ANNUAL REPORT

1997-98

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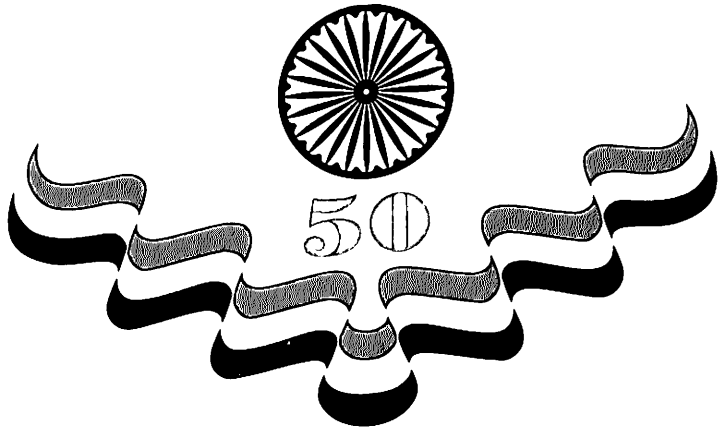
MINISTRY OF STEEL



MINISTRY OF STEEL

Annual Report 1997-98

CONTENTS

YEAR'S HIGHLIGHTS

- The Indian Steel Industry recorded a production of 22.57 (prov.) million tonnes of Finished Steel in 1997-98.

- India was the 10th largest producer of Crude Steel in the World in 1997 with a production of 24 million tonnes.

- India exported 3.39 million tonnes of iron and steel valued at Rs.2685 crores during 1997-98 registering an increase of 25% over 1996-97.

- SAIL in four Integrated Steel Plants achieved production of Hot Metal (11.6 MT), Crude Steel (10.32 MT) and Saleable Steel (8.70 MT) during 1997-98.

- SAIL incurred capital expenditure of Rs.1880 crores on modernisation and other capital schemes in 1997-98 without any budgetary support.

- SAIL undertook improvement of major techno economic parameters with energy consumption of 8.32 G.Cal/tcs, being the lowest since inception in 1997-98.

- 1047.2 thousand tonnes of Steel was exported by SAIL during 1997-98.

- The labour productivity has been maintained at 96 tonnes of crude steel per man year during 1997-98.

- During 1997-98 VSP increased its production of saleable Steel by 6.13% and captive power generation by 5% compared to 1996-97.

- VSP achieved a growth of 9% in export of Pig Iron during the 1997-98 over the corresponding period last year.

- National Mineral Development Corporation Ltd. (NMDC) produced 14.59 Million Tonnes of Iron Ore during 1997-98 (Provisional).

- NMDC exported 7.2 million tonnes of iron ore valued at Rs 516 crores

- NMDC paid the highest ever dividend of 25% on paid-up capital (amounting to Rs.36.34 crores) for 1996-97. This is the seventh year in succession for payment of dividend.

- NMDC earned Rs.195.15 crores as profit during 1997-98 the highest so far.

- India exported 29.8 million tonnes of iron ore during 1997-98 as against 27.0 million tonnes in 1996-97.

- Metallurgical and Engineering Consultants (India) Limited (MECON) paid dividend @ 30% of paid up capital for 1996-97. This is the 18th consecutive year MECON has paid dividend.

- Kudremukh Iron Ore Company Limited (KIOCL) paid dividend for 1996-97 at the rate of 3.25%. This was the 5th year in succession for payment of dividend.

- Export of 2.8 million tonnes of pellets by KIOCL in 1997-98 is the highest annual export so far exceeding the previous highest of 2.58 million tonnes in 1995-96.

- KIOCL achieved highest annual turnover of Rs.587.16 crores in 1997-98 - the previous highest being 492.59 crores in 1996-97.

- Government has decided to set aside Rs. 150 crores out of the interest accruals on SDF loans to main producers for research and development in the iron and steel sector.

- To boost exports and to solve common problems facing exporters, a Steel Exporters Forum has been set up with major steel producers as its members.

AT THE YEAR AT A GLANCE

Production of Steel

Total production of finished steel in 1996-97 was 22.72 million tonnes with main producers contributing 10.54 million tonnes(46%) and secondary producers 12.18 million tonnes(54%). During 1997-98, out of a total production of 22.57 MT of finished steel, production by secondary producers was 12.12 million tonnes and by main producers 10.45 million tonnes. The share of main and secondary producers in the total production of finished steel has remained more or less the same in 1996-97 and 1997-98.

Production of saleable steel in the four integrated steel plants of SAIL and IISCO during 1996-97 was about 9.24 million tonnes. The production during 1997-98 was about 9.04 million tonnes (prov.) registering a decline of 2.27% over last year.

Production of saleable steel in Visakhapatnam Steel Plant (VSP) was 2.25 million tonnes in 1997-98 as against 2.12 million tonnes in 1996-97 registering an increase of 6.13%. TISCO produced 3 million tonnes of saleable steel in 1997-98 as against 2.82 million tonnes in 1996-97 registering an increase of approximately 6% over last year.

Demand and Availability of Steel

Total demand for finished steel including domestic requirement and for export in 1996-97 was 24.18 million tonnes. Against this, the domestic production during the year was about 22.72 million tonnes leaving a gap of 1.46 million tonnes which was met through imports. In the case of pig iron the domestic production was 3.29 million tonnes against an estimated demand of 2.4 million tonnes. During 1997-98 the demand for pig iron and finished steel are 2.63 million tonnes and 22.38 million tonnes respectively. Against this, the availability was 2.69 million tonnes for pig iron and 22.61 million tonnes for finished steel.

Steel Consumers Council

The Steel Consumer 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 1996-97 was 9.24 million tonnes representing an increase of 1% over the production during the corresponding period in 1995-96. During year 1997-98, the production was 9.042 million tonnes.

IISCO

Production of saleable steel in IISCO, a subsidiary of SAIL in 1996-97 was 0.339 million tonnes which was 93% of the target and a growth of 12%, over 1995-96. During the year 1997-98, the saleable steel production was 0.316 million tonnes.

Working Results of SAIL

The profit before tax of SAIL for the period ended 31st March, 1997 was Rs.588 crores as compared to Rs.1319 crores in 1995-96. During the year 1997-98, SAIL achieved a turnover of Rs. 16185.00 crores, gross margin of Rs 2490.00 crores and a profit before tax of Rs. 116.00 crores .

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

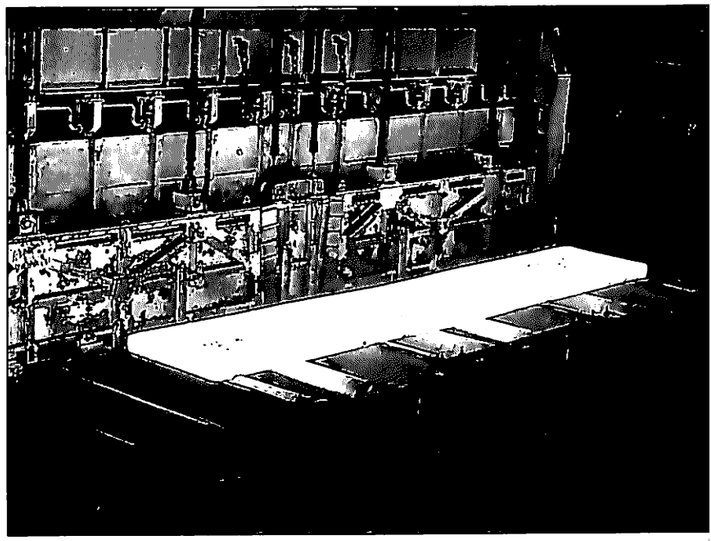
Under Durgapur Steel Plant modernisation, all major production units have been commissioned during the year 1996-97. Besides major production units under Modernisation, revamping of coke oven battery No.3, 7th Boiler and Old Sinter Plant were also completed during the year and are under stabilisation.

Rourkela Steel Plant

At Rourkela Steel Plant, under Phase-II modernisation, 4 global and 13 indigenous packages have been completed and put on hot trials. The remaining 1 global and 2 indigenous packages are under completion. The stabilisation of commercial production of major units i.e. Sintering Plant-II, BOF Shop, Concast Shops-I &II, Partial Briquitting Coal Charge Plant (PBCC), etc. is in progress. Besides Modernisation, Upgradation of BF No.2 alongwith installation of Bell-less Top Charging System, Revamping of Captive Power Plant-I, Gas Cleaning Plant for convertors 4 & 5, SMS-I were also completed during the year 1996-97.

Bokaro Steel Plant

At Bokaro Steel Plant, the work on Stage-I modernisation is nearing completion. A new Walking Beam Reheating Furnace, Coke Oven Battery No.4 after rebuilding and last (5th) bell-less Top Charging System were commissioned during the year 1996-97.



Latest walking beam type, Reheating Furnace no. 4, Bokaro Steel Plant.

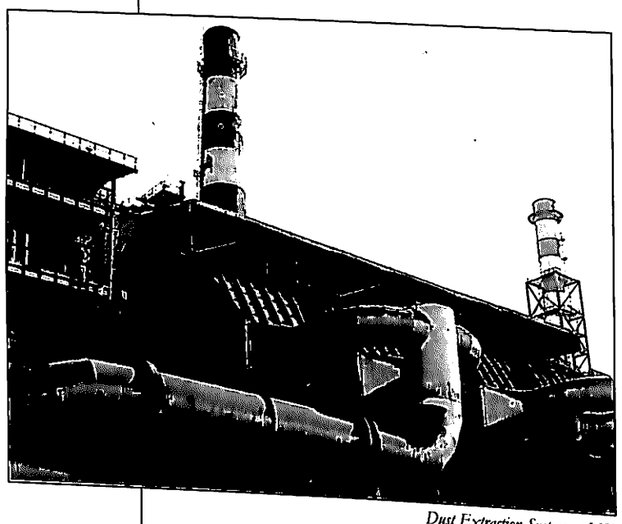
Bhilai Steel Plant

At Bhilai Steel Plant, Coke Oven battery No.19 has been commissioned during the year. The Stage-I (Phase-I) modernisation of Rail & Structural Mill is expected to be commissioned soon. All major equipment of Oxygen Plant-II have been received at site and the erection work is in advanced stage of completion. The work on Sinter Plant-III is progressing satisfactorily.

With the completion of modernisation schemes at DSP, RSP and BSL, substantial improvements are likely to take place in terms of techno-economic parameters, particularly, specific energy consumption, coke rate, etc. besides quality and increase in production capacity of saleable steel.

Rashtriya Ispat Nigam Limited (RINL) Visakhapatnam Steel Plant (VSP)

1997-98 is the fifth year of integrated operation of Visakhapatnam Steel Plant (VSP). In this year VSP has targetted 3.4 MT of hot metal, 3 MT of liquid steel and 2.6 MT of saleable steel. This represents 100% capacity utilisation. The production during 1997-98 has been



Dust Extraction System at VSP

3.17 MT of hot metal, 2.54 MT of liquid steel and 2.25 MT of saleable steel representing target fulfilment of 93%, 85% and 85% respectively. There has been a substantial increase in production of value added steel from 1,20,795 tonnes during 1996-97 to 2,03,535 tonnes during 1997-98.

VSP has been recording continuous improvement in techno economic parameters such as reduction in BF coke rate to 531 kg per tonne of hot metal in 1997-98 against a target of 540 Kg per tonne. The converter life has also increased to 468 heats against a target of 425 heats.

Taking advantage of its strength in effective operation of captive power plant, VSP has entered into an agreement with APSEB for exporting power for a period of 3 years from January, 1997. For the year 1997-98 VSP registered a growth of 5% in power generation over corresponding period last year. A record export of 79.4 MW to APSEB in April, 1997 was achieved during the power crisis in Andhra Pradesh. Captive mines of RINL in Madharam and the Manganese Ore mines at Garbham have registered a growth of 43.77% and 116.81% in production in 1997-98 over the previous year.

With concerted efforts during 1997-98, VSP achieved a growth of 9% in the export of Pig Iron with a total export turnover being Rs.600 crores.

National Mineral Development Corporation Limited (NMDC)

During the year 1997-98 (Provisional), NMDC produced 14.59 Million Tonnes of Iron Ore and 30596 carats of diamond. For the year 1996-97, the Company paid a dividend of 25% on the equity capital amounting to Rs.36.34 crores, which was the seventh year in succession for payment of dividend.

In view of the increasing demand for Bailadila Iron Ore, two new Iron Ore Mining Projects are being undertaken in this region at Deposit No.10/11A and 11/B, the latter in the Joint Sector. Each of these Projects is designed to produce 5 million tonnes run-of-mines (ROM) Ore per annum.

Kudremukh Iron Ore Company Limited (KIOCL)

During the year 1997-98, KIOCL has produced 6.125 million tonnes of concentrate and 2.90 million tonnes of pellets.The production of concentrate and pellets during 1996-97 was 5.572 million tonnes and 2.246 million tonnes respectively.

The Company recorded a Gross Margin of Rs.126.71 crores (prov.)and a net profit before tax of Rs. 83.74 crores (prov.) against a target of Rs.125 crores (gross margin) and Rs. 82.56 crores of net profit respectively. This represents more than 100% fulfilment of targets.

The Company declared a dividend of 3.25% of the paid up capital amounting to Rs. 20.62 crores in 1996-97.

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

Electric Arc Furnace Industry

184 electric arc furnace units in the country with a total installed capacity of 10.44 million tonnes per annum are in existence. Of these, as on 30.9.1997, 100 units with an aggregate estimated capacity of 2.7 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 two years is years is given below :

(In '000 tonnes)

Category	1996-97	1997-98 (Prov.)
Mild Steel	1606.7	1640
Medium/High Carbon Steel	1086.4	1200
Alloy Steel	1058.7	1160
Stainless Steel	149.6	140
Others	46.3	60
Total Reported	3947.7	4200
Total Estimated	166.9	80
Grand Total	**4114.6**	**4280**

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

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 Briquette Iron (HBI), it contains a large percentage of metallic iron. This is a partial substitute for steel melting scrap used mainly in the electric steel making and in BOF processes. The indigenous availability of metal scrap is low and large quantities have to be imported in order to meet indigenous demand.

The growth of sponge iron units specifically during the last five years in terms of capacity and production have been substantial. The installed capacity of sponge iron units increased from 1.52 million tonnes per annum in 1990-91 to 5.966 million tonnes per annum in 1997-98. The production has increased from 0.9 million tonnes in 1990-91 to 5.31 million tonnes in 1997-98 (prov.).

Pig Iron Industry

The pig iron industry profile is constantly undergoing changes, with more mini blast furnace units in the private/secondary sector coming up in the post liberalization era. Significantly, contribution of secondary sector units, from only 8% during 1991-92 has increased to 48% in 1996-97, and further to 51% during the period 1997-98. The secondary sector units are also producing foundry grade pig iron including low sulphur and low phosphorous grades.

As in 1997-98, 14 mini blast furnace units with a total capacity of approx. 2.58 million tonnes per annum are engaged in the production of pig iron in the private/secondary sector. Several more units are in the pipeline.

Iron Ore Exports

During 1997-98, India exported 29.8 million tonnes of iron ore as against 27.0 million tonnes in 1996-97.

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 Management Information System (MIS) developed for the Ministry of Steel with the assistance of National Informatics Centre (NIC) is functional in areas of Accounting and Budgeting, Section Activity Monitoring System, Industrial Entrepreneurs Memoranda System. An integrated MIS has also been developed in the areas of Exports, Imports, Duties, Prices, Apparent Consumption & Category wise production, Performance Monitoring of Public Sector Undertakings, Public Grievances, VIP References Monitoring. The Computer Centre in the Ministry is equipped with latest Hardware and Software

tools and is linked with NICNET/INTERNET for usage of NICMAIL facility and INTERNET Services. Pentium-based and 486-based client systems have been provided to various Senior level officials in the Ministry by NIC. Apart from Pentium-based/486-based, dumb terminals of the Central Server and PCS have also been provided to other project sections/desks by NIC. Various in-house training programmes for the staff in the Ministry on Window based packages are being organised by NIC Computer Cell from time to time. Efforts are being made to standardise the Software with specific reference to Window-based Software available today among the various users of the Ministry and a training is proposed to be organised on its usage.

Research and Development

Both Public and Private Sector Iron and Steel plants continued their Research and Development 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.

In accordance with the decision of the Cabinet to earmark Rs. 150 crores per annum for Research & Development efforts in the iron and steel sector, Government has set up an Empowered Committee to approve Scientific Research Programmes and to provide overall direction to the total research effort on the iron and steel in the country. The Committee has been constituted under the Chairmanship of Secretary, Ministry of Steel and some members from major steel producers and other experts in the field.

Energy Conservation

Iron and Steel plants, both in Public and Private Sectors continued to give thrust on reduction of consumption of energy. Development and introduction of fuel efficient burners, optimisation of combustion system and modification of thermal regime in different shops of SAIL plants have resulted in substantial reduction of energy consumption. The total energy consumption in four integrated steel plants of SAIL was 8.39 G.Cal/tonne of crude steel during 1996-97 and 8.38 G.Cal/tonne of crude steel during April-September, 1997.

Partial substitution of charcoal by imported low ash metallurgical coal in Submerged Arc Furnace (SAF) for production of Ferro Silicon at Visvesvaraya Iron & Steel Limited (VISL) has shown reduction in specific power consumption by 72 KWH/tonne and reluctant consumption by 74.25 Kg/tonne.

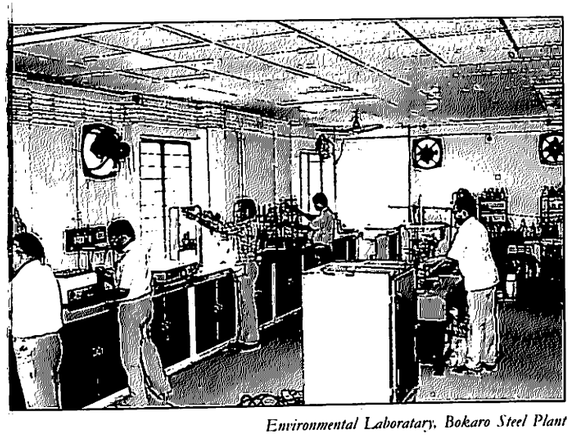
Lowest ever plant specific energy consumption of 8.450 G.Cal/tonne of Crude Steel during April to Dec., 1997 has been achieved by TISCO.

By use of Hot Metal produced in Mini Blast Furnace, in the Electric Arc Furnace at Usha Martin Industries Ltd. (Usha Alloys & Steel Division), the total energy consumption has come down from 661 KWH per tonne of billet in the year 1995-96 to 436 KWH per tonne of billet in the year 1997-98.

Environmental Management and Pollution Control

The Iron and 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.

Thrust on the implementation of various schemes of SAIL plants as per the pollution control action plan initiated in 1992 continued during 1997-98. Additional ten schemes costing Rs.86 crores were completed during the year. With this, 107 schemes have now been commissioned, as a result of which effluent discharge quality as well as the ambient air quality at various SAIL plants and townships are steadily meeting the norms. To bring into right focus the efforts being made at various levels in the company to protect the environment, an Environmental Policy was adopted in June, 1996. To fulfill the requirements of Environmental Policy, introduction of Environment Management System (EMS) is essential. With this objective in view, steps have been initiated during 1997-98 at Salem Steel Plant, Plate Mill of Bhilai Steel Plant and Dalli-Rajhara Iron Ore Mines for introduction of EMS which can lead to certification for ISO 14001 an international environmental standard. A detailed Environmental Audit study, aimed at waste minimisation and energy conservation, has also been



Environmental Laboratary, Bokaro Steel Plant

successfully carried out at Coke Oven complex of one of the integrated steel plants. Efforts towards making the SAIL plants, mines and townships greener continued with the plantation of 5.67 lakh trees.

For the last two years Tata Iron & Steel Company Limited (TISCO) is meeting all the statutory requirements related to air and water pollution. They have spent Rs.8 crores during 1996-97 and Rs.5 crores during April to September, 1997 for these purposes. TISCO have planned for reduction in water consumption by 10% compared to 1996-97 by the end of 1997-98 and have started the work for obtaining ISO 14001 accreditation for the steel work by December, 1998. The percentage of waste utilisation has been increasing for last few years and 57% of total solid waste including ash had been utilised during 1996-97 and 63.5% during April to November, 1997.

Welfare of Schedule Castes/ 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.

Implementation of Official Language Policy

The progressive use of Hindi in the Ministry, its attached office and public sector undertakings has been widely encouraged. PSUs are given incentives by awarding Chal Vaijayanti (Running Shield), Shields 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 1st Sept., to 15th Sept., 1997. Various competitions were held during this period and winners were awarded cash prizes. The Honourable Steel Minister made an appeal to all the officers and staff of the Ministry, attached office and PSUs to further increase the use of Hindi in their official work.

A PERSPECTIVE VIEW

Global Scenario

The global steel industry is on the path of recovery following a prolonged recession. After recording a growth rate of 3.2% in 1996 over the previous year, crude steel production world wide has gone up by over 6% in the first half of 1997 over the corresponding period of the previous year. The global consumption of finished steel had increased marginally by 0.7% in 1996. The current trends, however, indicate, a very strong increase of the same in 1997. Interestingly, unlike in the previous years, 1997 growth in global production and consumption are being backed by strong demand in the developed countries. This is evident from the fact that the first half of 1997 has seen the EU, USA and Japan recording 1%, 6%, 8% increase in crude steel production respectively. In 1996, the South and South East Asian Markets remained dull. These markets continued to remain depressed throughout 1997 and are expected to slow down further in 1998 as a result of the financial crisis gripping these economies. The Chinese steel demand has picked up significantly and recorded import of over 16 million tonnes of the steel in 1996.

According to the estimates of International Iron and Steel Institute, Brussels, steel demand in EU would touch 122 million tonnes up by 5 million tonnes of finished steel. Similarly, USA is expected to consume another 3 million tonnes in 1997 to reach 119 million tonnes. In spite of the fact that steel production in Japan is increasing rapidly, the domestic demand is on the decline.

The share of world trade in steel as a percentage of total world production has risen from 25.5% in 1990 to 33.9% in 1996. Around 231 million tonnes of steel was traded in 1996.

In India, economic reforms have transformed the course of development to be market driven and globally integrated. It is therefore, strategic for the Indian steel producers to claim a larger share of the world market by entering the vast and complex trading network. By concentrating 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.

Domestic Scenario

India continues to enjoy comparative advantages with her abundant raw materials at low costs and comparatively lower labour costs. The country has an abundance of technical expertise and skilled manpower as well. Several important policy changes have been instituted since 1991 to encourage 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;

(vi) liberlisation of import and export policy; and

(vii) automatic approval for foreign equity participation upto 74% in iron and steel projects.

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 Lloyds Steel and Ispat Industries in Maharashtra, Jindal Strips in Madhya Pradesh, Jindal Vijaynagar Steel Ltd. in Karnataka and Malvika Steel in Utter Pradesh firmly on track in their development plans. The plants of Lloyds Steel and Jindal Strips have already been commissioned and others are nearing completion. 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.

In view of the increase in demand projected for the future in the domestic market, many more units and 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. In addition, duties on almost all finished steel products have been reduced in line with the general economic policy, which will compel the domestic steel industry to become more efficient and competitive.

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 23 million tonnes of finished steel annually while its per capita steel consumption was only 22 Kg. in 1997, one of the lowest in the world. In comparison, the world average per capita consumption was 126 Kg in 1997. In countries like the USA, the EU(15) and China the per capita consumption was 395 Kg, 289 Kg and 84 Kg respectively.

Export Perspective

Inspite of a slight slowdown in 1996, global trade in steel is expected to increase as the global business is rapidly getting integrated breaking national barriers. India should take necessary steps to position itself in the global market. Recent projections by the Steel Ministry, have reaffirmed that India has a potential of exporting 6 million tonnes of steel by the turn of the century. These projections have been justified by the spurt in export of iron and steel to over 3.39 million tonnes valued at Rs. 2685 crores in 1997-98 from 2.70 million tonnes in 1996-97.

Undoubtedly, India's positioning in the global perspective will depend upon the cost competitiveness on the Indian industry. There must be an increasing focus on quality and cost consciousness so that efficiency and productivity levels are constantly targeted 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 targeted by the industry. Technological improvement and conformity to world wide standards of environmental safety and control should also be addressed.

Demand / Availability Projections

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	21.05	38.01
2. Pig Iron 2001-02	3.45	1.45	3.20	4.65

Producers-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
Total	32.01	4.65

Production & Consumption

Actual production of finished steel in 1994-95, 1995-96, 1996-97 and 1997-98 was as under :

(In million tonnes)

	1994-95	1995-96	1996-97	1997-98 (Provisional)
Main Producers	9.57	10.60	10.54	10.45
Secondary Producers	8.25	10.81	12.18	12.12
Total	17.82	21.41	22.72	22.57

The apparent consumption of finished steel during the last 4 years was as under :-

(In million tonnes)

Year	Production	Apparent Consumption
1994-95	17.82	18.66
1995-96	21.41	21.29
1996-97	22.72	22.12
1997-98(Prov.)	22.57	22.38

Performance During 1997-98

The estimated domestic production and apparent consumption of finished steel and pig iron during 1997-98 were as follows :

(In million tonnes)

	Estimated Production			
	Main Producers	Secondary Producers	Total	Apparent Consumption
1. Finished Steel	10.45	12.12	22.57	22.38
2. Pig Iron	1.71	1.77	3.48	2.63

Modernisation of Integrated Steel Plants

SAIL has already embarked on an ambitious modernisation progrmme 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.

Standing Committee for the Steel Industry

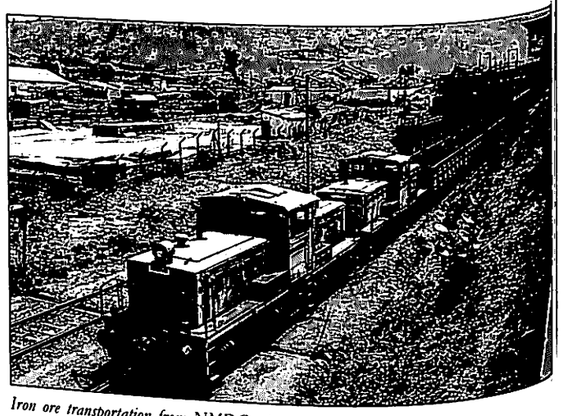
Based on the recommendation of the Task Force, which had been constituted by the Government to formulate an Action Plan for the growth of the Indian Steel Industry, Government has constituted a Standing Committee for steel industry in October, 1993. The Committee is headed by Minister of Steel with MPs,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

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 Comittee held one meeting during 1995-96 and discussed various issues relating to the growth of steel industry.

RAW MATERIALS

Iron Ore

Gradewise Distribution of Recoverable Reserves of Heamatite Ores, in different states as on 1.4.90.



