how from Shinagawa Refractories Co. Limited, Japan.

### 5.0 Industrial Relations

5.1 Every effort has been made to keep cordial harmonious the industrial relations in the Company and its subsidiary.

### 6.0 Manpower

The manpower position of Bharat Refractories Limited and its subsidiary Company, IFICO

as on 31st March, 1996 was as follows:

Indicator	Total no of employees	No. of SC	No. of ST	No. of Ex-ser-vicemen	No of Physically handicapped	No of Women employees
BRL	2913	313	400	58	18	131
IFICO	922	46	109	17	8	40
<b>Total:</b>	<b>3835</b>	<b>359</b>	<b>509</b>	<b>75</b>	<b>26</b>	<b>171</b>

### 7.0 Official Language

7.1 The Company has been vigorously pursuing implementation of the Official Language Policy of the Government. To improve the use of Hindi a number of workshops, competitions, meetings and training programmes were conducted from time to time.

### 8.0 Safety Measures

8.1 Effective measures have been taken to ensure adequate safety in all the plants.

### 9.0 Conservation of Energy

9.1 Some of the important steps taken for conservation of energy are as under:

- (a) pre-heating of furnace oil for achieving better atomisation of oil in burners;
- (b) calibration of fuel pump and nozzle of engines at regular intervals;
- (c) adoption of appropriate setting pattern of green bricks;
- (d) usage of recommended lubricating oil for engines; and
- (e) switching off of unwanted load for re-

ducing electricity consumption

### 10.0 Environment Management & Pollution Control

10.1 All the units of the Company have obtained/applied for valid "Consent" from the concerned State Pollution Board. De-dusting units have been installed at the plants to control air pollution. BRL have appointed experts for analysis of pollution levels and suggestions made by them are being implemented. The norms prescribed by the State Pollution Board are being complied with.

### 11.0 Contract Labour

11.1 Contract labourers are engaged occasionally on nonperennial jobs. They are being paid statutory wages. In addition, they are provided other benefits like Provident Fund, Medical Facilities, Leave, etc.

### 12.0 Reference to BIFR

12.1 Saddled with sick companies from the very beginning, BRL has been incurring losses consistently. The net worth was eroded to an extent where it qualified for being a sick company under the Sick Industrial Companies (Special Provision) Act, 1985. Consequent to the amendment to the Sick Industrial Companies (Special Provision) Act, 1985 whereby Public Sector manufacturing companies were brought under its purview, a reference was made to BIFR in May, 1992 for BRL as well as IFICO. Industrial Development Bank of India (IDBI) was appointed as an operating agency for working out a revival plan. BRL on the lines of draft schemes reworked the reliefs and projections taking into account their performance during 1995-96. BIFR has sanctioned a revival package approved by the Government which comprises restructuring of capital base of BRL, involving conversion of loans to equity, waiver of interest and moratorium on payment of interest and loans for limited period along with merger of BRL with its subsidiary IFICO.

## 1. General

Incorporated on November 15, 1958, the National Mineral Development Corporation Limited (NMDC) is a wholly owned undertaking of the Government of India, engaged in the business of developing and exploiting mineral resources of the country (other than coal, oil, natural gas and atomic minerals). Presently, its activities are concentrated on mining of iron ore and diamonds. NMDC operates the largest mechanised iron ore mines in the country at Bailadila (Madhya Pradesh) and Donimalai (Karnataka). The Diamond Mine is situated at Panna (Madhya Pradesh).

## 2. Iron Ore

### 2.1 Production

In 1995-96, NMDC produced 14.30 million tonnes of iron ore. During 1996-97 (upto October '96), 7.37 million tonnes of iron ore has been produced.

### 2.2 Exports

Exports of iron ore produced by NMDC is canalised through the Minerals and Metals Trading Corporation (MMTC). Part of the iron ore is exported to Japan, South Korea and China. In 1995-96, NMDC exported 6.5 million tonnes of iron ore valued at Rs.404.84 crores approximately. Exports of iron ore in 1996-97 (upto December '96) were 50.56 lakh tonnes.

### 2.3 Domestic Sales

In 1995-96, NMDC's sales of iron ore to domestic units were around 7.92 million tonnes. In 1996-97 (upto October '96) sale of iron ore to domestic consumers was 4.36 million tonnes.

## 3. Diamonds

In 1995-96, 29463 carats of diamonds

were produced. In 1996-97 (upto October '96) the production was 17496 carats.

## 4. Finance

The authorised share capital of the company is Rs.150 crores. The paid up equity share capital as on 31.10.1996 was Rs.132.16 crores. Government of India loans outstanding are Nil.

## 5. Disinvestment of Shares of NMDC

The Government of India dis-invested shares of NMDC for the first time in the year 92-93. A total of 21.30 lakh shares representing 1.61% of the paid-up capital were dis-invested. The dis-investment fetched the Government an average price of Rs.83.52 per share and maximum price of Rs.100/- per share against the face value of Rs.10/- per share. No further disinvestment was made in 95-96 and 96-97.

## 6. Operating Results

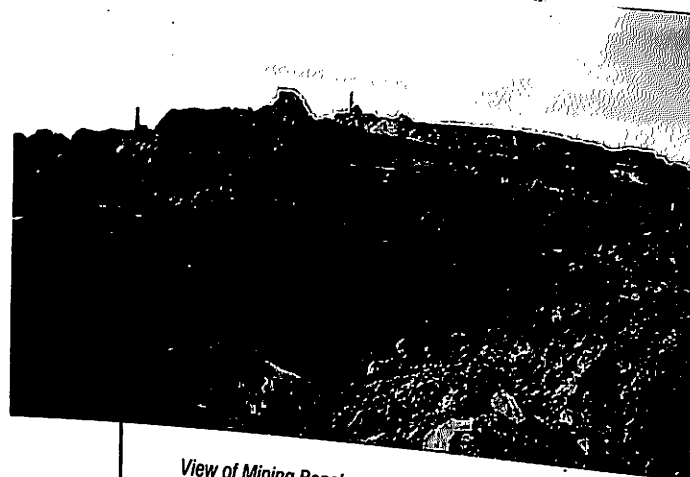
In 1995-96, the company recorded a profit of Rs.150.39 crores (before tax). In 1996-97 (upto October '96) the Company earned a profit of Rs.92.08 crores. The company declared a dividend of 20% totalling Rs.26.43 crores in 95-96. Rs.70 crores was transferred to general reserve in 1995-96.

## 7. Major Highlights of Performance of NMDC During 1996-97 (Apr-Dec. '96)

### 7.1 All Units of NMDC

#### Iron Ore

7.1.1 During the period April-Dec. '96, the Corporation as a whole has achieved 144.41 lakh



View of Mining Benches at Bailadila NMDC

tonnes of total excavation in the Iron Ore Mines as against 206.24 lakh tonnes of total excavation in 1995-96.

7.1.2 During the same period, production of 96.91 lakh tonnes of lump and fines was achieved which is about the same as the corresponding period last year.

7.1.3 Despatch of 105.50 lakh tonnes of lump and fines was made during this period which is an increase of about 1% over the despatches made last year in the corresponding period.

#### Diamonds

7.1.4 During the period April-Dec.'96 diamond production reached 22,641 carats from Maighawan Mines of Panna Project, which is about 1% more than the target of 22390 carats for this period.

7.1.5 The sale of diamond was Rs.1,394 lakhs during the period April-Dec.'96.

### 7.2 MOU Targets

MOU targets for Excavation, Production and Despatch of iron ore and Production of diamonds were exceeded. The Company achieved the overall Composite score of 1.58 and Excellent rating during the period April-Dec.'96.

### 7.3 Profits

The Corporation has achieved Rs.121.02 crores as Profit before tax for the period April-Dec.'96.

## 8. Workers' Participation in Management

The Scheme of workers' participation in management is working satisfactorily at all the three levels viz. Shop, Plant (Project) and Apex (Corporate) level.

The meetings of the Joint Councils take place regularly and follow up action taken.

## 9. Manpower Position

As on 31st October, 1996 the manpower position in different units of the company is as follows:

Group	Total No. of Regular Employees as on 31.10.96	No. of S/C Employees out of Col.2	No. of S/T Employees out of Col.2	No. of Women Employees out of Col.2
(1)	(2)	(3)	(4)	(5)
A	789	70	19	23
B	1196	104	67	60
C	2976	514	655	140
D	1843	425	446	234
<b>TOTAL</b>	<b>6804</b>	<b>1113</b>	<b>1187</b>	<b>457</b>

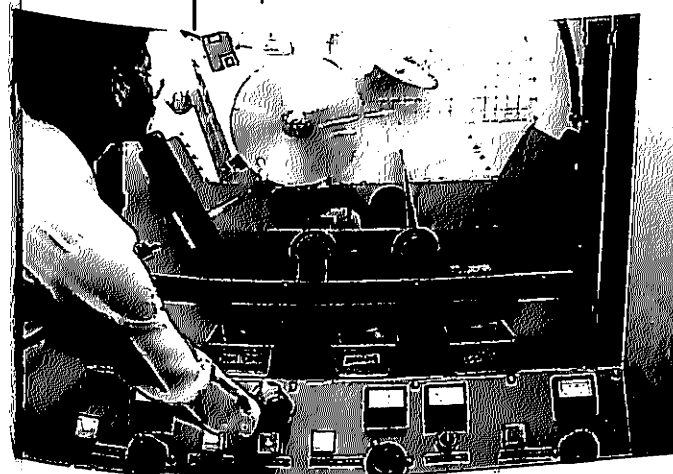
## 10. Memorandum of Understanding

NMDC has entered into a Memorandum of Understanding with Government of India for the year 1996-97 under which it has committed to produce 142 lakh tonnes of iron ore, 29000 carats of diamonds and to earn a net profit (before tax) of Rs.149.91 crores.

## 11. Research & Development

### I. Objective/Thrust on R&D

The R&D projects are taken up in line with the company's policies and programmes with a view to achieve optimum utilisation of mineral resources including management and utilisation of mine wastes and production of value added products.



High Tension Electrostatic Separator in our R&D Labs at Hyderabad.

### II. Highlights of R&D Activities

#### a. New Technology/Process

i. Development of a mineral Beneficiation process for production of High Grade Ferric Oxide from powdery type of Iron Ore known as Blue Dust, a demonstration plant is in operation, producing on an average 1000 tonnes of High Grade Ferric Oxide of different grades. These products are being supplied to various manufacturers of Ferrite components both in India and abroad for market development.

ii. Commercial Plant for production of Ultra Pure Ferric Oxide from Blue Dust

A commercial plant is being set up at Visakhapatnam with a rated capacity of 6000 TPY.

iii. Development of hydrometallurgical processes for production of pigment grade Ferric Oxide from Blue Dust and Iron Ore Slimes.

A pilot plant is being set up with partial funding by DSIR, Ministry of Science and Technology under their PATSER scheme. The ultimate aim is to commercialise the process.

iv. Development of Pyro-metallurgical processes for production of premium grade Sponge iron powder from Blue Dust concentrate for use in powder metallurgical industries.

A pilot plant is being set up at Hyderabad in association with Advanced Research Centre, DMRL with an objective to develop market for the product and generate engineering data required for a commercial set up.

#### b. Productivity Improvement

With the implementation of Slime Beneficiation Plant, based on R&D studies, in the Iron Ore production mines, there is an increase in saleable Iron Ore Production to the tune of 5 to 6%, leading to increased productivity. With the implementation of Permaroll magnetic separation technique, based on R&D studies, in the Diamond Processing plant at Diamond Mining Project, Panna, there is a substantial increase in the production and productivity.

i. Utilisation of Kimberlite waste for production of Masonary Bricks

Based on laboratory findings, it is proposed to take up large scale laboratory studies for production of Masonary Bricks from Kimberlite waste material in association with National Council for Cement and Building materials (NCBM) Hyderabad.

c. Development of New Products

i. High grade Ferric Oxide for use in the manufacture of hard and medium soft Ferrite components.

ii. Ultra Pure Ferric Oxide for use in the manufacture of soft Ferric components.

iii. Ferrite Powder Mix - A value added ready-to-use material for manufacture of Ferrite Components.

iv. Pigment Grade Ferric Oxide for use in Paint Industry.

v. Premium Grade Sponge Iron Powder for use by powder metallurgical industries.

d. Quality Improvement Programme

Being a member of the Bureau of Indian Standards, NMDC is participating regularly in updating the testing procedures pertaining to Ores and Minerals.

III. R&D Expenditure

Year	Turnover of the Company (Rs. Crores)	Expenditure on R&D (Rs. Crores)
1994-95	299.05	
1995-96	588.68	3.94
1996-97 (up Sept. 96)	317.27*	3.41
		2.82

\* Provisional Turnover Figure for 1996-97

No. of projects planned in 1996-97 - 2

i. Technology Development for production of Titania Slag and Pig Iron from Bhimunipatnam Beach Sand under Indo-Ukraine Joint Commission of Trade, Technical, Scientific, Technological, Industrial and Cultural cooperation.

ii. Technology Development for production of Pig Iron from Iron Ore Slime under Indo-Russian Federation working group on Ferrous and Non-Ferrous Metallurgy.

## 12. Pollution Control & Environment Management

### 12.1 Air Pollution Control

Regular ambient air quality monitoring studies are conducted at all the projects by reputed environmental consultants adopting the guidelines given by Ministry of Environment & Forests, Govt. of India. Standards prescribed by different State Pollution Control Boards, Central Pollution Control Board and MOEF are being followed.

The air monitoring data indicated that the SPM (suspended particulate matter) level in the work zone was within 500 mcg/cum, the upper limit for industrial and mixed use category. The respirable dust survey conducted by Indian Bureau of Mines, Nagpur, indicated the level to be within the standards of DGMS. The oxides of nitrogen and sulphur, lead and carbon monoxide were either below detectable limits or in negligible concentrations and well below the limits set by CPCB (Central Pollution Control Board), New Delhi.

The residential zones also recorded all the above parameters to be well within their respective limits as per "the Rural and residential" category of land use as per CPCB.

## 12.2 Water Pollution Control

Monitoring for water includes both quality and quantity. Quality parameters were measured as per norms under GSR 422E/IS2296/IS10500. Water flow measurements were done as per IS 1192. Monitoring was done in all the 4 seasons viz., Summer'95, Monsoon'95, Postmonsoon'95 and Winter'95.

To control the flow of the suspended solids from the screening plants of respective mines or run-offs, well designed tailing dams have been constructed and are being maintained. A number of check dams have been constructed to arrest the fines and reduce the velocity of flow even before reaching the tailing dam. At the upstream of the tailing dam, conditions are created for discrete and quiescent settling of solids. The quality of water discharged from the tailing dams, which act as the pollution control structure, is observed to meet the standards prescribed in GSR 422E. For domestic waste water treatment, suitable oxidation ponds function effectively so that the discharge from the Oxidation pond is also within the limits of GSR 422E and IS 4764.

Additional control measures for environmental production & pollution were taken during the year 1995-96.

Drinking water quality in all the projects and for the supply to the neighbouring villages is maintained within the limits of IS 10500-1991.

All other toxic and carcinogenic parameters like phenols, cyanides, hexavalent chromium, etc. are observed to be either negligible or below their detection levels.

## 12.3 Solid Waste Management

The tailing dam is itself a pollution control facility where iron ore slime settles by physical means and clear water discharges down-

stream. Hence, the recycling of tailings (solid waste) has not arisen at present. However, reclamation of tailings/afforestation of the area will be done after the life of the dam is over.

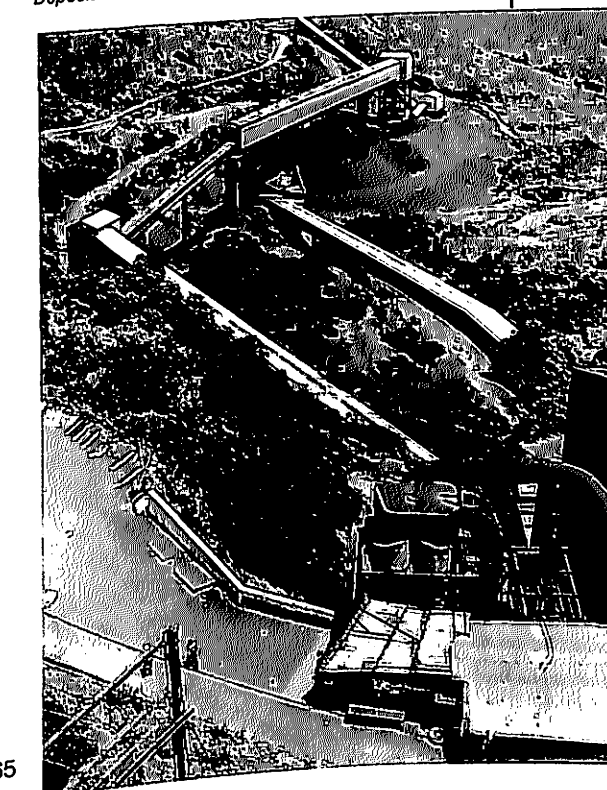
The waste material consisting of ferruginous shale, ochrous material and BHQ excavated along with iron ore are dumped separately at specified places away from nalla courses, thick vegetation and on flatter grounds or closed valleys.

Waste dumps presently active would be reclaimed after they reach their peak accommodating capacities.

## 12.4 Afforestation

Systematic afforestation programme is being undertaken and the developments are being monitored regularly. About 16 lakhs of saplings have been planted since 1981 and the survival rate is found to be encouraging (+90%). In 1995-96, about 1.57 lakhs saplings have been planted

(Below): View of Crushing Plant and Primary Stockpile at Bailadila Iron Ore Project, Deposit No 5, surrounded by lush greenery





with more than 20 species (including fruit bearing and flowering variety) selected considering the local conditions and its adaptability, biodiversity, fast growing nature, etc. As a part of awareness programme, fruit bearing saplings were purchased and distributed in the township of Bailadila Deposit 5, propagating the motto of growing "One man-One tree".

The target for planting of trees during 1996-97 is as under:

Bailadila Deposit 14/11C	48,379
Bailadila Deposit 5	1,360
Donimalai	40,000
Panna	10,500
Chawandia	1,850
<b>Total</b>	<b>1,05,239</b>

#### Investment in Environment Management/Improvement and Pollution Control

Details of expenditure incurred during the year 1995-96 and April, 96 to September, 96 for project wise are given below:

(i) Expenditure incurred during 1995-96

	(Amount in Lakhs)
Bailadila - Deposit-14/11C	Rs.137.39
Bailadila - Deposit-5	Rs.178.71
Donimalai iron ore mine	Rs.227.00
Chawandia Limestone project	Rs. 1.16
Panna Diamond mining project	Rs. 18.56

(ii) Expenditure incurred during April '96 to September '96

Bailadila - Deposit-14/11C	Rs.118.85
Bailadila - Deposit-5	Rs.104.13
Donimalai iron ore mine	Rs.103.00
Chawandia Limestone project	Rs. 0.14

#### Awards

During Mine Environment & Mineral Conservation Week (MEMC) celebration, 1996-97 conducted by Indian Bureau of Mines (IBM), Ministry of Mines, NMDC's projects has bagged the following prizes in their respective IBM zones.

##### Bailadila - 14/11C : IBM - Nagpur zone

Overall Performance	1st prize
Management of subgrade Minerals	1st prize
Publicity & propoganda	1st prize
Air quality management	2nd prize
Afforestation	3rd prize
Noise, vibration studies & aesthatic beauty	3rd prize

##### Bailadila - 5 : IBM - Nagpur zone

Water quality management	2nd prize
Waste dump management	Special prize

##### Donimalai iron ore project: IBM Bangalore zone

Best Environmentally Managed open cast mechanised mine in India (Gem Granite award) Instituted by FIMI.