Iron ore transportation from NMDC mines to port

Recoverable Reserves of Heamatite as on 1.4.90

(Unit : million tones)

S. 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	Total
1.	Zone 'A'							
	Bihar	34.44	1792.05	903.23	186.40	-	50.84	2966.96
	Orissa	313.43	1287.68	752.09	309.96	-	8.60	2666.76
	Total	347.87	3079.73	1655.32	491.36	-	59.44	5633.72
2.	Zone 'B'							
	Madhya Pradesh	558.61	483.29	516.06	402.01	14.26	71.08	2045.31
	Maharashtra	0.35	34.66	14.88	126.46	-	-	176.35
	Total	558.96	517.95	530.94	528.47	14.26	71.08	2221.66
3.	Zone 'C'							
	Karnataka	221.32	437.94	72.47	194.74	1.40	0.55	928.42
4.	Zone 'D'							
	Goa Region	13.57	153.41	465.52	80.77	36.69	12.27	762.23
5.	Zone 'E'							
	Andhra Pradesh	6.49	5.39	31.79	2.66	0.40	-	46.73
	Rajasthan	-	0.20	6.56	2.33	0.50	-	9.14
	Total	6.49	5.59	38.35	4.99	0.45	-	55.87
	Grand Total	**1148.21**	**4194.62**	**2762.60**	**1300.33**	**52.80**	**143.34**	**9601.90**

Recoverable Reserves of Iron Ore Magnetite as on 1.4.95

(Unit in million tonnes)

Sl. No.	State	Metallurgical Washery Grade	Coal Grade	Foundry	Unclassified	Total
1.	Andhra Pradesh	37.9	-	-	380.0	417.9
2.	Bihar	-	5.0	-	0.2	5.2
3.	Goa	98.3	-	-	64.9	163.2
4.	Karnataka	1162.7	-	-	1615.8	2778.5
5.	Kerala	36	-	-	-	36.50
6.	Maharashtra	0.2	-	-	-	0.2
7.	Rajasthan	-	-	0.3	-	0.3
8.	Tamil Nadu	1.1	-	-	-	1.1
	Total :India	**1336.2**	**5.0**	**0.3**	**2060.5**	**3402.4**

Production and Despatches

Production of Iron ore (including concentrates) during the year 1997-98 is estimated at 67.8 million tonnes as against 66.7 million tonnes in the previous year. State wise production figures indicate that Madhya Pradesh would be the Chief iron ore producing State accounting for 17.0 million tonnes (25%) of the total production during 1997-98, followed by Karnataka with 14.3 million tonnes (21%), Bihar 12.9 million tonnes (19%), Goa 12.4 million tonnes (18%) and Orissa 11.0 million tonnes (16%). The remaining production of about 0.2 million tonnes would be from Andhra Pradesh and Maharashtra.

Despatches

Despatches of iron ore (including concentrates) for 1997-98 are estimated at 65.6 million tonnes. The share of despatches of iron ore for internal consumption and exports would be 35.8 million tonnes and 29.8 million tonnes respectively.

Production and despatches of iron ore from 1992-93 to 1997-98 are given below :

(In million tonnes)

Year/Period	Production		Despatches		
	Qty	Value (Rs. crores)	Total	For internal Consumption	For Exports
1992-93	57.5	908.82	54.3	27.5	26.8
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	67.4	1355.32	65.3	37.2	28.1
1996-97 (Prov.)	66.7	1415.02	64.5	37.5	27.0
1997-98* (Prov.)	67.8	1526.11	65.6	35.8	29.8

**Estimated (comprise the recorded figures upto January'98 and estimated for February'98 to March 1998).*

Manganese Ore

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.

Production

Production of manganese ore during 1997-98 is estimated at 1.82 million tonnes as against 1.83 million tonnes in 1996-97. Orissa, Madhya Pradesh, Karnataka and Maharastra would be the principal producing states accounting for 34%, 22%,20% and 17% respectively of the total production of manganese ore in 1997-98.

Despatches

Despatches of manganese ore are estimated at 1.78 million tonnes during 1997-98 of which 1.56 million tonnes would be internal consumption and 0.22 millions tonnes for exports.

Production and despatches of manganese ore from 1993-94 to 1997-98 are indicated below :

Year/Period	Production		Despactches		
	Qty. ('000 t)	Value (Rs. crores)	Total ('000 t)	For internal consumption ('000 t)	For exports ('000 t)
1993-94	1696	134.87	1577	1362	215
1994-95	1681	145.06	1737	1502	235
1995-96	1837	159.88	1796	1597	199
1996-97	1833	165.20	1779	1582	197
1997-98*	1815	177.89	1775	1558	217

** Estimated (Comprise the recorded figures upto Aug.'97 and estimated for Sept.'97 to March 1998).*

Exports

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

For the year 1997-98 the maximum ceilings of manganese ore allowed for exports are as follows :

Item	Ceiling for 1997-98 (in lakh tonnes)
i) Medium Grade Manganese Ore/blended ore containing 38% to 46% manganese and more than 0.15% Phos.	1.00
ii) Medium Grade Manganese ore/blended ore containing 38% to 46% manganese and more than 0.10 % Phos.	0.50
iii) Low grade manganese ore/blended ore containing less than 38% manganese.	4.00
iv) Manganese ore fines below 12mm in size containing less than 44% manganese.	1.50

Actual exports during last two years have been as follows :

Year	Quamntity (in lakh tonnes)	Value (Rs. in crores)
1995-96	2.85	33.87
1996-97	4.17	58.00
1997-98 (Prov.)	3.12	46.50

Chromite Ore

Reserve

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.

Production

Production of chromite in 1997-98 is estimated to be around 12.82 lakh tonnes as against 13.88 lakh tonnes in 1996-97. Orissa continues to be the leading producing state accounting for 12.45 lakh tonnes (97%) of the total production.

Despatches

Estimated despatches of chromite during 1997-98 are likely to be about 10.39 lakh tonnes of which 6.66 lakh tonnes (64%) would be for internal consumption and 3.73 lakh tonnes (36%) for exports.

Production and exports of chromite ore during the years 1993-94 to 1997-98 are given below :

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 1997-98 are as follows :

Item	Ceiling for 1997-98 (in lakh tonnes)
i) Low silica friable/fine chromite ore with chromium oxide not exceeding 52% & Silica exceeding 4%.	3
ii) Chromite lumps containing Chromium Oxide not exceeding 40%.	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)
1995-96	3.09	110.70
1996-97	2.92	127.35
1997-98 (Prov.)	2.70	106.23

Year/Period	Production		Despactches		
	Qty. ('000 t)	Value (Rs. crores)	Total ('000 t)	For internal consumption ('000 t)	For exports ('000 t)
1993-94	1065	228.31	1002	685	317
1994-95	1138	252.86	1068	621	447
1995-96	1700	356.82	1597	1121	476
1996-97	1388	280.58	1124	669	455
1997-98*	1282	243.33	1039	666	373

** Estimated (Comprise the recorded figures upto Aug.'97 and estimated for Sept.'97 to March 1998).*

Ferro Alloys

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 Manganese (Fe Mn.), Ferro Silicon (Fe Si) and ferro Chrome (FeCr) - called the Bulk ferro alloys. There is another category of ferro alloys, called Noble ferro alloys, which consists of Ferro Vanadium, Ferro Titanium, Ferro Molybdenum, Ferro Niobium, Ferro Tungston etc., whose production is negligible.

The production of ferro alloys in India started in early fifties with the industry growing manifold during these four decades. The industry is mainly concentrated in 4 states viz. Orissa, Maharashtra, Andhra Pradesh, and Karnataka for their being rich in the basic raw materials for the production of the ferro alloys.

Installed Capacity and Utilisation

There are 35 large and medium size 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.

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 alloys ranges between2700-4065 Kwh in the case of ferro silicon. Due to this, the capacity utilisation in the industries has been in the vicinity of 50% to 55%. The production of ferro alloys is directly related to the plan of production and growth of steel industry. The production of major bulk ferro alloys during last 4 years is as under :

Year	Qunatity (in lakh Tonnes)
1993-94	4.7
1994-95	4.78
1995-96	5.73
1996-97	6.94 *

** Source Indian Ferro Alloys Producers' Association.*

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)
1993-94	1.68	251.56
1994-95	1.74	257.26
1995-96	1.90	451.55
1996-97	2.11	407.92*

** Source Indian Ferro Alloys Producers' Association.*

Consumption of Coking Coal

During 1996-97 the consumption of coking coal in SAIL steel plants (including IISCO), TISCO and VSP is as under :

	(In million tonnes)		
	SAIL	TISCO	VSP
Indigenous Sources	8.054	2.411	0.891
Imports	6.168	0.819	2.344
Total	14.222	3.230	3.235

The Consumption during 1997-98, by these plants is as under:

	(In million tonnes)		
	SAIL	TISCO	VSP
Indigenous sources	7.144	2.438	0.666
Imports	5.962	0.994	2.397
Total	13.106	3.432	3.063

Consumption of Non Coking Coal

During the year 1996-97, SAIL Steel plants (including IISCO) consumed 4.473 million tonnes of non coking coal from domestic sources. The consumption in 1997-98 is 4.562 million tonnes.

During 1996-97, TISCO consumed 1.505 million tonnes of non-coking coal, during 1997-98 the consumption is 1.456 million tonnes.

During 1996-97, VSP consumed 1.366 million tonnes of non-coking coal. During 1997-98 the consumption is 1.393 million tonnes.

Refractory

Refractory are the primary material 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 batteries, 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 1996-97 is given below:

Refractory Item	(In million tonnes) Production (M.T.)
Firebricks	186191
High Alumina	246559
Silica	38240
Basic	208167
Special Production	19711
Others	67418
Total	766286

The import of refractory items in 1996-97 stood at 18162 tonnes while exports were of the order of 23126 tonnes. In value terms, export during 1996-97 was Rs. 40.2 crores.

DISTRIBUTION AND AVAILABILITY

Availability of Iron and Steel

The availability of iron and steel in the domestic market during 1996-97 and 1997-98 were as follows:

(In million tonnes)

Item	Finished Steel(Carbon)		Pig Iron	
	1996-97	1997-98 (Provisional)	1996-97	1997-98 (Provisional)
1. Production				
(a) Main Producers	10.54	10.45	1.73	1.71
(b) Secondary Producers	12.18	12.12	1.57	1.77
2. Import(Estimated)	1.56	1.75	0.01	0.004
3. Total (1+2)	24.28	24.32	3.30	3.48
4. Export	1.62	1.67	0.45	0.79
5. Inter-plant transfers	0.13	0.04	-	-
6. Net Availability	22.53	22.60	2.86	2.69

Pricing and Distribution

- 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. However, the requirements of the five designated priority sector consumers i.e. 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.
- The Development Commissioner for Iron and Steel continues to make allocation of pig iron and steel to the designated priority sector consumers. The main producers supply the material on the basis of such allocations. For supplies to the small scale sector, the Development Commissioner for Iron and Steel allocates the iron and steel items to the Small Scale Industries Corporations/ nodal agencies. Small Scale Units which were drawing their materials directly from the main producers also 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.
- 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.
- 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 HSCO) was discontinued with effect from 19.2.1996. However, the JPC cess of Rs. 3 per tonne of certain items of steel produced by the main producers (excluding HSCO) continues to be added to their ex-works prices.
- 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 the freight ceiling (presently Rs.1710/- per tonne in case of steel and Rs. 1165 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.
- 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.
- The open market prices of steel products have shown a marginal increase between 2% to 4% in the case of Semis, Wire rods, Tor steel, GC Sheets and market prices of some items such as Joists, Plates, HR Coils, CR Coils have declined by about 5% to 6% in the last one year. The increase in prices is due to increase in railway freight, cost of inputs and incidence of excise duty on account of increase in ex-works prices, while decline in prices of some items is mainly due to demand recession.

Import and Export of Iron and Steel

- 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 this Ministry.
- 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.
- The advance licensing scheme for import of duty free raw materials, components, intermediates and consumables etc. for purpose of export promotion continues. The introduction of the Duty Exemption Pass Book (DEPB) Scheme has been welcomed by the industry, however, the credit rates for Duty Exemption for iron & steel items have not been found adequate and the Ministry of Steel has sought further enhancement of these rates.
- The import of saleable steel in 1996-97 was 1.82 million tonnes showing a decline of 2.1% over last year. The decline in import was mainly in hot rolled coils/ sheets, Plates, Electrical sheets and semis. The import of finished steel during April-Sept.97 has been estimated to be about 0.7 million tonnes which is about 4.6% lower than the corresponding period last year. Import of saleable steel during 1997-98 (upto Nov., 1997) has been 12.55 lakh tonnes valued at Rs.1929 crores.
- The total import of steel, pig iron and scrap during the last three years and April- December, 97 are as under:-

(Quantity in '000 tonnes) (value in Rs. crores)

Category	1994-95		1995-96		1996-97		1997-98 (April-Dec.97)	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Saleable Steel	1932.6	2536	1864.4	3175	1821.7	3041.48	1464.4	2250.17
Pig Iron	1.1	1	7.7	6	15.4	12.00	2.6	2.40
Steel Scrap	1416.5	758	973.8	618	1164.8	709.01	705.7	424.81

Exports From Iron and Steel Sector

- 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.
- Exports 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 by 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 29.21 lakh tonnes value at Rs. 1978 crores in 1993-94. However, in 1994-95 export of iron and steel declined to 24.52 lakh tonnes valued at 1818 crores, showing a decline of 20% in quantity term and 14.3% in value term. The decline was mainly due to increase in domestic demand. In 1995-96, the export has been of the order of 2.7 MT valued at Rs.2275 crores showing an increase of 12.3% in quantity terms and 35% in value terms. Export of Iron and Steel during 1996-97

was provisionally 27.08 lakh tonnes valued at Rs.2396 crores. The export of iron and steel including pig iron and sponge iron and export by the main producers provisionally has been 33.90 lakh tonnes valued at Rs.2685 crores during 1997-98.

- 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 33 million tonnes annually ,earning foreign exchange worth about Rs.1500 to 1600 crores.

- Total export of iron & steel (including pig iron and sponge iron) and iron ore during 1994-95, 1995-96, 1996-97 and 1997-98 are indicated below:

Item	(Quantity in lakh tonnes)				(Value Rs.in crores)			
	1994-95	1995-96	1996-97	1997-98 (Prov.)	1994-95	1995-96	1996-97	1997-98 (Prov.)
Iron and steel products	24.52	27.96	27.08	33.90	1718.04	2274.50	2396.07	2685.00

Steel Exporters Forum

The Ministry of Steel had set up a Steel Exporters forum in Feb. 1998 with a view to fulfill the long felt need of the producers and exporters from the iron and steel sector and also to resolve issues, problems and bottlenecks faced by them in exports. The Chairman of the Forum is the Development Commissioner for Iron and Steel, and all major steel producers/associations are its members. Representatives of the Ministries of Finance, Railways and Surface Transport are also its members in addition to the Ministry of Steel.

Functions of the Office of Development Commissioner for Iron and Steel

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

- With the deregulation of distribution and pricing of iron and steel, the major function 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 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 materials 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.

PUBLIC SECTOR

Steel Authority of India Limited (Excluding Subsidiaries)

General

Steel Authority of India Ltd. (SAIL) is a Company registered under the Indian 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 Elektrosmelt 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) is under liquidation. 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.

Finance

The authorised capital of SAIL is Rs.5000 crores. The paid-up capital of the Company was Rs.4384 crores as on 31th March, 1998 which was held to the extent of 80.98% by the Government of India and the balance 19.10% by the financial institutions/GDR-holders/ banks/employees/individual etc.

Turnover and Profit

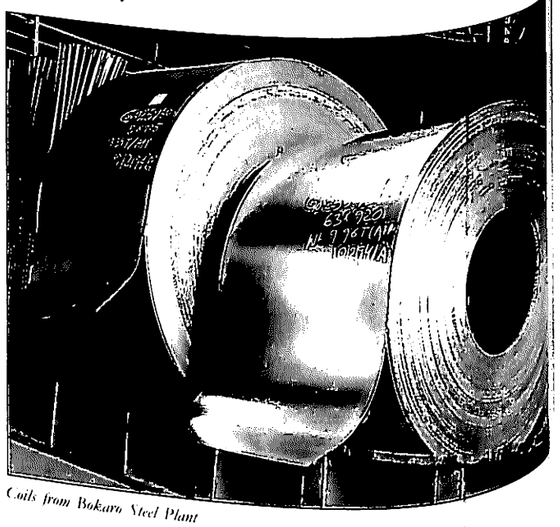
The Company recorded the sales turnover of Rs.14131.22 crores in 1996-97. The post-tax net profit for the year 1996-97 was Rs.515.17 crores. The Company had declared a dividend of 2.5% on the paid-up equity share capital for the year ended 31st March, 1997. Government of India has received Rs.88.62 crores as dividend on its equity contribution in SAIL for the year 1996-97.

The Gross margin of the company for the year 1996-97 and 1997-98 are Rs.2458.21 crores and Rs.2490.00 crores respectively. The profit before tax for the year 1996-97 and 1997-98 are Rs.588.03 crores and Rs.116.00 crores respectively. The company recorded the sales turnover of Rs.16185.00 crores during the year 1997-98 (Prov.).

The Company during 1996-97 has raised Rs.965 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 valuing Rs.497 crores during 1997-98.

Under the Public Deposit Schemes of the Company, the net deposits (i.e. net of repayments and renewals) as on 31st March, 1997 stood at Rs.1908.49 crores. The net deposits as on 31th March, 1998 stood at Rs.2520 crores approximately.



Coils from Bokaro Steel Plant

Capital Expenditure

The Company incurred capital expenditure of Rs.2397 crores on Fixed Assets and Capital Work-in-progress in the year 1996-97 and approx. Rs.1880 crores during 1997-98, which have been financed through internal accruals and borrowings without resorting to any Budgetary support from the Government of India

Production Performance

The four integrated steel plants of SAIL at Bhilai, Durgapur, Rourkela and Bokaro ended the year 1996-97 with a output of 11.39 million tonnes of hot metal, 10.32 million tonnes of crude steel and 8.90 million tonnes of saleable steel. Alloy Steels Plant and Salem Steel Plant recorded best ever production of saleable steel at 333 thousand tonnes. The details of production plan and achievement for 4 integrated steel plants and 2 Alloy steels plants during 1996-97 are as follows :

(In million tonnes)

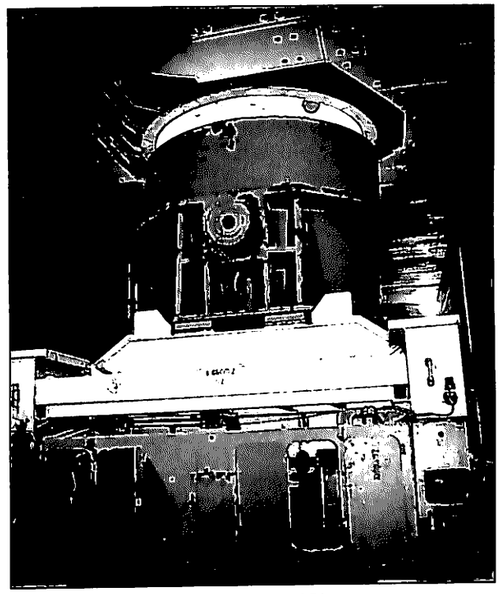
Item	Target	Actual	Fulfilment(%)
Hot Metal	12.14	11.39	94
Crude Steel	11.58	10.56	91
Saleable Steel	9.56	9.23	97

Production Performance: 1997-98

The details of production plan and achievement during 1997-98 was as follows :-

(In million tonnes)

Item	Target	Actual	Fulfilment(%)
Hot Metal	12.20	11.61	95
Crude Steel	11.68	10.50	90
Saleable Steel	9.60	9.04	94



Trial run of Steel Refining Unit, Bokaro Steel Plant

The plantwise production performance of saleable steel during 1997-98 is given hereunder :

('000 Tonnes)

Sl.No.	Plant	Target	Actual	Fulfilment(%)
1.	Bhilai Steel Plant	3380	3524	104
2.	Durgapur Steel Plant	1370	1259	92
3.	Rourkela Steel Plant	1240	1180	95
4.	Bokaro Steel Plant	3310	2748	83
(A)	Total Four Plants	9300	8711	94
1.	Alloy Steels Plant	180	154	86
2.	Salem Steel Plant	120	177	147
(B)	Total Two Plants	300	331	110
Total SAIL(A+B)		**9600**	**9042**	**94**

There was continued thrust during 1997-98 on improvements in techno-economic parameters. Coke rate in Blast Furnaces was improved at 594 kg. per tonne of hot metal in SAIL four plants. The productivity of

Blast Furnaces in SAIL plants was 1.25 T/m^3/day during 1997-98.

Energy Conservation

The continued emphasis on energy conservation measures helped further in reducing energy consumption per tonne of crude steel for the 10th successive year and has reached a level of 8.40 G.Cal/tcs during 1996-97. During the year 1997-98 energy consumption per tonne of crude steel was 8.32 G.Cal/tcs.

Development of Small Scale/Ancillary Industries

The Company continued to give encouragement to the development of Small Scale and Ancillary Industries. During 1996-97, value of stores and spares items purchased from these units was of the order of Rs.159 crores. During the period April to Dec.97, Rs.113 crores worth of stores and spares were purchased from Small scale and Ancillary Industries.

Captive Power Generation

Captive power generation in SAIL during 1996-97 at an average of 423 MW, met 55% of the Company's total power requirements. Captive power generation during the year 1997-98 stood at an average of about 451 MW.

Environment Management

Thrust on the implementation of various schemes, as per the pollution control action plan initiated in 1992, continued during the year. Additional ten schemes costing Rs.86 crores were completed during 1996-97. With this, 107 schemes have now been commissioned, as a result of which effluent discharge quality as well as the ambient air quality at various SAIL plants and townships are steadily meeting the norms. To bring into right focus the efforts made at various levels in the company to protect the environment, an Environmental Policy was adopted in June, 1996.

A detailed Environmental Audit study, aimed at waste minimisation and energy conservation, has also been successfully carried out at Coke Oven complex of one of the integrated steel plants. Efforts towards making the SAIL plants, mines and townships greener continued with the plantation of 5.67 lakh trees.

Afforestation at Waste Dump, Meghatuburu Iron Ore Mines

Sales and Marketing Performance

Marketing Strategies

Industrial production during the year 1997-98 was at a rate slower than the previous year. During the year, the product-mix was constantly reviewed and adjusted to make it market oriented. Specific segments like construction, tube-makers, furniture, etc. were identified and supplies were made in the customized sizes to match their exact requirements. The long term relationship with the major customers in the form of Memorandum of Understanding (MOU) yielded benefits in terms of better customer satisfaction and also helped to retain the company's customer base.

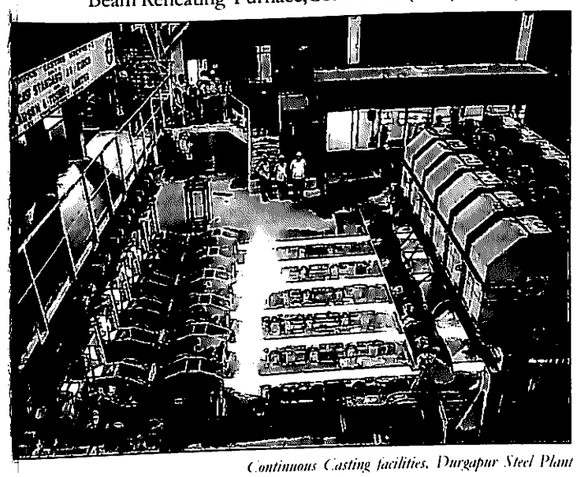
Sales

During 1996-97, the total sales of saleable steel by SAIL was at 8.1 MT. In addition about 0.5 MT of Pig Iron was also marketed. Steel products namely, billets, slabs, plates, HR Coils, Structural, CR Coils/Sheets, GP Sheets and Stainless Steel worth Rs.641.63 crores (Over 0.5 million tonnes) were exported, amongst others to U.S.A, Japan, Korea, Malaysia, Indonesia and European countries during 1996-97.

During 1997-98, the total sales of saleable steel (excluding Ingot steel) was 7.68 MT. In addition 0.63 MT of pig iron was also marketed. The export during this period was 1047.2 thousand tonnes.

Capital Schemes

- The Company incurred a capital expenditure of Rs.2397 crores during 96-97 on fixed assets and capital work-in-progress, which has been financed through market borrowings and internal accruals.
- Under Durgapur Steel Plant Modernisation, all major production units have been commissioned during the year. Besides major production units under Modernisation, revamping of Coke Oven Battery No.3, 7th Boiler and Old Sinter Plant were completed during the year and are under stabilisation.
- At Rourkela Steel Plant, under Phase-II Modernisation,4 global and 13 indigenous packages have been completed and put on hot trials. The remaining 1 global and 2 indigenous packages are under completion. The stabilisation of commercial production of major units i.e. Sintering Plant-II, Basic Oxygen Furnace (BOF) Shop, Concast Shops-I & II, Partial Brequitting of Coal Charge (PBCC), etc. is in progress. Besides Modernisation, Upgradation of Blast Furnace (BF) No. 2 alongwith installation of Bell-less Top Charging System, Revamping of Captive Power Plant-I, Gas Cleaning Plant for Convertors 4 & 5 in SMS-I were completed during the year.
- At Bokaro Steel Plant, the work on Stage-I Modernisation is nearing completion. A new Walking Beam Reheating Furnace,Coke Oven (C.O.) Battery No.4 after rebuilding and last (5th) Bell-less Top Charging System were commissioned during the year.
- At Bhilai Steel Plant, C.O. Battery No.10 has been commissioned during the year. The Stage-I (Phase-I) Modernisation of Rail & Structural Mill is expected to be commissioned soon. All major equipment of Oxygen Plant-II have been received at site and the erection work is in advance stage of completion. The work on Sinter Plant-III is on.
- With the completion of Modernisation schemes at DSP, RSP and BSL, substantial improvements are likely to take place in terms of techno-economic parameters, particularly, specific energy consumption, coke rate, etc. besides better quality and increase in production capacity of saleable steel.



Continuous Casting facilities, Durgapur Steel Plant

Research & Development

Research and Development Centre of the Company pursued 189 R&D projects during the year. The projects provided technological input to SAIL plants/units with a thrust on cost reduction, value addition, quality improvement and development of new products. 105 projects were completed successfully. R&D projects provided incremental improvement in the performance indices of the existing technologies. Successful implementation of the technologies introduced in the steel plants resulted in substantial improvement in the process parameters. The Centre has filed 6 foreign patents and 35 Indian patents. During the year, 14 patents which were filed earlier, have been sealed by the Patent Office. The Centre also filed 12 Copyright proposals. RDCIS provided consultancy services and know-how to outside organisations.

Raw Materials

The Company met almost total requirement of its iron ore and half of fluxes requirements from captive sources. SAIL Captive Mines produced 19.16 MT of Iron Ore Lumps and Fines during 1996-97 and 20.74 MT during the year 1997-98. Fluxes production was 2.5 MT in 1996-97 and 2.65 MT during the year 1997-98.

In-house Engineering

Centre for Engineering & Technology (CET) has grown over the years. It is continuing to provide Design & Engineering support to plants/units for modernisation, implementation of technological upgradation schemes and repairs/revamping of units. Some of the major projects implemented with in-house Design and Engineering expertise included Walking Beam Reheating Furnace No.4 at BSL, Bell Less Top Charging system (BLT) at BF-2/RSP and BF-2/BSL, Slab Caster in SMS-1 at RSP and Upgradation of BF-2 at RSP. A large number of pollution control and automation schemes engineered by CET have also been implemented in the plants. Besides, Sinter Plant No.3 (package-2) and modernisation of Rail & Structural Mill at BSP, Walking Beam Reheating Furnace No.2 & 3 at BSL, Uprating/replacement of Turbo Blower No.1 at RSP and CTPD Boiler at DSP are under implementation.

SAIL Consultancy Division (SAILCON) continued to give thrust to establish SAIL as a leading Engg. & Management Consultant globally during the year. SAIL has made its presence felt for provision of quality services in the domestic as well as international markets. During the year, 19 orders worth over Rs. 400 lakh were secured, out of which 12 were from Indian clients and 7 from foreign clients. In the international arena, SAILCON has already made a foothold in Egypt, Nepal, Philippines, Iran and Thailand and efforts are being made to enter the markets of Bangladesh, Bhutan, Bahrain, Malaysia, Indonesia, Khazakistan, etc.

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.

Manpower Utilisation

The manpower strength as on 31st March, 1997 and 31.3.1998 was 1,83,340 (comprising 19,142 executives and 1,64,198 non-executives) and 1,76,147 (comprising of 18556 executives and 1,57,561 non-executives) respectively. The manpower productivity was 94 tonne crude steel per man year during 1996-97 and 96 during 1997-98.

Training

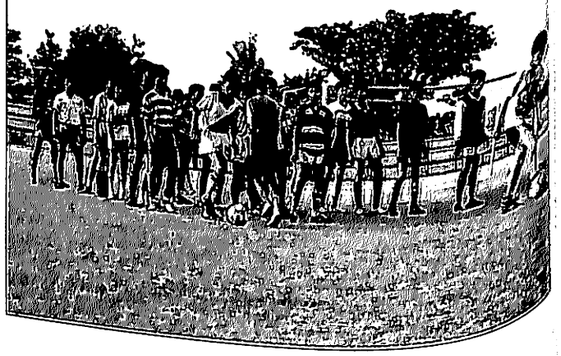
Training for developing the competency of employees based on organisational requirements continued. During 1996-97, 89,754 employees were trained under on-going company-wide schemes. During 1997-98, 83769 employees were trained. An Human Resource and Organisational Development programme was launched two years ago under funding of KFW, Germany to support the on-going modernisation programme.

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.449 crores during 1996-97 and Rs.216 crores during April 97 to Sept.97 (Prov.).

Sports

SAIL not only sustained commitment to promotion of Sports amongst youth at SAIL Townships in particular, but also retained recognition as leading patron of Sports in India, having sponsored steadily Indian Team for Davis Cup, Durand Cup, Subroto Mukherjee Cup. SAIL Academy



of Handball were Runners-up in Commonwealth Club Championship at Johannesburg in December 1996 and Sub-Junior Boxing Team of Steel Town boys became Runners-up in Nationals at Guwahati.

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.

Safety

A renewed thrust was laid on Safety during the year. 5 Star Safety & Health Management System of National Safety Council of Australia was introduced in three departments at BSL. A comprehensive manual on General Safety Instructions for specific jobs has been prepared and published. Safety and fire audits of major plants/units and Hazard Operability (HAZOP) study in specific hazardous areas at BSP, BSL & DSP was carried out. Steel Minister's Trophy was awarded to Bokaro Steel Plant for Best Safety Performance during the year.

Official Language Policy

The Company continued to vigorously pursue its efforts in implementing the Official Language Policy of the Government. SAIL Corporate Office was adjudged the best in the area of Official Language Implementation, amongst the PSUs located in Delhi and a Shield was awarded. Raw Materials Division, Calcutta was awarded the Indira Gandhi Rajbhasha Shield as first prize for Official Language Implementation in the 'C' region.

Scheduled Castes and Scheduled Tribes

The Presidential Directives on Scheduled Castes/Scheduled Tribes continued to be implemented during the year. As on 1.1.98, Scheduled Caste and Scheduled Tribe employees were 15.13 per cent and 11.22 per cent respectively of the total manpower.

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. 474 lakhs was spent on peripheral development during 1996-97 and Rs. 400 lakhs (Prov.) during 1997-98.

Suggestion Scheme

The creative potential of our employees has been channelised through the suggestion scheme. Over 2,50,000 suggestions have been received from a wide cross-section of employees.

Awards

Two SAIL employees have bagged Prime Minister's Shram Bhushan Awards (one from Bokaro Steel Plant and one from Durgapur Steel Plant) during the year.

Total Quality Process

The quality improvement initiatives were given further thrust during the year. The Hot Rolling Mill of SSP, Wheel & Axle Plant, Basic Oxygen Furnace, Steel Melting Shop and Continuous Casting Plant of DSP, Silicon Steel Mill (CRNO Stream) of RSP and Steel Melting Shop No.1, Blooming & Billet Mill and Rail & Structural Mill of BSP achieved ISO 9002 certification. The number of Quality Circles (QC) projects implemented during the year was 8666. SAIL plants won recognition in the area of quality at the national level.

Steps have taken to intensify the quality improvement drive in SAIL. In the financial year 1997-98, the Merchant Mill and Wire Rod Mill of BSP, Bhilai, Cold Rolling Mill of BSL, Bokaro, Steel Melting Shop-I, Tonnage Oxygen Plant-I&II of RSP, Rourkela, Branch Transport and Shipping Office (BTSO), Vizag of Central Marketing Organisation and Light Castings and Steel Foundry, Growth Division, Kulti Works achieved ISO 9002 Certification.

SAIL has taken all appropriate steps for maintaining the ISO 9000 certified Quality Assurance systems in all its plants/units. In 1997-98, Centre For Engg.& Technology, Ranchi, management Training Institute, Ranchi, Alloy Steels Plant, Durgapur, HDGC of BSL, Bokaro and RDCIS, Ranchi were RECERTIFIED. The validity of the certificates has been extended for another three years.

A total of 8201 nos. of QC projects have been implemented against a target of 6385 in 1997-98.

Centre for Power Training Institute (CPTI) Rourkela have won the Golden Peacock National Quality Award (GPNQA) in the small service sector category conducted by Institute of Directors, New Delhi for the year 1997.

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. 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.

Production Performance

Burnpur Works

During 1996-97 the Steel Plant produced 789.4 thousand tonnes of Hot Metal, 351.9 thousand tonnes of Pig Iron, 352.6 thousand tonnes of Crude Steel and 338 thousand tonnes of Saleable Steel.

Production performance (Burnpur) : 1997-98

(000/T)

	Plan	Actual	Fulfilment (%)
Hot Metal	840	782	93
Crude Steel	360	291	81
Pig Iron	422	405	96
Saleable Steel	377	316	84

Kulti Works

Total Castings output during 1996-97 and 1997-98 was 47.1 thousand tonnes and 48.0 thousand tonnes respectively. Spun Pipes production was 19.1 thousand tonnes during 1996-97 and 21.2 thousand tonnes during 1997-98 respectively.

Special emphasis was given for production of items required by Burnpur Works and other units of SAIL.

Collieries

Total coal risings from three Captive Collieries was 859 thousand tonnes during 1996-97 and 721.9 tonnes during 1997-98.

Ores Mines

Iron Ore Lump production was 1238 thousand tonnes and 1046.7 thousand tonnes during 1996-97 and 1997-98 respectively from two Captive Ore Mines.

Capital Schemes

During 1996-97 and 1997-98 Company capitalised expenditure of Rs.47.78 crores and Rs.2.31 crores (Prov.) towards various Capital Schemes including Additions, Modifications and Replacements. At Burnpur Works, two numbers Gas Cleaning Plants were constructed under Pollution Control Scheme which was undertaken in April, 1996 and completed in December, 1996. The 1900 M Rapid Gravity Filter Unit was commissioned on 12.8.96.

Under Pollution Control Schemes, Gas Cleaning Plant for Cupolas in three production shops of Kulti Works was successfully commissioned during 1996-97.

Financial Performance

During 1996-97 the Company achieved a turnover at Rs.958.73 crores. The net loss for the year after charging depreciation (Rs.25.58 crores) and interest (Rs.126.91 crores) was Rs.213.04 crores. Abnormal escalation in input prices and interest charges are major factors for the higher loss.

Company achieved sales turnover of Rs.424.84 crores during April-September, 1997. During this period Company incurred net loss of Rs.178.89 crores.

Steel Authority of India Ltd. (SAIL) provided Rs.19.57 crores for Capital Schemes and Rs.35.36 crores for Working Capital. SAIL provided additional loan of Rs.1.45 crores during April- September, 1997.

As on 31st March 1998, the Authorised Share Capital and Paid-up Equity Capital of the Company remained at Rs.550 Crores and Rs.387.67 Crores respectively.

Sales & Marketing Performance

Domestic Sales

Despite adverse market situation,1996-97 sales of 315.8 thousand tonnes of Steel were higher by 2.9 percent than the previous year. Sales of Pig Iron were 256.7 thousand tonnes (previous year 337.9 thousand tonnes). The price of Pig Iron also had declined considerably due to stiff competition from the secondary producers and surplus availability of Pig Iron in the Domestic Market. The higher sales could be achieved in view of better coustomer services and satisfying their demands due to sustained improvement in quality and adhering to strict delivery schedules.

During 1997-98 306.4 thousand tonnes of steel and 370.4 thousand tonnes of pig iron were sold.

Exports

Export during 1996-97 was 1573 tonnes including export of Steel of 1460 tonnes to Nepal and Bangladesh. Exports during 1997-98 were 7675.01 tonnes including export of steel of 4319.84 tonnes to Nepal and Bangladesh.

Environment Management

Environment Management and pollution control have become priority areas in the activities of the Company. Environment Awareness campaign through observance of World Environment Day and Environment month was organised. About 20,000 saplings of different plants were planted in Burnpur & Kulti Townships and Works areas. Special emphasis was laid on environment related activities of Eco-clubs of all the schools throughout the year.

At Burnpur Works 4 Units of Dust Extraction System for Open Hearth Furnaces of Steel Melting Shop were completed and commissioned between 23.10.96 and 11.12.96.

Dust extraction system at G.C. Shop, HM Foundary and Spun Pipe Plant No.2 was commissioned at Kulti Works. Dust extraction System at L.C. Shop and Spun Pipe Plant No.3 have been taken up on priority basis in the current year.

Consent for air and water has been received from West Bengal Pollution Control Board (WBPCB). Authorisation for handling hazardous waste was received from WBPCB.

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, 1997 and 31st March 1998, was 28,846 (comprising 1,403 executives and 27,443 non-executives) and 27,370 (comprising 1,334 executives and 26,036 non-executives) respectively.

During 1996-97 a sum of Rs.13.5 crores was received from National Renewal Fund for implementation of Voluntary Retirement Scheme and 334 employees were allowed voluntary retirement. Voluntary Retirement Scheme has been further extended for the year 1997-98 and 483 employees were allowed VRS during this period and Rs.10.00 crores has been received from NRF to finance Voluntary Retirement.

Industrial relations remained normal and peaceful during the year.

The thrust towards Safety and Occupational Health continued. About 4406 employees were trained on various safety and pollution control aspects during 1997-98.

The endeavour to make training more result and skill oriented continued during 1997-98 with 3388 employees trained in various fields.

Scheduled Caste and Scheduled Tribe employees were 10.40 per cent and 1.18 per cent respectively of the total manpower as on 31.3.1998.

Welfare Measures

During 1996-97 and 1997-98 the Company spent Rs.38.52 crores and Rs.16.00 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 1996-97 for employees and their dependents. In the Steel Plant Sports Board Championship, the Company won 1 gold, 5 silver and 2 bronze medals in different events.

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

Official Language Policy

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, Workshops and Seminars on technical writing in Hindi were organised. Rajbhasha Shield was awarded in various competition to encourage employees.

Purchases from Small Scale Units

The thrust on procurement of stores and spares items from small scale units continues. Burnpur Works placed orders for Rs.3.94 crores on Small Scale Units during 1996-97 and Rs.3.54 crores during 1997-98.

Status on Rehabilitation

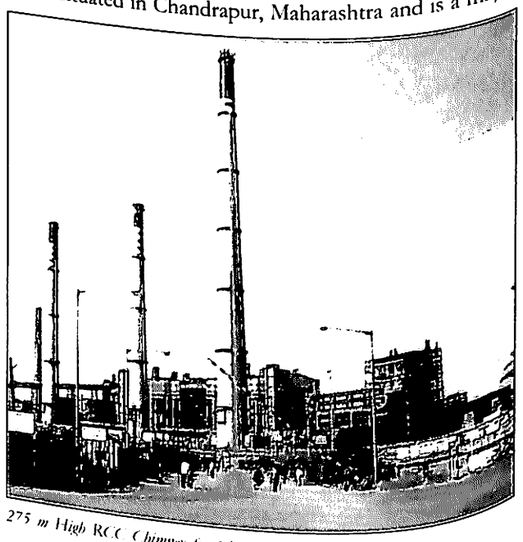
The proposal of modernisation/rehabilitation of IISCO is under the consideration of the Government. This proposal constitutes three options viz. rehabilitation through budgetary support, rehabilitation through joint venture arrangement with Tyazhpromexport (TPE) of Russia with SAIL maintaining majority stake and rehabilitation through the waiver/write off of SDF loans to SAIL/IISCO route.

IISCO Ujjain Pipe and Foundry Co. Ltd.

IISCO-Ujjain Pipe & Foundry Company Limited, a wholly owned subsidiary of IISCO, a sick company. Its production has been suspended since 27th January, 1993 and there are no means of generating funds. The Hon'ble High Court, Calcutta, at its hearing on 10th July, 1997 directed that the company be wound up and the official liquidator attached to the Hon'ble High Court became the Liquidator thereof. The assets at the Registered Office of IISCO Ujjain Pipe & Foundry Co. Ltd, (In Liquidation) have already been taken over by the Official Liquidator.

Maharashtra Elektrosmelt Ltd.

Maharashtra Elektrosmelt 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.



275 m High RCC Chimney for Chandrapur TPP

Financial Performance

During 1996-97, the Company achieved the highest ever turnover of Rs.16988.23 lakhs but incurred a loss of Rs.160.16 lakhs due to steep rise in the cost of production and supply of Ferro alloy products was much in excess than the demand and therefore company could not sell its products. The turnover and profit of the Company during April-September, 97 was Rs.8049.73 lakhs and Rs.5.90 lakhs respectively.

The Authorised Share Capital of the Company is Rs.20 crores and Subscribed and Paid-up Capital is Rs.10 crores. SAIL holding is approx. 98 percent of the paid-up capital.

Production Performance

The production of all grades of Ferro Alloys during 1996-97 was as under :

	1996-97(Tonnes)
High Carbon Ferro Manganese	59680
Silico Manganese	27496
Medium Carbon Ferro Manganese	902

Production performance : 1997-98

	Plan	Actual	(Tonnes) Fulfilment (%)
HC Ferro Manganese	75000	60027	80
Silico Manganese	20055	33915	169

Research & Development

Studies were carried out on Alkali removal from Ferro Manganese Slag and it was revealed that around 40% Alkali could be removed from Slag by bacterial leaching process. Ferro Manganese Slag with low Alkali loading could be a better replacement to Mn Ores used in blast furnace. Trials have to be carried out on pelletisation of GCP sludge and Mn Ore super fines pellets which would replace costly Mn Ore in SiMn Production.

Dust suppression system was installed at ground hopper for better working condition and control of fugitive emissions.

Environment

Environment Management and pollution control continued to get top priority in Company's activities during the year. To keep environment clean for ecological protection, thrust was given in the areas of green belt development in and around the plant premises, solid waste management, monitoring of liquid and air effluent for various environmental parameters. In and around the Plant 5000 teak and other saplings were planted in addition to the regular maintenance of existing 5000 teak plants.

To comply with environmental standards set up by Maharashtra Pollution Control Board, Gas Cleaning Plant for SAF-II costing around Rs.1.6 crores was decided to be installed and is nearing completion. This would also enhance the availability of clean gas for gainful utilisation as a fuel to Sintering Plant and Lime-Kiln. Gas based Captive Power Plant of 3.5 MW capacity for complete utilisation of clean gas has been approved & initial project activities have been started.

Continuous steps have been taken towards gainful utilisation of High Manganese Oxides (MnO) Slag in Silico Manganese (SiMn) Production, Lumpy SiMn Slag as rail ballast and Granulated Slag as stowing material in WCL mines and Sales of SiMn Slag for road construction and repairs.

As a recognition of its efforts towards environmental protection, MEL has bagged the prestigious "SAIL Paryavaran Award" for being adjusted as "Best" in "Solid Waste Management" for third successive year.

Sales & Marketing Performance

Though there was severe competition and excess supply in the Ferro Alloys market, continuous efforts were made by the Company to sell its products to various customers and also finding new customers for disposal of its products. The sale of different grades of Ferro Alloys during 1996-97 and 1997-98 was 84232 tonnes and 91897 tonnes respectively.

There was sharp reduction in the price of Ferro Alloy products in international market, therefore, no export has been made.

Human Resources Management Review

The manpower strength as on 31st March, 1997 and 31.3.98 were 1060 comprising of 153 executives and 907 non-executives and 1050 comprising 157 executives and 893 non-executives, respectively. The number of Scheduled Castes, Scheduled Tribes and OBCs as on 31.3.97 were 139, 51 and 274 respectively. The industrial relations throughout the year remained normal.

A total of 501 employees have been trained during the year 1996-97. Special efforts have been made to launch the concept of Bench Marking at MEL.

Quality

MEL has achieved ISO-9002 certificate on 15th October, 1996.

Official Language Policy

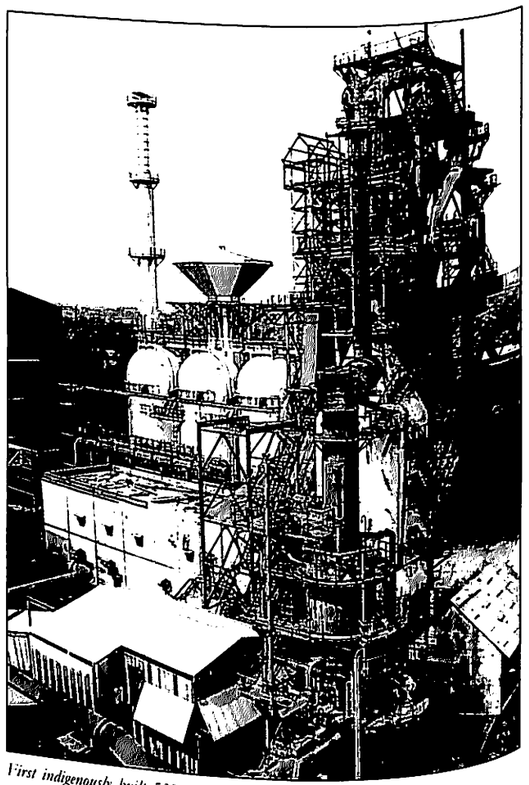
The Company continued to pursue the implementation of Official Language Policy of the Government.

Safety

In Industrial safety, the company was awarded 'International Award' from British Safety council, National Award for 'Steel Minister's Trophy' for best safety performance and first prize for its overall safety performance Award from Vidarbha Industrial safety committee.

Visvesvaraya Iron and Steel Limited (VISL)

Visvesvaraya Iron and Steel Limited became a subsidiary of SAIL from 1st August, 1989 and it is situated at Bhadravati, Karnataka. The Company is a major producer of special and alloy steels. On 23-5-1997, the company become a 100% subsidiary of Steel Authority of India Limited.



First indigenously built 530 cu.m. Blast Furnace, VISL.

Financial Performance

During 1996-97 and 1997-98(upto September, 1997) the Company has recorded a turnover of Rs.243.35 crores and Rs.114.00 crores respectively. The net loss during 1996-97 and 1997-98 (upto September, 1997) was at Rs. 101.77 crores Rs. 48.09 crores respectively. Slackening demand for alloy steels and pig iron in the market, higher imports of alloy and special steel, continuing liquidity crunch, substantial input cost escalation inclusive of power, fuel and freight coupled with frequent power cuts and peak hour restrictions are some of the major factors responsible for the loss.

The Company had been registered with BIFR as a potentially sick company under Section 23 of Sick Industrial Companies Act(SICA). Arising out of discussions in the hearing of BIFR, several measures were taken to improve the performance of the Company. The capital base of the Company was strengthened by increasing the authorised share capital from Rs.200 crores to Rs.300 crores during the 1996-97. Out of the additional authorised capital, Rs.75 crores was offered to the existing Shareholders as a right issue. While SAIL has accepted its share of Rs.49.50 crores, Government of Karnataka(GOK) did not exercise its option. In view of this, the paid up capital of the Company as at the end of the financial year stood at Rs.249.50 crores.

Government of India has approved takeover of VISL by SAIL and consequently a Memorandum of Understanding (MOU) was signed on 17th April, 1997 between the Holding Company SAIL and GOK. GOK has since transferred their entire share holding in VISL i.e. 6,77,66,750 equity shares to SAIL and VISL has become a wholly owned subsidiary of SAIL on 23rd May, 1997. GOK has also extended some concessions/reliefs, such as exemption from Sales tax on pig iron for a period of four years and on finished and semi-finished goods of iron and steel for a period of three years with effect from 21st June, 1997, waiver of interest and penal charges of dues of KEB etc. Steps for merger of VISL with SAIL are in progress under Section 396 of the Indian Companies Act.

In order to rationalize the manpower, the Govt. of India also agreed to provide Rs.40.00 crores from the National Renewal Fund out of which Rs.8 crores was paid during the year 1997-98.

Government of India's approval dated 15.4.97 envisages relief to SAIL from the Steel Development Fund, towards accumulated losses of VISL estimated at Rs.248 crores as on 31.3.1997 based on audited accounts. Accumulated losses upto 31.3.1996 being a sum of Rs.14893.94 lakhs have been written off in the books of the Company against loans from SAIL. Further adjustment on this account covering losses for the year 1996-97 to the extent of Rs.9906 crores was further adjusted as on 1-4-97 leaving a carry forward loss of Rs.2.71 crores. In consideration of all these, at the BIFR hearing in May 1997, the company has been delisted from BIFR.

Production Performance

The company produced during 1996-97 and 1997-98, 180124 Tonnes and 129579 Tonnes of hot metal and 51562 tonnes and 30966 Tonnes of Pig iron , 60702 Tonnes and 50416 Tonnes of alloy and special steels and 7557 Tonnes and 6702 Tonnes of Ferro silicon respectively. Blast Furnace was operated at low level of production as the market continued to be in slump during April to November 1997. Blast Furnace production suffered from December 1997 for shortage of coke and orders and the furnace was blanked for nearly 26 days. After the receipt of imported coke from China (about 20,000 Tonnes in the first consignment), the furnace was operated at a higher level of production in the months of January to March, 1998. In view of high cost of power and fall in the market price of ferro silicon and since VISL was unable to cover even the variable cost of production, the Board of VISL decided that production of ferro silicon be discontinued from 24-1-98 until the market situation improved considerably.

Sales and Marketing Performance

Demand for Alloy & Speical steels remain sluggish. Major sectors viz. Auto Forging Units and Engineering Industries continue to show no sign of improvement. Due to this market condition, some of the small producers of alloy and special steels have closed down their units and some are running with lower rate of production. During 1996-97 and 1997-98, alloy & Special steel sales were 55992 Tonnes and 49066 Tonnes respectively.

Demand for pig iron also was sluggish due to import of pig iron, dismal performance of foundries and steel units during 1996-97 and 1997-98, pig iron sales was 48956 Tonnes and 25193 Tonnes respectively.

Capital Schemes Review

The Ferro Silicon 'A'Furnace modernisation was completed and furnace was not commissioned due to closure of Ferro silicon production at VISL. Centre for Engineering & Technology (CET) of SAIL has recommended a short term investment of Rs.19.92 crores in order to increase the productivity of BOF shop, improve the yield from liquid to saleable steel, product quality and reduction in cost and energy consumption. Out of 28 No. of packages in the scheme, 4 packages have already been commissioned and remaining schemes are under implementation.

Further, to effectively utilise the surplus BF gas, both VISL and SAIL Boards have approved an investment of Rs.21.69 crores for a dual fuel 7.5 MW power plant to

VISL. The scheme has been undetaken for implementation with CET, SAIL as the Consultant for the Project.

Human Resources Management Review

Total manpower strength as on 31.3.1997 was 5656 comprising of 517 executives and 5139 non-executives and as on 31.3.98, it was 5249 employees comprising of 559 executives and 4690 non-executives. Percentage of SC/ST to total employment was 13.17 percent approximately as on 31.3.98. For enhancing efficiency and skill of work force the Company continued to give stress on imparting training to both executives and non-executives. With a view to reduce the surplus manpower, the Company has been taking several measures and accordingly under VR schemes, 236 employees took voluntary retirement during the year. National Renewal Fund has provided an amount of Rs.8.00 Crores for the VR scheme. Industrial relations continued to be cordial.

Official Language Policy

The company has taken up vigorous steps to implement the official language policy of the Government. Many employees have joined the correspondence course in Hindi, started by the SAIL.

Welfare Measures

During the year 1996-97, the company spent an amount of Rs.5.10 crores on educational, housing, medical, social and other welfare needs.

Rashtriya Ispat Nigam Limited (RINL) Visakhapatnam Steel Plant (VSP)

Introduction

Visakhapatnam Steel Plant, the country's first shore based Steel Plant, has attained high levels of growth rates in production and superior technological norms within a short span of time and looks ahead to sustain the growth levels already achieved. Within four years of its integrated operation, VSP has established its presence both in the domestic and international markets with its superior quality products. The plant has been awarded the ISO-9002 certification for SMS and downstream units covering all the products, making it the first integrated plant to achieve this honour. VSP is in the process of improving productivity through upgradation of existing technologies, adoption of new technologies, optimal investment and by judicious use of man power.

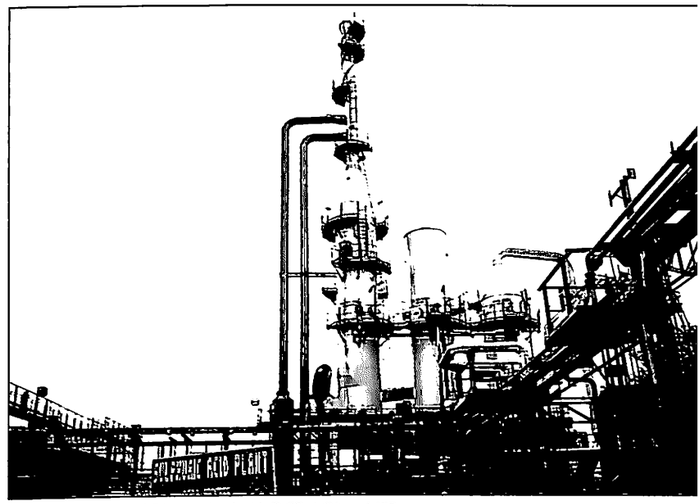
Production Performance

RINL (VSP) has achieved production of 3.17 MT of Hot Metal, 2.54 MT of Liquid Steel and 2.25 MT of Saleable Steel during the year 1997-98 representing a plan fulfillment of 93%, 85% and 85% respectively.