Overall performance in highly mechanised category	1st prize
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Top soil management	1st prize
Waste dump management	1st prize
Dust suppression management	1st prize
Management of subgrade minerals	2nd prize
Installation and use of Mechanical beneficiation plant	2nd prize
Publicity and propaganda	2nd prize
Afforestation	2nd prize

#### Panna Project : IBM Jabalpur zone

Management of sub-grade minerals	2nd prize
Air quality management	3rd prize
Water quality management	3rd prize
Afforestation	3rd prize
Overall performance	Consolation prize

#### 13. Mandovi Pellets Limited

Mandovi Pellets Limited (MPL), Goa is a joint venture company floated by Government of India through National Mineral Development Corporation Ltd. and M/s. Chowgule & Co. Pvt. Ltd. (CCPL), a Private Sector Company. The company has its pellet plant at Goa with an annual capacity of 1.8 million tonnes.

During the year 1996-97 (upto October, '96) the company produced 3.53 lakh tonnes of pellets and despatched 3.43 lakh tonnes of pellets.

The company's income for the year 1996-97 (upto Sept '96) is Rs.3111 lakhs which includes miscellaneous receipts of Rs.52 lakhs. After adjusting the operating expenditure of Rs.3543 lakhs and depreciation of Rs.200 lakhs the loss for the year 1996-97 (upto September'96) is Rs.632 lakhs.

#### 14. J&K Mineral Development Corporation Limited

J&K Mineral Development Corporation Limited (J&KMDC), a subsidiary company of NMDC was incorporated on 19.5.1989 for development of various minerals in the state of Jammu & Kashmir. NMDC holds 74% of equity in J&KMDC, the remaining 26% is owned by J&K Minerals Limited, a State Government Public Sector Undertaking. The equity subscribed till 31.10.96 by NMDC is Rs.396 Lakhs and J&KML

is Rs.78 Lakhs. Upto October '96 Rs.5.05 crores have been spent on the Project. The entire expenditure at present is being met by NMDC. This is appropriated as NMDC's share of equity in the Company. The Dead Burnt Magnesite (DBM) plant of 30,000 tonnes per annum capacity is the first Project being undertaken by J&KMDC. The Project was sanctioned at a cost of Rs.60.02 crores by Government of India during November 1992. However as the viability of the Project, was affected due to reduction in customs duty on DBM in 1993-94 and fall in international price of DBM, the Ministry directed during April 1993 to withhold further activities of the Project until the economic viability of the Project is established. The project is kept on hold since then and is essentially on care and maintenance. The Board of Directors have recommended for closure of the project and winding up of the company. Meanwhile steps have been taken to reduce the expenditure. NMDC is also exploring the possibility of revival of the project jointly with some private entrepreneurs. The response is not very encouraging.



## MSTC LIMITED

## Introduction

MSTC Limited was incorporated under the Companies Act, 1956 on 9th September, 1964 and was the Canalising Agent for import of carbon steel melting scrap and also sponge iron/hot briquetted iron and rerollable scrap, till February, 1992. It was also the canalising agency for old ships for breaking, import of which was decanalised and put under OGL with effect from August, 1991. The Company undertakes disposal of ferrous and miscellaneous scrap arising from integrated steel plants under SAIL/RINL and disposal of scrap, surplus stores, etc. from other Public Sector Undertakings and Govt. Departments.

## Activities

The Company has two operational divisions that is, Foreign Trade and Domestic Trade.

## i) Domestic Trade

The Company undertakes disposal of ferrous/non-ferrous scrap and other secondary arising from integrated steel plants under SAIL, RINL, etc. and disposal of scrap and surplus stores from other PSUs and Govt. deptts., including Ministry of Defence.

## ii) Foreign Trade

MSTC is internationally known as one of the biggest importers of steel melting scrap in the country for use by secondary steel industry. After decanalisation, this division arranges import of scrap as per needs of actual users. It is also widening its basket of import to finished iron and steel items like HR coils, billets, pig iron Metallurgical Coke and other inputs and other steel-related items of import for secondary steel industry.

## iii) Management Services

The Company has a Management Services Division which provides regular feedback on market intelligence to the two operational divisions and is entrusted with the task of corporate planning and implementation of joint venture projects identified for the purpose of diversification.

## Organisation Structure

The Chief Executive Officer of the Company is Chairman-cum-Managing Director, who is assisted by one Executive Director, one Chief General Manager, four General Managers who are in-charge of various functions. The Corporation has set up Regional Offices at Calcutta, New Delhi, Bangalore and Mumbai which are headed by Regional Managers who are directly reporting to the Executive Director. Besides, the Company has branch offices at Chennai, Vizag and it has also offices at Bhopal, Rourkela and Baroda.

## Foreign Trade Performance

Import performance was moving more or less smoothly upto Sept. '96 in accordance with the plans. Most of the materials till then could be sold on high sea sale basis. The situation has thereafter changed drastically due to the following developments:

i) International market prices of ferrous scrap strengthened in the first quarter of 1996-97. However, in the second quarter, there has been a sharp decline both in the FOB price levels and in the freight market. As a result, price has come down from a peak of US\$185 per tonne during the year to US\$150 per tonne.

ii) Simultaneously, steel industry within the country witnessed depression and manufacturers were also offering large rebates, credit and other incentives for disposal of the stocks.

It is likely that market will remain depressed in the coming few months. MSTC's cumulative import till Oct. '96 was to the tune of 127,800 tonnes valued at Rs. 81.42 crores. In view of the depressed market conditions, MSTC has not gone in for further booking of import for a while. Indiscriminate import during recent past has, however, taken place and traders who are importing materials are selling the same at considerably reduced prices.

## Domestic Trade Performance

The domestic scrap activity has assumed a vital role in recent years in the context of liberalised economic scenario in the country. In the domestic sector, MSTC mainly handles scrap disposal of (a) steel plants under SAIL/RINL; (b) Public Sector Undertakings and Govt. deptts. including defence.

Disposal of scrap in 1995-96 was of Rs. 400 crores as against Rs. 288 crores in 1994-95. During the current year (April-Oct, 1996) the disposal was Rs. 237 crores.

## Project Scheme/ Diversification Plans

MSTC is diversifying its activities in the field of iron and steel related items. Two joint venture projects are at different stages of consideration. MSTC will mobilise funds for these projects from internal resources without any budgetary support from the Ministry.

## MOU with Government

During the year 1994-95, the Company has been awarded EXCELLENT rating. MSTC has signed an MOU in 1996-97 with Ministry of Steel.

## Physical and Financial Performance

The physical and financial performance for the year 1994-95, 1995-96 and 1996-97 are given below:

	1994-95	1995-96	1996-97 (upto Oct. '96 provisional)
<b>I. Financial Results. (Rs. in crores)</b>			
(a) Turnover	188.50	151.41	95.12
(b) Operating Profit	13.54	6.63	3.24
(before interest, depreciation and other provision)			
(c) Interest and depreciation	3.69	2.35	1.79
(d) Profit before tax	8.52	3.13	1.72
<b>II Physical Performance</b>			
(a) Foreign Trade	278	169	128
Carbon Steel Melting Scrap ('000 MT)			
Value (Rs. in Crores)	167	122	81
(b) Domestic Trade	288	400	237
(Rs. in Crores)			

Dispatches of ferrous scrap arising from Steel Plants and sale of ferrous/non-ferrous scrap, surplus stores, MISC, items from other PSUs/ Govt. Deptt.

### Employment Statistics

The employment statistics of the company including SC/ST/OBC/Physically Handicapped as on 30th September, 1996 are given below:

(a) General	Executive	Non-executive	Total
i) Head Office: Calcutta	57	95	152
ii) Regional Office: a) Calcutta (ER)	7	20	27
b) New Delhi (NR)	13	13	26
c) Mumbai (WR)	11	15	26
d) Bangalore (SR)	8	11	19
iii) Branch Office a) Chennai	8	8	16
b) Vizag	7	4	11
c) Rourkela	0	2	2
d) Bhavnagar/Baroda	0	1	1
e) Bhopal	1	0	1
	113	168	281

Scheduled Castes/Tribes, Ex-Servicemen and Physically Handicapped persons/OBC

Group	Total	SC	ST	Physically Handicapped	Ex-Servicemen	OBC
A	113	11	3	0	0*	5
B	53	10	3	2	3	—
C	89	22	3	2	—	1
D	26	11	1	0	0	—
	281	54	10	4	3	6

\* excluding OSD (Col. S.K. Bhattacharya)

#### MALE/FEMALE

	Executives	Non-executives	Total
Male	100	142	242
Female	13	26	39
	113	168	281

### Introduction

Ferro Scrap Nigam Limited (FSNL) is a joint sector company under the Ministry of Steel with a paid up capital of Rs. 200 lakhs in which the MSTC Ltd holds 60 % of the equity shares and the remaining 40% are held by M/s Harsco Inc., of USA. The Company is thus a subsidiary of MSTC Ltd.

### Activities and Objectives

The Company undertakes the recovery and processing of scrap from slag and refuse dumps in the six steel plants at Bhilai, Bokaro, Burnpur, Durgapur, Rourkela and Visakhapatnam

The scrap recovered is returned to the steel plants for recycling/disposal and the company is paid processing charges on the quantity recovered at varying rates depending on the category of scrap. Scrap is generated both in the Iron & Steel sections and also the Rolling Mills.

### Organisation Structure

The Chief Executive Officer of the Company is the Managing Director who functions under the guidance of a part time Chairman and a Board of Directors. The Managing Director is assisted by three General Managers and 10 Deputy General Managers who are incharge of activities at the main steel plants and of Personnel and other functions

at Corporate Office.

The Corporate Office is situated at Bhilai and the Corporation has six field units in the steel plants at Bhilai, Bokaro, Burnpur, Durgapur, Rourkela and Visakhapatnam.

### Physical and Financial Performance

#### Physical Performance

The production performance of FSNL for the last two years and the projected performance for the year 1996-97 upto 31/10/96 is given below:

ITEM	1994-95	1995-96	1996-97 (31/10/96) (Prov)
Recovery of scrap (Lakh Metric Tonnes)	11.88	12.47	7.06
Market Value of Production (Rs. in Crores)	522.7	548.68	310.64

#### Financial Performance

ITEM	1994-95	1995-96	1996-97 (31/10/96) (Prov)
1. Total turnover i.e Service charges realised including misc. income etc.	6225.00	6388.87	3504.60
2. Gross margin before interests and depreciation	1756.85	2070.45	1139.31
3. Interest and depreciation	670.54	578.00	610.37
4. Profit before tax	1086.31	1492.45	528.94

**Sales Realisation**

Sales realisation per metric tonne for the last two years and estimated sales realisation per metric tonne for the year 1996-97 upto 31/10/96 are indicated below:

1994-95	1995-96	1996-97 (31/10/96) (Prov.)
498.00	480.87	496.40

The Employment statistics of the Company, including SC/ST as on 31/10/96, are given below:

**A. General:**

	EXECUTIVES	NON-EXECUTIVES	TOTAL
ROURKELA UNIT	22	211	233
BHILAI UNIT	22	307	329
BURNPUR UNIT	16	131	147
BOKARO UNIT	22	203	225
VIZAG UNIT	20	219	239
DURGAPUR UNIT	15	125	140
CORPORATE OFFICE	35	42	77
<b>TOTAL</b>	<b>152</b>	<b>1238</b>	<b>1390</b>

**B. Scheduled Castes/Tribes, Ex-servicemen and Physically Handicapped Persons:**

GROUP	NO. OF EMPLOYEES	SCs	STs	EX-SERVICEMEN	PHYSICALLY HANDICAPPED
A	152	11	4	3	nil
B	247	6	nil	nil	nil
C	987	193	148	58	3
D	4	4	nil	nil	nil
<b>Total</b>	<b>1390</b>	<b>214</b>	<b>152</b>	<b>61</b>	<b>3</b>

**Future Programmes**

The integrated steel plants of SAIL are gradually changing their operations from conventional open hearth route to the BOF-concast route. This will result in decrease in scrap arising without affecting the demand for high quality scrap

In order to meet the requirements of the SAIL plants, FSNL has already taken up Production Augmentation Programme (PAP) with the intention of maximum recovery of scrap arising from the steel plants with enhanced quality. Further, a plan for import of state-of-art technology for increased production and value addition is under consideration with the help of FSNL's foreign collaboration.

The following plans are also being considered for future:

(a) To segregate and process slag and other technological wastes for alternative uses such as soil reconditioner, rail road ballast, concrete aggregates, furnace burden as substitute for limestone at blast furnaces, etc.

(b) To set up centralised workshop for revamping of heavy earthmoving equipments/machineries.

(c) To set up centralised workshop for coil winding and repair of heavy duty lifting magnets.

(d) To set up hydraulic balling press for processing sheet trimmings, turnings and borings.

**METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LTD (MECON)****1.0 Background**

1.1 Metallurgical & Engineering Consultants (India) Limited (MECON), now an ISO 9001 company was set up for providing consultancy, detailed engineering and technical services to the Iron and Steel Industry. It has since been closely associated with various facets of fast changing Iron & Steel industry. It has contributed significantly to the development and expansion of Iron and Steel and other metallurgical industries, and is today one of the largest organisations of its kind in the world.

1.2 While continuing to be among the leaders in the Iron & steel Sector, MECON has successfully diversified into other core areas such as power, environmental engineering, ocean engineering, roads & highways, petrochemicals, gas pipelines, information technology and defence projects.

1.3 MECON has designed and supplied several sophisticated Hot and Cold Rolling Mills including auxiliaries to the Clients in public and private sectors, such as Bokaro Steel Limited, Salem Steel Limited, Mishra Dhatu Nigam, Rourkela Steel Plant, Nagarjuna Steels, Pennar Steels and Hero Cycles Limited. MECON has successfully commissioned the quick work roll changing device for the finishing stands of Hot Strip Mill for Bokaro Steel Plant. For Visakhapatnam Steel Project, it has designed and supplied 710,000 t/yr Light and Medium Merchant Mill. For the high speed Wire Rod Mill, MECON has engineered and supplied indigenous equipment and has undertaken total erection and commissioning. It has also carried out various modernisation and revamping projects on turnkey basis for the integrated steel plants at Durgapur, Bhilai, Alloy Steel Plant and Rourkela Steel Plant.

1.4 MECON has developed its own design for coke oven batteries and is one amongst the few in the world to possess technical know-

how in this area. Today, coke oven batteries designed by MECON are operating at Durgapur and Rourkela Steel Plants. In collaboration with M/s GIPROKOKS MECON has executed the first 7 metres tall coke oven battery in the country, at Bhilai in 1988. For Visakhapatnam Steel Plant, MECON has successfully executed design, erection, heating up and commissioning including guarantee test of their three 7 Metre Tall Coke Oven Batteries and Coke Dry Cooling Plants.

1.5 In the field of Coal and Chemicals, MECON has designed and supplied 30,000 t/yr Benzol Plant based on state-of-art hydro refining process to Visakhapatnam Steel Plant, executed, Acid re-generation plant on a turn-key basis, for the Bokaro Steel Plant and executed, on turn-key basis, converter Gas Cleaning Plant for Convertors 1,2 & 3 for Visakhapatnam Steel Plant.

1.6 In the area of Continuous Casting, MECON in association with M/s MDH of Germany is presently executing CCP-II on turn-key basis under Modernisation of Rourkela Steel Plant scheme.

1.7 In the area of Blast Furnace, MECON has undertaken modernisation, technological up-gradation services for Bhilai, Durgapur, Rourkela, Bokaro and IISCO steel Plants.

**2.0 Capital Structure**

2.1 As on 31.10.96 the authorised capital of the company was Rs 4.00 crores. The issued, subscribed and fully paid-up equity share capital was Rs 2.02 crores.

**3.0 Performance**

3.1 The turnover of MECON during 1995-96 was Rs. 272.43 crores. During the current year, it has been Rs 98.00 crores up to 31.10.96 as compared to Rs 206.67 crores in 1994-95.

The profit before tax was Rs 11.73 crores in 1995-96 against Rs 10.39 crores in 1994-95. Upto October 1996, the provisional profit before tax stood at Rs 2.80 crores. For the 17th consecutive year MECON has paid dividend @ 40% of its paid-up capital.

3.2 MECON has bagged two assignments in the field of energy Conservation Audit. Heavy Engineering Corporation Ranchi has engaged MECON to carry out the Energy Audit of its Foundry Forge Plant and Industrial Bank of India has commissioned MECON to carry out Energy Conservation Audit Study for four Mini Steel Plants in the country. The assignment is being carried out in association with the Research Management Association (RMA) of U.S.A. under the World Bank Funding Scheme. Efforts are on to obtain more assignments in this area.

## 4.0 Major Assignments

### 4.1 Domestic

#### 4.1.1 Assignments Secured

(i) Detailed Engineering & Consultancy services for Development of 10 & 11A Deposits at Bailadilla for NMDC;

(ii) Detailed Engineering and Consultancy Services and Site supervision of SJK Steel Corporation's Midi Steel Plant of 3,00,000 t/yr at Tadipatri;

(iii) Detailed Engineering and Consultancy Services for setting up a 0.50 M/yr Shaft Pelletisation Plant of KIOCL at Mangalore with Basic engineering from M/s Maumee research and Engineering Inc., USA;

(iv) Detailed Engineering Services for Installation of Turbo Blower No.12 in Power & Blowing Station, Bhilai Steel Plant;

(v) Detailed Engineering for Installation of

Sinter Plant No. 3, Bhilai Steel Plant;

(vi) Supervision of Heating-up of Coke Oven Battery No. 10, Bhilai Steel Plant - Installation of A.P. Water Sealed caps at Battery No. 3A/3B at Rourkela Steel Plant;

(vii) Detailed Engineering and Consultancy Services including preparation of Techno Economic Feasibility Report for Coal Washery cum Coke Oven Complex of M/s Nagpur Engineering Company;

(viii) The Contract Agreement between MECON and Reserve Bank of India for the Consultancy and Engineering Services for the New Currency Note Press at Mysore and at Salboni has now been extended with enhanced scope of work, time schedule and fees;

(ix) Certification services for ONGC's HX-HY Platform Project and 3 Pipeline Projects at the South Heera and Neelam field;

(x) Design, Supply and Supervision of Erection and Commissioning of Descaling System for Hot strip Mill at JINDAL, Vijayanagar;

(xi) Erection of Equipment and Engineering Services for Aluminium Hot & Cold Rolling Mills for HINDALCO;

(xii) Design, Supply and Supervision of Erection & Commissioning of a Cold Shear for Stainless Steel at SALEM;

(xiii) Supply and Installation of RCMEC Software for a 12 High Cold Mill at Midhani and 4 High Cold Mill at Lloyd's Steel;

(xiv) Consultancy Services for ISO-9000 Model Quality System Implementation, carrying out organisational studies for business process re-engineering & total computerisation of various business function for Industrial Development Corporation, Bhubaneswar;

(xv) Engineering Services for installation of Roll Press for KIOCL to improve the quality of pellets;

(xvi) Consultancy Services for Installation of Electrical Systems at Brahmapuram Oil Depot, Cochin, Kerala for Indian Oil Corporation Limited;

(xvii) Modernisation work of Bokaro Steel Limited;

(xviii) Continuous Casting Project-II of Rourkela Steel Plant Modernisation;

(xix) Consultancy and Project Management Services of Durgapur Steel Plant Modernisation;

(xx) Detailed Engineering and Consultancy services for setting up a Steel Plant for MID-EAST INTEGRATED STEEL PROJECT at DAITARI;

(xxi) Consultancy Services for Modernisation of Indira Gandhi MINT Projects at Bombay, Calcutta and Hyderabad;

(xxii) 7M tall Coke Oven Battery No. 10 Complex at Bhilai Steel Plant;

(xxiii) Detailed Engineering & Consultancy Services for Integrated Iron & Steel Complex of Jindal Vijaynager Steel Limited;

(xxiv) Consultancy & Detailed Engineering for Oxygen Plant II, Bhilai Steel Plant;

(xxv) Feasibility report for ERW pipes & tubes plant for Essar Gujarat;

(xxvi) Engineering and Site Services for natural gas pipeline project of Gas Authority of India Limited in Rajasthan;

(xxvii) Engineering Services for Panipat Refinery Project of M/s Engineers (India) Limited;

(xxviii) Detailed Engineering Services for Copper Project of M/s Indo Gulf Fertilizer & Chemical Corporation Limited;

(xxix) Turnkey assignments on Sulphur Dioxide Scrubbing System for Lead Smelter, M/s Hindustan Zinc Limited;

(xxx) Detailed Engineering & Consultancy Services for 2 x 210 MW Thermal Power Station, M/s Neyveli Lignite Corporation.