The production performance of RINL (VSP) during 1997-98 is given below :-

('000 tonnes)

Product	MOU Target 1997-98	Actual	% Fulfillment
Hot Metal	3400	3165	93%
Liquid Steel	3000	2541	85%
Saleable Steel	2656	2250	85%



SCSA Sulphuric Acid Plant replaced with DCDA Plant, VSP

Techno-Economic Performance

VSP continued to establish bench marks in the techno-economic parameters in the Indian Steel Industry. An estimated cost reduction of Rs.1000 per tonne has been achieved through introduction of cost reduction measures over the period 1994-95 to 1996-97. BF Coke Rate has come down by 9 Kg. in 1996-97 over the levels of 1995-96. During 1997-98 VSP has achieved BF Coke Rate of 531 Kg./tonne of Hot Metal against the target of 540 Kg./thm. During this period Converter life increased to 468 heats against the target of 425 heats.

Marketing Performance

During 1996-97 VSP has increased its market share by 2% over previous year. During 1997-98 VSP registered sales of 4.82 lakh tonnes of Pig Iron and 22.13 lakh tonnes of Saleable Steel corresponding to 160% and 83% respectively of the target fulfillment.

Right from its inception VSP has been maintaining high level of exports. The overall export earnings for 1996-97 were Rs. 642 crores. During 1997-98 the export earnings were 600 crores. 9% growth was achieved in the export of Pig Iron during 1997-98.

Financial Performance

The financial performance of VSP during the year 1996-97 and 1997-98 (Provisional) is as under:

Year	1996-97(Actual)	(Rs. in crores) 1997-98(Prov.)
Turnover/Sales	3135.29	3186.00
Gross Margin	606.41	530.53
Profit/Loss before Tax	(-) 245.94	(-) 419.40

The results indicated for 1996-97 are subject to audit and before considering conversion of Government of India loans.

Power & Mines

VSP has entered into an agreement with APSEB for exporting power for a period of 3 years from January, 1997. Power generation during 1997-98 registered a growth of 5% over corresponding period last year and 90% fulfillment against plan with an average net export of 32 MW. to A.P. State Electricity Board. A record net export of 79.4 MW to APSEB in April, 1997 was achieved during power crisis in Andhra Pradesh State.

Energy Conservation

There has been continuous improvement in Specific Energy consumption as given below :

Year	Plan	Actual	% Improvement
1993-94	8.82	8.32	
1994-95	8.15	7.80	-
1995-96	7.78	7.60	6.0
1996-97	7.71	7.59	2.6
1997-98	7.60	7.57	0.1
			0.3*

** Compared to 1996-97.*

Action Plan for Energy Conservation in 1997-98

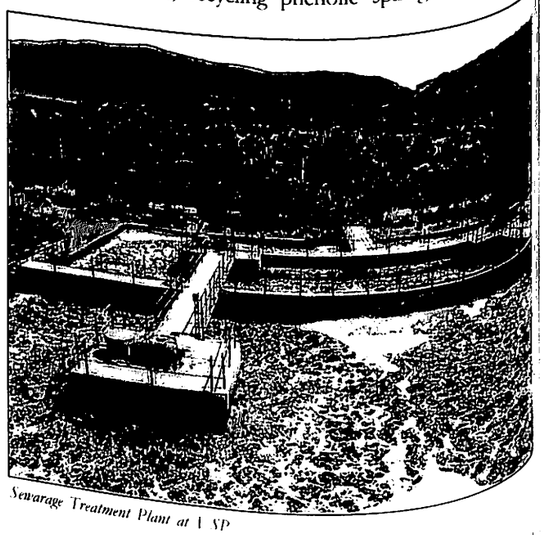
Special Quality Action Teams have been formed to reduce specific power consumption in Billet Mill, Bar Mill, specific heat consumption in Billet Mill and conversion of AC drives to variable frequency drives at Thermal Power Plant.

Pollution Control and Environment Management

Pollution Control

Visakhapatnam Steel Plant has been according highest priority for preservation of the environment. Accordingly sustained efforts are continuing for controlling all emissions and effluents within the prescribed norms. Ambient air, stacks and effluents are being monitored daily as per the statutory norms and prompt action being taken for any deviations observed.

A comprehensive study was made of all sources phenolic spillages and effective measures like recycling tar sludge in batteries, recycling phenolic spillages in by-products, providing oil collection pits etc. are being undertaken to maintain effluent quality within the norms. Preparatory work for acquiring ISO-14000 is being initiated. Recycling of waste products thereby leading to saving of raw material consumption and selling of some of them for generation of additional revenue is also being undertaken.



Sewarage Treatment Plant at VSP

Investment on Environment and Pollution Control

	(Rs. in crores) 1996-97
Total revenue expenditure in VSP (including depreciation)	3919
Revenue expenditure on pollution control	86.48 (2.2%)

During 1997-98, the expenditure on pollution control was Rs.85.6 crores (Prov.).

Afforestation

Status of afforestation in VSP

Land Allotted for plantation (in acres)	Land covered with plantation (in acres)	Balance (in acres)	% of area covered out of land allotted	No. of plants planted (lakhs)	No. of plants survived (lakhs)
Inside Plant 1730	1210	520	69.94	4.00	3.00
Township 7265	6223	942	86.85	29.00	20.00

Safety

Safety has been accorded highest priority in VSP. Training in safety and the remedial actions taken have led to reduction in the number of accidents over the years. Safety committees have been formed at the shop floors and plants level and these committees are spreading the safety consciousness amongst the employees. Contractor employees are trained before being put on to the jobs. Mock drills are regularly conducted at shop level every month. During May-June, 1997, VSP has achieved a record longest accident free period of 3.4 million man hours worked.

Industrial Relations

During the year 1997-98, a number of initiatives and strategies were taken to promote sustained and conducive industrial relation climate for smooth operation of the plant. The most important initiative in this direction was strengthening of the foundation of a sound and effective collective bargaining system through the joint Consultative Machinery. Sporadic incidents, sudden work stoppages and pressure tactics have diminished to satisfactory levels because of the availability of JCM as an institutional machinery for ventilating grievances and resolving genuine demands of the employees.

On the industrial relations front, consensus through negotiations was arrived on major issues like

a) Pension scheme for employees.

b) Payment of Bonus/Exqratia

c) Payment of compensation in case of death of an employee by accident while on duty etc.

Workers participation got a boost with representatives of three major unions participating in various committees and thrust being given on Quality Circle, Suggestion Scheme and Value Engineering.

Welfare of SCs/STs and Minorities

As on 31/3/98, the representation of SCs/STs and Minorities in the overall manpower of VSP is furnished below :

Total manpower as on 31/3/1998	- 17,354
No. of SCs out of the above	- 2,863 (16.50%)
No. of STs out of the above	- 1,033 (5.95%)
No.of OBCs	- 3,021 (17.41%)
No. of Minorities of the above	- 592 (3.41%)

The following are some of the measures taken by VSP for the welfare of SC/ST, OBC and Minorities :

i) An additional park in the Steel Township has been named after Babu Jagjeevan Ram which was inaugurated on 11.05.1997.

ii) In August, 1997, a separate Library-cum-Reading Room was constructed after the name of Dr.B.R. Ambedkar at a cost of Rs.4.5 lakhs.

iii) 15% of A&B type houses and 5% of C&D type houses have been reserved and allotted to SC/ST employees in the Steel Township.

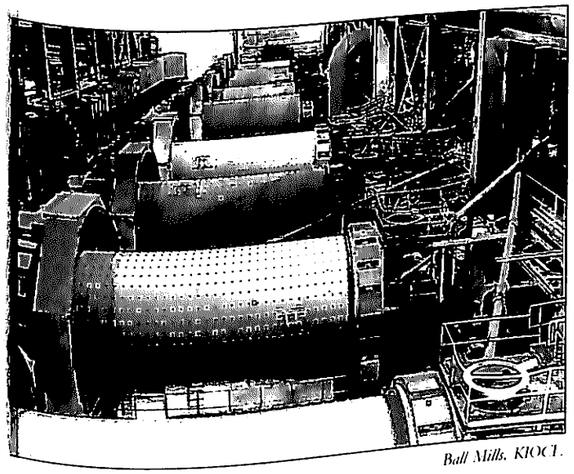
iv) For the children of the SC/ST employees,a Scholarship Scheme and Merit Award Scheme have been introduced.

Kudremukh Iron Ore Company Limited (KIOCL)

General

The Kudremukh Iron Ore Company Limited (KIOCL), 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.

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 at 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, China, Taiwan, Japan etc., and also to domestic Sponge Iron units such as M/s. Vikram Ispat and M/s. Ispat Industries.



Ball Mills, KIOCL

Production

A target of 6.3 million tonnes and 2.7 million tonnes was set for production of Iron Ore Concentrate and Iron Ore Pellets respectively during the year 1997-98. As against 6.3 million tonnes of Iron Ore Concentrate fixed for the year 1997-98 the actual production was 6.125 million tonnes which represents 97% target fulfilment. The production of Pellets during 1997-98 was targeted at 2.70 million tonnes and the actual production was 2.90 million tonnes (including 80419 tonnes of Pellet Fines) which is 107% target fulfilment. The shortfall in production of Concentrate during 1997-98 was due to continued power cut and peak load restrictions.

Highlights during 1997-98

(a) Highest annual production of 2.9 million tonnes of Pellets in 1997-98 (including production of 80419 tonnes of Pellet Fines.);

(b) Export of 2.83 million tonnes of Pellets (including 66419 tonnes of Pellet Fines) in 1997-98, the higest annual export so far, surpassing the previous high of 2.58 million tonnes in 1995-96;

(c) Highest annual turnover of Rs.587.16 crores(Prov.) the previous highest being Rs.492.59 crores in 1996-97;

Exports

For the year 1997-98, a target of 3.6 million tonnes of Concentrate and 2.60 million tonnes of Pellets was fixed. As against this actual shipments were 3.31 million tonnes of Concentrate and 2.83 million tonnes of pellets (including 66419 tonnes of pellet fines) representing 92% and 109% of the targets respectively. The shortfall in despatch of Concentrate during the year 1997-98 is on account of lower production and non-reporting of vessels within the agreed lay days and adverse weather conditions due to heavy rains at the loading port at Mangalore leading to postponement in arrival of vessels.

The Export earnings during the last two years from 1996-97 and 1997-98 are detailed below :

Year	Concentrate	Pellets	(Rs.in lakhs) Total
1	2	3	4
1997-98 (Prov.)	22885	35831	58716
1996-97	21900	27359	49259

Financial Performance

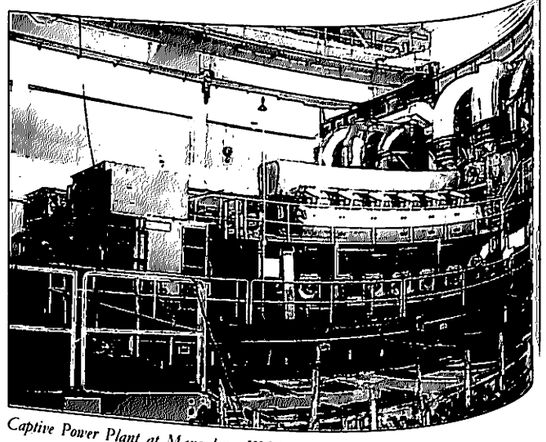
An overview of the performance of KIOCL during the year 1997-98 and 1996-97 is indicated below :

Particulars	1997-98 (Actual-Prov.)	(Rs. in crores) 1996-97
1	2	3
Total sales/Turnover	587.16	492.59
Gross Margin	126.71	130.41
Profit/Loss before Tax	83.74	84.97

For the year 1996-97, the company has paid a dividend of Rs. 20.62 crores, which is @ 3.25% of the paid-up share capital. This is the fifth year in succession for payment of dividend.

Manpower Position

As on 31st March, 1998 the total number of employees in KIOCL were as follows :



Captive Power Plant at Mangalore, KIOCL

Group	Total No.of employees including SC,ST as on 31st March, 1998	SC in Position	ST in Position
1	2	3	4
'A'	478	58	12
'B'	263	12	01
'C'	1501	194	41
'D'	187	57	28
'D' (Sweepers)	44	36	04
Total	**2473**	**357**	**86**

Workers' Participation in Management

The Works Committee 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.

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.

Progessive 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.

Manganese Ore (India) Limited (MOIL)

Background

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 31.3.1997, the Government of India held 82% shares in MOIL with State Governments of Maharashtra and Madhya Pradesh, holding 9.62% and 8.81% shares respectively.

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

a) High Grade Ores for production of Ferro Manganese,

b) Blast Furnace grade ore required for production of Hot metal and,

c) Dioxide Ore which goes into production of Dry Battery Cells.

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.

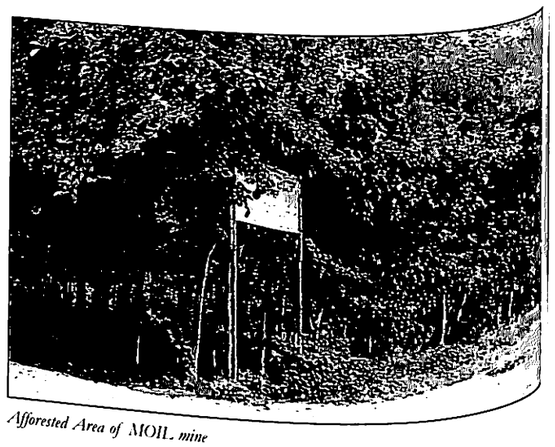
Finance

Authorised capital of the company is Rs. 30.00 Crores and paid-up capital was Rs. 15.33 Crores as on 31.3.1998.

Performance

Operating and Financial Results

The Physical and Financial Performance of the company during 1996-97 and 1997-98 (Provisional) are given below :



Afforested Area of MOIL mine

	1996-97 (Actual)	1997-98
1. Production (Lakh Tonnes) (Manganese Ore)	6.42	6.61
2. Sales/Turnover (Rs. in crores)	108.39	111.47
3. Gross Margin	28.47	27.79
4. Profit before tax (Rs. in crores)	22.87	22.29

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.

Repayment of Government loans

The Company repaid during 1997-98 to Govt. of India Rs. 13.94 lakhs (Rs. 56.22 lakhs 1996-97) towards principal of plan loans and Rs. 8.60 lakhs (Rs. 38.66 lakhs 1996-97) towards interest as per approved repayment schedule for 1997-98.

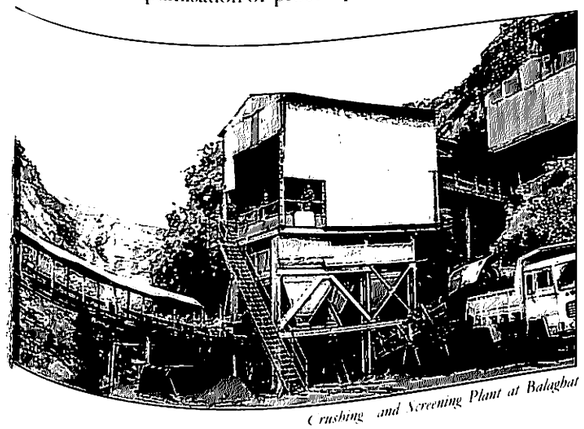
Progress of Capital Schemes

The work of renovation and enlargement of Hardy's Shaft upto 33 mtrs and further deepening and lining by 147 mtrs is in progress at Balaghat Mine.

Research and Development and Technology Upgradation

MOIL has undertaken several Research and Development Scheme for technology 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.

- Use of Cable Bolting and Steel Roof Support in underground mines.
- Use of Sand Stowing in underground Mines in place of manual filling.
- Improvement in underground mining support methods including Geotechnical investigation and capability studies.
- Diamond drilling to locate new Manganese bearing areas and prove further reserves in the existing leasehold areas.
- Beneficiation of medium and low grade ores as well as medium grade dioxide ore to battery grade.
- Optimisation of process parameters for E.M.D.Plant.



Crushing and Screening Plant at Balaghat

Diversification Plans

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

- The capacity of the existing 700 TPA EMD plant is being enhanced by 200 TPA.
- Setting up of another Electrolytic Manganese Dioxide(EMD)-1200 TPA. The Company is studying the project report prepared by MECON.
- Work for setting up of a plant to manufacture Manganese Sulphate Salt at a cost of Rs. 50 lakhs has started.
- Work of construction of 5 MVA Ferro Manganese plant at Balaghat mine using Balaghat fines at an estimated cost of Rs.570 lakhs is in progress.
- Setting up of another high Intensity Magnetic Separation, plant,and a Mechanised Jigging Plant.
- Preliminary work for setting up of 8 MW captive power plant at an estimated cost of Rs 21.80 crores at Balaghat mine.

Cost Reduction Plans

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

- Improvement in productivity.
- Proper manpower planning and introduction of Voluntary Retirement scheme (without replacement) to reduce surplus manpower.
- Judicious mechanisation of various mining operation.
- Avoidance of wasteful expenditure.

Safety Measures

With the continuous depletion of near surface ore deposits, mining is progressively being extended to deeper horizons and extraction is increasingly done through underground mining working which require 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. Continues 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.

Workers Participation in Management

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 arrange ment. Inaddition, works/Canteen/ Grievance committees are functioning satisfactorily at each unit. The members of these committees are from different sections of employees.

Environmental Protection

The Company is conscious of its responsibility towards protection of environment in it's leasehold areas. 75400 saplings were planted during 1996-97 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.

Progressive Use/Awards for Implementation of Hindi

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

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

Social Commitment

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 schemes to promote social welfare.

Personnel

The composition of the work force of the Company as on 31st March 1998 is as under :

Group	S.C.	S.T.	O.B.C.	Others	Total
A	19	9	18	171	217
B	20	11	19	164	214
C	349	400	461	708	1924
D	1104	1696	2127	903	5830
Total	**1492**	**2116**	**2631**	**1946**	**8185**

Out of the total number of 8185 employees 1040 are women.

Bharat Refractories Limited (BRL)

Background

Bharat Refractories Ltd. (BRL) a Government of India undertaking was incorporated on 22nd July, 1974 and at present it has the following three Units :

i) Bhandaridah Refractories Plant at Bhandaridah;

ii) Ranchi Road Refractories Plant at Ramgarh; and

iii) Bhilai Refractories Plant at Bhilai.

In terms of revival package approved by the Govt., the subsidiary Co. M/s India Firebricks & Insulation Company Limited has since been merged with the holding Company, BRL, w.e.f.01/10/1997 and is now known as IFICO Refractories Plant, another unit of the Company. The Company is engaged in the manufacture and supply of various kinds of refractories not only to the integrated steel Plants but also the mini and midi steel plants.

Capital Structure

The authorised share capital of the Company as on 31st March, 1997 was Rs. 5500.00 lakh against which the paid-up capital was 5180.18 lakh. In terms of the revival package sanctioned by BIFR the authorised capital of the Company was raised to Rs.11,300.00 lakh against which the paid-up capital of company as on 31st March, 1998 is Rs.10,390.90 lakh.

Performance

The production performance of the different units of the Company during 1996-97 and 1997-98 (provisional) was as follows :

	Quantity : Tonnes			Value : Rs. in lakh		
	1996-97		1997-98 (Provisional)			
	(Actual)		Target		Actual	
	Qty.	Value	Qty.	Value	Qty.	Value
Bhandaridah Ref.Plant (BHRP)	21657	2559.97	16566	1980.67	16244	1950.41
Ranchi RoadRef.Plant (RRRP)	6862	2029.75	5834	1733.38	5738	1685.86
Bhilai Ref.Plant(BRP)	25050	3553.23	14704	2374.62	11076	1729.33
Total of BRL	53569	8142.95	37104	6088.67	33058	5365.60
India Firebricks & Insulation Co. Ltd. (IFICO)	18253	2255.68	15138	1561.53	14045	1404.24
Grand Total	71822	10398.63	52242	7650.20	47103	6769.84

Financial Performance

The financial performance of the Bharat Refractories Ltd., for the year 1996-97 and 1997-98 (Prov.) is detailed below:

Year	1996-97	(Rs. in crores) 1997-98(Prov.)
Sales/Turnover	77.59	92.29
Gross Margin	(-) 5.62	(-) 17.84
Profit/Loss before Tax	(-) 41.17	(-) 24.35

Figures for 1996-97 have been shown for BRL only. Figures from 1997-98 have been shown jointly for BRL and IFICO in view merger of these two companies w.e.f. 1.10.97 under the revival package sanctioned by BIFR.

Foreign Collaboration

Bharat Refractories Ltd. 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. Consequently, the Company has emerged to be one of the major suppliers of MCB to SAIL Steel Plants. The Company has also started commercial production of Coke Oven Silica

Bricks, for which know-how was acquired from Shinagawa Refractories Co. Ltd., Japan.

The company also entered into foreign collaboration agreement with M/s Plibrico, France for manufacture of Castables for Blast Furnace Trough. The Company is proposing to set up facilities for production of refractories for Continuous Casting of steel.

Industrial Relations

The Industrial Relations climate in the Company and subsidiary were generally cordial and harmonious.

Manpower

The manpower position of Bharat Refractories Ltd. as on 31st March, 1998 was as follows:-

Indicator	Total no. of employees	No. of SC	No. of ST	No. of Ex-servicemen	No. of Physically handicapped	No. of Women employees
BRL	3737	399	502	76	28	167

Official Language

The Company has been vigorously pursuing implementation of the Official Language Policy of the Govt. To improve the use of Hindi, a number of workshops,Rajbhasa Seminar, Competitions, meeting and training programmes were conducted from time to time.

Research & Development

During the year 1997-98, in-house R&D was carried out in respect of the following areas:

- Direct Bonded rebounded Mag-Chrome Refractories.
- Super Duty Silica Bricks.
- Mag-Carbon Bricks with high micron fused magnesia and high purity graphites.
- Further improvement in zonal lining of Mag-Carbon Bricks with Fused Magnesia.
- Special Magnesite Mortar for DSP.
- 87% MgO Tap Hole Mass.
- Improved variety of Trough Mass for VSP.
- Resin bonded Tap Hole Mass for Blast Furnace.
- 95% MgO Tap Hole Mass.
- Coke Oven Patch Mass.
- Silica Ramming Mass.

Most of the above products are developed and commercialised.

The revenue expenditure on R & D during 1997-98 was Rs.42.73 lakh(prov.).

Energy Conservation

Sincere efforts of BRL for saving energy resulted in the lower consumption of coal and coke, per unit of finished product.

Environment Management and Pollution Control

All the units of the Company have obtained/applied for valid "Consent" from the concerned State Pollution Board. Dedusting units have been installed at the Plants to control air pollution. BRL 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 strictly complied with.

Safety Measures

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

Contract Labour

Contract laborers are engaged occasionally on non-perennial jobs only. They are being paid statutory wages. In addition, they are provided other benefits like Provident Fund, Medical Facilities, Leave etc.

Restructuring of Capital Base

As a result of capital restructuring of BRL as per Scheme sanctioned by the Govt. following reliefs and concessions have been given to BRL:

- Waiver of interest accrued on loans amounting to 61.64 crores.
- Conversion of 50% plan loan as on 31.3.1995 into equity amounting to Rs. 39.76 crore.
- Conversion of balance plan loan into 12% term loan.
- Conversion of non plan Loan amounting to Rs.12.05 crores into 7% non cumulative preference shares.
- Interest holiday for 3 years.
- Moratorium on loan repayment for four years.
- Merger of IFICO with the holding Company i.e. BRL.

National Mineral Development Corporation Limited (NMDC)

General

Incorporated on November 15, 1958, the National Mineral Development Corporation Limited (NMDC) is an 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 limestone and diamonds. NMDC operates the largest mechanised iron ore mines in the country at Bailadila (Madhya Pradesh) and Donimalai (Karnataka). The limestone project is at Chawandia, Rajasthan and the Diamond Mine is situated at Panna (Madhya Pradesh).

Iron Ore

Production

During the year 1997-98, 14.59 million tonnes (Provisional) of iron ore has been produced.

Exports

Exports of iron ore produced by NMDC is canalised through the Minerals and Metals Trading Corporation (MMTC). Iron ore export is mainly to Japan, South Korea and China. In 1997-98, NMDC exported 7.2 million tonnes of iron ore valued at Rs.516 Crores approximately (Provisional).

Domestic Sales

In the year 1997-98 sale of iron ore to domestic consumers was 85.00 lakh tonnes (Provisional).

Diamonds

In the year 1997-98 the production was 30596 Carats (Provisional).

Finance

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

Financial Performance

The financial performance of the company for the year 1996-97 and 1997-98 (Prov.) is given below :

Item	1996-97	(Rs. in crores) 1997-98(Prov.)
Sales/Turnover	649.25	753.35
Gross Margin	208.47	231.69
Profit/loss before tax	169.78	195.15

Disinvestment of Shares

The Government of India had 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 has been dis-invested. The disinvestment 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. During the year 1997-98, 5,154 shares of Rs.10/- each have been disinvested in favour of the employees of the Corporation at the price of Rs.71/- per share.

Operating Results

In the year 1997-98, the company earned a profit of Rs.195.15 crores (Provisional). This is the highest profit ever achieved by NMDC.

Highlights of Performance during 1997-98 (Provisional)

The Major Highlights of Performance against the MOU Targets for 1997-98 are as follows:

Corporation as a Whole

Iron Ore

Corporation as a whole has achieved 206.38 lakh tonnes of Total Excavation in the Iron Ore Mines against the Target of 180.00 lakh tonnes, an achievement of 115%.

A Production of 145.92 lakh tonnes of Lump and Fines against the Target of 137.00 lakh tonnes, an achievement of 107%.

A Despatch of 156.26 lakh tonnes of Lump and Fines against the Target of 137.00 lakh tonnes, an achievement of 114%.

Diamonds

Achieved Diamond Production of 30,596 carats from Majghawan Mines of Diamond Mining Project, Panna, against the target of 29,000 carats thus registering 106% achievement.

Tuff treatment of 2.97 lakh tonnes against the previous best of 2.73 lakh tonnes in 1996-97. This is an all time record.

Diamond bearing Kimberlite Ore (Tuff) mining of 4.07 lakh tonnes against the previous best of 3.27 lakh tonnes in 1996-97. This is an All Time Record.

Recognition/Awards in 1997-98

Received the Abheraj Baldota Environment Award from the hands of the Union Minister for Steel & Mines, Govt. of India on 28th August, 1997 at the 31st Annual General Meeting of the Federation of Indian Mineral Industry (FIMI) at New Delhi for undertaking Massive Afforestation and Green Belt Development Programme at Bailadila-14/11C Project.

Received Gold Award on 24th August, 1997 from International Greenland Society for Best Environment & Ecological Implementation Activities carried out in various Mines and Projects of NMDC.

Received Best Chief Executive award by the then CMD of NMDC on 24th August, 1997 from Rajiv Gandhi Memorial national Awards committee for his sustained efforts to make NMDC achieve higher and higher levels of Productivity and Profitability.

Received Top Export award by CAPEXIL on 12th November, 1997 from the Hon'ble Union Minister of Commerce for NMDC's Export Performance in 1996-97.

Received Excellent Performing Public Sector Enterprise Award for the year 1996-97 from Indian Institution of Industrial Engineering on 22nd November, 1997.

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.

Capital Schemes

Bailadila-10/11A

Govt. of India approved the scheme of developing deposit-10/11A with an estimated capital cost of Rs.430.50 crores including foreign exchange component of Rs.18.61 crores. Project Implementation has been taken up and the equipment required during construction of project have been received like shovels, drills, mobile crane, dozers and dumpers. Two dozers, two hydraulic excavators, four drills and six dumpers have been commissioned. These HEM equipments are deployed for the mines at deposit-11A suitably. Temporary working permission has been granted by Minsitry of Environment & Forest(MOEF) and by State Government upto 19.06.98.