#### 4.1.2 Assignments Completed

(i) Commissioning of 1.6 million tonnes Capacity Hot Strip Mill and EAF/CCP facilities at Hazira for ESSAR;

(ii) Commissioning of New Sinter Plant, Lime Kiln No. 3 and Ore Processing Plant of Durgapur Steel Plant Modernisation Works;

(iii) Commissioning of Coke Oven batteries 2A/2B at Rourkela Steel Plant in May, 1995 and successful completion in November, 1995;

(iv) SO<sub>2</sub> Scrubbing System developed in-house has been successfully implemented in Tundoo Unit of Hindustan Zinc Limited;

(v) Final acceptance of Hydro-Refining and Extractive Distillation unit of Benzol Plant at Vishakhapatnam Steel Plant;

(v) Final acceptance of 150 TPD, DCDA Sulphuric Acid Plant at Bokaro Steel Plant;

(vii) Detailed Engineering and Project Management Services for Establishment of Jawaharlal Nehru Aluminium Research & Development Centre at Nagpur under the Ministry of Mines;

(viii) Change-over of Coke Oven Battery No. 9 at Bhilai Steel Plant to mixed gas heating;

(ix) Preparation of Perspective Plan Approach Note for the growth of Bhilai Steel Plant during the 9th & 10th Plan periods;

(x) Commissioning of brass Finishing Mill of Indian Ordnance Factory, Amarnath;

(xi) Consultancy & Assistance Services for ISO-9000 model

Quality system implementation & certification for Central Fuel Research Institute, Dhanbad.

## 4.2 Overseas

### 4.2.1 Assignments

(i) The trial runs for the Cold Rolling Mill of PT ESSAR DHANANJAYA at Jakarta in Indonesia are under progress and the plant is expected to be commissioned shortly. MECON rendered detailed Engineering and Consultancy Services including Site Services.

(ii) Consultancy Services for the Urea Ammonia Project of M/s Shahjhalal Fertilizer Company, Bangladesh;

(iii) Design, Supply, Erection & Commissioning of Chemical Cleaning-cum-Recoiling line in Cold Rolling Mill Complex in Indonesia, Essar Gujarat. The Plant was installed in September, 96;

(iv) Detailed Engineering, Procurement Assistance and Consultancy Services including Site Supervision for 3,000 t/yr Copper, Extrusion Plant and 9,000 t/yr Copper Wire Rod Plant to be set up in the Sultanate of OMAN; and

(v) Preparation of Techno Economic Feasibility Report for the PT Krakatu Steel, Indonesia.

### 4.2.2 Operations

(i) The long and continuous association of MECON with Integrated Steel Plants has enabled it to build a strong technological base. To remain abreast with the latest in Iron & Steel Sector, it continues to acquire technologies from leading international sources in the USA, UK, Russia, Germany, France, Italy, Austria, etc.

(ii) MECON has been able to make further registered in its presence in Middle East as well as in South East Asia. Taking cognizance of upcoming metallurgical projects in South East Asian Region, MECON is directing its efforts in this region directly as well as with the help of local organisations.

## 5.0 Industrial Relations

5.1 The Company has been maintaining harmonious industrial relations owing much to the positive consultative approach shown by the MECON Executive Association and MECON Employees' Union.

## 6.0 Manpower Position

6.1 The employee strength of MECON as on 31.12.96 was 3,521, comprising 1712 Engineers and 379 Drafting personnel. Of this, SC/ST employees total 745 as compared to 750 in 1995-96.

## 7.0 Social Welfare

7.1 In addition to the employees' welfare, MECON's welfare activities extend beyond its Shyamli Township, to the rural areas around Ranchi. About 1,064 Adults were covered under Literacy Programme through 35 Adult Education Centres. About 4,400 patients were treated in the adopted villages through Medical Camps. Other measures for health care included provision of facilities for disinfection of drinking water and pestociding, homeopathic

dispensaries, immunisation and health awareness programmes in neighbouring areas. MECON also established vocational training centres for providing training for young drop-out wards of the employees and that of society to facilitate opening of avenues for self employment opportunities. Jiyarappa, Rai and Pahar Singh villages have been adopted in consultation with the State Government for development.

For cleaner environment in and around company's residential colony, sewers and drains have been provided. About 14,864 saplings were planted in and around the township and about 20,800 vegetable saplings were distributed in the neighbouring villages. For the benefit of the neighbourhood community, income generation schemes and training centres have been established. During April to December '96 the Company has spent about Rs. 3.61 lakhs towards such programmes.

## 8.0 Official Language Policy

8.1 MECON continues to pursue intensively implementation of the Official Language Policy

of the Government. Various schemes were implemented to train and motivate employees for the use of Hindi progressively in their official work. Coaching facilities for non-Hindi speaking employees were provided. The training of Officials for doing work in Hindi through workshops and debates was pursued. Apart from several competitions organised during the year.

## 9.0 Conservation of Energy

9.1 MECON being a non-manufacturing organisation, the energy requirements are limited to office uses such as lighting, air-conditioning, running and maintenance of Computers etc. Even so, the Company spares no effort to conserve energy. Technology Information Forecasting and Assessment council (TIFAC) had earlier prepared a proposal on Energy Efficiency Improvement in Secondary Steel Sector. MECON has been identified as the Nodal Agency for carrying out this study.

## SPONGE IRON INDIA LIMITED (SIIL)

### 1.0 Introduction

1.1 The Demonstration Sponge Iron Plant of the Company with a capacity of 30,000 tpa was initially set up with UNDP/UNIDO assistance to establish the techno-economic feasibility of producing sponge iron (a part substitute for ferrous scrap used by steel-melting electric arc furnaces) from lump iron ore and 100% non-coking coal. The unit, based on non-coking coal from Singareni Collieries Company Limited (SCCL) and iron ores occurring from various regions in Andhra Pradesh and neighbouring states of Madhya Pradesh and Karnataka went into regular operations in November, 1980. Being a Demonstration plant it is designed to be operated on a semi commercial basis i.e., both for production of saleable product and for R&D work. Several improvements and modifications were effected to the Sponge Iron Plant based on Rotary Kiln Process to suit the local raw materials and operating conditions, as a result of which it has not only established the viability of the technology but has also paved way for the development of Sponge Iron Industry in the Country.

1.2 Taking note of the successful operations of the Demonstration Plant, Government of India approved doubling its capacity from 30,000 tpa to 60,000 tpa by setting up a second kiln of like capacity. This unit, which was designed and built by the Company's engineers incorporating various improvements and design modifications carried out in the Demonstration Plant for adapting the technology to Indian conditions, went into regular production from October, 1985.

1.3 The Company has also successfully designed and built a plant for briquetting of sponge iron fines (below 5 mm size) which were earlier not usable by electric arc furnaces and were being discarded. The Briquetting Plant was commissioned during October, 1987 and is operating to capacity.

1.4 A new and innovative project aimed at conservation of energy was commissioned with effect from 1.3.1993 for effectively utilising the sensible heat in the kiln off-gases for generation of electric power. By doing so it has not only improved the thermal efficiency of the process but also substantially reduced the dependance on external power thus effecting saving in costs.

The Submerged Arc Furnace Project of 45,000 tpa capacity is set up by SIIL for smelting sponge iron (including sponge iron fines) into high quality (low phos.) pig iron.

After having completed the trial runs by January '96 wherein it was established that the plant could achieve chemical composition at the required level for special grade pig iron, the plant was shutdown without going in for commercial operations due to:

a) shortage of availability of power in the State involving a power cut to the extent of 60%. Even the available power is presently costing Rs. 3.25 ps per unit as against Rs. 2.15 ps envisaged in the project report;

b) as per the assessment made by M/s Kirloskar Consultants, the maximum selling price that the quality pig iron proposed to be manufactured could fetch in the market is only Rs. 7,000/tonne. The actual cost of production is working out to about Rs. 9,500/tonne of which direct cost alone would be Rs. 7,500/tonne.

In order to utilise the existing infrastructure installed with a capital cost of about Rs. 30 crores, possibilities of going in for production of Ferro Alloys have been explored. It was found that production of Silico Manganese can be taken up with the existing furnace and other equipment after making some modifications. As per the current estimates the SAF Plant would be taking up production of Silico

Manganese after necessary modifications during the second half of 1997-98.

### 2.0 Finance

The authorised share capital of the Company stood at Rs. 40.00 crores on 31.03.1996; paid up capital was Rs. 31.45 crores. Shares valuing Rs. 30.62 crores are held by Government of India, the balance of Rs. 0.83 crore, being shares of Government of Andhra Pradesh.

### 3.0 Production

3.1 The Production and Financial Performance of the Company during the last two years, together with provisional figures for 1996-97, is furnished in the table below:

	1994-95	1995-96	1996-97 (Provisional upto 31.10.96)
Production			
- Sponge Iron (tonne)	50,375	55,605	28,704
- Power Generation (Lakh Kwh)	94	117	47
- Capacity utilisation (%)	84	93	82
Sales (tonne)			
- Sponge Iron	50,858	53,165	35,177
Sales Turnover (Rs. in lakhs)	2086	2287	1567
Generation of Internal Resources (Rs. in lakhs)	55	207	1
Net Profit (Rs. in lakhs)	(-)198	29	(-)151

3.2 As against the target of 31,500 tonnes, actual sponge iron production upto October, 1996, was 28,704 tonnes representing 91% of target.

### 4.0 Sales and Profitability

Against a target of 31,500 tonnes upto 31 October, 1996, actual despatches were 35,177

tonnes representing 112% achievement of the target.

Operations upto the end of 31st October, 1996 have resulted in an estimated net loss of Rs. 151 lakhs.

### 5.0 Cost Reduction

i) With the installation of the 3rd boiler the power generation would be high and would reduce the cost of production.

ii) Pelletisation of the iron ore fines, which are being sold at a lower rate at present, is being attempted. This is expected to improve the profitability.

iii) Efforts would be made to reduce the specific consumption of coal by improving operational parameters.

iv) By improving the equipment availability the total production during the year would be increased by about 1,000 MT.

The above improvements are expected to result in the reduction of cost of production.

### 6.0 Efforts made towards Indigenisation

The 1st direct reduction plant was commissioned in 1980 with the assistance of Lurgi/Germany. In this plant almost all the equipments were imported. In the 2nd plant which came into operation in 1985, 90 % of the



equipments were indigenised.

During the course of operation, so far not only mechanical and electrical equipment but also instrumentation equipment were indigenised by providing Data Acquisition System.

Further, the imported weigh feeders were substituted with indigenous components.

Many of the equipments and the spares also were indigenised.

The above process of indigenisation has resulted in savings in the imports.

### 7.0 Manpower

The total number of employees of the Company as on 31.10.1996 is furnished below indicating separately persons belonging to Scheduled Castes, Scheduled Tribes, Ex-Servicemen, Physically Handicapped and Women.

Sl. No.	Groups	Total No. of Employees	SC	ST	Ex-Servicemen	PHC	Women
1.	Group A						
2.	Group B	107					
3.	Group C	88	14	1	-	-	-
4.	Group D (Excluding Sweepers)	233	15	5	-	-	5
			39	22	1	4	14
5.	Group D1	156	27	26	-	5	11
		8	6	1	-	-	7
	<b>Total</b>	<b>592</b>	<b>101</b>	<b>55</b>	<b>1</b>	<b>9</b>	<b>37</b>

### 8.0 Employees' Participation in Management

Various Committees under 'Workers Participation in Management' have been reconsti-

tuted w.e.f. 25.07.1996. Accordingly, one Plant Level Committee, Works Committee, two Shop Level Committees, Canteen Management Committee, Safety Committee, Communal Harmony Committee and Games and Sports Committee have been constituted with representatives of Management and the employees and regular meetings are held to discuss various problems and finding solutions internally. Members of the other registered Trade Unions were also included in various Committees. As directed by the Govt. of India and in order to increase induction of women at various levels in the Management, the women employees are also included in various statutory and non-statutory committees. The Committees are functioning systematically and the contribution by way of suggestions made by the members so far have given reasonably good results.

### 9.0 Implementation of Hindi

From 01.04.1996 to 31.10.1996, 96 documents were released in bilingual form in accordance with Section 3(3) of Official Languages Act, 1963.

Official Language Implementation Committee Meetings were convened on 11.04.1996 and 20.09.1996. "Hindi Slogans" competition was conducted at Regd. Office, Hyderabad.

Competitions were conducted in connection with Independence Day Celebrations and winners were rewarded at the Plant Office. An examination was conducted under "Learn Hindi Sentences Scheme" and prizes were distrib-

uted to the participants. Third part of the Learn Hindi Sentences Scheme has been started.

### 10.0 Anti-pollution Measures

i) The entire material handling system in the plant has been provided with de-dusting system. The waste gases coming out of the kilns are passed through waste heat recovery boilers and the sensible heat is being recovered for electric power generation. The gases are also being scrubbed in wet scrubber for eliminating the dust and other gases.

ii) Regular cleaning of all the equipments and surrounding areas is being carried out which helps in upkeep and reducing the pollution.

iii) Every month the samples of stack emission, water outlets are checked for close monitoring of the pollution levels. This system is helping in maintaining the pollution levels within the specified limits.

### 11.0 Wasteland Development

Consistent with the national policy of stepping up the rate of afforestation in the country to preserve ecological balance, the Company has undertaken, on a continuing basis, planting of trees in its factory premises and township in a phased manner. During the last two years

more than 10,000 plants were planted in ten acres of land per year.

### 12.0 Engineering and Consultancy

#### 12.1 Engineering

The Company has done the entire engineering work for its Expansion Unit, Briquetting Plant and also the Continuous Charging System for feeding sponge iron into Arc Furnace, with in-house expertise. The Company has also completed the engineering for Waste Heat Recovery system from the off gases from the kiln which otherwise were wasted. With this system the company is currently generating about 2 MW of power from the waste gases.

#### 12.2 Consultancy Services

The Engineering and Projects Division of the Company after commissioning the sponge iron plants for 5 parties in India has successfully commissioned 2 x 30,000 TPA plants in PERU. A team from Mexican Steel Company visited our plant in June, 1996 and has sent samples of raw materials for test purpose. Further action involving finalisation of the test report followed by possible contract for availing SILL's services for their proposed sponge iron plant is awaited from the party.



## HINDUSTAN STEELWORKS CONSTRUCTION LIMITED (HSCL)

### 1.0 Background

1.1 Hindustan Steelworks Construction Limited (HSCL) was incorporated in June 1964 with the primary objective of creation in Public Sector of an organisation capable of undertaking complete construction of modern integrated steel plants from the stage of site investigations to the commissioning. Pooling the available expertise and know-how in the various disciplines in construction industry, the company today has a wide range of specialised works in steel sector, power plants, dam construction, bridges, coal handling plants, underground communication and transport system, industrial and township complexes, involving high degree of planning coordination and sophisticated construction techniques. HSCL has executed works in steel plants namely Bokaro Steel Plant, Vizag Steel Plant and Salem Steel Plant. HSCL has been associated with the Expansion and Modernisation activities of Bhilai Steel Plant, Durgapur Steel Plant, IISCO, Burnpur as also steel plant located at Bhadravati.

1.2 With the tapering of works, the Company diversified its activities in other sectors like Power, Coal, Oil and Gas and in other infrastructural facilities like Roads and High-

ways, Bridges, Dams, Underground communication and transport system besides industrial and township complexes involving high degree of planning, co-ordination and modern sophisticated techniques.

1.3 The Company has developed its expertise in the areas of Piling, Soil Investigation and Heavy Foundation, Structural Fabrication and Erection, Refractory erection, Technological Structures and Pipelines and Equipment Erection, Mechanical Equipment Erection and Electrical Equipment Erection, Instrumentation including testing and commissioning the same.

1.4 The Company also specialises in carrying out capital repairs and rebuilding works, including hot repairs of Coke Ovens and Blast Furnaces.

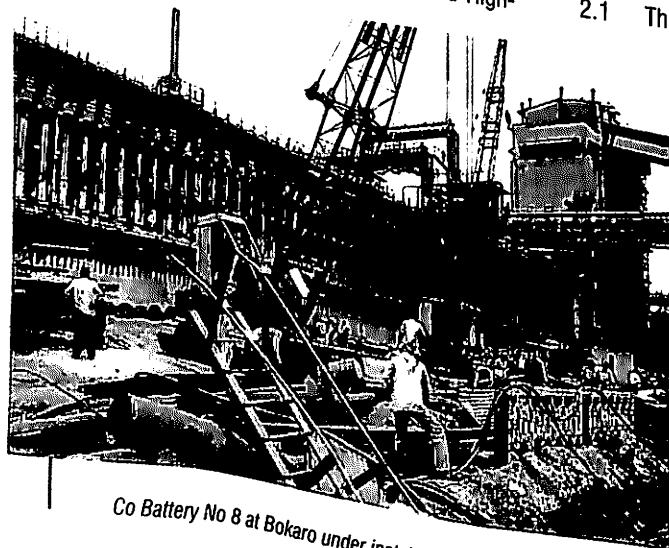
1.5 To meet the present day need for setting up of number of infrastructural facilities, the Company has tie-up arrangements with a number of reputed agencies both in India and abroad for technical know-how.

### 2.0 Capital Structure

2.1 The Authorised and Paid-up Share Capital as on 31st October, 1996 was Rs. 20 crore. The total amount of loan from Government outstanding as on end of October 1996 was Rs. 271.77 crore (Plan Loan Rs. 85.10 crore and Non-Plan Loan Rs. 186.67 crore).

### 3.0 Performance

3.1 The highest ever turnover of Rs. 411 crores was registered in 1995-96. Considering interest as well as depreciation, the total loss on the Company's operation for the year 1995-96 works out to Rs. 115 crore (Indian operation



Co Battery No 8 at Bokaro under installation

Rs. 60 crore and Libyan operation Rs. 55 crore). The bulk of the loss arises out of interest burden on Government loan. The annual turnover envisaged for 1996-97 was Rs. 425 crore. Against this, the turnover achieved till October, 1996 works out to Rs. 181 crore.

3.2 HSCL secured orders valuing Rs. 151 crores from 1.4.1996 to 31.10.1996 (Steel Sector Rs. 92 crores and Non-Steel Sector Rs. 59 crores).

### 4.0 Manpower Position

4.1 The manpower position of the Company as on 31.10.1996 along with the statistics of SC/ST, Female, Ex-Servicemen and Physically Handicapped Employees is given below:

Total Strength	SC/ST	% age	Female Employees	Ex-servicemen	Physically Handicapped
1696	130	8	14	7	4
821	110	13	15	7	7
11859	3500	30	920	147	29
147	45	30	10	25	5
14523	3785	26	959	186	45

7377 employees have availed of voluntary retirement as on 31.10.1996.