Due to non-renewal of lease and clearance from Ministry of Environment and Forests (MOEF), civil works could not be taken up in full swing and the project is likely to be delayed as per present projection by approximately 18 months and the same is likely to be completed by February, 2001.

Ultra Pure Ferric Oxide Plant, Visakhapatnam

NMDC's Board of Directors in Feb. 95 approved setting up of an Ultra Pure Ferric Oxide Plant at Visakhapatnam, A.P. at a cost of Rs.45.98 crores. The construction of this plant is in final stage. The Plant will be commissioned shortly.

Manpower Position

As on 1st January, 1998 the manpower position in different units of the company is as follows:

Group	Total No.of Regular Employees as on 1.1.98	No.of SC Employees out of Col.2	No.of ST Employees out of Col.2	No.of Women Employees out of Col.2
(1)	(2)	(3)	(4)	(5)
A	941	82	29	33
B	1111	114	75	65
C	2881	515	654	122
D	1908	413	474	160
Total	6841	1124	1232	380

Research and Development

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 mine wastes and production of value added products.

Highlights of R&D Activities

a) New Technology/Process

(i) Development of mineral Beneficiation process for production of High Grade Ferric Oxide from powdery type of Iron Ore known as Blue Dust.

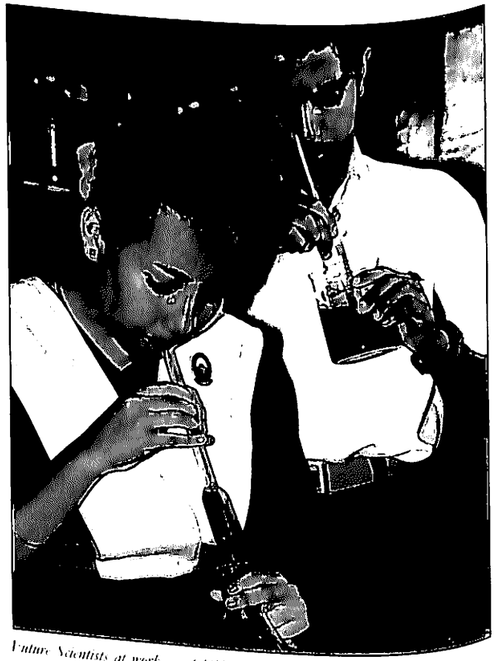
A Demonstration plant is in three shift operation, producing an average 1000 tonnes of High Grade Ferric Oxide of different grades. These products are being supplied to various manufactures of Ferrite components both in India and aboard, for market development.

(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. The plant will commission by end of May, 1998.

(iii) Development of a Hydrometallurgical process for production of Pigment Grade Ferric Oxide from Blue Dust.

A Pilot Plant is being set up with a internal funding to commercialise the process, for production of pigment grade Ferric oxide from Blue Dust.



Future Scientists at work — Children at NMDC Project School

(iv) Development of process for production of synthetic Futile & high grade ferric oxide from Ilmenite concentrate obtained from Bhimunipatnam beach sane.

Successful Laboratory Studies have been carried out for production of ilmenite concentrate from the beach sane and production of Synthetic Futile & High Grade Ferric Oxide, subsequently from Ilmenite concentrate.

(v) Utilisation of Mine Waste

i) Utilisation of Kimberlite waste for production of Masonary Bricks

Based on successful laboratory finding, Pilot scale studies for production of Masonary Bricks from Kimberlite waste material, in association with National Council for Cement and Building Materials (NCCBM) Hyderabad were proposed to be taken up for finalising the techno-economics and other design parameters for the commercial plant. Draft Feasibility Report submitted by M/s NCBM is being examined to reduce the capital cost of the Pilot Plant and production cost of the brick.

ii) Utilisation of iron ore slime for production of Pig Iron

The company has proposed to set up a commercial plant in Bailadila region for utilising the accumulated iron ore slime for production of Pig Iron adopting Romelt Process. Final Feasibility Report will be ready by end of April, 1998.

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 Perm-Roll magnetic separation technique, based on R&D studies, in the Diamond Processing Plant at Diamond Mining Project, Panna, there is a substantial increase in production and productivity.

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 Ferrite 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

vi) Synthetic Futile and High Grade Ferric Oxide from Bhimunipatnam beach sand.

d) Quality Improvement Programme

i) Being a member of the Bureau of Indian Standards, participating regularly in updating the testing procedures of Ores and Minerals.

ii) The process has been initiated for obtaining the ISO 9001 certificate for the R&D Center. This is for the quality management system and for the quality of Service/Product being offered by the Center.

R&D Expenditure

Year	Turnover (Rs. in crores)	Expenditure on R&D (Rs. in crores)	R&D Expenditure as percentage of turnover
1995-96	588.68	3.41	0.58
1996-97	649.24	5.94	0.91
1997-98	753.35 (Provisional)	4.56	0.60

Project Status

a) No.of Projects in hand as on 01/4/1997 : Two, viz.,

(i) Technology Development for production of pigment grade Ferric Oxide from Blue Dust and Iron Ore Slimes.

(ii) Technology Development for production of ultra Pure Ferric Oxide from Blue Dust.

b) No. of Projects planned for 1997-98 : Two, viz.,

(i) Utilisation of accumulated iron ore slime. Preliminary work to be taken up for setting up a commercial plant for production of Pig Iron from Bailadila Iron Ore Slimes adopting Romelt Process of Russia.

(ii) Pilot scale studies on kimberlite tailings from Diamond Mine, Panna for the manufacture massonary bricks hollow bricks.

c) No. of projects due for completion in 1997-98 : One, viz., Commercial plant for production of Ultra Pure Ferric Oxide from Blue Dust, will be completed by June' 1998.

Pollution Control and Environment Management

Actual Work Carried out during the year 1997-98

Bailadila iron ore project, Dep-5, Bacheli

1. Target plantation of 50,000 nos. of saplings.
2. Construction of check dam near upstream of check dam No.3.
3. Extension of RCC diversion channel beyond railway crossing at Bacheli.
4. Construction of parks at Akashnagar and Bacheli.
5. Retaining walls at toe of waste dumps in Central and south blocks.
6. Desalting of check dams : 1 to 5 and nerli dam, Tailing dam, No.1.

Peripheral village community development works

1. Digging of bore wells at Nareli and Kameli villages.
2. Construction of water tanks for tribal (2 nos. of 5,000 lts).
3. Improvement/construction of class rooms at Govt. H.S. School, Bacheli and school of Nareli villages.
4. Distribution of school uniforms and books to adivasi students.
5. Sulabh Sauchalay in Bacheli market.
6. Soling and additional formations of road from Bade Bacheli to Dugeli nala, 5 km length.
7. Black topping of approach road to Nareli Village. Filling and leveling of earth for Bus stand of Bacheli in front of Panchayat Bhavan.
8. Construction of road and black topping from Bacheli petrol pump to RFS colony via Saraswati school.
9. Black topping of road from Bade Bacheli to Tribal Higher Secondary School, 1 KM length.

Bailadila iron ore project, Deposit-14/11C, Kirandul

1. Improvement of Kirandul township sewarage net-work order issued and work will be completed by October, 1998.
2. Target plantation of 50,000 nos. samplings. For slope stability, 75000 nos. of Kata bamboo have been planted.
3. Construction of one check dam near Malingar pump house and one near Bengali camp.
4. Desalting through mechanised system in Kirandul nalla leading to tailing dam.
5. Construction of "water-fall" at Visveswarayya Park at Kirandul is under progress.
6. Development work of Park near Type 'C' quarters is under progress.
7. Slope stability steady of 11-C Mine Crusher house by M/s. CMRI scientists has been completed.

Peripheral village community development works

1. WBM road from Malinger to Kirandul.
2. Temporary approach road from Kotwarpara to Tamapara.
3. Construction of play ground at Govt. Arvind College.
4. Construction of additional class room each for schools at Cholenar and Gumipal.
5. Construction of school building at Hiroli Vill. is in progress.
6. Construction of 2 additional class rooms at Kirandul high School is in progress.
7. Construction of Ashram Building at Madkamaras is in progress.
8. Work is in progress for renovation of Kodenar Primary School.
9. Black taping of Arvind Maha Vidyalaya Road (5Kms.) is in progress.
10. Construction of Anganwadi room at Patelpara & Pirnar villages.
11. Construction of Dispensary room at Cholenar Village.
12. Installation of 20 Nos. hand pumps and cemented platform after drilling bore well on notified places are in progress.
13. Constructed of cremation shed with water arrangement is in progress.
14. Construction of Fair Price Shop at kadampal is in progress.
15. Rs.25 lakh has been distributed to the Panchayats for Community Development.

Donimalai iron ore project

1. Against the target of 40,000 Nos. Tree plantation at Kumaraswamy mines & Donimalai mines-43,782 nos have been planted.
2. Work order for construction of check dam at Kumaraswamy Mine has been issued and work is in progress.
3. Improvement of deer park.
4. Works relating to raising of check dams at South Block has been completed & Similar work at North Block is in progress.

Panna Diamond Mining Project

1. Against the Plantation target of 10,000 nos., 4000 samplings at Panna township and 6000 samplings at Majhgawan has been done.
2. Construction of sewage treatment plant at Majhgawan.
3. Civil work of tailing dam is completed.

Head Office Environment Department

1. Regular monitoring for all environmental parameters such as SPM, CO, SO2 and Nox in ambient air, respirable dust & free silica analyses in work zone areas, water quality & flow measurements, noise level measurement & soil quality studies at all production and feasibility projects.
2. Procurement of 1 no. precision integrated sound level meter.
3. Procurement of 2 nos. Automatic weather stations for installation at Donimalai and Panna Projects-work order issued.

Total Expenditure incurred for Environment protection, upgradation and Pollution control measures for all projects of NMDC are as follows

Year	Amount Spend (Rs. in crores)
1995-96	5.87
1996-97	8.32
1997-98	2.88

Achievements & Status

Air Quality

The ambient air quality at all production projects during the year 1997-98 were found well within the limits of NAAQ of CPCB. The respirable dust survey conducted by NIRM, KGF indicated a RPM within the limits as stipulated by DGMS.

Water Quality

The industrial effluents emanating from the screening plants are led into the tailing dam for sedimentation. The effluents after treatment confirm to GSR 422E. The domestic effluents which are treated at the well designed oxidation ponds are meeting the standards of IS 4764. Drinking water being supplied to the township and to the village in the vicinity strictly confirms to IS 10500-1991.

Solid Waste Management

The total waste/overburden removed during year 1997-98 and the area reclaimed in the mined out areas and waste dumps are as follows :

Particulars	Bailadila-5	Bailadila-14/11C	Donimalai Panna
Total solid waste removed (lakh tonnes)	13.00	9.54	20.54	20,344 cu.m
Mined out areas reclaimed(ha)	NIL	*1.16Ha	*13.18	NIL
Waste dumps reclaimed (ha)	NIL	*18.0	*5.00	1.0

* Since inception of the mine.

Mandovi Pellets Limited

Mandovi Pellets Limited (MPL), Goa is a joint venture company floated by Government of India through National Mineral Development Corporation Limited 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 1997-98 the company produced 5.33 lakh tonnes of pellets and despatched 4.87 lakh tonnes of pellets. The company's income for the year 1997-98 is Rs.5686 lakhs which includes miscellaneous receipts of Rs.90 lakh. After adjusting the operating expenditure of Rs.6514 lakhs, depreciation of Rs.393 lakhs and interest of Rs.56 lakhs, the loss for the year 1997-98 is Rs.1277 lakhs (Provisional).

Energy Conservation

1.Consumption of Energy per tonne of Iron Ore Excavated

A) Electrical Energy - KW / Tonne of excavation

Year	Target	Actual
1995-96	2.85	2.26
1996-97	2.85	2.21
1997-98	2.85	2.27

B) Diesel Consumption - Ltrs./Tonne of Excavation

Year	Target	Actual
1995-96	0.32	0.30
1996-97	0.32	0.30
1997-98	0.32	0.29

Project Implemented during 1997-98

a) Extensive use of Fluorescent Lamps for all industrial uses.

b) Installation of PF improving Capacitors and maintenance of PF at + 0.90.

c) Installation of Non-Conventional Energy Sources like Solar Panels for water heating and cooking purposes in Guest House.

d) Reduction in domestic energy consumption.

e) Reduction of idling time of dumpers.

f) Study of additives for conservation.

g) Recycling of Lubricants.

h) Formulation of Energy Audit Teams and carrying out energy audits.

i) Awards schemes for best Suggestions.

J&K Mineral Development Corporation Limited

Jammu & Kashmir Mineral Development Corporation Limited (J&KMDC) as a subsidiary company of NMDC was incorporated on 19.5.1989 for development of various mineral projects 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 paid up till 31.03.98 by NMDC is Rs.396 Lakhs and J&KML is Rs.78 Lakhs. Upto March,98 Rs.5.14 crores have been spent on the Project. The entire expenditure at present in being met by NMDC. The Dead Burnt Magnesite (DBM) plant of 30,000 tonnes per annum was sanctioned at a cost of Rs.60.02 Crores by Govt. of India in November, 1992,subsequently updated to Rs.120.63 crores in September, 1997. But the project construction could not start since the viability of the project was badly affected due to reduction in customs duty on DBM in 1993-94 and further fall in the International price. NMDC intimated this to the Ministry of Steel on whose direction, further activities of the project were kept in abeyance pending establishment of the economic viability of the project. This matter was discussed in detail and it was felt that the project will not become economically viable and therefore it was decided to close the project in its original form for which Government approval was sought.

Subsequently, on the advice of the Government, it was decided vide Board Meeting in November, 1995 to explore various avenues for starting work in this project. After going through the various alternatives and looking into the sensitive nature of the project, JKMDC Board decided to restart the project in a modified form in three phases as given below :-

Phase-I : Develop the deposit for a production of 25,000 MT of saleable magnesite in the first year at a capital cost of Rs.451.82 lakhs.

Phase-II : Expand the production to 50,000 MT of saleable magnesite per annum subject to availability market from the second year onwards.

Phase-III : Expand the mine capacity to approx. 1 lakh tonnes and set up a 30,000 TPA DBM plant subject to economic viability based on the then prevailing market price for DBM.

The Board of Directors of J&KMDC and NMDC have agreed to the above proposal and Ministry of Steel has been informed accordingly. Works are being taken up in the project in accordance with the above modified plan to start Phase-I at the earliest.

CHAPTER V

MSTC Limited

Introduction

MSTC Limited was incorporated under the Companies Act, 1956 on 9th November, 1964 and was the Canalising Agent for import of carbon steel melting scrap and also sponge iron/hot briquette iron and rerolled scrap, till February, 1992. It was also the canalising agency for old ships for breaking import of which was decanalised and put under OGL w.e.f. August, 1991.The company undertakes disposal of ferrous and non ferrous 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, i.e., Foreign Trade and Domestic Trade.

Domestic Trade

This Division is responsible for disposal of ferrous scrap and other secondary arising generated in public sector steel plants under SAIL and RINL as well as disposal of scrap, surplus stores, etc. from other public sector enterprises and Govt. Departments including Ministry of Defence.

Foreign Trade

This Division till February, 1992 largely undertook canalised import of carbon steel melting scrap, stainless steel, HBI/Sponge Iron, rerolled scrap, ships for breaking etc. for the secondary steel sector. After de-canalisation, MSTC. arranges imports of scrap as per the needs of actual users in competition with other private sector importers.

Management Services

The Company also has a Management Services Division which provides the operational divisions regular feed back on market research and also responsible for Corporate Planning and diversification. The company has also service departments like Finance & Accounts, Personnel & Administration and Law.

Organisation Structure

The Chief Executive Office of the company is the Chairman-cum-Managing Director who is assisted by three Chief General Managers, six General Manager who are in charge of various functions. The company has set up Regional Offices at Calcutta, New Delhi, Chennai and Mumbai which are headed by Regional Managers. Besides, the company has branch offices at Bangalore, Vizag and it has offices at Bhopal, Rourkela, Vaddodara and Bokaro.

Future Planning and Activities

In order to avoid dependence of trading in scrap, MSTC is planning to diversify its activities in the field of manufacture of iron and steel and related items. A number of joint venture proposals are under consideration of the Company. In addition, it is also exploring the possibilities of widening its import basket with possible import of metallurgical coke and other inputs required by steel plants on commission basis.

MOU with Government

Due to recession in the domestic market and instability in the prices of scrap in the international market, the company's performance has been affected in the case of Foreign Trade. However, in the case of Domestic Trade, the company has maintained its tempo and exceeded even the revised target for 1996-97 by achieving a record turnover of Rs. 441 crores which was 10.18% higher than its achievement during 1995-96. During the year 1997-98, the volume of sales of MSTC was Rs.497 crores in domestic trade activities which is higher by 12.70% over last year.

Physical and Financial Performance

The physical and financial performance for the year 1996-97 and 1997-98 (provisional) is given below :

	1996-97	1997-98 (provisional)
Financial Results.		
(Rs. in crores)	104.86	27.52
(a) Turnover	4.28	2.95
(b) Gorss Margin	3.82	2.49
(c) Profit/Loss before tax		
Physical Performance		
(a) Foreign Trade Carbon Steel Melting Scrap('000 MT)	128	NIL
i) Quantity('000 tonnes)	81	NIL
ii) Value (Rs. in crores)	441	497
(b) Domestic Trade Despatches of Ferrous scraparising from steel plants and sale of ferrous scrap, MISC, items from other PSUs Govt. Deptt.including auction sales for steel plants (store items) (Rs.in crores)	522	497
(c) Total volume of business (Rs. in crores)		

For the year 1996-97 the Company declared a dividend @ 20% on the paid-up Capital.

Employment Statistics

The total manpower of the company is 288 consisting 119 executive and 169 are non-executive. Out of the total manpower 45 are women employees.

The employees statistics in respect of SC/ST including OBC ex-service men and physically handicaped is as under:

Group	Total	SC	ST	Physically handicapped	Ex-servicemen	OBC
A	119	14	7	1	-	4
B	48	9	3	1	3	-
C	93	25	4	2	-	2
D	28	11	1	1	-	-
	288	59	15	5	3	6

Ferro Scrap Nigam Limited

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 M/s MSTC Limited holds 60% of the equity shares and the remaining 40% are held by M/s Harsco Inc., of USA. The Company is subsidiary of MSTC Limited.

Activities and Objectives

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

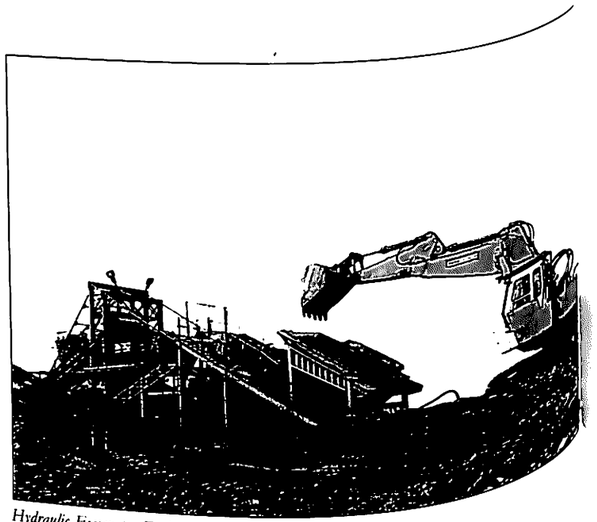
The scrap recovered is returned to the steel plants for recycling/disposal and the company is paid processing charges on the quantity recovered at varying rates depending on the category of scrap. Scrap is generated during Iron & Steel making and also in the Rolling Mills.

In addition, the Company is providing Steel Mill services such as Scarfing of Slabs, handling of BOF Slag etc.

Organisational Structure

The Chief Executive Officer of the Company is the Managing Director who normally functions under the guidance of a part-time Chairman and a Board of Directors. The Managing Director is assisted by two General Managers and eight Deputy General Managers who are incharge of activities at the main steel plants, 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, Burnpur, Rourkela, Bokaro, Visakhapatnam and Durgapur.



Hydraulic Excavator Feeding Magnetic Separator, FSNL

Physical and Financial Performance

Physical Performance

The production performance of FSNL for the year 1996-97 & 1997-98 is given below :-

Item	1996-97	1997-98 (Provisional)
Recovery of scrap (Lakhs Metric Tonnes)	13.03	14.73
Market Value of Production (Rs. in Crores)	573.32	600.00

Financial Performance

Item	1996-97	(Rs. in crores) 1997-98 (Prov.)
1. Total Turnover i.e. Service charges realised including misc. income etc.	63.91	71.47
2. Gross Margin before interest and depreciation	23.54	24.41
3. Profit before tax	14.07	16.77

Sales Realisation

Sales realisation per metric tonne for the last two years and for the year 1997-98 are indicated below :

1995-96	1996-97	1997-98 (Provisional)
480.87	490.46	486.10

The total manpower of the Company is 1349 consisting of 140 Executive and 1209 Non-Executives.

The Employment Statistics of SC/ST , Ex-Servicemen and Physically Handicapped are as under:

Group	No. of Employees	S.C.	S.T.	EX-Servicemen	Physically Handicapped
A	140	9	4	3	-
B	266	9	-	-	-
C	939	187	144	57	2
D	4	4	-	-	-
Total	1349	209	148	60	2

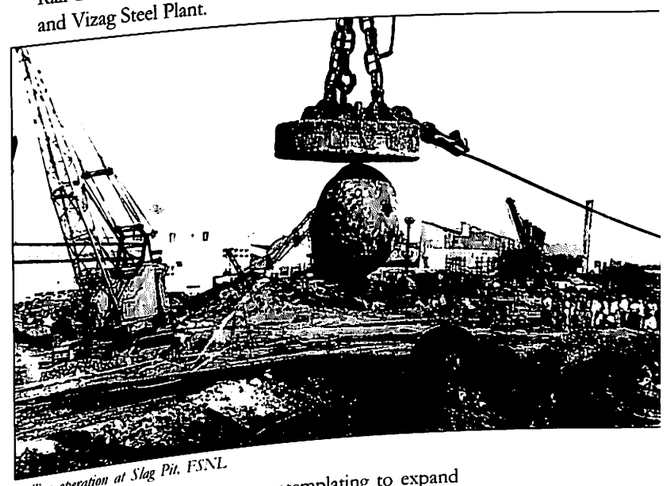
Future Programmes

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 increased requirements of the SAIL plants, FSNL is going for Production Augmentation Programme for upgrading the present technology for which an Approach Note has been prepared by MECON and the same has been accepted by SAIL. FSNL is now to engage a Consultant for the complete job of preparation of detailed drawing etc.

Discussions/negotiations with Steel Plants have been made and it has been possible to get some additional jobs awarded to FSNL as per details given below :

1. Scarfing of slabs at Bokaro Steel Plant
2. SMS Slags handling at Rourkela Steel Plant
3. Crushing, Screening and transportation of L.D.Slag to be used in the Sintering Plant, Blast Furnace and as Rail Ballast has been started at Rourkela, Durgapur and Vizag Steel Plant.



Bailing operation at Slag Pit, FSNL

In addition, FSNL is also contemplating to expand their activities in the Private Sector Steel Plants for scrap recovery and processing jobs. In this connection, discussions have been held with M/s. ESSAR Steel Ltd., Jindal Vijaynagaram Steel Ltd. and M/s. Neelachal Ispat Nigam Ltd., Bhubaneswar. On the basis of these discussions and on the spot assessment of the facilities available and the requirement of the customers, proposals have been submitted for their consideration.

FSNL has also drawn up the following plans for the future:-

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

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

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

Metallurgical and Engineering Consultants (India) Limited (MECON)

Background

As the first consultancy and engineering organisation in the Country to be accredited with ISO:9001, the last 37 years have seen MECON emerging as one of the largest design, engineering and consultancy organisation in the world. It has developed considerable expertise not only in the field of consultancy services, like design, detailed engineering, project management, etc., but also in design and supply of equipment for the ferrous, non-ferrous, oil and gas, petro-chemical and other general industries. This expertise has helped the Company to bridge the knowledge gap in the country in high technology areas, such as, rolling mills & processing lines, blast furnace, coke ovens and Coal Chemicals converter gas cleaning, power plants, refractories, etc. MECON has diversified its services into power, environmental engineering, ocean engineering, roads & highways, petro-chemicals, gas pipelines, information technology, defence projects, etc.

Long association with integrated steel plants has enabled MECON to build a strong technological base. The organisation has acquired, absorbed and innovated technologies to suit the needs of clients . It continues to acquire state-of-the-art technologies from leading 8 international sources in USA, UK, Russia, Germany, France, Italy, China and Austria. The know-how acquired has been successfully assimilated through direct on-the-job experience.

In the area of design and supply of equipment MECON's expertise in supply of Rolling Mills is well recognised. MECON has designed and supplied several sophisticated Hot and Cold Rolling Mills including auxiliaries to Clients in both the public and private sectors. Notable among them are Bokaro Steel Limited, Salem Steel Limited, Mishra Dhatu Nigam, Rourkela Steel Plant, Nagarjuna Steels, Pennar Steels, Hero Cycles Limited, etc. MECON has successfully commissioned the Quick work roll changing device for the finishing stands of Hot Strip Mill, Bokaro Steel Plant. For the Visakhapatnam Steel Project, MECON 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. MECON has also carried out various modernisation and revamping projects on turnkey basis for the integrated steel plants at Durgapur, Bhilai, Alloy Steel Plant, Rourkela Steel Plant.

MECON has developed its own design for coke oven batteries and is one amongst the few in the world to have the know-how in this area. Today, coke oven batteries designed by MECON are operating at Durgapur and Rourkela Steel Plants. Towards further development in this direction, MECON in collaboration with M/s GIPROKOK, has executed the first 7 meters 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 for their three 7 metres tall Coke Oven Batteries and Coke Dry Cooling Plants.

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 at Visakhapatnam Steel Plant. MECON has also executed,Acid re-generation plant on a turnkey basis for the Bokaro Steel Plant.

MECON has executed,on turnkey basis,converter Gas Cleaning Plant for Converters 1,2 & 3 for Visakhapatnam Steel Plant. In the area of Continuous casting MECON in association with M/s MDH of Germany has executed CCP-II Project, on turn-key basis, for Modernisation of Rourkela Steel Plant, which is under trial runs.

In the area of Blast Furnaces, MECON has undertaken modernisation, technological upgradation services for Bhilai, Durgapur, HSCO, Burnpur, Rourkela and Bokaro Steel Plants.

Capital Structure

As on 31.3.1997 the authorised capital of the company was Rs. 400 lakhs. The issued subscribed and fully paid - up equity share capital was Rs. 241.84 lakhs of which Rs. 40.31 lakhs was on account of Bonus shares issued during 1996-97.