### 5.0 Social Welfare

#### 5.1 Welfare Plan For SC/ST

(a) HSCL assists in providing schools in areas where SC/ST employees mostly reside.

(b) Plots are allotted to workers for making hutments in the land allotted at sites of clients with the free electricity, water supply and sanitation arrangements, etc.

(c) Children of SC/ST employees get due preference in the matter of schooling at Projects

where short term construction work is to be undertaken.

### 6.0 Safety Measures

6.1 HSCL has formulated safety code and following steps have been taken for its implementation:

(a) Safety Organisations are functioning in all the major steel plant units with safety engineers reporting to respective head of units;

(b) Contractors/PRWs engaged at various HSCL sites are apprised of the safety measures and implementation of safety measures are constantly monitored. Employees are educated, advised and instructed to use safety appliances which are invariably made available by the Company for execution of hazardous jobs. Periodic seminars are also conducted to acquaint the personnel with latest safety measures and to review the safety requirements of various work sites in HSCL.

### 7.0 Workers' Participation in Management

Sl No.	Name of the Committee/ Council	Details
1.	Joint Council/ Shop Council	Joint Councils at Unit level for major units at Bokaro City and Bhilai and Shop Councils at Shop Level to have participation in economy and cost reduction, wastage control, safety, quality improvement and implementation in production and productivity, etc.
2.	Apex Level Joint Forum	This comprises the Management of HSCL and the National level Trade Unions i.e. INTUC, CITU, AITUC, HMS and Independent Unions. From the inception of the formation of the Apex Level Joint Forum Body in 1981, there have been 31 meetings till 31.10.1996.



Three-tier Instructional Stadium, Cochin

## 7.2 Employees' Voluntary Welfare Scheme

A Central Welfare Scheme for HSCL employees was introduced with effect from 01.04.1987. It covers all sections of employees in the Company. The Scheme is intended to provide immediate financial assistance to the dependents of employees in the event of death while in service in the Company, by a system of voluntary contribution by employees at the rate of Rs. 10/- per month.

## 8.0 Official Language

8.1 HSCL has been vigorously pursuing the implementation of official language policy of the Government. Hindi Committees have been constituted at Corporate and Unit levels and progress is reviewed in quarterly meetings. Use of Hindi in other areas includes bilingual forms of various orders, circulars, notices and press releases. Hindi Day and Hindi Fortnights are being observed. Many Hindi teaching schemes have been introduced and cash incentives are being awarded from time to time.

## 1.0 Introduction

1.1 The undertakings of the erstwhile Bird & Company Limited were taken over by the Govt. under the Bird & Company Limited (Acquisition and Transfer of Undertakings and other properties) Act, 1980. Consequently, shares held by Bird & Company Limited in 21 companies specified in schedule I to the Act stood transferred to the President of India.

1.2 Based on the shareholding pattern, the following 8 out of 21 companies which were under the control of the Bird & Company came under the administrative control of the Ministry of Steel:

- (a) Eastern Investments Limited (EIL).
- (b) The Orissa Minerals Development Co. Ltd. (OMDCL).
- (c) The Bisra Stone Lime Company Limited (BSLC).
- (d) The Karanpura Development Co. Ltd. (KDCL).
- (e) Scott & Saxby Ltd. (SSL).

(f) Kumardhubi Fireclay & Silica Works Ltd. (KFSW).

(g) Burrakar Coal Co. Ltd. (Burrakar).

(h) Borrea Coal Co. Ltd. (Borrea).

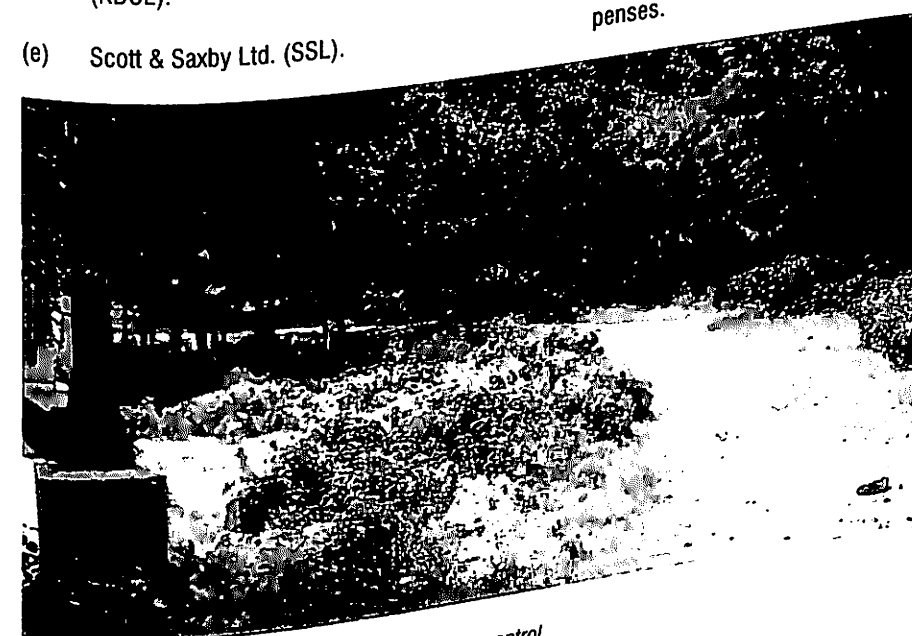
1.3 The KFSW were engaged in manufacturing and marketing of refractory materials. At present, BIFR has decided to wind up the company.

1.4 EIL is an investment company formed by amalgamation of other investment companies of Bird Group.

## 2.0 Performance of Operational Companies of Bird Group (excluding KFSW)

2.1 The basic problems of all the sick companies of the group at the time of take over were the following:

- i) Excessive manpower, high wage structure and heavy burden of fixed expenses.



Afforestation by Bird Group of companies for pollution control

- ii) Huge accumulated losses.
- iii) Erosion of working capital.
- iv) Heavy burden of outstanding liabilities.
- v) Inadequate corporate plan.
- vi) Inadequate market demand.

2.2 During the past few years problems relating to excessive manpower, erosion of working capital etc. have been tackled effectively. Simultaneously actions have also been taken to improve the marketability of products through better product mix and enrichment of quality.

2.3 The overall performance relating to sales turnover of four operating companies as a whole during the past few years as well as the current year is indicated in the following table:

	91-92	92-93	93-94	94-95	95-96	96-97* (April to October 97)
Sales (Rs. in lakhs)	2359	3312	3602	3908	4773	2758
* Provisional						

2.4 It may be observed that the sales turnover has gone up over the years registering an average growth of more than 20% per year.

The financial performance of the four operating companies as a whole in terms of gross margin before charging interest on govt. loan and depreciations is indicated below.

	91-92	92-93	93-94	94-95	95-96	96-97 (April - Oct. '96)
Gross Margin before charging interest on Govt. loans & deprn.	-597	-171	+13	+276	+538	+130

It may be observed from the figures given above that the group has already come out from the demoralising scenario of the past when where there were cash losses before depreciation and interest on government loans.

### 3.0 Performance of Companies

#### 3.1 The Orissa Minerals Development Company Limited (OMDCL)

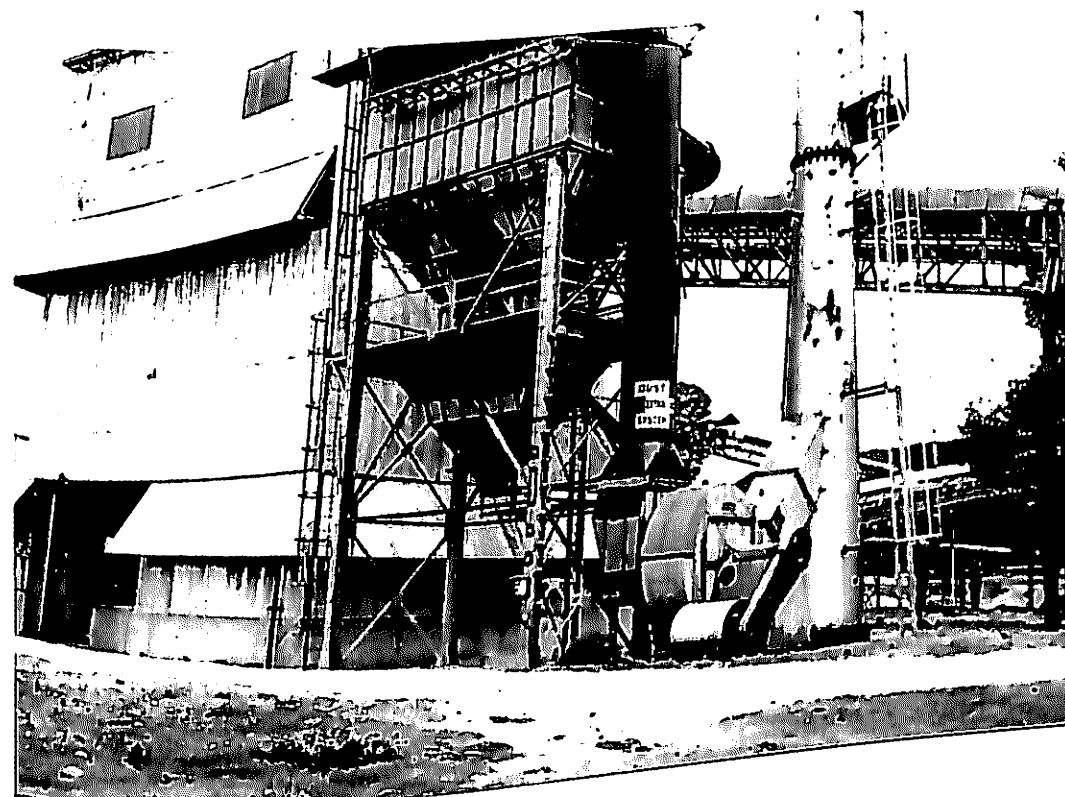
OMDCL is one of the oldest iron ore and manganese ore producing companies. It was incorporated in the year 1918 with a subscribed capital of Rs.60 lakhs. The Company has mining area over 32.57 square km in Keonjhar District, Orissa for iron ore and manganese ore.

3.2 The Company turned the corner and started making net profit from 1991-92. During 94-95 the Company made a net profit of Rs. 30.61 lakhs after providing for depreciation and interest on government loans. During the year 1995-96 there was an overall improvement in the performance of the Company since the Company took a number of positive steps. The company earned a net profit of Rs. 53 lacs during 1995-96 excluding non trading profit of Rs. 28 lakhs.

The performance of the Company in recent years is given below:

	Quantity in '000 tonnes Rs. in lakhs.		April '96 to October '96
	94-95	95-96	
a) Production			393
b) Turnover	532	772	1705
c) Margin before intt.on Govt. loans & deprn.	2096	2769	341
d) Net Profit/Loss	31	53	(-) 12

\*Excluding non trading profit of Rs. 28 lakhs.



Dust Control System of a Crushing Plant of Bird Group of companies

3.3 A corporate plan for the growth of OMDCL has been prepared. It is proposed to increase the iron ore and manganese ore production from the level of 8 lakhs MT. during the year 1995-96 to a level of 1.6 million tonnes per annum by the end of 9th plan. In order to achieve this growth in iron and manganese ore production it will be necessary for the company to invest around Rs. 20 crores during 9th plan period on account of mining machinery, ancillary equipments, development of mines etc.

3.4 The Company also proposes to diversify its activities to make value added products like sinter and pig iron etc. in future, with an additional investment of Rs. 83 crores. Accordingly, a strategy has been developed and Govt. of India approached for some relief in respect of repayment schedule of loans and interest moratorium.

3.5 With effect from 1994-95 the Company

has started repaying the Govt. loans. Company paid during 1994-95 Rs. 10 lakhs, Rs. 100 lakhs and Rs.103 lakhs in 1994-95, 1995-96 and 1996-97 (upto Oct.96) respectively.

#### 4.0 The BISRA Stone Lime Company Limited (BSLC)

4.1 The Company was incorporated in 1910 and has been the largest producer of limestone and dolomite in India. The Company has mining leases over 2771.62 hectares in Birmitrapur in the District of Sundergarh, Orissa.

4.2 During the year 1995-96 the Company registered a growth of sales turnover by nearly 20% over 1994-95. This was mainly achieved by creating a new market for better quality limestone for Durgapur Steel Plant. During the year 1995-96 the Company earned a positive Gross Margin before charging depreciation

and interest on govt. loans i.e. Rs. 19 lakhs.

4.3 The performance of the Company in recent years is as follows:

	Quantity in '000 tonnes Rs. in lakhs.		April '96 to October '96
	94-95	95-96	
a) Production			
b) Turnover	834	896	435
c) Margin before intt. on Govt. loans and depreciation	1385	1846	1019
d) Net Profit/Loss	80 -1513	19 -1629	- 193 -1362

4.4 A Turn around strategy had been developed and sent to Government of India through which certain reliefs have been sought.

4.5 With financial assistance from Government of India the company successfully implemented voluntary retirement scheme under which 1915 persons have retired during the period from 1st April '92 to 31st October '96. This reduced the fixed overhead to a large extent.

### 5.0 The Karanpura Development Company Limited (KDCL)

5.1 The Company was incorporated in July 1920, and has a subscribed capital of Rs. 20 lakhs. The company produces limestone suitable for cement manufacturing from its mines in District Hazaribagh, Bihar.

5.2 The Company suffered a set back in December 1995-96 when in pursuance to a notification issued by the Govt. of India prohibiting mining of limestone through contractors, the activities of the Company came to a standstill. The departmental mining activities have been resumed with effect from 17.9.96.

In the current year upto Oct.96, the company incurred a net loss of Rs. 40.00 lakhs.

5.3 With a view to reduce the surplus manpower, voluntary retirement scheme has been introduced. Till date, 73 employees have been separated under VRS.

### 6.0 Scott & Saxby Limited (SSL)

6.1 The Company is a wholly owned subsidiary of KDCL. The Company is mainly engaged in the activities of sinking deep

tubewells and mineral exploration work. Owing to continued disruption in the normal working environment the Company was compelled to declare 'Suspension of Work' w.e.f. 14.11.92. After prolonged negotiation Tripartite Memorandum of Settlement was signed on 19.8.96 by representatives of Govt. of West Bengal, workmen of negotiating unions and the management of SSL. The Order for 'Suspension of Work' has been lifted w.e.f. 1.11.96 and activities restarted at the workshop and the work sites. Due to continued disruption requisition of company was stopped, resulting in huge loss.

6.2 Till date 201 employees out of total 365 have been separated under VRS leaving a balance of 164.

### 7.0 Kumardhubi Fireclay and Silica Works Limited (KFSW)

7.1 Kumardhubi Fireclay and Silica Works Limited (KFSW) is one of the oldest refractory units of India, having been set up in 1919 at Kumardhubi, District Dhanbad, Bihar. Management of KFSW, an erstwhile Bird Group of Companies was taken over by Government of India in 1980.

7.2 It performed well upto end of 1982. There after, due to obsolete plant and machinery it started incurring losses. Because of its continued losses a reference was made to the Board of Industrial and Financial Reconstruction (BIFR) in 1987 under the SICA (S.P.) Act, 1985. BIFR declared it a sick company in 1989 and in 1990 directed Central Government to take steps for revival of this company. Government requested Industrial Reconstruction Bank of India (IRBI) to suggest a revival package for KFSW. While the revival plan of KFSW was under examination, the company's position turned from bad to worse and due to acute

shortage of working capital the operations of the company were stopped from August, 1992. Meanwhile the Company was referred to BIFR. BIFR in its meeting held on 13th September, 1994 has taken a decision to close down KFSW. BIFR has written to the Registrar, Hon'ble High Court of Calcutta for further necessary action in the matter. An appeal was preferred by workers union against the decision of BIFR in the Appellate Authority for Industrial and Financial Reconstruction (AAIFR). AAIFR in its meeting held on 24th November, 1995 has dismissed the appeal of workers union.

THE TATA IRON & STEEL  
COMPANY LIMITED

## 1.1 Introduction

1.1.1 The Tata Iron & Steel Co. Ltd. (TISCO) was founded over 80 years ago. This steel plant is located at Jamshedpur and has captive collieries at Sijua, Jamadoba and West Bokaro and iron ore mines at Noamundi in Bihar and Joda in Orissa.

1.1.2 The company embarked on a 2 MT expansion programme which was completed in 1958. Subsequently, the first major modernisation programme was undertaken by the company in 1980 when outdated Duplex Process was replaced by a modern LD Shop along with Continuous Casting and other allied facilities. Immediately thereafter, the company started work on Modernisation Programme Phase-II. The principal facilities in this phase included the modern high speed Bar & Rod Mill of 300,000 tpa capacity, raw material Bedding & Blending Yard, 1.37 mtpa Sinter Plant, 2 x 30 MW Power Plant, etc.

1.1.3 Tata Steel completed its Modernisation Programme, Phase III in October, 1994, which increased its Saleable Steel capacity to 2.7 mtpa. The major facilities under this programme

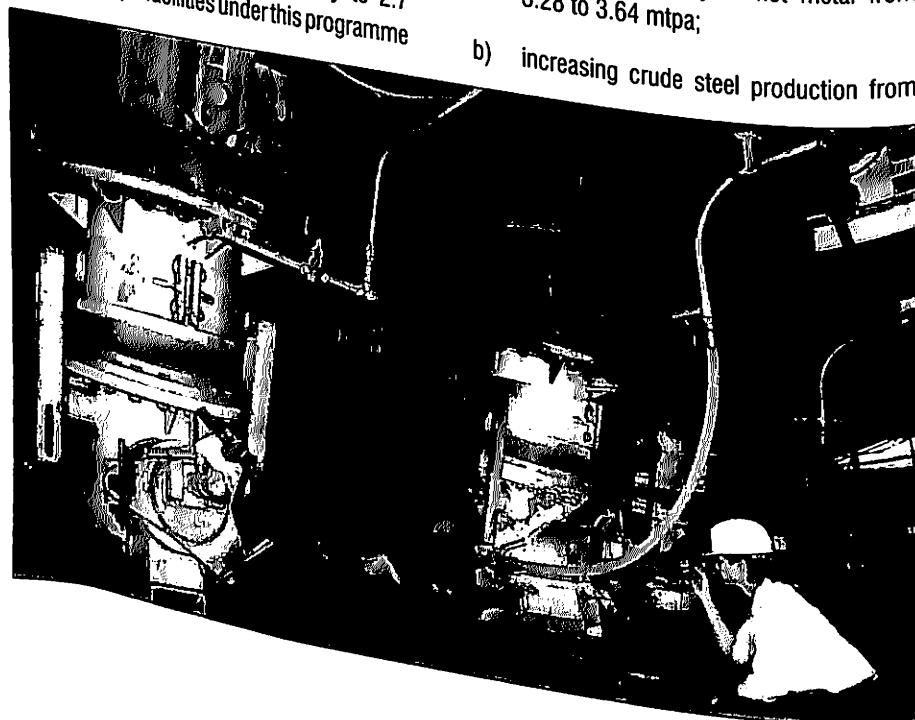
included a 1 mtpa capacity Hot Strip Mill, two Slab Casters, a 1 mtpa capacity New LD Shop, a half Coke Oven Battery, a 500 tpd capacity Oxygen Plant, 3 Lime Calcining Kilns, a New Captive Power Generation Plant of 30 MW capacity and expansion/modernisation of raw material facilities, transportation system and infrastructure.

In addition, Tata Steel has commissioned a modern 1 mtpa capacity 'G' Blast Furnace in October, 1992 which is operating at its rated capacity. The Hot Strip Mill was commissioned in March, 1993. This first Slab Caster was commissioned in October, 1993 and the second in August, 1994. The new LD Shop No.2 was commissioned in October, 1994.

## 1.2 Modernisation Phase-IV

1.2.1 TISCO has embarked on the Modernisation Programme Phase IV, the major facilities of which are targeted to commence production during 1998. Phase IV includes:

- increasing capacity of hot metal from 3.28 to 3.64 mtpa;
- increasing crude steel production from



3.05 to 3.40 mtpa;

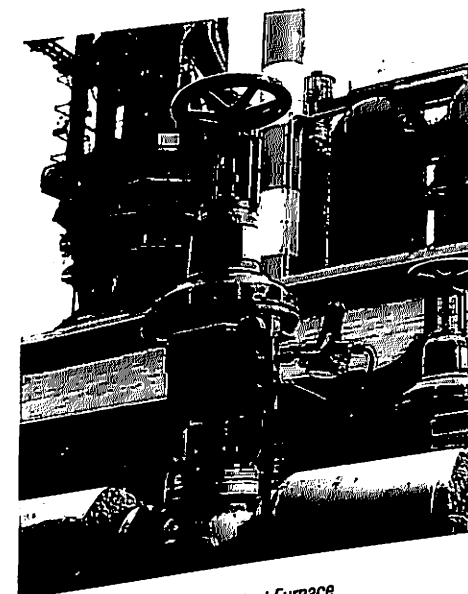
- increasing saleable steel capacity from 2.76 to 3.23 mtpa;
- expand LD-2 by providing a third vessel;
- install a third slab caster;
- increase capacity of Hot Strip Mill to 2 mtpa;
- set-up a Bar & Rod Mill in addition to the existing one;
- modernise the Medium & Light Structural Mill to produce 200,000 tpa of forging quality round cornered squares and rounds and 150,000 tpa of forging quality billets for conversion at Bar & Rod Mill to cater to the growing demand from the automobile sector;
- achieve 100% oxygen steelmaking and continuous casting;
- improve yield, achieve lower energy consumption and lower operating cost.

With the additional facilities, Steel Melting Shop No. 3, Rolling Mills 1 and 2, Sheet Mills, Narrow Strip Mill and Merchant Mill are in the process of being phased out.

## 1.3 Production

1.3.1 Production in the period April-December, 96 compared to April-December, 95 are as follows:

	(In Tonnes)	
	Apr-Dec. '95	Apr-Dec. '96
Hot Metal	2421369	2547578
Crude Steel	2289667	2295304
Saleable Steel	2024506	2073689
Semis, %	34.14	28.88



Coal Tar injection in TISCO Blast Furnace

1.4 Performance of Various Units  
During the Period Apr-Dec '96

1.4.1 The blast furnaces turned in a record performance with an output of 2.55 million tonnes — an increase of 5.21% over the previous year.

1.4.2 Productivity levels were also quite good.

1.4.3 Combined LD Shop output of crude steel was 22% better over the previous year and the continuous cast billets and slabs were more by 22% and 17% respectively over the previous year.

1.4.4 Hot Strip Mill output during the period was 760,800 t and has produced products of excellent quality. Customer feedback has shown that the quality of hot rolled coils has been rated best in the country and close to the imported quality.

1.4.5 The Bar & Rod Mill output during the period was 212,688 t and also continued to churn out products well received by the domestic and international markets.

## CHAPTER - VI

1.4.6 Other production departments like Sintering Plant, Coke Ovens, other finishing mills and support services all had some record performances or the other and continued to provide necessary support to their main producing departments.

### 1.5 Energy Conservation

1.5.1 The plant specific energy consumption rate for the period April-December '96 was 8.87 Gcal/tcs compared to 8.559 for the period Apr-Dec. '95. The higher consumption of energy can be attributed to lower consumption of scrap due to low availability and hence lower steel-to-iron ratio.

1.5.2 During the Modernisation Programme Phase IV, augmentation of facilities at the Sinter Plant for higher sinter production would enable lower fuel rate at the Blast Furnaces. Modernising the Medium & Light Structural Mill by providing an energy efficient walking beam reheat furnace would reduce the energy consumption at the mill. The state-of-the-art instrumentation and level-II automation in all reheating furnaces for energy efficient operation is also being introduced.

### 1.6 Environment

1.6.1 A new By-product Plant at Coke Ovens was commissioned. This not only cleans the by-product coke oven gas, but ensures that the effluent being discharged from Coke Ovens are within stipulated norms.

### 1.7 Safety

1.7.1 During the period, there were 9 fatal accidents as against 5 in the previous year.

### 2.1 Secondary Steel Sector

In addition to Tata Iron & Steel Co. Ltd., there are several units mainly in the private

sector which are engaged in the production of various steel items like steel ingots/billets/blooms, hot rolled long products, hot rolled flat products, cold rolled flat products, coated products, wires etc. Traditionally, these units make up the broad category known as the secondary steel sector. Majority of these units consist of a single line activity, save for some EAF (Electric Arc Furnace) based steel plants who also have their own rolling facilities. In the post-liberalisation era, steel scenario in the country is changing rapidly. More units with multi faceted activities and with a clear focus at value addition have been set up/are being set up following routes different from the traditional integrated BF-BOF process. Structural changes are also taking place among the existing units which are going for backward and forward integration to improve their cost competitiveness.

With the opening up of the Iron & Steel Sector, it is expected that additional steel availability would chiefly come from creation of capacities in the private sector. As for the Public Sector, focus would be on increasing productivity through modernisation/upgradation efforts. Private Sector has responded enthusiastically to the policy measures taken by the Government, as witnessed by the increasing share of the private sector in total steel production which has been brought out in the following table:

Year	(Quantity in Million Tonnes)		
	Public Sector	Private Sector	Total
1991-92	6.97 (48.6%)	7.36 (51.4%)	14.33
1992-93	7.47 (49.2%)	7.73 (50.8%)	15.20
1993-94	7.80 (51.3%)	7.40 (48.7%)	15.20
1994-95	8.20 (46%)	9.62 (54%)	17.82
1995-96	8.76 (41%)	12.64 (59%)	21.40

(Figures in bracket indicate percent share)

## CHAPTER - VI

### 2.1.1 Electric Arc Furnace Industry

184 Electric Arc Furnace Units with a total capacity of 10.44 million tonnes per annum are in existence. As on 30.9.96, 87 units covering an annual capacity of 2.359 million per annum were closed. The production in this sector continues to be affected by rising cost of inputs, power, obsolete technology etc.

Production of Ingots/concast billets by EAF units, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during the last four years is given below:

Category	(In '000 tonnes)			
	1993-94	1994-95	1995-96	1996-97 **(Apr-Nov) (Prov)
Mild Steel	962.5	1130.1	1340.9	1016.7
Medium/High Carbon Steel	297.1	434.0	629.3	636.1
Alloy Steel	693.3	818.0	974.9	750.6
Stainless Steel	210.3	291.1	264.9	98.5
Others	-	-	-	59.5
<b>Total Reported</b>	<b>2163.2</b>	<b>2673.2</b>	<b>3210.0</b>	<b>2561.4</b>
<b>Total Estimated</b>	<b>336.1</b>	<b>400.0</b>	-	-
<b>Grand Total</b>	<b>2499.3</b>	<b>3073.2</b>	<b>3210.0</b>	<b>2561.4</b>

\*\*The above figures do not include production of steel by the Casting Units registered with erstwhile DGTd.

### 2.2 Steel Re-rolling Industry

There are 1018 commissioned units having a capacity of 21.0 million tonnes per annum borne on the list of development commissioner for Iron & Steel, Calcutta.

Production of the re-rolling units during the

last four years is as under:

Category	(In '000 tonnes)			
	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.,96)
Bars/Rods (Incl Squares)	1206.1	1733.4	2961.5	1301.6
Wire Rods	543.8	702.5	1079.8	398.8
Structural	857.9	670.8	1672.3	435.0
Hoops	-	20.1	11.3	-
Special Sections	116.4	316.8	455.6	213.3
Slabs/Plates	4.1	455.5	27.5	8.2
<b>Total Reported</b>	<b>2728.3</b>	<b>3899.1</b>	<b>6208.0</b>	<b>2356.9</b>
<b>Total Estimated</b>	<b>2258.4</b>	<b>2000.0</b>	-	-
<b>Grand Total</b>	<b>4986.7</b>	<b>5899.1</b>	<b>6208.0</b>	<b>2356.9</b>

### 2.3 Steel Wire Drawing Industry

There are 83 commissioned units with a total capacity of 1.06 million tonnes per annum.

2.3.2 Production of steel wire drawing units during the last four years is as under:

Category	(In '000 tonnes)			
	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
Mild Steel	135.9	105.7	183.5	89.5
Medium/High Carbon	160.8	166.3	215.2	144.5
Alloy Steels	10.1	10.8	14.2	6.0
Stainless Steel	2.6	3.9	4.8	7.0
Others	-	55.7	25.8	5.3
<b>Total Reported</b>	<b>309.4</b>	<b>342.4</b>	<b>443.5</b>	<b>252.3</b>
<b>Total Estimated</b>	<b>127.7</b>	<b>140.0</b>	-	-
<b>Grand Total</b>	<b>437.1</b>	<b>482.4</b>	<b>443.5</b>	<b>252.3</b>



1.4.6 Other production departments like Sintering Plant, Coke Ovens, other finishing mills and support services all had some record performances or the other and continued to provide necessary support to their main producing departments.

### 1.5 Energy Conservation

1.5.1 The plant specific energy consumption rate for the period April-December '96 was 8.87 Gcal/tcs compared to 8.559 for the period Apr-Dec '95. The higher consumption of energy can be attributed to lower consumption of scrap due to low availability and hence lower steel-to-iron ratio.

1.5.2 During the Modernisation Programme Phase IV, augmentation of facilities at the Sinter Plant for higher sinter production would enable lower fuel rate at the Blast Furnaces. Modernising the Medium & Light Structural Mill by providing an energy efficient walking beam reheat furnace would reduce the energy consumption at the mill. The state-of-the-art instrumentation and level-II automation in all reheating furnaces for energy efficient operation is also being introduced.

### 1.6 Environment

1.6.1 A new By-product Plant at Coke Ovens was commissioned. This not only cleans the by-product coke oven gas, but ensures that the effluent being discharged from Coke Ovens are within stipulated norms.

### 1.7 Safety

1.7.1 During the period, there were 9 fatal accidents as against 5 in the previous year.

### 2.1 Secondary Steel Sector

In addition to Tata Iron & Steel Co. Ltd., there are several units mainly in the private

sector which are engaged in the production of various steel items like steel ingots/billets/blooms, hot rolled long products, hot rolled flat products, cold rolled flat products, coated products, wires etc. Traditionally, these units make up the broad category known as the secondary steel sector. Majority of these units consist of a single line activity, save for some EAF (Electric Arc Furnace) based steel plants who also have their own rolling facilities. In the post-liberalisation era, steel scenario in the country is changing rapidly. More units with multi faceted activities and with a clear focus at value addition have been set up/are being set up following routes different from the traditional integrated BF-BOF process. Structural changes are also taking place among the existing units which are going for backward and forward integration to improve their cost competitiveness.

With the opening up of the Iron & Steel Sector, it is expected that additional steel availability would chiefly come from creation of capacities in the private sector. As for the Public Sector, focus would be on increasing productivity through modernisation/upgradation efforts. Private Sector has responded enthusiastically to the policy measures taken by the Government, as witnessed by the increasing share of the private sector in total steel production which has been brought out in the following table:

Year	(Quantity in Million Tonnes)		
	Public Sector	Private Sector	Total
1991-92	6.97 (48.6%)	7.36 (51.4%)	14.33
1992-93	7.47 (49.2%)	7.73 (50.8%)	15.20
1993-94	7.80 (51.3%)	7.40 (48.7%)	15.20
1994-95	8.20 (46%)	9.62 (54%)	17.82
1995-96	8.76 (41%)	12.64 (59%)	21.40

(Figures in bracket indicate percent share)

### 2.1.1 Electric Arc Furnace Industry

184 Electric Arc Furnace Units with a total capacity of 10.44 million tonnes per annum are in existence. As on 30.9.96, 87 units covering an annual capacity of 2.359 million per annum were closed. The production in this sector continues to be affected by rising cost of inputs, power, obsolete technology etc.

Production of Ingots/concast billets by EAF units, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during the last four years is given below:

Category	(In '000 tonnes)			
	1993-94	1994-95	1995-96	1996-97 **(Apr-Nov) (Prov)
Mild Steel	962.5	1130.1	1340.9	1016.7
Medium/High Carbon Steel	297.1	434.0	629.3	636.1
Alloy Steel	693.3	818.0	974.9	750.6
Stainless Steel	210.3	291.1	264.9	98.5
Others	-	-	-	59.5
Total Reported	2163.2	2673.2	3210.0	2561.4
Total Estimated	336.1	400.0	-	-
Grand Total	2499.3	3073.2	3210.0	2561.4

\*\*The above figures do not include production of steel by the Casting Units registered with erstwhile DGTD.

### 2.2 Steel Re-rolling industry

There are 1018 commissioned units having a capacity of 21.0 million tonnes per annum borne on the list of development commissioner for Iron & Steel, Calcutta.

Production of the re-rolling units during the

last four years is as under:

Category	(In '000 tonnes)			
	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.,96)
Bars/Rods (Incl Squares)	1206.1	1733.4	2961.5	1301.6
Wire Rods	543.8	702.5	1079.8	398.8
Structural	857.9	670.8	1672.3	435.0
Hoops	-	20.1	11.3	-
Special Sections	116.4	316.8	455.6	213.3
Slabs/Plates	4.1	455.5	27.5	8.2
Total Reported	2728.3	3899.1	6208.0	2356.9
Total Estimated	2258.4	2000.0	-	-
Grand Total	4986.7	5899.1	6208.0	2356.9

### 2.3 Steel Wire Drawing Industry

There are 83 commissioned units with a total capacity of 1.06 million tonnes per annum.

2.3.2 Production of steel wire drawing units during the last four years is as under:

Category	(In '000 tonnes)			
	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
Mild Steel	135.9	105.7	183.5	89.5
Medium/High Carbon	160.8	166.3	215.2	144.5
Alloy Steels	10.1	10.8	14.2	6.0
Stainless Steel	2.6	3.9	4.8	7.0
Others	-	55.7	25.8	5.3
Total Reported	309.4	342.4	443.5	252.3
Total Estimated	127.7	140.0	-	-
Grand Total	437.1	482.4	443.5	252.3



### 2.4 Hot Rolled Steel Sheets/Strips Units

In the secondary sector there are 9 commissioned units with a total capacity of 2.98 million tonnes per annum.

The total production of hot rolled steel sheets/strips during the last four years is as follows:

(In '000 tonnes)				
Category	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
Hot Rolled Steel Sheets/Strips	68.9	230.7	511.0	1200.4 108.8
Total Reported:	68.9	230.7	511.0	1309.2
Total Estimated:	-	155.1	538.0	-
Grand Total	68.9	385.8	1049.0@	1309.2

@ In addition around 253.2 thousand tonnes of HR Plates have been produced by the Units viz. M/s. Lloyds Steel Industries, Maharashtra and M/s. Jindal Iron & Steel Co. Ltd., Maharashtra.

### 2.5 Cold Rolled Steel Sheets/Strips Manufacturing Industry

There are 68 units with the total capacity of 2.704 million tonnes per annum.

The production for the last four years is as follows:

(In '000 tonnes)				
Category	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
Mild Steel	828.5	907.2	1250.0	900.2
Medium Carbon Steel	13.6	30.2	29.2	21.6
High Carbon Steel	8.3	21.4	15.8	10.1
Alloy Steels	4.3	1.1	2.5	0.3
Stainless Steel	7.2	12.9	37.6	10.6
Others	-	152.7	20.9	49.4
Total Reported	861.9	1125.5	1356.0	992.2
Total Estimated	17.3	-	-	-
Grand Total	879.2	1125.5	1356.0	992.2

### 2.6 GP/GC Galvalume/Galfan PVC/Vinyl Coated Sheets/Strips Units

There are 16 commissioned units with a capacity of 1.00 million tonnes producing GP/GC Coated Sheets.

2.6.2 Production of GP/GC sheets during the last four years is as follows:

(In '000 tonnes)				
Category	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
GP/GC Sheets/Strips	253.9	376.9	302.0	433.0
Total Reported:	253.9	376.9	302.0	433.0
Total Estimated:	-	78.9	244.0	-
Grand Total:	253.9	455.8	546.0	433.0

### 2.7 Tin Plate Industry

Besides Rourkela Steel Plant, 1 unit in the private sector with a capacity of 0.09 million tonnes per annum of Electrolytic Tinplate has been commissioned. Production in this sector during the last four years is as follows:

(In '000 tonnes)				
Category	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
Oil Can Size	27.4	20.0	26.0	22.9
Non Oil Can size	18.1	24.7	-	8.2
Total Reported	45.5	44.7	26.0	30.9
Total Estimated	-	-	4.0	-
Grand Total	45.5	44.7	30.0	30.9

### 3. Sponge Iron

There are about 20 commissioned coal based units covering a capacity of 2.456 mil-

lion tonnes per annum and 3 gas based sponge iron units with a capacity of about 3.51 million tonnes per annum. India is currently the second largest sponge iron producer in the world.

The production of sponge iron During the first four years is given below:

(In '000 tonnes)				
	1993-94	1994-95	1995-96	1996-97 (Apr.-Nov.96)
Total Reported	2420.0	3392.1	3446.0	3200.00
Total Estimated	-	-	-	995.00
Grand Total:	2420.0	3392.1	3446.0	4195.00

\*\*Figures are partly estimated.

### 4. Pig Iron Industry

4.1 Pig Iron is one of the basic raw materials required by the foundry and casting industry for manufacture of various types of castings for the engineering sector. The main source of pig iron has traditionally been the integrated steel plants of Steel Authority of India Limited including IISCO (a fully owned subsidiary of SAIL) and Rashtriya Ispat Nigam Limited. The domestic production of pig iron in the past however, did not keep pace with the demand. As a result, there had been a general shortage which, in turn, adversely affected the growth of the engineering sector. Efforts were, therefore, made to increase pig iron manufacturing facilities in the secondary sector.

4.2 As a result of various policy initiatives taken by the Government, considerable interest has been shown by the private sector in setting up pig iron units. The All India Financial Institutions have already sanctioned assistance to 18 pig iron/hot metal units in the private sector with net pig iron available capacity of 28.12 lakh tonnes per annum. Assistance to another 6 units, with a capacity of 27.35 lakh

tonnes, is under consideration of the Financial Institutions.

4.3 Since the advent of the new industrial policy, 13 new units with a capacity of 18.4 lakh tpa have been commissioned in secondary sector as on 1st Jan. 1997. The above excludes M/s Kalinga Iron Works, M/s Sponge Iron India Limited and VISL, Bhadravati.

4.4 In addition, several more units with a total projected capacity of 20.09 lakh tpa are in various stages of implementation.

4.5 Several units have indicated that they may opt for forward integration to manufacture steel. To that extent, net availability of pig iron from these units for merchant sale could decrease in future.