CHAPTER V

Performance

The table below summarises the financial performance of the company during 1996-97 and 1997- 98 :

Sl.No.	Particulars	(Rs. in crores) 1996-97	1997-98 (Prov.)
1.	Turnover/Sales	211.82	182.00
2.	Gross Margin	16.56	6.30
3.	Profit before tax	12.19	2.00

Major Assignment

Domestic

Assignment Secured

- Detailed engineering, procurement, supply, fabrication, construction and commissioning services on turn-key basis for In-site Combustion Project, Santhal Phase-II for ONGC.
- Design, engineering, supply of equipment (in part), erection and commissioning of 350 cu.m. blast furnace at Mangalore for Indomag Steel Technology.
- Detailed engineering and consultancy services for installation of turbo-blower No.2 for SAIL / BSP.
- Supply and erection of overland conveyor, steel structures for KISCO.
- Detailed engineering and consultancy services for Aluminum Foil Plant, Silvassa for HINDALCO.
- Tailing disposal system on turnkey basis at Kiriburu Iron Ore Mines for SAIL.
- Detailed engineering and consultancy services for expansion of Cold Rolling Mills for Hero Cycles.
- Development of 6-High Cold Rolling Mill for Hero Cycles.
- Design, engineering, supply, erection and commissioning of Geo-Technical Centrifuge for IIT, Mumbai.
- Detailed Engineering and consultancy services for Sinter Plant No.3 for SAIL/BSP.
- Detailed engineering and consultancy services for expansion of Steel Plant for SJK Steel Corporation.
- Detailed engineering and consultancy services for NMP Extraction Plant for IOCL, Haldia.
- Development of Application Software for New Note Press for Bhartiya Reserve Bank Note Mudran Private Limited, Mumbai.
- Detailed engineering and consultancy services for computerisation of Hot Strip Mill for SAIL / RSP.
- Revamping, refurbishing and re-erection and Cold Rolling Mill for Shamon Ispat.
- Design, engineering, supply and supervision of erection and commissioning of 2-High Skin Pass Mill for Surana Strips Limited.
- Certification services for B-55 Well Platform and pipelines for ONGC, Mumbai.
- Detailed engineering and consultancy services for Oil Terminal at Budge-Budge for IOCL.
- Total engineering and consultancy services for LPG Bottling Plant at Guwahati for IOCL.
- Detailed engineering and consultancy services for Sulphuric Acid Plant at Khetri for HCL.
- Environmental monitoring services at Bokaro Steel Plant for SAIL.
- Detailed engineering and consultancy services for New CRM Complex at Korba for BALCO.
- Preparation of bidding documents for setting up utility power projects in Bihar for Government of Bihar.
- Basic Engineering for Polymetallic sea nodule plant for N.M.L.
- Asset evaluation study for Hydel Power Plant Heeraland for OHPC.
- Detailed engineering and consultancy services for Power Plant for Bharat Forge Limited.
- Status Report for Ship Breaking Industry for Ferrous Scrap Committee, Government of India.
- Revamping work and inspection services for various plants of IOCL.
- Environmental issues in Power sector for Sone Command Area Development Authority, Patna.
- Tender evaluation for 100 MW power Plant for IPS Power Company.

- Feasibility Report for Hazira Port for Gujarat Maritime Board.
- Small Hydel Power Projects for BHPC.
- Assistance in ISO systems for various clients.
- Supply of overburden gas and temperature probes for BF No. 7 at Bhilai Steel Plant.

Overseas

Assignment Secured

- Project Execution Assistance for setting up 302,000 TPA Light Section Mill in Saudi Arabia by M/s. United Gulf Group Company (UGG) and UGG has paid MECON retainers fee for assistance in job Phase-I and Phase-II pending final agreement between UGG and MECON.
- Feasibility Study/Technical Specifications for upstream facilities of PT Krakatau Steel, Indonesia and has also provided supporting services by deployment of its engineers to Indonesia/china. Besides ongoing projects in Oman, Bhutan,Nigeria. MECON received assignments for :-
  a) Long products mill Saudi Arabia.
  b) Deployment of engineers for engineering assistance in Iran.
  c) Dismantling supervision, detailed engineering, modification of equipments, consultancy services for 150,000 TPA second hand wire rod mill to be relocated from South Africa for Bhilai Industrial Corporation Limited.

Assignments in Progress

- Machinery & Equipment for Pickling and Oiling Line for China Steel Corporation, Taiwan.
- Supply of drum, assembly for Main Crane Hoist at Awaj Steel Complex, Iran.

Assignments Completed

- Cold Coil has been rolled from the CRM Complex at PT Essar Dhananjay, Indonesia on 27.6.1996.
- Continuous Cast Copper Rod Plant of Oman Copper Industries Corporation, Oman has been commissioned.
- Supply of mechanical equipment for pickling and oiling line for MHI, Japan has been completed.

Globalisation

MECON continues to place prime importance on globalisation activities. MECON has been able to make further inroads in its globalisation efforts 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 through local organisation's support.

Industrial Relations

On the industrial relations front, the Company continued to have peaceful and cordial relations with the employees. Welfare benefits in the area of education, health, sports etc. for the employees and their family members continued to be extended.

Manpower Position

Employees' strength of MECON at the end of the year as on 31.3.1997 came down to 3464 from 3600 as on 31.3.1996, out of which 736 belong to SC and ST categories. During the year, MECON introduced the Voluntary Retirement Scheme for non-engineering/non professionally qualified employees. 20 employees (of which six executives) have availed the benefits under this Voluntary Retirement Scheme.

Official Language Policy

Various activities to motivate the employees for use of Hindi in Official work continued to be organised during the year. Official Language Policy of the Government of India is being implemented in the Head Office and other Branch Offices of MECON with full vigor. In addition to the coaching, workshops and training of officials for doing the work in Hindi, Quiz contest in Hindi were organised. The results were very encouraging. Hindi Pakhwara was observed in the Company from 1st September, 1996 to 15th September, 1996. All India Technical Seminar in Hindi- "Vikashsheel Deson me Vidyut Kshetron Ki Chunautiyan" was organised during the year.

Conservation of Energy

MECON has bagged two important assignments in the field of Energy Conservation, one was for Energy Audit Report for FFP of HEC and the other for Energy Conservation Report for four Mini Steel Plants in the country. The latter assignment was from Resource Management Association, USA through IDBI. Both the assignments were completed during the year to the satisfaction of the clients. Efforts are on to obtain more assignments in this vital field. MECON's offer for Energy Audit of Alloy Steel Plant, Durgapur is under their active consideration.

Sponge Iron India Limited (SIIL)

Introduction

Sponge Iron Plant of the Company was initially established as a demonstration unit with a capacity of 30,000 tpa 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 in various regions in Andhra Pradesh and neighboring 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 development of the Sponge Iron Industry in the country.

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 the 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.

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 Briquette Plant was commissioned during October, 1987 and is operating to capacity.

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 dependence on external power thus effecting saving in costs.

The Submerged Arc Furnace Project with an installed capacity of 45,000 tpa has been 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 in 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:

- 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 per unit as against Rs.2.15 envisaged in the project report.
- 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/- per tonne. The actual cost of production is working out to about Rs.10,500/- per tonne of which direct cost alone would be Rs.8,500/- per tonne.
- As compared to the Project report, while the selling price envisaged remained more or less constant, cost had gone up substantially particularly under raw material and power.

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, during which 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. Necessary modifications are being carried out during the second half of 1997-98.

Finance

The authorised share capital of the Company stood at Rs.40.00 crores on 31.03.1998; paid up capital was Rs.32.58 crores. (Rs.31.75 crores held by Government of India and the balance of Rs.0.83 crore by the Government of Andhra Pradesh)

Production

The Physical and Financial Performance of the Company during the last two years, together with provisional figures for 1997-98, is furnished in the table below :

	1996-97	1997-98 (Provisional)
Production		
Sponge Iron (tonne)	51,402	57,609
Power Generation (Lakh Kwh)	75	115
Capacity utilisation (%)	86	96
Sales		
Sponge Iron (Tonne)	55,778	45,903
Sales/Turnover (Rs. in crores)	25.48	20.80
Gross margin (Rs. in crores)	4.46	2.85
Profit/Loss before tax (Rs. in crores)	(-)1.30	(-)3.34

Sales and Profitibility

Against a target of 54,500 tonnes the actual despatches during 1997-98 were 45,903 tonnes representing 84% achievement of the target.

The operations of the company during 1997-98 have resulted in an estimated net loss of Rs.334 lakhs. (Prov.)

Cost Reduction

+5mm size iron ore was used earlier in the plant operations for sponge iron manufacture anticipating that it would improve the campaign life by generating less quantity of lower size fraction in the process. It is a known fact that generation of more fines in the process is one of the causes for formation of accretions. However, certain modifications carried out in the operational system coupled with improvement in the quality of raw materials allowed to charge +3 to +5 mm fraction of iron ore too into the process without effecting the campaign life. This has not only boosted the economics of the process but also reduced the cost of production.

Stringent measures taken in procurement of quality coal through private agencies have almost reduced the presence of white stones and shale pieces. Thereby, most of the times only breaking of coal is carried out instead of segregation and breaking. This helped to reduce cost of production and also to maintain consistency in the quality of the coal leading to record production of 57,609 tonnes in the financial year 1997-98. Qualitative coals permitted maintenance of higher throughputs continuously with qualitative production.

Control over purchase of equipment spares and consumables resulted in saving of about Rs.75 lakhs.

Fluidised bed combustion boiler which has been set up to ensure consistent power generation in Captive Power Plant has been commissioned successfully. Char fines, a waste product in DRI process and coal fines, generated during raw coal preparation, are used as fuels in this boiler. This has resulted in better utilisation of waste products, than selling the same in market at lower prices.

Efforts made towards Indigenisation

The first reduction plant was set up by Lurgi Chemi of West Germany. Hence most of the equipment were imported from Germany. As a part of indigenisation about Rs.6 lakh worth double pensulum flaps and valves were procured locally for replacement of imported equipment.

Manpower

The total number of Non-Executives as on 31/3/1998 was 448 out of which 76 employees belong to SC category (16.96%), 51 persons belong to ST Category (11.38%), Moreover there are 33 women (7.37%), 8 Physically Handicapped persons.

The total number of Executives as on 31/3/1998 was 88, out of which 13 employees belong to SC Category

(14.77%) and one employee belongs to ST Category (1.14%). Details of various categories of employees are as under :

Sl. No.	Groups	Total No. of Employees	SC	ST	Ex-Servicemen	PHC	Women
1.	Group A	88	13	1	-	-	-
2.	Group B	81	13	6	-	1	2
3.	Group C	207	35	19	-	3	13
4.	Group D (Excluding Sweepers)	152	22	25	-	4	11
5.	Group D 1	8	6	1	-	-	7
	Total	**536**	**89**	**52**	**-**	**8**	**33**

Employees' Participation in Management

Various Committees under 'Workers Participation in Management' have been reconstituted 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. 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 which in turn resulted in improvement of overall performance of the plant.

Implementation of Hindi

From 01.04.1997 to 31.03.1998, 136 documents were released in bilingual form in accordance with Section 3(3) of Official Languages Act, 1963. During the period, Government directives with regard to implementation of Hindi are 100% complied with. Employees are trained in Hindi as per rules. Official Language Implementation Committee meetings are held regularly. Sr.Rajbhasha Sahayak has attended Translation Training Program conducted by Town Official Language Implementation Committee (Undertakings), Hyderabad. "HINDI DAY"has been celebrated as per directives on 15.09.1997. A competition namely Noting and Drafting has been organised and participants from 55 Undertakings attended the competition as per the decision taken in Town Official Language Implementation Committee Meeting at Hyderabad.

Anti-Pollution Measures

Captive Power Plant operates on waste heat recovery boilers attached with reduction plant achieved consistent levels within specified limits.

Every month pollution levels of stack emissions and water outlets are checked for ensuing close monitoring of pollution generated in plant.

Waste Land Development

Around 1200 plants were planted in the unused area of plant as a part of environmental pollution control and as a part of waste land development.

Hindustan Steel Works Construction Limited (HSCL)

General Background

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. HSCL has executed works in steel plants right from inception till commissioning viz., Bokaro Steel Plant, Vizag Steel Plant, Salem Steel Plant and was associated with the Expansion and Modernisation activities of Bhilai Steel Plant, Durgapur Steel Plant, IISCO, Burnpur as also steel plant located at Bhadravati. 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 Highways, Bridges, Dams, underground Communication and transport system besides Industrial and Township complexes involving high degree of planning, co-ordination and modern sophisticated techniques.

The company has developed its expertise in the areas of Piling, Soil Investigation, massive Foundation, High rise Structures, Structural Fabrication and Erection, Refractory Waste, Technological Structures and Pipelines, Equipment Erection, Instrumentation including testing and commissioning.

The company also specialises in carrying out Capital repairs and rebuilding works, including hot repairs of Coke Ovens and Blast Furnaces and other areas in the Integrated Steel Plants.

To meet the present day need for setting up of number of infrastructure facilities, the company has tie-up arrangements with a number of reputed agencies both in India and abroad for technical know-how as well as financial support.

Capital Structure

The Authorised and Paid-up Capital as on 31.3.1998 was Rs.20 crores. The total amount of loan from Government outstanding as on end of March, 1998 was at Rs. 279.97 crore (Plan Loan Rs. 90.10 crores and Non-plan Loan Rs. 189.87 crores).

Performance

The financial performance of the Company during the period 1996-97 and 1997-98 is as under:

Year	1996-97	(Rs. in crores) 1997-98 (Prov.)
Turnover/Sales	410.11	309.10
Gross Margin	8.09	(-) 62.45
Profit/Loss before tax	(-) 132.57	(-) 225.90

The bulk of the loss arises out of interest burden on Govt. loans.

HSCL secured orders valuing Rs. 350 crore during the year 1997-98.

On account of general recession in the economy coupled with substantial curtailment of capital projects by SAIL, HSCL's turnover has showed a downward trend. During 1997-98, provisional turnover achieved was to the tune of Rs.309 crores and the operational loss was 62.45 crores. This downward slide is only temporary. With the expected turn around in the economy, substantial improvement in turn-over is expected for the Financial Year 1998-99.

Manpower Position

The manpower position of the Company as on 31.3.1998 alongwith the statistics of the SC/ST, Female, Ex-servicemem and Physically Handicapped Employees is given below :

Gr.	Total Strength	SC/ ST	% age	Female Employees	Ex-Ser- vice men	Physically handicapped
A	1576	136	9	12	7	5
B	788	117	15	17	7	9
C	10892	3206	29	897	147	23
D	849	236	28	24	25	8
Total	**14105**	**3695**	**26**	**950**	**186**	**45**

Social Welfare

Welfare Plan for SC/ST

- HSCL assists in providing schools in areas where SC/ST employees mostly reside.
- Assistance is given for supply of drinking water.
- Plots are alloted to workers for making hutments in the land allotted at sites of clients with free electricity, water supply and sanitation arrangements, etc.
- Children of SC/ST employees get due preference in the matter of schooling at Projects.

Employees Voluntary Welfare Scheme

A Central Welfare Scheme for HSCL employees was introduced with effect from 1.4.1987. 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 due to any reason anywhere. While in service in the Company, by a system of voluntary contribution by employees at the maximum rate of Rs. 100/- per month.

Safety Measures

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

- Safety Organisations are functioning in all the major steel plant units with safety engineers reporting to respective head of units.
- 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 the latest safety measures and also to review safety requirement of various worksites in HSCL.

Workers Participation in Management

S.No.	Name of the Committee/Council	Details
1.	Joint Productivity 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 of the management of HSCL and the National level Trade Unions i.e. INTUC, CITU, AITUC, HMS and indenpendent Unions. From the inception of the formation of the Apex Level Joint Forum Body in 1981, there have been 31 meetings till 30.9.1997.

Bird Group of Companies

Introduction

The undertakings of the erstwhile Bird & Company Limited were taken over by the Govt. of India by virtue of the Act No.67 of 1980 viz. The Bird & Company Limited (Acquisition and Transfer of Undertakings and other properties) Act, 1980. Consequently shares held by Bird & Company Limited in twenty one companies specified in schedule I to the Act stood transferred to the President of India.

Based on the shareholding pattern, out of the twenty one companies, the following eight companies came under the administrative control of the Ministry of Steel:

- Eastern Investments Limited (EIL)
- The Orissa Minerals Development Co. Ltd. (OMDCL).
- The Bisra Stone Lime Company Limited (BSLC).
- The Karanpura Development Co. Ltd. (KDCL).
- Scott & Saxby Ltd. (SSL).
- Kumardhubi Fireclay & Silica Works Ltd. (KFSW).
- Burrakar Coal Co. Ltd. (Burrakar).
- Borrea Coal Co. Ltd. (Borrea).

The KFSW were engaged in manufacture and marketing of refractory materials and have been since ordered for liquidation. Liquidator has been appointed by the Calcutta High Court.

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

Performance of Operational Companies of Bird Group (excluding KFSW)

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

- Excessive manpower, high wage structure and heavy burden of fixed expenses.
- Huge accumulated losses.
- Erosion of working capital.
- Heavy burden of outstanding liabilities.
- Inadequate corporate plan.
- Inadequate market demand.

During the past few years majority of the basic problems listed above were and are being tackled through carefully prepared action plans. Simultaneously, actions have also been taken to improve the marketability of products through better product mix and enrichment of quality.

The overall performance relating to sales/turnover and gross margin before charging depreciation and interest on govt. loans of four operating companies as a whole during the year 1996-97 and 1997-98 (Prov.) is given below :

	1996-97	1997-98 (Prov.)
Sales (Rs. in lacs)	5147	3714
Gross Margin before charging interest on Govt. loans & deprn. (Rs.in lacs)	241	(-)75

It may be observed from the figures given above that the group registered a continuous growth in terms of sales turnover till 1996-97, and achieved positive gross margins before depreciation and interest on govt. loans. The performance of the group during the year 1997-98 has been adversely effected chiefly due to a drastic fall in demand for its products viz. iron-ore, manganese ore and dolomite.

Performance of Companies

The Orrisa Minerals Development Company Ltd. (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 lacs. The Company has mining area over 32.57 square km. in Keonjhar District, Orissa for iron and manganese ores.

The Company turned the corner and started making net profit from 1991-92. The company earned a net profit of Rs. 43 lacs during 96-97 before considering adjustments for non-trading activities. During 1997-98 due to drastic fall in the demand of BF grade Mn. Ore and Iron Ore, the company has suffered a set back in the first half of 1997-98.

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

	1996-97	1997-98 (Prov.)
a) Production ('000MT)	768	459
b) Turnover/Sales (Rs. in crores)	33.02	18.90
c) Gross Margin	6.19	2.41
d) Profit/Loss before tax	0.43**	(-)4.83

****Before considering adjustment for non-trading activities.***

The Company has also proposed to diversify its activities to make value added products like sinter & pig iron etc. in future. Additional investment required for this is Rs. 83 crores.

With effect from 1994-95 the Company has started repaying the Govt. loans. Company paid during 94-95 Rs. 10 lacs, 95-96 Rs.100 lacs and Rs.103 lacs in 96-97. During the year 1997-98 the company repaid Rs.2.00 crores.

The Bisra Stone Lime Company Limited (BSLC)

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

The company has been able to produce better quality of fluxes, yielding higher value, through installation of a few small crushing & screening units. These steps were necessary to meet the demand of buyers and to reduce cash losses.

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

	1996-97	1997-98 (Prov.)
a) Production ('000MT)	743	666
b) Turnover/Sales (Rs. in crores)	17.39	15.39
c) Gross Margin	(-)3.12	(-)2.88
d) Profit/Loss before tax	(-)14.77	(-)25.24

With financial assistance from Govt. of India the company successfully implemented voluntary retirement scheme under which 2253 persons have been separated during the period 1st April '92 to 31st March'98. This has reduced the fixed overhead to a large extent.

The Karanpura Development Company Limited (KDCL)

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

The Company suffered a set back during December 1995 when in pursuance of a notification issued by the Govt. of India prohibiting mining of limestone through contractors, the activities of the Company came to standstill. The company could resume normal mining operations from December 1996 onwards with the help of departmental workers and through deployment of hired equipment for raising of limestone.

The physical and financial performance of the Company during the last two years has been as follows:-

	1996-97	1997-98 (Prov.)
Physical Performance		
Production (000'MT)	24	83
Financial Performance		
Sales/Turnover	0.98	1.69
Gross Margin	(-)0.18	(-)0.07
Profit/Loss before tax	(-)0.56	(-)0.30

With a view to reduce the surplus manpower voluntary retirement scheme has been introduced. Till date 83 employees have been separated under VRS.

Scott and Saxby Limited

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 at its factory and at all the working sites on that date. After prolonged negotiation a 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. The gross margin before govt. interest and depreciation has remained positive during 1996-97 and 1997-98.

Till date 201 employees out of total 365 have been separated under VRS leaving a balance of 162.

Kumardhubi Fireclay and Silica Works Limited (KFSW)

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 the Govt. of India in 1980.

It performed well upto end of 1982. Thereafter, 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.

In latest developments Hon'ble High Court of Calcutta vide its oder dated 7th Jan., 1997 has also passed orders for winding up of KFSW and has appointed Official Liquidator for the same.

PRIVATE SECTOR

The Tata Iron and Steel Company Ltd.

Background

The Tata Iron and Steel Company Ltd.(TISCO) was set up in 1907 at Jamshedpur, Bihar. The first ingots were rolled in TISCO in 1911. The plant has captive collieries at Sijua, Jamadoba and West Bokaro and captive iron ore mines at Noamundi in Bihar and Joda in Orissa.

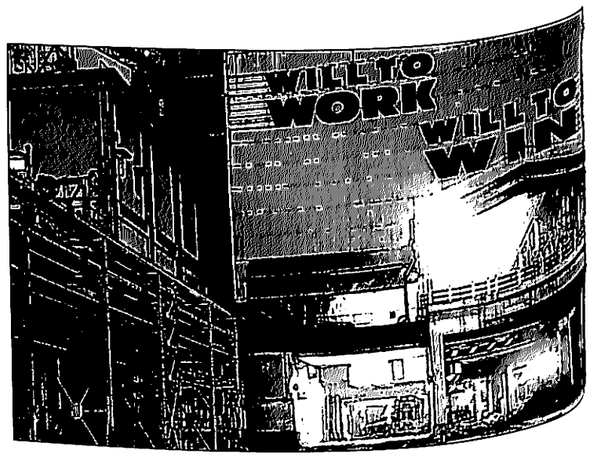
◆ The company embarked on a 2 MT expansion programme which was completed in 1958. Subsequently, the first major modernisation programme was undertaken by the company in 1980 when outdated Duplex Process was replaced by a modern LD Shop alongwith Continuous Casting and other allied facilities. Immediately thereafter, the company started work on Modernisation Programme Phase-II. The principal facilities in this phase included the modern high speed Bar and Rod Mill of 300,000 tpa capacity, raw material Bedding and Blending Yard, 1.37 mtpa Sinter Plant, 2X30 MW Power Plant, etc.

◆ TISCO 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 includeda 1 mtpa capacity Hot Strip Mill, two Slab Casters, 1 mtpa capacity New LD Shop, a half Coke Oven Battery, a 500 tpd capacity Oxygen Plant, three 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, TISCO 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.

Modernisation Phase-IV

◆ TISCO has embarked on a Modernisation Programme Phase IV, at an estimated cost of Rs.2520 crore which includes :



a) increase in capacity of hot metal from 3.28 to 3.8 mtpa;

b) increase in crude steel production capacity from 3.05 to 3.50 mtpa;

c) increase in saleable steel capacity from 2.70 to 3.30 mtpa;

d) expansion of LD-2 by providing a third vessel;

e) installation of third slab claster;

f) increase in capacity of Hot Strip Mill to 2 mtpa;

g) setting up of a Bar and Rod Mill in addition to the existing Wire Rod Mill;

h) modernisation of the Medium and Light structural Mill to produce 275,000 tpa of forging quality Round Cornered Squares and Rounds and 175,000 tpa of forging quality billets for conversion at Bar Mill Complex to cater to the growing demand from the Automobile Sector;

i) achievement of 100% oxygen steel making and continuous casting;

j) improvement in yield, achieve lower energy consumption and lower operating cost.

With the additional facilities, being commissioned in stages Steel Melting Shop No.3, Rolling Mills 1 & 2, Narrow Strip Mill and Merchant Mill are in the process of being phased out, while the 80 years old Sheet Mill has already been closed down on 1st January, 1998.

Production

◆ Production of Crude Steel, Saleable Steel & Finished Steel during the last two years is as follows :-

		(Unit : Metric Tonnes) 1996-97	1997-98 (Prov.)
I.	Crude Steel	3105572	3225707
II.	Saleable Steel	2818816	3008670
III.	Finished Steel	2008215	1904146

Performance Parameters

◆ **B.F. Productivity Level**

	1996-97	1997-98 (Prov.)
Coke rate (Kg/THM)	546	554
BF Productivity : (T/M³/day)		
A-F Furnace	1.31	1.29
'G' Furnace	1.89	2.04
Specific Energy Consumption (G.Cal/tcs)	8.717	8.355

Secondary Steel Sector

In addition to Tata Iron and Steel Co. Ltd.(TISCO), there are large number of units mainly in 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.

The New Economic Policy announced in 1991 and subsequent policy measures have made significant changes in the Indian Steel industry particularly in the private sector. A look at the pre and post 1991 era reveals interesting and significant structural changes in the steel sector as very briefly described below :-

At the consumers or demand end, the market for steel has been transformed from a sellers to a buyers market; control and regulation have been replaced by competition, administered prices by supply and demand determined market prices;

At the production or supply end of the market, a licensing regime regulated capacity creation and investments had resulted in an oligopolistic structure dominated by SAIL in the public sector, one major producer, TISCO, in the private sector and a large number of relatively small capacities based on EAF route, the so called mini steel mills; post liberalisation,the industry structure is significantly different, with the advent of major steel producers in the private sector;

The industry structure, as a consequence of licensing, complemented by a restrictive trade regime, was geared to meeting the production targets in a command economy with the object of preventing and meeting shrotages; this transformed radically since 1991 whence the industry has to focus on customer satisfaction, concentrating on ways to find a competitive edge, vis-a-vis domestic and international competition in an environment of low tariffs;

In nutshell, encompassing all the structural changes, the iron and steel industry has to function in a competitive environment, forcing existing steel producers to modernise, upgrade, cut costs and the new entrants to adopt state-of-the-art technologies, choose viable product mixes and be constantly on the alert to emerging competition from within and outside sources.

Contribution of Private Sector

For appreciating whether the private sector is moving in the expected direction, the table below presents the

actual production of finished steel, by the public and private sectors, since 1991-92, the last year before the advent of liberalisation :

Year	Public Sector	Private Sector	(In million tonnes) 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
1996-97	8.53 (37.6%)	14.19 (62.4%)	22.72
1997-98 (Prov.)	8.544 (37.85%)	14.024 (62.14%)	22.568

(Figures in bracket indicate percentage share)

Status of Various Segment of Steel Industry in Private Sector

Electric Arc Furnace Units

Status

	No.	Capacity (In tonnes)
Commissioned Units	184	10443360
Closed Units	111	3867000

Production

Category	1996-97	(In '000 tonnes) 1997-98 (Prov.)
Mild Steel	1606.7	1640
Medium/High Carbon Steel Alloy Steel	1086.4	1200
Stainless Steel	1058.7	1160
Others	149.6	140
Total Reported	46.3	60
Total Estimated	3947.7	4200
Grand total	166.9	80
	4114.6	**4280**

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

Hot Rolled Long Products Units

Status

	No.	Capacity(In tonnes)
Commissioned Units	1061	22020025
Closed Units	391	2205269

Produciton

Production of Hot Rolled Long Products manufacturing units which are reporting their production to the office of the Development Commissioner for Iron and Steel, during the last two years is given below :

Category	1996-97	(In '000 tonnes) 1997-98 (Prov.)
Bars/Rods (Incl.Squares)	1847.6	1933.9
Wire Rods	592.2	951.7
Structural	684.5	718.9
Hoops	-	0.2
Special Sections	508.1	237.7
Slabs/Plates	9.3	0.7
Total Reported	3641.7	3843.1
Total Estimated	2263.6	2254.5
Grand Total	**5905.3**	**6097.6**

Steel Wire Drawing Industry

(i) Status

	No.	(Capacity in tonnes)
Commissioned Units	87	1100827
Closed Units	29	272707

(ii) Production

Production of steel wire drawing units, which are reporting their production to the office of the Development Commissioner for Iron and Steel, during the last two years is given below :

Category	1996-97	(In'000 tonnes) 1997-98 (Prov.)
Mild Steel	126.8	119.0
Medium/High Carbon	224.2	207.7
Alloy Steels	9.2	9.6
Stainless Steel	11.2	14.4
Others	9.7	16.7
Total Reported	381.1	367.4
Total Estimated	93.2	111.6
Grand Total	**474.3**	**479.0**

Hot Rolled Steel Sheets/Strips/Plates Units

Status

	No.	(Capacity in tonnes)
Commissioned Units	10	3022500
Closed Units	2	115000

Production

Production of hot rolled steel sheets/strips, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during the last two years is given below :

Category	1996-97	(In '000 tonnes) 1997-98 (Prov.)
Hot Rolled Steel Sheets/Strips	1979.7	2235.8
Total Reported	1979.7	2235.8
Total Estimated	60.3	73.8
Grand Total	**2040.0**	**2309.6**

In addition, around 1.76 lakhs tonnes in 1996-97 and 12.21 (P) lakh tonnes during 1997-98 of HR Plates have been produced by some of these Units.

Cold Rolled Steel Sheets/Strips Units

Status

	No.	Capacity (In tonnes)
Commissioned Units	69	2710891
Closed Units	13	187380

Production

Production of Cold Rolled Steel Sheets/Strips Units, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during the last two years is given below :-

Category	1996-97	(In '000 tonnes) 1997-98 (Prov.)
Mild Steel	1383.9	1477.2
Medium Carbon Steel	60.9	79.3
High Carbon Steel	-	0.6
Alloy Steels	0.6	-
Stainless Steel	17.1	21.7
Others	79.7	101.5
Total Reported	1542.2	1680.4
Total Estimated	227.8	196.1
Grand Total	**1770.0**	**1876.5**

GP/GC, PVC/Vinyl Coated Sheets/Strips Units

Status

	No.	Capacity (In tonnes)
Commissioned Units	17	1100150 (incl. colour coated)
Closed Units	3	84500

Production

Production of GP/GC Sheets/Strips units, which are reporting their production to the office of the Development Commissioner for Iron and Steel, during the last two years is given below :

Category	1996-97	(In '000 tonnes) 1997-98(Prov.)
GP/GC Sheets/Strips (including colour coated)	628.6	748.9
Total Reported	628.6	748.9
Total Estimated	-	-
Grand Total	**628.6**	**748.9**

Tin Plate Units

Status

	No.	Capacity (In tonnes)
Commissioned Units	2	150000
Closed Units	1	69000

Production

Production of Tin Plate Units, which are reporting their production to the office of the Development Commissioner for Iron and Steel, during the last two years is given below :

Category	1996-97	(In '000 tonnes) 1997-98(Prov.)
Oil Can Size	35.3	39.0
Non Oil Can Size	13.0	14.5
Total Reported	48.3	53.5
Total Estimated	-	-
Grand Total	**48.3**	**53.5**

Sponge Iron Units

Presently there are 23 units covering a capacity of 5.966 million tonnes per year. Out of these, there are 20 coal based units covering a capacity of 2.456 million tonnes per annum and 3 gas based units, covering a capacity of 3.510 million tonnes per annum.

Production of Sponge Iron Units, which are reporting their production to the Office of the Development Commissioner for Iron and Steel during the last two years is given below :

	1996-97	(In '000 tonnes) 1997-98 (Prov.)
Total Reported	4990.568	5314.6
Total Estimated	56.702	-
Grand Total	5047.270	5314.6

Pig Iron Industry

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 SAIL including TISCO (a fully owned subsidiary of SAIL). Visakhapatnam Steel Plant, a unit under RINL, and VISL, a subsidiary of SAIL. The present capacity of these plants taken together, is estimated at approx. 2.9 million tonnes per annum. However, in actual practice, these plants are converting the excess hot metal available after production of steel into pig iron.

In the post liberalization era, considerable interest has been shown by a large number of entrepreneurs mainly in the private sector for setting up merchant pig iron plants. The All India Financial Institutions have already sanctioned financial assistance to 21 units with net pig iron available capacity of approx. 38.74 lakh tonnes. Of this, 14 units with a capacity of 19.49 lakh tpa has been commissioned and others are at various stages of implementation.

However, some units like, Malvika Steel Ltd., Southern I&S Co. Ltd., are producing excess pig iron over and above the earmarked capacities since their steel making facilities are yet to be commissioned. Taking these and the capacity of the old lone unit i.e. of Kalinga Iron Works into consideration, the gross pig iron manufacturing capacity in the private/secondary sector as on 1997-98 is estimated at 2.695 million tonnes.

A list of units manufacturing pig iron in the private/ secondary sector is given below :

S.No.	Name of the Unit	Location	Cap. (lakh tonne)
1.	Kalinga Iron Works	Barbil, Karnataka	1.40
2.	Sesa Industries Ltd.	Bicholim, Goa	1.80
3.	Mid-West I&S Co. Ltd.	Srikakulam, A.P.	0.90
4.	Usha Ispat Limited	Redi, Maharashtra	3.00
5.	Sathavahana Ispat Ltd.	Anantpur, A.P.	1.20
6.	Tata Metaliks Ltd.	Kharakpur, W.B.	0.90
7.	Kirloskar Ferrous	Raichur, karnataka	2.40
8.	lanco Ferro Ltd.	Chittor, A.P.	0.90
9.	Uni-Metal Ispat Ltd.	Bellary, Karnataka	0.75
10.	Usha Martin Industries	Jamshedpur, Bihar	1.10
11.	Malvika Steel Limited	Jagdispur, U.P.	5.11
12.	Southern I&S Co. Ltd.	Salem, Tamil Nadu	1.80
13.	Electo St. Casting Ltd.	Kharda, W.B.	1.10
14.	Nagpur Alloy Castings	Raipur, M.P.	3.50
15.	Kajaria Iron Castings Ltd.	Kharda, WB	1.09
	Total		**26.95**

Actual production of pig iron in million tonnes in India during the last 2 years from the main producers and the units in the private/secondary sectors given below :

S.No.	Name of the Unit	1996-97	1997-98 (Prov.)
1.	SAIL	0.68	0.78
2.	IISCO	0.35	0.40
3.	VSP	0.70	0.52
4.	Total Main Producers	1.73 (52%)	1.70 (49%)
5.	Secondary Producers	1.57 (48%)	1.77 (51%)
	Grand Total	**3.30**	**3.47**

NB : The figures within brackets indicate the percentage contribution by the respective sectors.

New Steel Projects

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.

- through Modernisation and expansion of existing public sector steel plants in the country; and
- encouraging creation of new steel capacities in the private sector.

SAIL has undertaken a massive modernisation programme in its plants at Durgapur, Rourkela and Bokaro. Similarly, TISCO have also taken up Phase IV modernisation.

After the announcement of New Industrial policy in 1991 and various other policy initiatives taken by the Government, substantial interest has been shown by the private sector in setting up new steel plants. So far, 17 units with a total capacity of approx. 11.88 million tonnes (saleable steel) involving an investment of around Rs.22,800 crores have already been sanctioned by the All India Financial Institutions. Of these, a few units have already been commissioned and others are at various stages of implementation.

A list of units which have been commissioned (fully or partly) is given below :

S.No.	Name of the Unit and location	Process Route	Capacity Lakh Tonnes (Saleable Steel)	Investment Rs. in crores
1.	Nova Udyog Limited (Nainital, U.P.)	EAF	2.40 B&F	101.40 (Closed,Under BIFR)
2.	Indian Seamless S&A Ltd.(Pune, Maharashtra)	EAF B&R/Seamless Bar	1.50	175.00
3.	Lloyds Steel Ltd. (Wardha, Maharashtra)	EAF HRC/CRC/GPGC	6.00	1100.00
4.	Essar Steel Limited (Hazira, Gujarat)	HBI-EAF	20.00 HRC	3933.00
5.	Prakash Ind. Limited (Champa M.P.)	EIF Billets/LP (Gujrat unit under shifting to M.P.)	1.20	72.52
6.	Jindal Strips Ltd. (Raigarh, M.P.)	DRI-EAF	4.00 Slab/Billets	600.00
7.	Jindal Vijayanagar Steel Ltd.(Bellary, Karnataka)	Corex-BOF	15.70 (HSM commissioned in Aug.97)	4138.00
8.	Malvika Steel Ltd. (Jagdishpur, U.P.)	BF-BOF long Products	6.00 (Blast Furnaces Commissioned)	1532.50
9.	Southern I&S Co.Ltd. Salem, Tamilnadu	BF-BOF Long Products (Blast Furnace Commissioned)	3.00	700.00

RESEARCH AND DEVELOPMENT

Empowered Committee on Research & Development

Ministry of Steel has constituted an Empowered Committee to sanction research and technology development projects with the money available from the Steel Development Fund (SDF). The Empowered Committee will be assisted by a Research and Technology Mission which is in the process of being set up.

Research & Development Activities by Iron and Steel Producers

Iron and Steel producers, both in the public and private sector, continued to pursue their research and development activities to 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.

Steel Authority of India Limited, Research and Development Centre for Iron and Steel (RDCIS)

◆ Objective/thrust of R & D activities

RDCIS is trying to achieve excellence in technological expertise and competence to fulfill the needs of SAIL steel plants and customers.

◆ Significant achievement for 1997-98

New technology/Process

Technology for production of Anthracene of +98% purity & Carbazole of +96% purity from Anthracene mud was developed through laboratory investigations. Bench scale experiments have produced anthracene of +98% purity with 76% yield and Carbazole of +95% purity with 40% yield.

Productivity Improvement

An increase in specific productivity of 20% has been achieved at Sinter Machine # 1 at Sinter Plant # 1 of DSP.

Productivity of Blast Furnace # 4 of RSP has been increased to 1600t/day by optimising the tuyere parameters and drainage practice.

Reduction in Consumption of Material and Improvements in Yield & quality

A Programmable Logic Controller (PLC) has been designed and installed at Captive power plant II of RSP for on-line control of the level of the condensate. Using the enhanced software and hardware capabilities of state-of-the-art PLC, a precise control (within ± 15 mm) of the level has been achieved. The system is in regular use and reduction in the coal consumption by 5-6% has been noted.

Reduction in Energy Consumption

One emulsion burner has been fabricated and tested in both old and new boilers of BSP using Pitch Cresote Mixture (PCM). In the new boiler, proper mixing of air for combustion and the emulsion could be obtained and three such burners have been installed resulting in additional generation of 20t/hr of steam at a pressure of 40 bar.

An improved heating facility for ladle on STC in SMS - II, BSL has been designed, fabricated, installed and commissioned and is in regular use. It has resulted in complete elimination of cold heat; heating of circulating ladles upto 900-1000 °C; and improvement of ladle life from 24.8 to 25.8 heats.

The modifications in the burner nozzles and improvement in the thermal regime have been incorporated in the two Reheating Furnaces of Heavy Structural Mill, IISCO. The velocity of gas has been increased from 20m/sec to 40 m/sec. As a result, the specific fuel consumption has been reduced by 14.6% (from 0.528 Gcal/t to 0.451 Gcal/t) and scale formation reduced by 20% (from 150 tpy to 120 tpy).

e) Development of New Products

Development of autobody chassis steel at RSP.

f) Quality Improvement Programme

Measures have been identified to improve fuel and flux crushing index and consistency of sinter feed materials at DSP. Recommendations (such as tapering and hardfacing of rolls; installation of segregation chains, separation of -3 mm from coke breeze etc) have been given to improve fuel crushing index and the same are being implemented. Software for sinter feed proportioning model has been developed and is in regular use.

Energy Conservation

Consumption of Energy in four integrated steel plants (all forms to G Cal) including electricity consumption (KWH) per tonne of crude steel.

Year	Target	Performance
1995-96	8.69	8.68
1996-97	8.65	8.39
1997-98 (Upto Sept.97)	8.45	8.38

◆ R&D Expenditure

Year	Turnover	Expenditure on R&D	(Rs. in crores) R&D Expenditure as % of Turnover
1996-97	14131	51.29	0.36
1997-98 (Upto Sep'97)	6471	21.74	0.34

Rashtriya Ispat Nigam Limited (RINL) Visakhapatnam Steel Plant (VSP)

◆ Objectives/Thrust on R&D

The research and development efforts of the company are directed towards trouble shooting, process improvement and product development.

◆ Highlights of R&D Activities

New Technology/process

- Injection Refining and Up Temperature (IRUT)- This process in SMS has been stablised.
- The ladle furnace technology for heating electrically the liquid steel and for adjusting the chemistry has been stablised in SMS.
- LD slag in sinter making has been successfully used.
- Soft coal as partial replacement of MCC and ICC in coal blend has been successfully used.
- Use of cold LD slag in LD converter has been tried with positive results.
- Trials have been conducted for slag splashing with positive results.

Productivity improvement

Sl. No.	Parameter	Unit	1995-96	1996-97	1997-98 (Upto Sept.97)
1.	BF Productivity	t/cum/ day	1.39	1.39	1.37
2.	Converter	No.of heats	316.3	406.4	442.7

Reduction in consumption of materials and improvement in yield and quality

S.No.	Parameter	Unit	1995-96	1996-97	1997-98
1.	Dry Coal/thm	Kg	839.87	813.79	807.33
2.	Sinter +Iron Ore/ thm	Kg	1581.66	1584.67	1588.06
3.	Metallics/t of cast Product	Kg	1235.51	1259.71	1252.79
4.	Sp.Refractory Consumption.	Kg/tls	23.78	24.41	21.98
5.	Yield of liquid steel from metallic charge	%	90.40	89.50	90.01
6.	Yield of MMSM products from blooms rolled.	%	90.60	92.90	95.60

Reduction in energy consumption

S.No.	Parameter	Unit	1995-96	1996-97	1997-98
1.	Specific Energy	G.Cal/tls	7.60	7.59	7.72
2.	Specific Heat Consumption				
	Billet Mill	'000 Kcal/t	486.50	515.30	521.30
	Bar Mill	"	74.32	68.10	61.46
	MMSM	"	568.00	476.40	426.40
3.	LD Gas Recovery	NCum/tls	67.18	85.04	82.70
4.	BF Gas Yield/t Coke	N.Cum	3337	3326	3368

Development of new Products

The following new products have been developed during the year 1996-97:

- Soft steel for binding wire.
- 37C15 grade steel.
- Special grade steel for M/s Wheels India Limited.
- Development of 28 mm and 32 mm rebars by tempcore process.
- Quality Improvement Programme:

With a respect to improvement in quality, obtained ISO-9002 Certificates for Steel Melting Shop, Light and Medium Merchant Mill.

◆ **R&D Expenditure (Rs. in crores)**

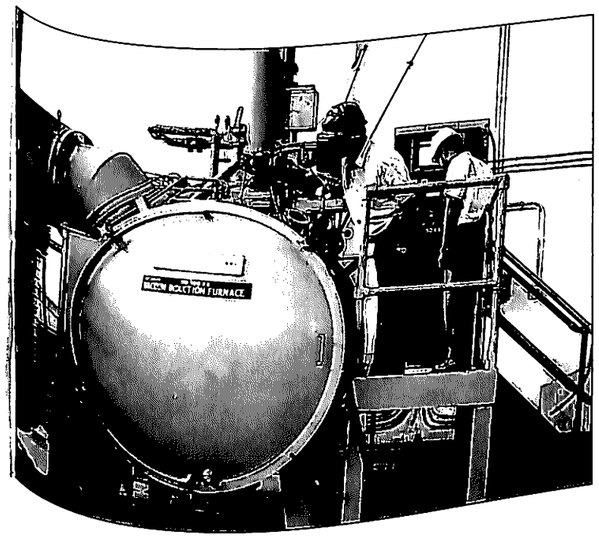
The expenditure made on R&D as part of overall expenditure is given below :

Year	Turnover	Expenditure	R&D Expenditure as % of turnover
1995-96	3038.57	2.5	0.08
1996-97	3328.53	2.5	0.08
1997-98	1440.90	1.2	0.08

The Tata Iron & Steel Company Limited. (TISCO)

◆ **Objective of R&D activities**

To make Tata Steel a Profitable & World class producer of Quality Steels.



Towards this end R&D's Objective is :

To identify and develop new products and processes so that the Company stays ahead of its competitors.

◆ **Significant achievement during 1997-98**

i) Production of CO_2 welding wire rods -250 t produced.

ii) Silicon free electrical steel for stamping application for fractional house power motors - 16 t produced.

iii) Production of IP grade steel for autobody application- 300 t produced, for the first time in the country.

iv) Production of Corrosion Resistant Steel (CRS) rebars through Continuous Casting (CC) route- 400 t produced.

v) Improved grades of thinner gauge (1.6 - 1.8 mm) GP/GC strips have been produced (about 25000 tonnes) through Transformation Controlled Rolling introduced by R&D. This has improved the strike-rate at Hot Strip Mill (HSM)(appreciably less cobbles etc.) and the cold roller has found the product more attractive (90% cold reduction without intermediate annealing).

◆ Reduction in Energy consumption

Fuel and Energy Consumption

Fuels	Unit	Total Consumption			Consumption per tonne of crude steel		
		1995-96	1996-97	April-Sept'97	95-96	96-97	Apr.-Sept'97
Coking coal	MT	2437713	2683287	1347701	0.807	0.864	0.858
Purchased Coke	MT	160047	110437	67949	0.053	0.036	0.043
Non-coking coal	MT	1512613	1585869	757736	0.501	0.511	0.483
Petrofuels							
L.D.O.	KL	30699	24197	11069	0.009	0.007	0.006
L.S.H.S.	t	7372	-	-	0.002	-	-
Electricity : Kwh							
Own generation		1115.14	1103.74	557.23			
Purchased		311.01	385.14	214.24			
Total		1426.15	1488.88	771.47	472	479	491

Total Energy Consumption in G.Cal/tonne of Crude Steel

1995-96	1996-97	April-Sept'97
8.674	8.717	8.450

◆ Major Achievements in Reduction of Energy Consumption

- Highest-ever hot blast temperature of 1025°C being achieved currently in old Blast Furnace.
- Highest hot blast temperature of 1167°c is achieved in 'G' Blast Furnace.
- Yields of By-product fuels have increased significantly due to better monitoring & control.
- The middling coal consumption for steam & power generation is reduced significantly by 52200 tonne during this year by utilising the surplus by-product gaseous fuel.
- The coal consumption @ 1000 t/month is replaced by utilising by-product gaseous fuels in slag driers.
- The specific petro-fuel consumption has dropped to the lowest-ever level of 6.91 Kg/tss during April-Sept.97
- A significant reduction in Oxygen vent loss has been achieved through judicious distribution & control. The oxygen vent loss during April-Sept'97 is 22.88 t/day, the lowest-ever achieved.
- Lowest-ever Plant Specific Energy Consumption of 8.491 GCal/tcs during April-Sept.'97 achieved.

◆ R & D Expenditure (Rs. in Crores)

	Turnover	Expenditure on R&D Exp.	R&D as % of turnover
1995-96	5854.12	11.30	0.19
1996-97	6351.46	14.31	0.22

◙ Essar Steel Limited

◆ Objective of R&D Activities

Major thrust has been given on improvement/ Development activities that would improve productivity.

◆ Highlights of R&D Achievements during 1997-98

(1) Within a year of commercial operations of Hot Rolled Steel Coils (HRC) facilities, ESSAR Steel was granted the prestigious ISO-9002 for all its operations by certifying authority Det Norske Veritas (DNV, Norway), in April, 1997.

(2) International quality certification from TUV Rhineland, Germany for supplying HRC for general engineering applications

3) Certification from M/s Lloyds Register (UK) for exports of HR Coils of General Engineering Grades for Shipping Industries and Structural Steel.

◆ Reduction in Energy Consumption

Consumption (Kwh) for unit of production(t) during the year 1996-97 and April-September, 1997 were as follows :

	Target	Actual for 1996-97	Actual for Apr.-Sept.'97
Liquid Steel	717	700	683
Slab	15	25	20.5
HSM	110	139	145.5
Total	**842**	**864**	**848**

◆ R&D Expenditure

No separate R & D budget exists.

◙ Kudremukh Iron Ore Company Limited (KIOCL)

◆ Objective of R&D Activities

R & D activities at KIOCL are directed towards Quality improvement through process development/ modifications to suit multi product needs and to modify Process Flow Chart to cater present run of mine ore characteristic. Various value added by products like ceramic tiles, super concentrate, etc., are also being developed with a view to optimise / extend existing production activities.

◆ Highlights of Achievements

During 1996-97 the feasibility report on the recovery

of iron value from tailings were taken up in consultation with Mineral Technology, Australia.

Also studies were conducted with M/s. National Metallurgical Lab., Jamshedpur for manufacture of glazed and unplaced tiles from tailings and result are encouraging.

Primary ore were tested for ore characteristic by M/s. METCHEM and the results are under study to establish suitable process.

Nellibeedu Ore characteristic are being tested at Kudremukh Inhouse laboratory to freeze process design.

◆ R&D Expenditure (Rs. in crores)

Year	Turnover	Expenditure	Expenditure as % of turnover
1995-96	478.48	1.28	0.25
1996-97	492.59	1.25	0.20
1997-98 (upto Sept'97)	261.86	0.70	0.30

▣ Mangenese Ore (India) Ltd. (MOIL)

◆ Objective and Thrust Areas

R&D efforts in MOIL have mainly been directed in the following areas :

i) Development of alternative Mining and Support Methods;

ii) Exploratory Core drilling, trenching, pitting etc. for locating new reserves and upgrading the confidence levels of the existing resrves;

iii) Beneficiation of medium and low grade ore, as well as medium grade Dioxide ore to battery grade;

iv) Development of processes for manufacture of Manganese base compounds.

v) Improvement of surface Environment around Mining areas.

◆ R&D Expenditure (Rs. in crores)

Year	Turnover	Expenditure	R&D Expenditure as % of Turnover
1995-96	104.28	0.62	0.59
1996.97	108.39	0.77	0.71
1997-98 (upto Sept'97)	58.71	0.16	0.27

▣ Sponge Iron India Limited (SIIL)

◆ Objectives of R&D activities

a) New technology/Process - Hot briquetting of Sponge Iron Fines.

b) Productivity improvement

c) Reduction in Consumption of material and improvement in yield and quality

d) Reduction in Energy Consumption

e) Development of new products - Iron Carbide with Joint Plant Committee(JPC).

f) Quality improvement programme

◆ R&D Expenditure

No separate R&D budget exists.

▣ National Mineral Development Corporation Limited (NMDC)

◆ Objective/Thrust on R & D

To achieve optimum utilisation of mine wastes and production of value added products

◆ Quality Improvement Programme

The process has been initiated for obtaining the ISO 9001 certificate for the R & D Centre. This is for the quality management system and for the quality of Service/ Product being offered by the Centre.

◆ R & D Expenditure (Rs. in crores)

Year	Turnover	Expenditure	R&D Expenditure as % of Turnover
1995-96	588.68	3.41	0.58
1996-97	649.25	5.94	0.91
1997-98	753.35	4.56	0.60

◆ Project Status

No. of Projects in hand as on 1.4.97 : 3

i) Technology Development for production of Pigment grade Ferric Oxide from Blue Dust and iron ore Slimes.

ii) Technology Development for production of iron powder from Blue Dust Concentrate.

iii) Technology Development for production of Ultra Pure Ferric oxide from Blue Dust .

Electric Arc Furnace (EAF) Steel Producers (Mini Steel Plants)

▣ Usha Martin Industries Limited (Usha Alloys & Steel Division)

◆ Achievements of R&D activities

a) New Technology/Process : **First time in India**, used Hot metal (Pig Iron) from Mini Blast Furnace to make steel in Electric Arc Furnace successfully.

b) Productivity improvement : Productivity has increased to almost double with the use of Hot Metal in the Electric Arc Furnace.

c) Reduction in consumption of material and improvement in yield & quality :

With the use of hot metal in Electric Arc Furnace, the consumption of solid charge, viz., steel scrap & sponge iron has been reduced to about 40% only, the quality of steel has improved with elimination of tramp elements.

d) Development of new products : In Wire Rod Mill, rolling through DMH make "No Twist Block" at high speed has improved the quality and increased the productivity substantially.

e) Reduction in Energy Consumption : The energy consumption has come down from 661 Kwh/tcs in 1995-96 to only 436 Kwh/tcs in the year 1997-98.

■ Mukand Ltd. Thane

◆ Objectives of R&D activities

a) To provide basic and applied technology inputs to the productivity, quality and support needs of the organisation.

b) To intensify research activities and provide technical inputs to operating divisions.

c) To provide necessary focus on application engineering of products.

d) To improve corporate image of the organisation through technical papers, patents and participation in national and international conferences.

◆ R&D Expenditure (Rs. in crores)

Year	Turnover	Expenditure	R&D Expenditure as % of turnover
1995-96	1092.51	0.6097	0.06
1996-97	868.49	0.4942	0.06

Sponge Iron Manufacturers in Private Sector

▣ Jindal Strips Limited

◆ Achievements of R&D Activities :

a) Fine generation has been reduced from 20% to 8%.

b) Coal consumption per tonne of DRI produced has been reduced.

c) Trial run with 3300 MT of Iron Ore Pellets has been conducted in one of the Rotary Kiln for 7 days Productivity measured by 30%.

d) Research is being carried out for the new source of reductant by studying its suitability not only by laboratory scale but also in the commercial plant for economic operation, using non-coking coal in DRI Plants with ash upto 30% and carbon consumption maximum 400 Kg. per tonne of DRI.

◆ Energy Conservation

Fuel & Energy Consumption has been as follows :

Fuels	Unit	Total Cosumption			Consumption (Per Tonne of DRI (Sponge Iron)
		1995-96	1996-97	April to Sep. 97	
1. Furnace Oil	LTR	102400	362377	195700	0.79
2. LSHS/High Speed Diesel	LTR	665955	151987	10937	1.00
3. Electricity	KWH	28621949	29515839	18159062	91.68

◆ R & D Expenditure (Rs. in crores)

Year	Turnover	Expenditure on R&D
1995-96	136.6	No separate budget exists
1996-97	172.2	No separate budget exists
1997-98 (Upto Sept.97)	90.1	No separate budget exists

■ Tamilnadu Sponge Ltd., Salem

◆ Fuel and Energy Consumption

Fuels	Total Consumption			Consumption per tonne of Sponge Iron.
	1995-96	1996-97	April to Sept.1997	
Leco(MT)	4015.54	5211.37	2863.31	0.55
Raw Lignite (MT)	2085.64	3283.02	1634.80	0.40
LSHS/High Speed Diesel(KL)	147.96	120.28	30.11	
Electricity (Million Units)	0.40	0.50	0.23	

◆ Expenditure in Research & Development (Rs. in crores)

Year	Turnover	Expenditure on R&D
1995-96	3.04	No separate budget exists
1996-97	3.45	No separate budget exists
1997-98	2.32	No separate budget exists

MANAGEMENT INFORMATION SYSTEM

1. A Computer-based Management Information System (MIS) developed for the Ministry of Steel with the assistance of National Informatics Center (NIC) is functional in the areas of Accounting and Budgeting, Section Activity Monitoring System, Industrial Entrepreneurs Memoranda System, Steel Control(Exports, Imports, Duties, Prices, Apparent Consumption & Category-wise Production), Performance Monitoring of Public Sector Undertakings, Public Grievances, VIP References & Monitoring.