4.6 A list of units commissioned, as in Dec., 1996 is given below:

S.N.	Name of the Unit	Location	CTY (T)
1.	Kalinga Iron Works	Barbil, Karnataka	1.40
2.	Sesa Goa Limited	Bicholim, Goa	1.80
3.	Mid-West Iron & Steel Company Limited	Srikakulam, A.P.	0.90
4.	Usha Ispat Limited	Redi, Maharashtra	2.95
5.	Sathavahana Ispat Ltd	Anantpur, A.P.	1.20
6.	Tata Metaliks Limited	Kharakpur, W.B.	0.90
7.	Kirloskar Ferrous Industries Limited	Raichur, Karnataka	2.40
8.	Lanco Ferro Limited	Chittor, A.P.	0.90
9.	Uni-Metal Ispat Ltd	Bellary, Karnataka	0.75
10.	Usha Martin Industries	Jamshedpur, Bihar	1.10
11.	VISL (a subsidiary of SAIL)	Bhadravati, Karnataka	0.75 (2.00)
12.	Malvika Steel Ltd.	Jagdishpur, U.P.	0.60 (6.00)
13.	Southern I&S Co.Ltd.	Salem, Tamilnadu	0.30 (1.80)
14.	Electo St.Casting Ltd.	Khorda, W.B.	1.10
15.	Nagpur Alloy Castings	Raipur, M.P.	3.50
Total			20.55

NB: The figures under brackets indicate overall hot metal production by respective units.

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4.7 Actual production of pig iron during the last 5 years from the Integrated Steel Plants and the units in the secondary sector is given below:

(In million tonnes)						
S.No.	Name of the Unit	92-93	93-94	94-95	95-96	96-97 (Apr-Sep) (Prov.)
1.	SAIL	0.34	0.59	0.75	0.55	0.35
2.	IISCO	0.43	0.41	0.40	0.42	0.16
3.	VSP	0.91	0.98	0.85	0.77	0.36
4.	Total Main Producers	1.68	1.98	2.01	1.74	0.87
		(91%)	(88%)	(72%)	(62%)	(54%)
5.	Secondary Producers	0.16	0.27	0.78	1.06	0.73
		(9%)	(12%)	(28%)	(38%)	(46%)
<b>Grand Total</b>		<b>1.84</b>	<b>2.25</b>	<b>2.78</b>	<b>2.80</b>	<b>1.60</b>
NB: The figures within brackets indicate the percentage contribution by the respective sectors.						

neurs in setting up new steel plants. So far, 21 units with a total capacity of 12.23 million tonnes (saleable steel) involving an investment of around Rs. 22,225 crores have already been

sanctioned by the all India financial institutions. Of these, 7 units have already been commissioned and others are at various stages of implementation. In addition, 6 more units with a total capacity of 4.855 million tonnes and involving an investment of about Rs. 10,104 crores are presently pending with the financial institutions for appraisal.

5.4 A list of units which have already been commissioned as on 31st Dec., 1996 is given below:

### 5. New Steel Projects

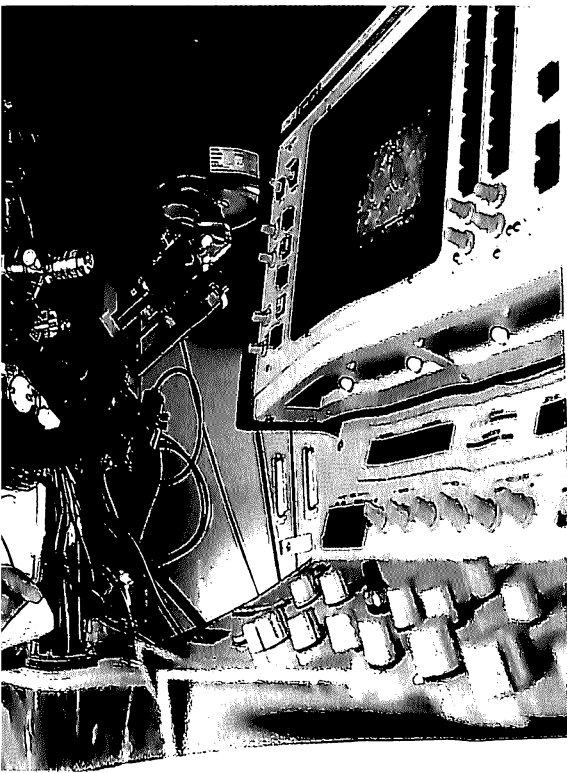
5.1 In the context of long term demand projection of steel, Government have adopted a two pronged strategy for increasing the steel production in the country in future:

Modernisation and expansion of existing public sector steel plants in the country; and encouraging creation of new steel capacities in the private sector.

5.2 SAIL has undertaken a massive modernisation programme in its plants at Durgapur, Rourkela and Bokaro. Similarly, TISCO after completion of their phase III modernisation programme, have also taken up phase IV modernisation.

5.3 After the announcement of new industrial policy in 91 and various other policy initiatives taken by the government, substantial interest has been shown by several entrepre-

Sl. No.	Name of the Unit and Location	Process Route/Product	Capacity L. Tonnes
1.	Nova Udyog Limited (Nainital, U.P)	EAF B&R	2.40
2.	Indian Seamless S&A LTD. (Pune, Maharashtra)	EAF	1.50
3.	Lloyds Steel Ind. Ltd (Wardha, Maharashtra)	EAF HRC/ CRC/GPGC	6.00
4.	Rajinder Steel Ltd. (Raipur, M.P.)	EAF HRC	1.70
5.	Essar Steel Ltd (Hazira, Gujarat)	HBI-EAF HRC	20.00
6.	Prakash Ind. Ltd. (Bharuch, Gujarat & Silvassa, Dadra and Nagar Haveli)	EIF Billets/LP	1.20
7.	Jindal Strips (I) Ltd	DRI-EAF	5.00



deal with their plant-specific problems, assimilate and innovate newer technologies, utilise Indian minerals and raw materials in larger proportion, reduce pollution, conserve energy and reduce cost of production.

### 3.2 Steel Authority of India Limited, Research and Development Centre for Iron and Steel (RDCIS), Ranchi

#### 3.2.1 Objective/thrust of R&D

The major thrust of R&D activities was directed towards innovation and development of new processes and products to the satisfaction of the customers. The Centre has continuously been engaged in providing necessary R&D inputs for improvement in the technological performance of SAIL plants and upgradation of technology.

#### 3.2.2 Highlights of R&D activities

##### 3.2.2.1 New Technology/Process/Products Developed

- Integrated alignment system for coke pushing operation at coke oven battery No. 4 at DSP has helped in eliminating wrong pushing due to misalignment of pusher and guide cars.
- Production of improved quality E-38/E-34 automotive steel plates has been standardized at BSL.
- Multilayered-Multiphased reinforced castables composites. This will result in cost reduction during commercial application.
- Development of rule base for effective thermal control of Blast furnace process at RDCIS, Ranchi will help in reduction of Silicon in hot metal.

- Methodology for estimation of CRI-CSR indices of BF coke has been Standardised.

- Development of Super Ferritic Steel at RDCIS, Ranchi, will help in using steel in sea water/brine media.

##### 3.2.2.2. Productivity Improvement

- Reduction of the molten core at 1000 T shear in Blooming Mill from 1.2% to 0.7% in SMS-I of RSP.

- Productivity of cold rolled stainless strip at skin pass mill of SSP has been increased by 40%.

- Improvement in the productivity of Blast Furnace No. 5 at BSL from a level of 1.06t/m<sup>3</sup>/day to 1.25t/m<sup>3</sup>/day and reduced the coke rate by process intensification.

- Development of liquid resin bonded mudgun clay for BBNo. 7 at BSP has resulted in increased cast-house availability and productivity.

##### 3.2.2.3. Quality Improvement

- Improvement in quality of TIG welding of silicon steel coils at RSP increased the acceptance level of rollable welds from 45% to 79%.

- Introduction of advanced oil coating system in HDGL and DCRL at BSL for uniform oil coating in sheet gauge products for better customer satisfaction.

- Improved the sinter strength and reduced the gas consumption by uniform heating of sinter charge in sinter plant II of BSP.

- Improvement of strip quality of hot rolled coil at RSP to the desired strip crown (80 micron)

- Improvement of surface conditions of hot rolled coils at BSL by modification of hydraulic descaling system and the mill practice.

#### 3.2.4 Yield Improvement

- Reduction of edge cracking of HR coils at RSP from 8% to 5%.

- Improvement of edge condition of HR coils at BSL. Incidence of defect free edges in coils increased from 18% to 58%.

- Developed process technology for production of wheel steel through BOF - Ingot route at DSP. Yield has increased from ingot steel to finished wheel.

#### 3.2.2.5 Reduction in Energy Consumption

- Reduction of overall electrical energy consumption on introduction of a coke injector in the EAF of ASP for generation of foamy slags.

- Modification of the reheating furnaces in Forge shop at ASP with low thermal mass ceramic fibre lining has enabled achievement of an annual saving of 7000 G.Cal.

#### 3.2.2.6 Energy Conservation

Consumption of Energy (G.Cal/tcs) in four integrated steel plants of SAIL per tonne of crude steel was as under:

Year	Target	Actual Performance	Improvement over previous year (%)
1994-95			1.15
1995-96	8.83	8.70	
1996-97	8.71	8.68	0.23
(upto Sept. 96)	8.65	8.49	-

#### 3.2.2.7. R&D Expenditure (Rs. in Crores)

Year	Turnover	Expenditure	Expenditure on R&D as percentage of turnover	Certified benefits accrued
1994-95	13867	45.13	0.32	65.90
1995-96	14710	50.12	0.34	157.80
1996-97 (Upto Sept. 96)	6536	26.50	0.40	-

#### 3.2.2.8 Projects Status

No. of projects planned in 1995-96 : 140

No. of projects due for completion in 1995-96 : 119

No. of projects completed in 1995-96 : 116

No. of projects planned in 1996-97 : 159

### 3.3. The Tata Iron & Steel Company Limited (TISCO), Jamshedpur

#### 3.3.1. Objective

To identify and develop new products and processes so that the Company stays ahead of its competitors.

#### 3.3.2. Highlights of R&D Achievements

##### 3.3.2.1 New Technology/Process/Product

- Plasma nitriding of Bar & Rod Mill roll guides to improve service life from 250 tonnes to 500 tonnes.

- Development of Vorsyl separator (alongwith RRL, Bhopal) for replacing DM Cyclones for Coal beneficiation.

- Production process for manufacture of low-carbon ferro-titanium from ilmenite using an aluminothermic process (batch size 25 Kg.)

- Ferritic rolling for low carbon steel strips producing excellent cold rollability.

### 3.3.2.2 Productivity Improvement

- By optimisation of parameters of froth flotation circuit at Bhelatand Washery the clean coal yield increased by 5% (64-69%)

- By optimisation of LDO addition (0.3%) and moisture (9-10%), Coke oven throughput has increased.

### 3.3.2.3 Reduction in Consumption of Materials and Improvement in Yield and Quality

- Alternative frother in place of pine oil; the consumption of frother reduced from 0.6 kg/t to 0.24 kg/t.

- Optimisation of Chemistry and rolling parameter at Hot Strip Mill; Quality of strips of EDD grade has improved in terms of formability (r) improved from 1.3-1.4 to 1.6-1.8.

### 3.3.2.4 Development of New Product

- Corrosion resistance bars through continuous casting route (so far being produced through ingot route) — about 200 tonnes.

### 3.3.2.5 Quality Improvement

- R&D Division has completed Draft Quality Manual and, Procedures/Work instruction for ISO-9001.

- 3 Quality Circles are functioning in R&D

### 3.3.3 Energy Consumption

#### a) Energy Consumption (G.Cal/tcs).

Year	Plans/Target	Actual Performance	Improvement over Previous Year (%)
1994-95	9.250	8.935	4.90
1995-96	8.813	8.674	2.92
1996-97 (Upto Sept. 96)	8.948	8.906	-

#### b) Electricity Consumption (KWh/tcs)

Year	Plans/Target	Actual Performance	Improvement over Previous Year (%)
1994-95	479	466	2.56
1995-96	436	465	-
1996-97 (Upto Sept. 96)	471	487	-

### 3.3.4. R & D Expenditure (Rs. in Crores)

Year	Turnover	Expenditure on R & D	Certified benefits accrued	Expenditure on R&D as (%) of turnover
1994-95	4649	11.55	Not quantified	0.25
1995-96	5880	11.30	Not quantified	0.19
1996-97 (Upto Sept.96)(approx.)	-	6.00	Not quantified	-

## 3.4. Rashtriya Ispat Nigam Ltd., Visakhapatnam Steel Plant, (VSP), Visakhapatnam.

### 3.4.1. Objective

The R&D efforts are mainly directed towards Process improvement, Product quality improvement and Product development.

### 3.4.2. Highlights of R & D Activities

#### 3.4.2.1 New Technology/ Process/Product

- Process of slit rolling in LMMM has been tried and it is under stabilisation.

- Remote gunning repair of blast furnace throat has been successfully carried out by using rapid fire technology.

#### 3.4.2.2 Productivity Improvement

Parameter	Unit	1994-95	1995-96	1996-97 (Upto Sept. 96)
SP Productivity	T/SQM/hr	1.18	1.29	1.27
PF Productivity	T/CUM/DAY	1.24	1.39	1.37
Labour Product.	TLS/MANYEAR	155.52	185.40	178.81
Average Heats (Converter) per day	Nos.	33.40	40.80	41.00

### 3.4.2.3 Reduction in Consumption of materials and improvement in yield

Parameter	1994-95 (%)	1995-96 (%)	1996-97 (%) (Upto Sept. 96)
Billets from Bloom Rolled	97.20	97.41	97.79
Bar Products from Billets Rolled	96.43	97.22	98.04
Wire Rods from Billets Rolled	96.06	97.13	97.15
MMSM Products from Blooms Rolled	90.57	90.60	91.65

#### 3.4.2.4 Energy consumption

Parameter	Unit	1994-95	1995-96	1996-97 (Upto Sept. 96)
BF Coke Rate (Dry)	KG/THM	544.21	532.73	526.63
Specific Energy Consumption	GCAL/TLS	7.80	7.60	7.73

### 3.4.3 R & D Expenditure

Year	Turnover	Expenditure on R&D	Certified benefits accrued	R&D Expenditure as (%) of turnover
1994-95	2256	2.5	4.5	0.11
1995-96	3050	2.5	4.5	0.08
1996-97 (Upto Sept. 96)	1458.78	1.2	2.5	-

**3.4.4. Projects Status**

- a) Number of projects planned during 1995-96 : 4
- b) Number of projects completed during 1995-96 : 4
- c) Number of projects planned during 1996-97 : 4

**3.5 Kudremukh Iron Ore Company Ltd. (KIOCL), Bangalore****3.5.1 Objective**

R & D activities are directed towards Quality improvement through process development/modifications to suit multiproduct needs, to modify process flow chart to cater to present run of mine ore characteristic and to develop value added by-products.

**3.5.2 Highlights of R & D activities**

Studies for development of new products like ceramic tiles from tailings, manufacture of super concentrate with its value addition (for ferrite manufacture) and for production of better quality pellets with addition of peridur.

**3.5.3 Energy Conservation**

- a) Electricity Consumption : KWh/tonne:  
C=Concentrate, P=Pellets

Year	Plans/target	Actual	Improvement over
1994-95	C-82, P-32.5	C-78, P-32.5	-
1995-96	C-81, P-33	C-75, P-29.3	- 4 % Appx.
1996-97 (Upto Sept.96)	C-79, P-31	C-78.4, P-34	+ 3 % Appx(Interim)

**3.5.4 R & D Expenditures**

Year	Turnover (Rs. in crores)	Expenditure on R&D	Expenditure on R&D as (%) on turnover
1994-95	369.33	3.43	0.93
1995-96	478.48	1.28	0.27
1996-97 (Upto Sept.96)	233.93	0.25	-

**3.5.5 Project Status**

- No. of projects planned in 1995-96 : 3
- No. of projects due for completion for 1995-96 : 1
- No. of projects completed in 1995-96 : 1
- No. of projects planned in 1996-97 : 3

**3.6 Manganese Ore (India) Ltd. (MOIL), Nagpur****3.6.1 Objective/Thrust of R & D**

- To develop new mining methods to improve productivity and safety, and for mineral conservation.
- To locate new ore reserves and upgrade confidence level of the existing reserves.
- To convert mineral wastes produced from earlier mining into useful minerals.
- To develop processes for manufacture of manganese based compounds.
- To improve overall environment in and

around mining areas.

- To improve quality of product by using better technique.

**3.6.2 Highlights of Major R&D Activities**

- Experimentation with Hydraulic Sand Stowing in place of existing manual back filling by waste rock fill.

- Studies on optimisation of Barrier Pillar Size.

- Rock Mechanics Studies at Kandri, Balaghat and Chikla Mines for optimisation of stopping and support parameters.

- Adoption of plasma technology for smelting manganese ore and for production of manganese based metal alloys.

- Restoration of spoiled dumps having very low nutritional value into stable ground and development of forest using biotechnical means.

**3.6.3 Energy Conservation**

Consumption of energy (all forms to G Cal) including Electricity Consumption (KWH) per tonne of Manganese ore mined.

Year	Plans/Target	Actual Performance	Improvement over previous year (%)
1994-95	14.75	11.95	25.77%
1995-96	13.00	11.87	0.67%
1996-97 (Upto Sept. '96)	15.31	13.24	-

**3.6.4 R&D Expenditure**

Year	Turnover	Expenditure on R&D	Expenditure on R&D as (%) on turnover
1994-95	80.02	0.42	0.52
1995-96	103.72	0.62	0.51
1996-97 (Upto Sept.96)	52.92	0.1537	-

**3.6.5 Project Status**

- No. of projects planned in 1995-96 : 6
- No. of projects due for completion in 1995-96 : 6
- No. of projects completed in 1995-96 : 5
- No. of projects planned in 1996-97 : 5

**3.7 Bharat Refractories Ltd. (BRL), Bokaro Steel City****3.7.1 Objective/Thrust of R&D**

The major thrust of various R&D efforts was on development of new products and reduction of energy consumption in various processes.

**3.7.2 Highlights of Major R&D Activities**

- a) During 1995-96, in-house R&D was carried out in respect of the following areas:-

- Direct bonded Mag-Chrome Refractories with Clot.
- High Alumine Cement
- Super Duty Silica Bricks
- Basic Porous Plug

- Mag-Carbon Bricks with fused magnesia
- Zonal lining of Mag-carbon bricks with fused magnesia

- Magnesite Mortar

b) During 1996-97, R&D activities have been carried out in the following areas:-

- To develop synthetic Mag-Chrome aggregate

- Further improvement in Tundish coating mass for better performance and longer shelf life.

- Improvement in basic ramming mass (M-84) with a view to achieve cost reduction by incorporating DBM (Almora).

- Improvement in tap hole mass (M-85) for O.H. furnace and electric arc furnace to obtain cost reduction by incorporating DBM (Almora).

- Development of Mag alumina Spinel based Castable.

### 3.8 National Mineral Development Corpn. Ltd. (NMDC), Hyderabad

#### 3.8.1 Objective/Thrust on R&D

To achieve optimum utilisation of mineral resources including management and utilisation of mine wastes and production of value added products.

#### 3.8.2 Highlights of R&D Activities

##### 3.8.2.1 New Technology/Process

- Commercial plant for production of ultra pure ferric oxide from blue dust.

- Development of Pyro-metallurgical processes for production of premium grade sponge iron powder from blue dust concentrate for use in powder metallurgical industries.

- A pilot plant is being set up at Hyderabad in association with advanced research centre, DMRL with an objective to develop market for the product and generate engineering data required for a commercial set up.

- Development of hydrometallurgical processes for production of pigment grade ferric oxide from blue dust and iron ore slimes.

- New products like high grade ferric oxide for use in the manufacture of hard and medium soft ferrite components, ultra pure ferric oxide for use in manufacture of soft ferritic components and , ferric powder mix — a value added ready to use material for manufacture of ferrite components have been developed.

#### 3.8.2.2 Productivity Improvement

- Increase in production of saleable iron ore production by 5% to 6% on implementation of slime beneficiation plant.

- Increase in production and productivity of diamond processing plant at Diamond Mining Project Panna on implementation of Permaroll magnetic separation technique.

#### 3.8.2.3 R&D Expenditures

(Rs. in Crores)			
Year	Turnover	Expenditure on R&D	Expenditure on R&D as (%) on turnover
1994-95	299.05	3.94	1.31
1995-96	588.68	3.41	0.58
1996-97 (Upto Sept. 96)	317.27 (Prov.)	2.82	0.89

#### 3.8.2.4 Project Status

No. of projects planned in 1995-96	2
No. of projects planned in 1996-97	2

### 3.9 Electric Arc Furnace (EAF) Steel Producers (Mini Steel Plants)

#### 3.9.1 Kalyani Steel Ltd., Pune

##### 3.9.1.1 Objective/Thrust on R&D

To satisfy the consumers requirements for quality steel through cost effective manufacturing methods.

##### 3.9.1.2 Highlights of R&D Activities

##### New Technology/Process

- Electromagnetic stirrer (EMS) for bloom caster.
- Development of boron steel
- Development of micro alloy steel through bloom caster.
- Titanium control in ball bearing steel, for 30 ppm max.— average 22 ppm achieved.

##### 3.9.1.3 R&D Expenditure

(Rs. in crores)			
Year	Turnover	Expenditure on R&D	Expenditure on R&D as (%) on turnover
1994-95	181.48	0.08	0.046
1995-96	114.66	0.05	-

#### 3.9.1.4 Project Status

No. of projects planned in 1995-96	3
No. of projects planned in 1996-97	4

### 3.9.2 Sunflag Iron & Steel Co. Ltd., Bhandara.

#### 3.9.2.1 Objective/Thrust on R&D

Development of new products and technology.

#### 3.9.2.2 Highlights of R&D activity

##### a) New Technology/process

Improvement in EMS casting/use of pure argon as purging agent and pure cryogenic oxygen for melting.

##### b) Productivity Improvement

Reduction in Crop and scale loss.

##### c) Reduction in energy Consumption

- Energy reduction from 750 KWH to 650 KWH per tonne of crude steel in SMS; and

- Fuel consumption reduced from 35 ltr. per tonne to 27 ltr. per tonne of rolled product.

##### d) Development of new products

New Grades - AISI 1040 (M), 60 Cr 4 v2

New Sizes - 20, 20.7, 24.5, 56 mm (Round)

##### e) Quality Improvement Programme

Implementation of ISO-9002.



**3.9.2.3 Project Status**

No. of projects planned in 1995-96	3
No. of projects due for completion in 1995-96	3
No. of projects completed in 1995-96	Nil
No. of projects planned in 1996-97	2

**3.9.3 Mahindra Ugine Steel Co. Ltd., Raigad****3.9.3.1 Objective & Thrust on R&D**

- To develop new grades of alloy steels, to increase yield and to improve quality.

**3.9.3.2 Highlights of R&D Activities**

- New technology/process
  - Use of arc furnace slide gate for slag retention and better alloy recovery.
  - Mould cleaning by in-house developed jig.
- Quality improvement programme
  - Company has been reaccredited under the latest versions of ISO-9002 by TUV.

**3.9.3.3 Energy Conservation (KWh/t of Finished Product)**

Year	Plans/Target	Actual Performance	Improvement Over Previous Year (%)
1994-95	1775	1784	
1995-96	1750	1704	0.8
1996-97	1700	1685	4.7
(Upto Sept. '96)			1.1

**3.9.3.4 R & D Expenditure**

(Rs. in Crore)				
Year	Turnover	Expenditure on R&D	Certified benefits accrued	Expenditure on R&D as (%) of turnover
1994-95	189.19	0.27	0.69	0.14
1995-96	261.92	0.50	1.41	0.19
1996-97	139.34	0.25	0.27	0.18
(Upto Sept. 96)				

**3.9.3.5 Project Status**

No. of projects planned in 1995-96	3
No. of projects due for completion in 1995-96	1
No. of projects completed in 1995-96	2
No. of projects planned in 1996-97	2

**3.9.4 Essar Steel Ltd.****3.9.4.1 Objective/Thrust on R&D**

- To improve productivity, emphasis being on reduction of operation cost and maintaining good quality.

**3.9.4.2 Highlights of R&D Activities**

- Development of HR Strips of silicon steel for electrical sheet applications, extra deep drawing steel strip, linepipes (API grades) and boiler quality plates.

1. A computer-based Management Information System (MIS) developed for the Ministry of Steel with the assistance of National Informatics Centre is functional in the areas of Accounting and Budgeting, Section Activity Monitoring System, Industrial Entrepreneurs Memoranda System, Steel Control (Exports, Imports, Duties, Prices and Category-wise Production), Performance Monitoring of Public Sector Undertakings, Monitoring of ACC Decisions and incumbency position in the Ministry.

2. The Computer Centre in the Ministry of Steel, which has been established as a central facility, is equipped with one 386-based Server machine with 10 terminals, four number of 486-SX Window-based platforms with colour Monitor, 10 number of PCs/PC-XTs/PC-ATs and modem based leased-line NICNET/INTERNET connectivity to use Electronic Mail facility.

3. A proposal has already been submitted to NIC headquarters for the upgradation of the Central Server and PCs/PC-XTs/PC-ATs and establishment of Ethernet-based Local Area Network (LAN) in the Ministry for sharing of information/data. The LAN will also provide INTERNET access from the various nodes (client machines at the desk of various officers

in the Ministry).

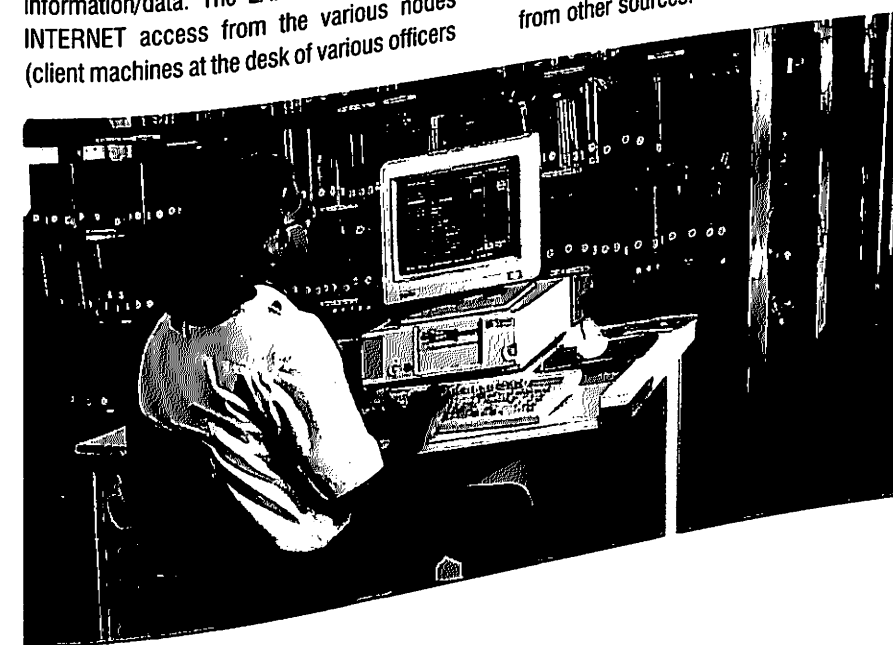
4. The E-MAIL facility of NICNET is being used for transferring information related to ACC decisions, incumbency position details from Ministry of Steel to the Department of Personnel and Training (DOPT). Efforts are also being made to create a Home-Page on the INTERNET through National Informatics Centre (NIC) for the Ministry of Steel in the area of policies, procedures and trends on the steel sector.

5. Word-processing facility for generation of reports, letters, and parliament questions is being extensively used on a day-to-day basis and during Parliamentary Sessions by almost each and every Section/Division in the Ministry.

6. NIC-Computer Cell is actively involved in the compilation and processing of the Annual Budget and the Annual Report of the Ministry on the Computer.

7. Various in-house training programs for the staff in the Ministry on Word-processing usage of MIS related packages.

8. Apart from NIC facility, PCs have also been provided to other project sections/desks from other sources.



# ORGANISATIONAL Structure

1. The Ministry of Steel is under the charge of the Minister of Steel and the Minister of Mines.

2. The Ministry of Steel is responsible for the planning and development of Iron and Steel Industry; development of essential inputs such as iron ore, limestone, dolomite, manganese ore, chromite, ferro alloys, sponge iron etc. and other related functions. There are 17 Public Sector Undertakings under the administrative control of the Ministry of Steel. The details are at Annexure-I.

3. The Ministry of Steel has a Secretary, 3 Joint Secretaries, 3 Directors, 4 Deputy Secretaries, 6 Under Secretaries and other lower level officers and staff. The Ministry also has a

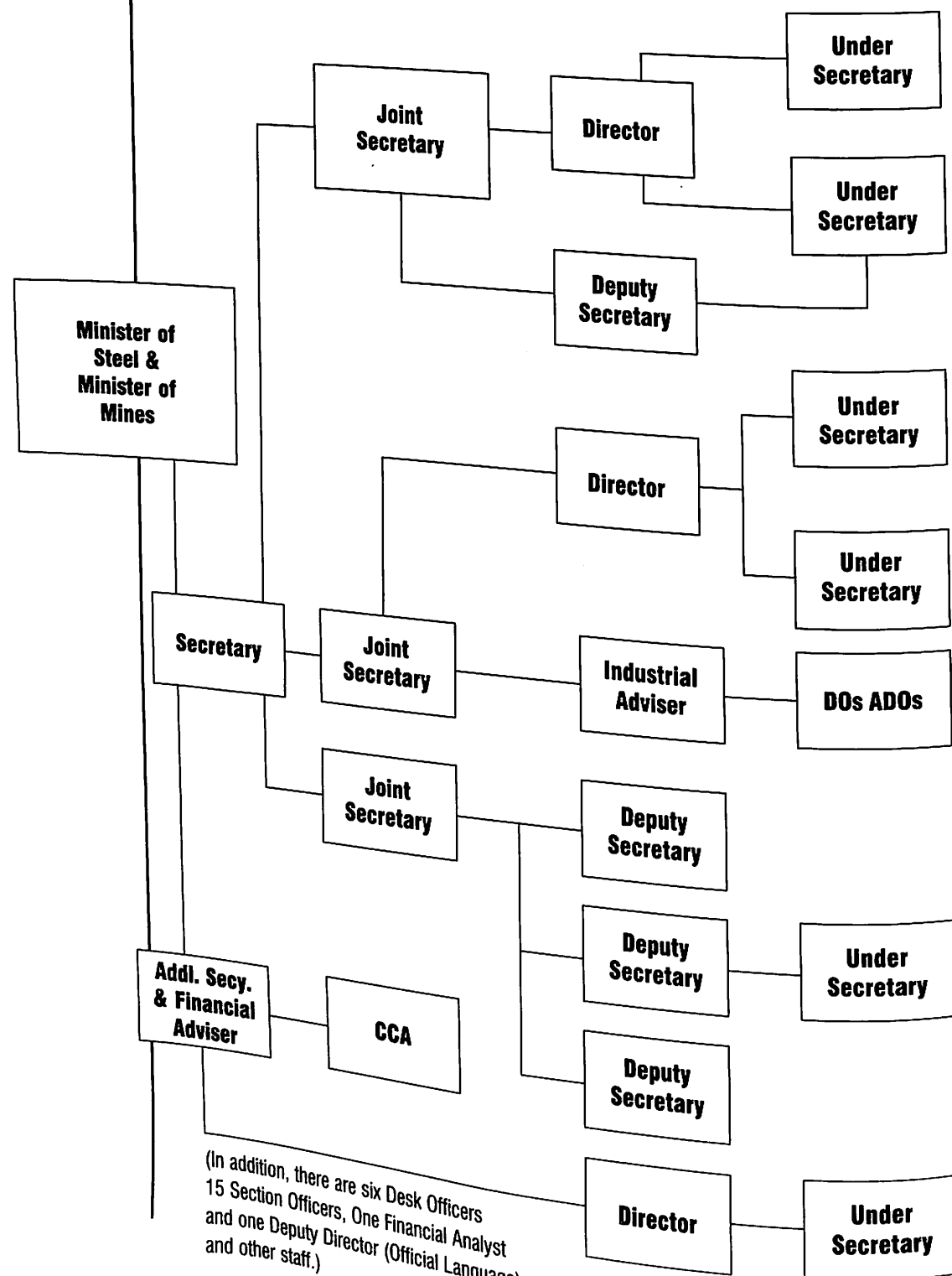
common Financial Adviser of the status of Additional Secretary and a common Chief Controller of Accounts with the Ministry of Mines. A Technical Wing, consisting of an Industrial Adviser, 4 Development Officers and 3 Assistant Development Officers assists and advises the Ministry on technical matters. The organisational chart of the Ministry is at Annexure-II. The details of classification/category of personnel in position are at Annexure-III. The Ministry has an attached office viz., Office of the Development Commissioner for Iron and Steel (DCI&S). The DCI&S who is of the status of Joint Secretary, is assisted by a Joint Development Commissioner. The organisational chart of the Office of DCI&S is at Annexure-IV.

## LIST OF PUBLIC SECTOR UNDERTAKINGS UNDER THE ADMINISTRATIVE CONTROL OF THE MINISTRY OF STEEL

1. Steel Authority of India Limited, Ispat Bhavan, Lodi Road, New Delhi-110003.
2. Rashtriya Ispat Nigam Limited, Project Office 'A' Block, Visakhapatnam-530031.
3. Metallurgical and Engineering Consultants (India) Limited, MECON Building, Ranchi-834002.
4. National Mineral Development Corporation Limited, Castle Hills, Masab Tank, Hyderabad-500028.
5. Bharat Refractories Limited, Sector IV-3, Quarter No.56, Bokaro Steel City-827001.
6. Kudremukh Iron Ore Company Limited, II Block, Koramangala, Bangalore-560034.
7. Manganese Ore (India) Limited, 3 Mount Road Extension, Nagpur-440001.
8. Hindustan Steel Works Construction Ltd., No.1 Shakespeare Sarani, (8th Floor), Calcutta-700001.
9. Sponge Iron India Limited, NMDC Complex, Khanij Bhavan, 10-3-311/A, Castle Hills, Hyderabad-500028.
10. MSTC Limited, 225F, Acharya Jagadish Bose Road, Calcutta-700020.
11. Ferro Scrap Nigam Limited, P.B. No.37, Equipment Chowk, Central Avenue, Bhilai-490001 (M.P.).
12. India Fire Bricks and Insulation Company Ltd., Railway Station, Ranchi Road, Post Office Marar-820177. District Hazaribagh, Bihar.
13. Indian Iron and Steel Co. Ltd., Burnpur-713325.
14. IISCO Ujjain Pipe and Foundry Limited, Calcutta.
15. J & K Mineral Development Corporation, Srinagar.
16. Visvesvaraya Iron and Steel Ltd., Bhadravati, Kamataka.
17. Maharashtra Elektros melt Ltd., Chandrapur, Maharashtra.

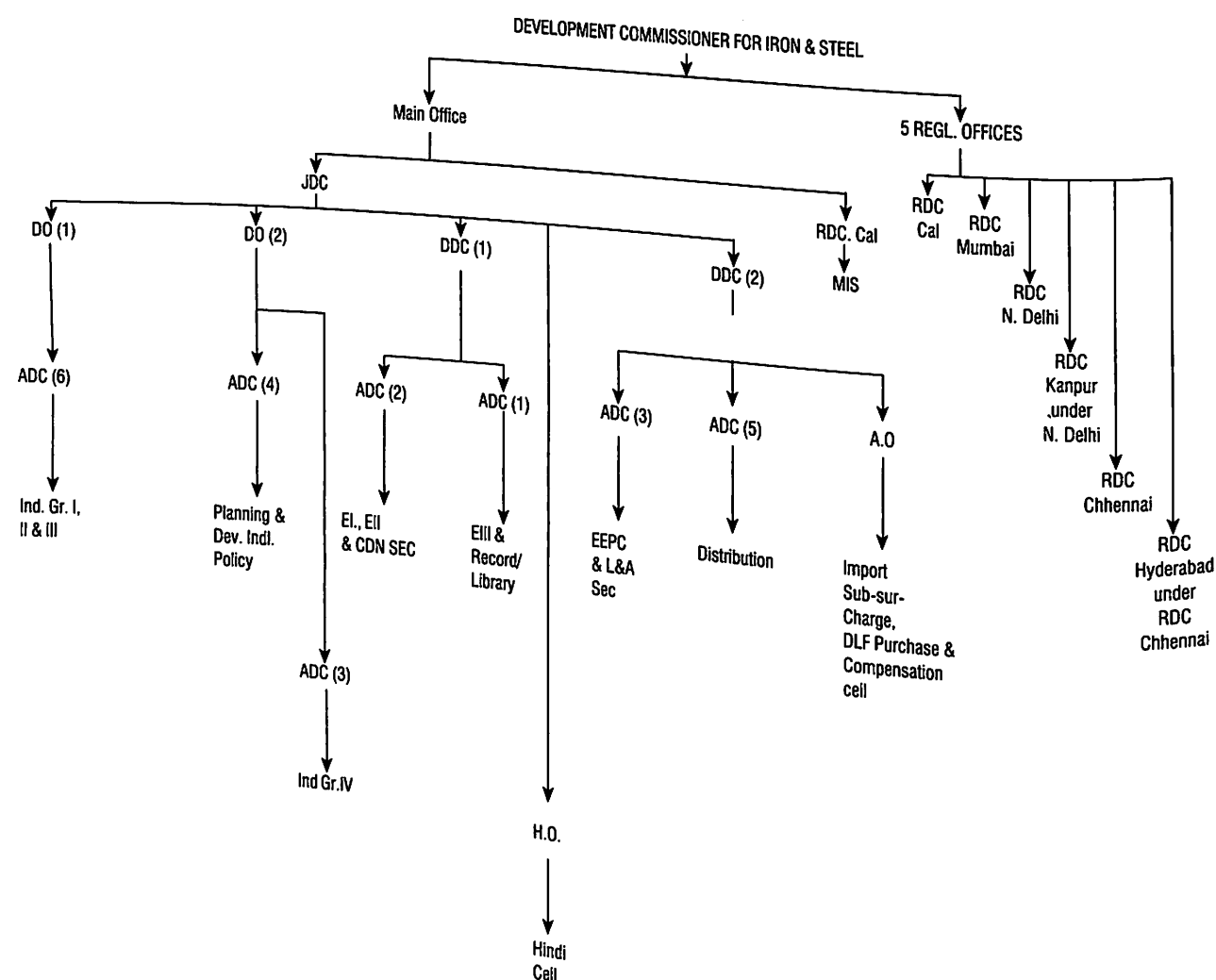
# ANNEXURE-II ORGANISATIONAL Chart

## Ministry of Steel



STATEMENT SHOWING THE NUMBER OF EMPLOYEES, NUMBER OF SC/ST/OBC/PH/ EX-SERVICEMEN, MEN AND WOMEN AS ON 16.12.96 IN RESPECT OF MINISTRY OF STEEL (SECRETARIAT)

CLASSIFICATION OF POST	NO. OF EMPLOYEES IN POSITION	MEN	WOMEN	SC	ST	OBC	PH	EX-SERVICEMEN
Group 'A'	28	26	2	5	0	1	-	-
Group 'B'	77	54	23	10	3	3	-	-
Group 'C'	92	68	24	17	8	7	1	1
Group 'D'	69	66	3	23	9	5	1	1
<b>TOTAL</b>	<b>266</b>	<b>214</b>	<b>52</b>	<b>55</b>	<b>20</b>	<b>17</b>	<b>2</b>	<b>2</b>

Development Commissioner  
For Iron & Steel

A Cell under the charge of a Liaison Officer functions for monitoring implementation of Government policy relating to reservations for the representation of Scheduled Castes, Scheduled Tribes and other backward classes in the Ministry of Steel, the attached and subordinate offices and the Public Sector Undertakings under its administrative control. Periodic reviews and annual reports received from the Public Sector Undertakings regarding recruitment/promotion of SCs/STs/OBCs against the vacancies reserved for them are scrutinised in the Cell and appropriate instructions issued to the PSUs as and when necessary.

The actual record of PSUs in respect of representation of SCs/STs/OBCs during 1996-97 is indicated below :

### 1. Steel Authority of India Ltd. (SAIL)

#### A. SC/ST/OBCs

The presidential Directives on SCs/STs/OBCs continued to be implemented during the year. As on 31.3.96, 13.90% employees belonged to SC category, 9.54% employees belonged to ST category and 4.68% employees belonged to OBC category. Various steps, including the following, were taken to improve the representation of SCs/STs:

i. Relaxation/concessions in age, qualification, experience and in the qualifying standards at different stages of selection are being given to SC/ST candidates.

ii. Further, SAIL has been making continuous efforts to clear backlog of vacancies reserved for SC/ST through special recruitment drive. Currently also, special recruitment drive to fill up posts reserved for SC/ST is under way.

iii. SAIL has been organising every year

meetings/training programmes of Liaison Officer dealing with the subject to sort out difficulties encountered in the implementation of reservation policy and to make the concerned officers familiar with latest instructions and current issues on the subject.

iv. In technical stream, for meeting the shortfall in the reservation quota, SAIL has a pre-employment training scheme under which SC/ST candidates who appear in the selection tests for Management Trainee[Technical] but do not finally qualify are offered six months training in steel plants on a monthly stipend of Rs.1,500/- per month. On successful completion of training, they are taken as MT [T] alongwith next batch of MT [T]. In 1996, under the scheme, offers were issued to 183 candidates, out of which 43 candidates [26 SC & 17 ST] had joined. The stipend has since been revised to Rs. 2,500/- per month from 1997 batch.

v. For recruitment for Jr. Manager[F&A] in SAIL, minimum qualification is CA/ICWA. However, to meet the backlog of SC/ST candidates, this qualification has been relaxed to Intermediate of CA/ICWA. On selection, they are initially placed as Executive Trainee[Finance] and subsequently placed as Jr. Manager[F&A] on completion of one year of training. During 1996-97, 21 such trainee were recruited.

vi. While selecting employees for in-house and external training, the endeavour of the Plants/Units of SAIL is to include as many SC/ST candidates as possible so as to enable them to develop and enhance their knowledge and skills.

#### B. Educational Facilities

The ward of SC/ST employees are entitled to free education in Company's schools. They are also entitled to school uniforms, shoes etc.

**C. Scholarship**

SAIL is operating a Merit-cum-means scholarship scheme under which 20% scholarships are reserved for the wards of SC/ST employees for pursuing higher education including professional courses. Under the scheme, scholarship amount who joined prescribed degree courses and Rs.150 per month to those who join prescribed diploma courses.

A scheme which provides for scholarship of Rs. 450 per month to SC/ST undergraduate engineering students is also in operation in SAIL.

**D. Machinery for Handling Grievances of SC/ST Employees**

A Liaison cell for the welfare of SC/ST community has been constituted in the plants to act as the coordinating agency as well as the enforcement machinery in respect of Government directives issued from time to time regarding welfare of SC/ST community. The cell regularly conducts inspection in the shop floor, Personnel Section and the Recruitment Section to verify and pursue the implementation of Government Directives on Reservation for SC/ST candidates. It also keeps liaison with various external bodies/associations of the SC/ST community. Meetings are conducted with the SC/ST employees and their organisations at regular intervals with a view to sort out their problem/grievances.

**E. Peripheral Development**

SAIL has been playing an active role in undertaking various measures like providing drinking water facilities, health care programmes, educational programmes, educational facilities, recreational activities etc. for the people living in the areas near the steel plants/mines. A sum of Rs. 4.69 crores was spent on peripheral development during the year 1995-96. As most of the Plants/Units are

situated in tribal belts or in areas with more Scheduled Caste population, a major portion of the amount spent goes towards the benefit of SC/ST population in the surrounding villages.

**2. Rashtriya Ispat Nigam Ltd. (RINL)**

As on 31.10.96, out of total manpower of 17504, 2872 employees belong to SC category (16.41%), 1015 employees belong to ST category (5.81%) and 3,011 employees belong to OBC (17.20%). Moreover, there are 418 women (2.39%), 70 physically handicapped (0.43%) and 262 Ex-service men (1.51%)

**i. Activities Undertaken by RINL for the Advancement of SCs/STs/OBCs**

RINL has been taking keen interest in the welfare of OBCs/SCs & STs, in order to promote talents among SCs/STs, a scholarship scheme exclusively for the children of SC/ST employees has been introduced. Under the scheme, one scholarship of Rs. 250 p.m. and two scholarships of Rs. 150 p.m. are awarded each year. RINL has also launched a cash award scheme for the students of SC/ST communities under which 1st Merit Award of Rs. 500 and 2nd Merit Award of Rs. 250 is given to 10th class passed students every year from each of the schools run in the Company's township.

Besides, on different occasions, monetary contributions have been given to the district administration for carrying out special family welfare programmes, sterilization camps in the district, which include SC/ST/OBC population. In addition, VSP has recently formulated a detailed peripheral development plan with specific budget provision towards measures like improvement of roads, sanitary and civic amenities, education facilities etc., in the Rehabilitation Colonies and other neighbouring villages in

which SC/ST/OBC population also resides. One village, viz. Dibbapalem has been adopted by RINL for development.

**ii. Training Programmes Conducted during the period from 1-1-1996 to 31-10-1996:**

	GEN	SC	ST	OBC	TOTAL
No. of employees nominated for Training programmes conducted within India	4338	946	249	857	6390
No. of employees nominated for foreign Training programmes	55	7	3	-	65

**3. National Mineral Development Corporation Ltd. (NMDC)****Manpower**

The total no of employees in NMDC as on 31.10.96 was 6804 out of which 1113 persons belong to Scheduled Castes (16.35%) 1187 Scheduled Tribes (17.44%) and 387 OBCs (5.68%). More-over there are 457 women (6.71%), 54 Physically handicapped (0.79%) and 92 Ex-servicemen (1.35%).

**Other Welfare Measures**

The corporation gives facilities for promotion of education among the children of SCs/STs by offering Scholarships in local Kendriya Vidyalayas and by providing free education facilities to children of Tribals who seek admission in project schools. A school exclusively for children of tribals is being run by corporation at the Bailadila-5 project. All tribals residing in the project area are offered free medical facilities at the NMDC project hospitals. Members of ST communities avail of the services of the project cooperative societies, even if they are not em-

ployees of the corporation.

At Bailadila Project, NMDC has constructed two community centres. Weekly film shows and other entertainments are provided at these centres. A weekly market (Haat) is being organised in Kirandul and Bachel, where Adivasis get an opportunity to sell their products directly to consumers. NMDC also has been helping the villages around the projects by providing hand pumps, digging wells for providing drinking water, mobile dispensary facilities, constructions of approach roads to their villages etc.

NMDC under Community Development Programme constructed two multipurpose Community Halls at a cost of Rs. 20 lakhs near Donimalai Project one at Narasingapura and the other at Bhujanganagar village for the benefit of villagers. These two community hall buildings were handed over to the secretaries of respective village panchayats.

**Training Programmes**

In the training programmes conducted during the year 1996-97 (upto Oct. '96) SC/ST/OBC/Physically Handicapped and Ex-servicemen were also covered. The details are given in the following table:

Year	SC	ST	General (Incl.OBC, P.H. & Ex-ser.)
1996-97 (upto Oct. '96)	145	93	992

**4. Manganese Ore (India) Ltd. (MOIL)**

Manganese Ore (India) Ltd. (MOIL) is a labour intensive organisation with 8259 employees on its rolls. About 76% of the total strength belongs to SC/ST/OBC. MOIL has undertaken several measures for the welfare of

the weaker sections. Some of them are listed below:

- Adoption of Tribal village.
- Training in Sericulture for economic development.
- Help to schools situated around the mines.
- Organising Eye Camps/Child Welfare camps.
- Grant of subsidy to Gram Panchayat for water supply schemes.

MOIL constantly upgrade the various welfare measures provided to the weaker sections, with a view to improve the quality of life.

Manpower as on 31.12.96 out of a total manpower of 8,259, 1,486 employees belong to SC category (17.99%), 2,131 employees belong to ST category (25.80%), and 2,677 employees (32.41%) belong to OBC. Moreover there are 1,322 women (16%), 17 Physically Handicapped (0.20%) and 132 Ex-servicemen (1.59%).

#### 5. Kudremukh Iron Ore Co. Ltd. (KIOCL)

The total no of employees in KIOCL as on 31.10.96 was 2481, out of which 337 persons belong to Scheduled Castes (14%), 88 persons belong to Scheduled Tribes (3%), and 250 persons belong to OBC (10%), moreover there are 159 Women (7%), 27 Physically Handicapped (0.9%) and 138 Ex-Servicemen (6%).

#### Welfare Measures

- The company has setup full fledged facilities at Kudremukh and Mangalore establishments by establishing modern town ship, hospital, recreation facilities etc. 10% type A

and B quarters and 5% C and D type quarters are reserved for SC/ST employees.

- 20% of the Merit-cum Means Scholarships, 6 in number, are reserved for children of SC/ST employees for whom the qualifying standard of First Class or 60%, whichever is higher, is relaxable to 50% in the aggregate.

#### Periodic Meetings with SC/ST Representatives.

SC/ST cell meets the SC/ST Welfare Association periodically at Kudremukh, Mangalore and Bangalore. The Management representatives also meet the Welfare Association once in a quarter besides the CMD meeting them once in six months. The grievances of SC/ST employees are discussed and appropriate action is taken to redress their grievances.

#### Training Programmes

In the training programmes organised at periodic intervals, SC/ST/OBC are also nominated along with others.

#### 6. Bharat Refractories Ltd. (BRL)

##### Manpower

The total no of employees in BRL along with its subsidiaries, IFICO Ltd. as on 31.10.96 was 3,850 out of which 403 belong to Scheduled Castes and 508 belong to Scheduled Tribes and 1,975 persons belong to OBCs. Moreover there are 164 women, 26 Physically Handicapped and 78 Ex-servicemen

#### Other Welfare Measures

- Free vaccination facilities are provided to the children of local inhabitants who mostly belong to SC/ST/OBC category as the units are

located in the tribal belts of Chhotanagpur, Bihar and Chhatisgarh region of Madhya Pradesh.

- Different plants of the company have taken up construction of wells for supply of drinking water for nearby villagers.

- A Health Centre has been constructed by Bhandaridah Refractories Plant and handed over to Bihar Govt. SC/ST/OBC people are largely benefitted as they constitute 70-80% of the local population;

- Electricity Transformer has been provided by IFICO Ltd. For extending power supply to the nearby villages.

#### Training Programmes

Regular training programmes are being conducted with the cooperation of Central Board for Worker Education and certain other agencies in which adequate representation for SC/ST/OBC is given.

#### 7. Sponge Iron India Ltd.

##### Manpower

The total no of employees in SIIL as on 31.10.96 was 592, out of which 101 employees belong to SC category (17%), 55 persons belong to ST category (9%). More over there are 37 women (6%), 9 Physically Handicapped (1.5%) and one Ex-serviceman (0.16%).

#### Welfare Activities

A small cell headed by the company's Chief Medical Officer looks after the welfare activities in the nearby areas. Recognising its social responsibilities, the company undertakes programmes from time to time, which are for the benefit of the people in the local areas.

#### Training Programmes

SIIL being situated predominantly in the tribal area and in view of dearth of qualified SC/ST candidates, freshers from the institutes are being recruited in different disciplines, and training is being given to the SC/ST/OBC employees to enable them to acquire skills for possible absorption in regular posts after the training. Besides this, apprenticeship training is also being imparted to the ST employees being sponsored by Integrated Tribal Development Authority (ITDA) Bhadrachalam as a part of special drive, which is in addition to the candidate sponsored by local I.T.I.

#### 8. MSTC Ltd.

MSTC is primarily a trading organisation with relatively small work force of 280 employees including Executives.

#### Training Programmes

SC/ST/OBC employees were sponsored for both internal and external training programmes during the year. These trainings were about the computerisation training, computer orientation and managing change under the internal training programmes, and Supervisory programmes, EPF Act with special emphasis on new employees' pension schemes. An appropriate number of SC/ST/OBC employees were also sponsored for these programmes.

#### 9. Metallurgical & Engineering Consultants (India) Ltd. (MECON)

The total manpower of MECON as on 31.3.96 was 3,600. Out of this 750 persons belong to SC/ST category.

#### Welfare Activities

In addition to employees welfare, MECON's

welfare activities extend beyond its Shyamli Township, to the rural areas around Ranchi. About 1,064 adults were covered under Literacy Programme through 35 Adult Education Centers. About 4400 patients were treated in the adopted villages through Medical Camps. MECON also established vocational training centers for providing training for young dropout wards of the employees and that of society to facilitate opening of the avenues for self employments opportunities.

#### 10. Hindustan Steelworks Construction Limited (HSCL)

As on 31.10.96, out of a total manpower of 14,508, 2,143 persons belong to SC category (14.7%), 1,642 persons belong to ST category (11.3%), and 1347 belong to OBC category (9.2%). Moreover there are 959 women (6.61%), 45 Physically Handicapped (0.31%) and 186 Ex-Servicemen (1.28%)

#### Social Welfare Activities

##### Welfare plan for SC/ST

a) HSCL assists in providing schools in areas where SC/ST employees mostly reside.

b) Plots are allotted to workers for making hutments in the land allotted at sites of clients

with the free electricity, water supply and sanitation arrangements etc.

c) Children of SC/ST employees get due preference in the matter of schooling at Projects where short term construction work is to be undertaken.

#### 11. Ferro Scrap Nigam Ltd. (FSNL)

As on 31.10.96, out of total manpower of 1,390 persons, 214 belong to SC category (15.39%) 152 belong to ST category (10.93%) and 100 belong to OBC category (7.19%). Apart from this there are 14 women (1%) 3 physically handicapped (0.21%) and 61 ex-servicemen (4.3%).

#### Welfare Activities

Special endeavour is made by FSNL towards upliftment of the weaker sections in the society, by adopting a nearby village for distribution of books/notebooks, life saving medicines etc. to such category of people living in the villages.

#### Training Programme

During the year 96-97, FSNL has imparted training to 18 SC, 9 ST and 14 OBC employees of the company.

### Progressive Use of Hindi

1. The Ministry continued its efforts for greater use of Hindi in official work during the year 1996-97 keeping in view the Annual Programme prepared by the Department of Official Languages (Ministry of Home Affairs) for implementation of the Official Language Policy of the Union.

2. The work relating to the progressive use of Hindi in the Ministry of Steel is under the administrative control of a Joint Secretary and is looked after by a Director. The Hindi Section consists of a Deputy Director, an Assistant Director, a Senior Translator, three Junior Translators and two LDCs. There are 53 Devenagari typewriters including 30 bilingual electronic typewriters. Adequate reading material in Hindi is available in the Ministry. A number of measure have been taken for the promotion of progressive use of Hindi in the Ministry and in the office of the Development Commissioner of Iron and Steel.

3. Some important items in regard to the use of Hindi in the working of Ministry and its PSUs are indicated below :

[a] Almost all the Public Sector Undertakings under the administrative control of this Ministry are publishing their house journals in Hindi also. In addition, Hindi magazines and books are available in their libraries.

[b] An inspection team of the Ministry oversees the status of implementation of the provisions of the Official Language Acts/Rules in its attached office and Public Sector Undertakings under the administrative control of the Ministry. In the year under review, this inspection team had made 5 such inspections till Dec 96.

#### 4. Official Language Implementation Committee

There is an Official Language Implementation Committee under the chairmanship of a Joint Secretary in the Ministry. This Committee reviews the progress made in the use of Hindi in the Ministry, its attached office and Public Sector Undertakings. Meetings of the Committee are held from time to time. During the year under report till Dec 96., 2 meeting were held.

#### 5. Hindi Salahkar Samiti

At present this committee is under reconstitution.

#### 6. Implementation of Section 3[3] of the Official Language Act

In pursuance of the Official Language Policy of the Government, almost all documents covered under section 3[3] of the Official Language Act are prepared both in Hindi and English. In order to ensure issue of letters in Hindi to Central Government Offices Located in Regions "A", "B" and "C", checkpoints have been identified in the Ministry.

#### 7. Rajbhasha Shield/Trophies

In order to encourage the use of Hindi in the offices and Undertakings under the administrative Control of the Ministry of Steel, a Chal Vajrayanti, a Rajbhasha Shield and two Trophies have been instituted. These awards are given every year to the Office/Undertaking on the basis of their annual performance in this field. Besides, a medal is also awarded to the officer/employee of the Ministry whose work in Hindi is rated the best.



## 8. Incentive Scheme for Original Work in Hindi

The cash incentive scheme for original work in Hindi introduced by the Department of Official Language is being implemented in the Ministry. 10 persons have been given cash prizes under the incentive scheme during the year.

## 9. Cash Prize Scheme

Cash prize scheme for officers for giving dictation in Hindi is in operation in this Ministry. During the year, two officers were awarded cash prize under the scheme.

## 10. Award for Writing of Hindi Books

A scheme for awarding cash prizes for writing technical books in Hindi on various disciplines related to steel industry and its allied subjects is also in operation in the Ministry. The awards are Rs. 15,000, Rs.10,000 and Rs. 7,500, for first, second and third prize respectively.

## 11. "Hindi Fortnight"

In order to encourage the use of Hindi in Official work amongst officers/ employees of the Ministry, a "Hindi Fortnight" was observed from 16th Sept to 30th Sept., 1996. An appeal was issued by the Honourable Minister exhorting staff of the Ministry and the Public Sector Undertakings to increase the use of Hindi in Official work.

During the period Hindi Essay writing/ Hindi typing / Hindi stenography competitions were conducted and prizes awarded. Besides, Hindi workshops separately for various categories of officers and staff were also organised during this fortnight. A message of Honourable

Minister of Home Affairs regarding use of Hindi was also read out before the officers and staff of the Ministry of Steel. This message was also circulated to all the PSUs under the Ministry of Steel.

## 12. Training of Staff in Hindi/ Hindi Typewriting/Hindi Stenography

A programme has been drawn up for imparting training in Hindi/Hindi Stenography/ Hindi Typewriting to those employees for whom in-service training is obligatory. The position till Dec '96 regarding training in Hindi/Hindi Typing/Hindi Stenography in the Ministry is as under:

Training Course	No. of Trained Persons (as on 30 Sept. 1996)
[a] Hindi Typing	7
[b] Hindi Stenography	19
[c] Hindi Training	
[i] Total No. of employees/officers {Group A, B & C}	179
[ii] Total No. of employees/officers/ possessing working knowledge of Hindi	166

13. Officers and staff of the attached office and Public Sector Undertakings are given training under the Hindi Teaching Scheme of the Ministry of Home Affairs, wherever such facilities exist. In other places, employees are encouraged to learn Hindi through correspondence courses conducted by the Central Hindi Directorate. SAIL have also initiated their own Hindi teaching programme through correspondence.