2. The Computer Center in the Ministry of Steel, which has been established as a Central facility, is equipped with one Pentium-Pro Server System with 16 no. Of terminals and 2 nos. Pentium-Pro Client Systems and modern based leased-line for NICNET/INTERNET connectivity to use Electronic Mail and other services of INTERNET through INTERNET browers. 7 Pentium-based and 486-based client systems have been provided to various Senior level officials in the Ministry by NIC, however proposal to procure 11 more Pentium-based Client Systems to cover remaining Senior Officials in the Ministry is under active consideration. Apart from NIC Central facility PCs have also been provided to other project sections/ desks by NIC.

3. A proposal has already been approved for establishing Local Area Network (LAN) in the Ministry by NIC for sharing of resources, information and data among the Users in the Ministry. The LAN will also provide INTERNET access from the Client nodes of various Officers.

4. The E-MAIL facility of NICNET/INTERNET is being used for transferring Public Grievances data to Department of Public Grievances & Administrative Reforms. INTERNET facility is provided to various Senior level officials through a dial-up modem, which is being extensively used for accessing INTERNET Services. A Homepage on INTERNET through NICNET has been launched for Ministry of Steel providing details on IRON & STEEL Sector policies, demands & supply and other trends on Steel Sector World-wide. The Homepage is being updated on a quarterly basis.

5. A Facilitation Counter has been made operational in the Ministry with the assistance of NIC to provide information to the general public on Iron & Steel Sector on day-to-day basis through a Computer using a Window-based user-friendly Software Interface.

6. Word-processing facility for generation of reports, letters, and parliament questions is being extensively used on a day-to-day basis and during Parliament Sessions by almost each and every Section/Division in the Ministry.

7. 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.

8. Various in-house training programs for the staff in the Ministry on Window based packages are being organised by NIC Computer Cell from time to time. Efforts are being made to standardise the Software with specific reference to Window-based Software available today among the various users of the Ministry and a training is proposed to be organised on its usage.

9. Apart from NIC facility, PCs have also been provided to other project sections/desks from other resources.

ORGANISATIONAL STRUCTURE

The Ministry of Steel is under the charge of the Minister of Steel and Mines and Minister of State for Steel & Mines.

The Ministry of Steel is responsible for the planning and development of Iron & Steel Industry, development of essential inputs such as iron ore, lime stone, dolomite, manganese ore, chromite, ferro alloys, sponge iron etc., and other related functions. There are 10 Public Sector Undertakings under the administrative control of the Ministry of Steel. The details are at Annexure-I.

The Ministry of Steel has a Secretary, 3 Joint Secretaries, 4 Directors, 3 Deputy Secretaries, 6 Under Secretaries, 1 Deputy Director (Official Language) 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 Asstt. 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) at Calcutta. The DCI&S who is of the status of Joint Secretary, is assisted by a Joint Development Commissioner. The orgnisational chart of the Office of DCI&S is at Annexure -IV.

Annexure-I

List of Public Sector Undertakings under the Administrative Control of the Ministry of Steel

1. Steel Authority of India Ltd., Ispat Bhavan, Lodi Rd., New Delhi-110 003.

1.1 Indian Iron & Steel Co. Ltd., Burnpur, Distt. Burdwan, West Bengal-713325

1.2 IISCO Ujjan Pipe and Foundry Ltd., 50, Chowrangee Road, Calcutta-700071 (Subsidiary of IISCO)(Under liquidation).

1.3 Visvesvaraya Iron & Steel Ltd., Bhadravati, Karnataka -577301. (Subsidiary of SAIL)

1.4 Maharashtra Elektrosmelt Ltd. Mul Road, Chandrapur-442401, Maharashtra (Subsidiary of SAIL)

2. Rashtriya Ispat Nigam Ltd., Administrative Building, Visakhapatnam - 530 031, Andhra Pradesh

3. Metallurgical and Engineering Consultants (India) Ltd., MECON Building, Ranchi-834002, Bihar

4. Kudremukh Iron Ore Co. Ltd., II Block, Kormangala, Bangalore-560034. Karnataka

5. National Mineral Development Corpn. Ltd., Khanij Bhavan, 10-3-311/A, Castle Hills, Hyderabad-500 028, Andhra Pradesh

5.1 J&K Mineral Development Corporation, 19/9, Trikuta Nagar, Jammu-180 012. (Subsidiary of NMDC).

6. Hindustan Steelworks Construction Ltd., No.1, Shakespeare Sarani, 8th Floor, Caltutta-700 071, West Bengal

7. Bharat Refractories Ltd., Sector IV, Central Avenue, Bokaro Steel City, Bokaro-827 004, Bihar

8. Sponge Iron India Ltd., Khanij Bhavan, 10-3-311/A, Castle Hills, Hyderabad-500 028, Andhra Pradesh

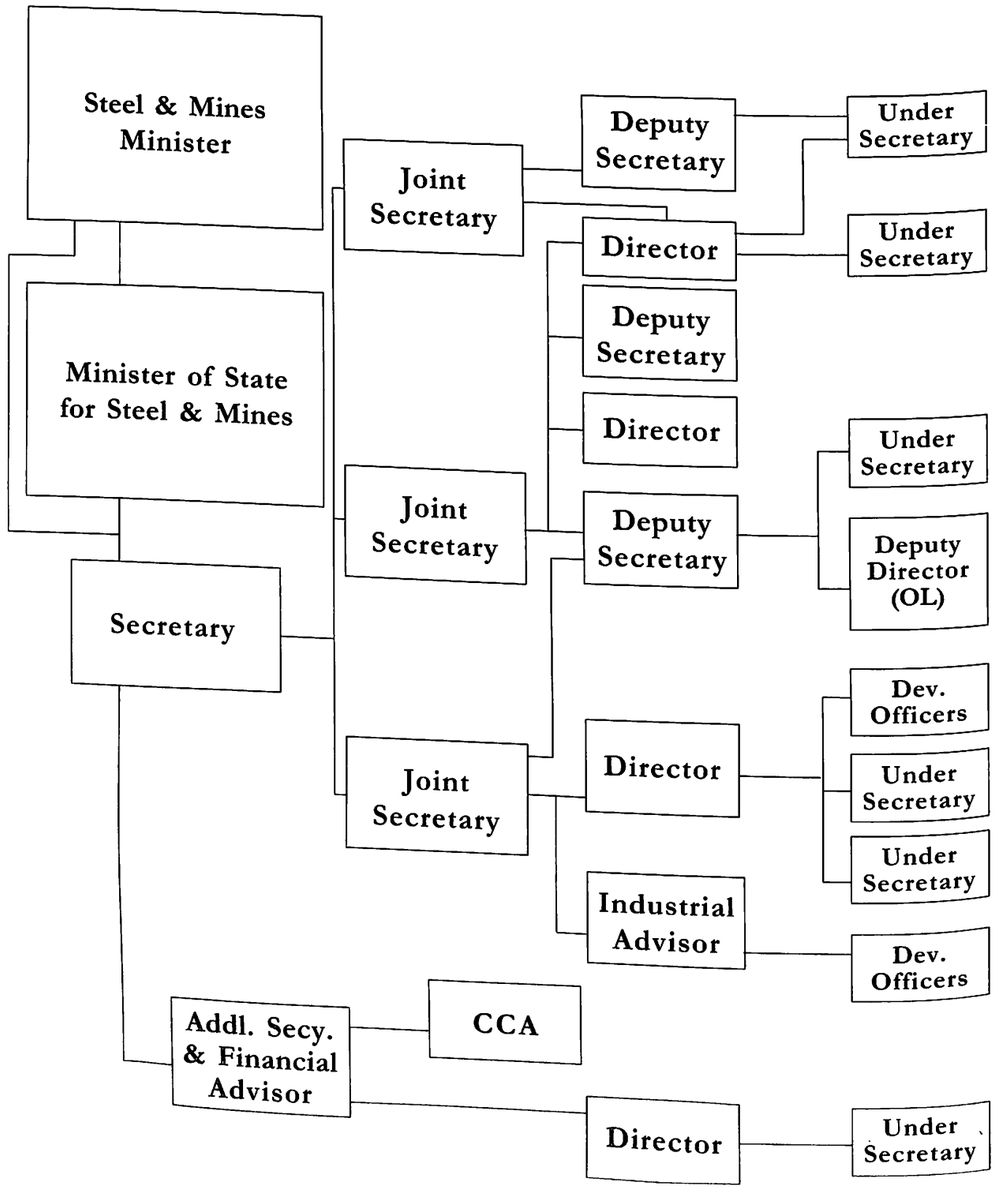
9. MSTC Ltd., 225-F, Acharya Jagdish Bose Road, Calcutta-700 020, West Bengal

9.1 Ferro Scrap Nigam Ltd., FSNL Bhavan, Post Bag No.37, Equipment Chowk, Central Avenue, Bhilai-490 001, Madhya Pradesh (Subsidiary of MSTC Ltd.).

10. Manganese Ore (India)Ltd. 3, Mount Road Extension, Post Bag.No.34, Nagpur-440 001, Maharashtra

Ministry of Steel
Organisational Chart

Annexure-II



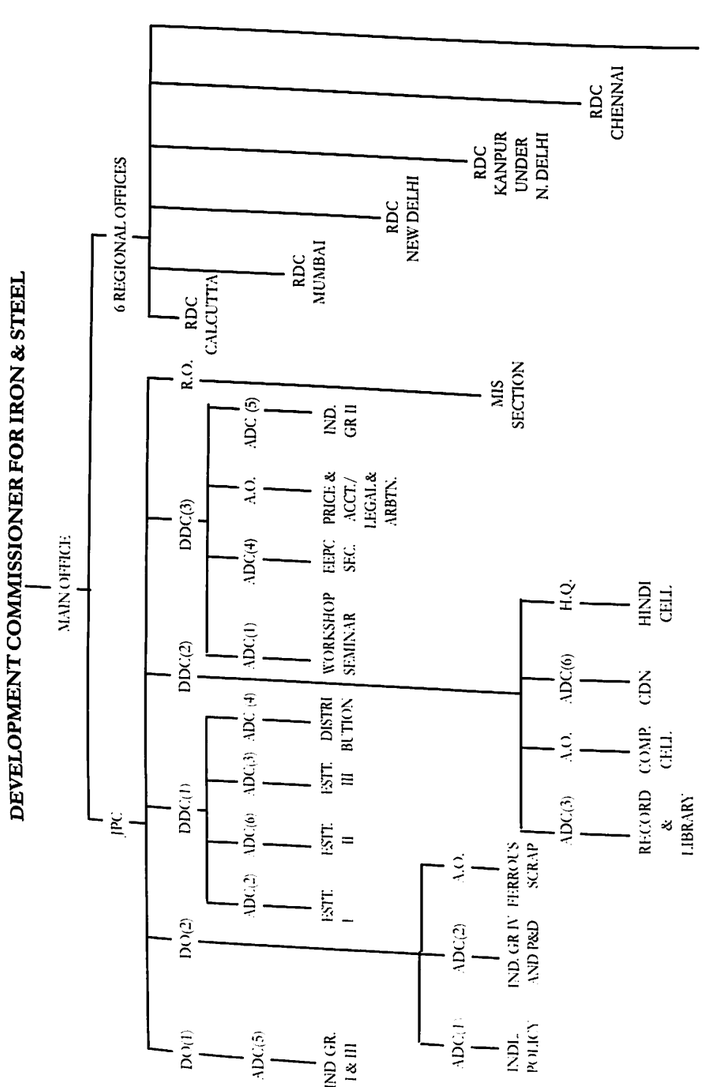
Annexure-III

Statement showing the number of employees, number of SC/ST/OBC/Ex-Servicemen, Men and Women as on 31/3/1998 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'	29	26	3	5	0	1	-	-
Group 'B'	88	71	17	13	6	3	-	-
Group 'C'	84	59	25	16	4	8	1	-
Group 'D'	70	67	3	31	9	5	1	1
Total :	**271**	**223**	**48**	**65**	**19**	**17**	**2**	**1**

Annexure-IV

Office of the Development Commissioner for Iron & Steel Organisational Chart



WELFARE OF WEAKER SECTION

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 and attached office as and when necessary.

The actual record of PSUs in respect of representation of SCs/STs/OBCs during 1997-98 is indicated below :

Steel Authority of India Limited (SAIL)

Recruitment and relaxation

Recruitment for non-executive cadre in SAIL is done through Employment Exchange and reservation for weaker section is provided as per the directives of the Government.

Recruitment for executive cadre/direct recruitment is done on an All India basis through open competition and/or campus selection in the executive grade of MT(Tech.), MT(Admn.) and JM(F&A). For the weaker sections, relaxation in the prescribed standards including relaxation in the age limit are provided.

The candidates belonging to weaker sections who do not qualify in the written test are selected for pre-employment training on a fixed monthly stipend. On completion of the training they are given regular employment in the executive cadre of MT(T)/MT(A)/ JM(F&A).

Percentage of SC/ST employees in SAIL (excluding subsidiaries), total recruitment and total promotions during the year 1997 are as under :

a) Percentage of SC/ST to total manpower in SAIL. 26.35%

b) Percentage of SC/ST to total recruitment during the year in SAIL. 27.36%

c) Percentage of SC/ST to total promotions during the year in SAIL. 23.42%

Scholarship for Undergraduate Engineering Students

SAIL has introduced scholarships for the weaker sections of the society. The brief of which are as under :

Eligibility : Annual income from all sources of the parent/guardian of the student should not exceed Rs.15,000/-.

Amount of scholarship is : @ Rs.450 p.m.

No. of scholarships provided are : 14

Besides, scholarships to the blind, deaf and dumb, orthopedics handicapped and disabled children of employees are extended in the SAIL plants/units.

Peripheral Development

During the year 1996-97 and 1997-98, approximately Rs.47 million and Rs.40 million respectively were spent on various peripheral activities. The following welfare activities are in vogue in SAIL plants/units :

- electricity, water, housing etc., free of charges
- free education facility, including adult education, periodical literacy programme, film show etc.
- free medical facility - mobile dispensary, regular eye camps, family planning camps for weaker sections.
- well-equipped big play-grounds promoting sports activities.
- employment generation schemes- through various construction & developmental activities etc.

Donation

Various welfare, cultural and sports organisations across the country approach SAIL for donations towards undertaking development work in areas like medical, education, culture, sports etc. In addition, SAIL also contributes funds for natural calamities. The SAIL plants located primarily in tribal belts of India have contributed extensively for the development of these areas continue to assist developmental work not only in tribal and backward areas in the periphery of the township areas but also in other tribal and backward areas of the country.

During the last 2 years i.e. 1996-97 and 1997-98, SAIL granted donations totaling Rs.3 million and 7 million respectively. This includes the donations towards the upliftment and development of the weaker sections of the society.

CHAPTER X

Land

During 1997-98, land for different sports and cultural activities, steel for building of school, and transfer of land for Jhuggi-Jhopdi dwellers were given by SAIL as part of Company's policy/commitment towards social development and upliftment of weaker section of society.

Rashtriya Ispat Nigam Limited (RINL)

i. Activities undertaken by RINL for the Advancement of SCs/STs/OBCs are :

(a) Presidential Directives in respect of reservations for Scs/STs/OBCs in recruitment and promotions etc. are strictly followed.

(b) Reservations in allotment of houses (10% for A&B types and 5% for C&D types) have been provided and implemented for SC/ST employees.

(c) A separate Library-cum-reading Room, named after Dr. B.R. Ambedkar, was constructed with an investment of Rs.4.5 lakhs and was inaugurated on 17/08/1997.

(d) Two parks in the Steel Township have been named after Dr. B.R. Ambedkar and Babu Jagjeevan Ram respectively.

(e) In addition to RINL/VSP has introduced a Scholarship Scheme exclusively for the children of SC/ST employees under which two scholarships of Rs.250/- (Rupees Two Hundred and Fifty only) per month and one more scholarship of Rs.150/- (Rupees One Hundred and Fifty only) per month are awarded each year. RINL has also launched a Merit Award Scheme for the students of SC/ST Communities under which a First Merit Award of Rs.500/- (Rupees Five Hundred only), a Second Merit Award of Rs.250/- (Rupees Two Hundred and Fifty only) are given to students who pass Tenth Class every year from each of the schools in the Company's Township.

(f) On the occasion of the Birthday of Dr. BR Ambedkar, cultural programmes, sports activities, etc. have been conducted.

(g) Under peripheral development programme, measures like provision of drinking water, adult education etc. have been taken up in surrounding villages which have benefited all residents of the area including people belonging to weaker sections, viz. SCs/STs/OBCs.

ii) Training programmes etc. conducted during the period is as under :-

Development Programmes conducted

Sl No.	Category	1996-97	1997-98 (Upto 31.3.98)
1.	General	3,428	3,338
2.	SC	887	900
3.	ST	257	304
4.	OBC	879	897
Total		**5,451**	**5,439**

Freshers inducted through Training Schemes

Sl. No.	Category	1996-97		1997-98 (Upto 31.3.98)	
		Executives	Non-Exec.	Executives	Non-Exec.
1.	General	49	0	6	0
2.	SC	12	3	2	5
3.	ST	1	14	1	27
4.	OBC	43	0	2	1
5.	PH	0	0	0	0
6.	Women	2	0	0	0
	Total	**107**	**17**	**11**	**33**

Foreign Training

Sl. No.	Category	1996-97		1997-98 (Upto 31.3.98)	
		Executives	Non-Exec.	Executives	Non-Exec.
1.	General	37	8	2	0
2.	SC	2	2	0	0
3.	ST	1	1	0	0
4.	OBC	0	0	0	0
5.	PH	0	0	0	0
6.	Women	0	0	0	0
	Total	**40**	**11**	**2**	**0**

iii) Statistical information regarding representations of SC/ST/OBCs/Women/Physically Handicapped/ Ex-Servicemen is as under :

SN. Group	Total	Men	%Men	Women	%Women	SC	%SC	ST	%ST	OBC	%OBC	PH	%PH	Ex-S.Men	%Ex-S.Men
1. 'A'	2,728	2650	95.26	132	4.74	411	14.77	115	4.13	240	8.63	0	0	0	0
2. 'B'	1,914	1892	8.91	22	1.15	360	18.81	115	6.01	359	18.76	4	0.21	20	1.04
3. 'C'	9427	9222	97.83	205	2.17	1555	16.5	565	5.99	1686	17.88	33	0.35	111	1.18
4. 'D'	3172	3113	98.14	59	1.86	516	16.27	236	7.44	725	22.86	36	1.13	111	3.5
5. 'E'	59	55	93.22	4	6.78	21	35.59	2	3.39	11	18.64	0	0	4	6.78
Total	**17354**	**16329**	**97.57**	**422**	**2.43**	**2863**	**16.5**	**1033**	**5.95**	**3021**	**17.41**	**73**	**0.42**	**246**	**1.42**

National Mineral Development Corporation Ltd. (NMDC)

Manpower

The total number of employees in NMDC as on 31/3/1998 was 6783 out of which 1120 persons belong to Scheduled Castes (16.51%), 1225 Scheduled Tribes (18.05%) and 202 OBCs (2.97%). More-over there are 380 women (5.60%), 51 Physically Handicapped (0.75%) and 74 Ex-servicemen (1.09%).

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 tribal who seek admission in project schools. A school exclusively for children of tribal is being run by the Corporation at the Bailadila-5 project. NMDC has helped State Government for running of ITI at Bhansi exclusively for Tribal youths, by providing the entire infrastructure facilities for running this ITI. The local people are given training at the training institutes run by NMDC through the Apprenticeship scheme. All tribal residing in the project area are offered free medical facilities at the NMDC project hospitals. Members of Scheduled Tribe communities avail of the service of the Project Cooperative Societies, even if they are not employees of the Corporation.

At Bailadila Projects, 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 Bacheli where the Adivasis get an opportunity to sell their products directly to consumers. NMDC also had been helping the villages around the Projects by providing hand pumps, digging wells for providing drinking water, mobile dispensary facilities construction of approach roads to their villages etc.

As part of peripheral development programme, skill development programme for ST candidates of nearby villages adjoined Bld-14 and Bld-5 projects at the training institute, Kirandul were continued with good response from Adivasis.

Training Programme

In the training programmes conducted during the year 1997-98 SC/ST/OBC/Physically Handicapped and Ex-Servicemen were also covered. The details are given in the following Table :

Year	SCs	STs	General (Incl.OBCs,P.H. and Ex-Servicemen)
1997-98	231	125	1766

Manganese Ore (India) Limited (MOIL)

Manganese Ore (India) Limited (MOIL) is a Labour Intensive organisation with over 8000 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 as listed below :-

a) Adoption of Tribal village.

b) Training in Sericulture for economic development.

c) Help to Schools surrounding mines.

d) Organising Eye camps/child welfare camps.

e) Grant of subsidy to Gram Panchyat for water supply scheme.

f) Giving financial Assistance to Social Institutions who are working for the rehabilitation of aged and Handicapped persons.

g) Donated tricycles to Handicapped persons. Provided sewing machines for development of the Tribal Women.

Manpower as on 31/03/98 out of a total manpower of 8147, 1478 employees belongs to SC category (18.14%), 2103 employees belong to ST category (25.81%) and 2616 employees belongs to OBC (23.95%). Moreover these are 1038 women employees (12.74%), 17 Physically Handicapped (0.20%) and 152 Ex-servicemen (1.86%) employees.

The Group-wise percentage of SC/ST and OBC employees are as follows :

Group	SC	ST	OBC
A	8.71%	4.12%	8.25%
B	8.63%	5.00%	8.63%
C	18.12%	20.74%	24.08%
D	18.86%	29.09%	36.54%

Bharat Refractories Limited (BRL)

Manpower

The total number of employees in BRL as on 31/3/98 was 3733 out of which 399 belongs to SC and 502 belongs to ST and 1682 persons belongs to OBC. Moreover, there are 167 Women, 28 Physically Handicapped and 76 Ex-serviceman.

Other Welfare Measures

Free vaccination of facilitation are provided to the children of local inhabitants who mostly belong to category of SC/ST/OBC 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 Government of Bihar. SC/ST/OBC people are largely benefitted as they constitute 70-80% of the local population.

Electricity transformer has been provided by IFICO Limited for extending power supply to the nearby villages.

Training programme

Regular training programme are being conducted with the co-operation of Central Board for Workers Education and certain other agencies in which adequate representation for SC/ST/OBC is given.

Sponge Iron India Limited (SIIL)

Manpower

The total number of employees in SIIL as on 31/10/97 was 541 out of which 91 employees belongs to SC category (16.8%) 52 persons belongs to ST category (9.6%). Moreover there are 33 women (6%) 8 Physically Handicapped (1.5%).

Social Activities

A small Cell headed by the Company's Chief medical officer looks after the peripheral developmental 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 Programme

Sponge Iron India Limited, being situated predominantly in a Tribal area and in view of dearth of qualified SC/ST candidates, fresheres from the Institutes are being recruited in different disciplines and in order to bring them to the required standards, on-the-job training is being given to the SC/ST/OBC employees so as to enable them to acquire skill for possible absorption in regular posts after the training. besides this, apprenticeship training is also being imparted to the ST candidates being sponsored by Integrated Tribal Development Authority (ITDA), Bhadrachaiam, as a part of special drive, which is in addition to the candidates sponsored by local I.T.I.

In house training programme was conduced from 24/1/1997 to 25/1/1997 and from 26/8/97 to 26/8/97 by the Central Board for Workers Education in which employees belonging to SC/ST also participated.

Kudremukh Iron Ore Company Limited (KIOCL)

The total number of employees in KIOCL as on 31.03.98 was 2473, out of which 357 persons belong to Scheduled Castes (14.43%), 86 persons belong to Scheduled Tribes (3.47%), and 15 persons belong to OBC (0.6%), moreover there are 153 women (6.18%), 29 Physically Handicapped (1.17%) and 131 Ex-servicemen (5.29%).

Welfare Measures

a) The company has set up 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.

b) 8 nos. of the Merit-cum Means and Merit Scholarships, 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 Liaison Officer 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.

Further, the Management has enhanced the fund for celebration of Dr. Ambedkar's jayanthi at Kudremukh and Mangalore from existing Rs.10,000/- to Rs.15,000/- and Rs.5,000/- to Rs.10,000/- respectively.

Training Programme

In the training programmes organised at periodic intervals, SC/ST/OBC are also nominated along with others. Training Programmes have been arranged especially for 'D' Group employees of SC/ST for improving their career growth.

MSTC Ltd.

In order to improve the efficiency of the employees belonging to the reserved categories and to prepare them to take up higher positions in the future, special attention was paid to their training and development in their respective fields of function. Apart from this, all Welfare facilities provided to other employees of the company were also extended to them.

In addition, all possible cooperation and assistance was provided to the MSTC SC/ST Employees Council, which function primarily to safeguard the interest of the SC/ST employees of the Company.

Metallurgical and Engineering Consultants (India) Ltd. (MECON)

Manpower

The total manpower of MECON as on 31/3/98 was 3287. Out of this 759 persons belongs to SC/ST category and 188 persons belongs to OBC.

Welfare Activities

Provisions has been made in the Annual Plan (1997-98) for Community Development activities for improvement of the facilities for SC/ST/OBC to the tune of Rs.6.3 lakhs for Community Education, Vocational Training, Afforestation, Community medicine, Model Village, Resources Generation schemes & Misc. expenditure,etc.

Hindustan Steel Works Construction Limited (HSCL)

As on 31/3/98, out of a total manpower of 14,105; 3695 employees belong to SC/ST category (26%) and 1335 employees belong to OBC category (9.46%). Moreover, there are 950 female employees (6.73%), 186 Ex-servicemen (1.32%) and 45 physically handicapped employees (0.3%).

Socail Welfare Activities

Welfare Plan for SC/ST & Weaker Section

a) HSCL assists in providing schools in the areas where SC/ST employees mostly reside.
b) Assistance is given for supply of drinking water.
c) Plots are allotted to the workers for making hutments in the land allotted at sites of Clients with free electricity and water supply and sanitation arrangements, etc.
d) Children of SC/ST employees get due preference in the matter of schooling at projects.

Welfare Schemes

Employees Voluntary Welfare Scheme

A central Welfare Scheme for HSCL employees was introduced with effect from 1/4/87. 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 due to any reasons anywhere, while in service in the Company, by a system of Voluntary contribution by employees at the maximum rate of Rs.10/- per month.

Ferro Scrap NIgam Limited (FSNL)

As on 31/03/98, out of total manpower of 1349 persons, 209 belongs to SC category (15.49%), 148 belong to ST category (10.97%) and 97 belong to OBC category (7.19%). Apart from this there are 19 women employees (1.40%) 2 Physically Handicapped (0.14%) and 60 Ex-serviceman (4.44%).

Special endeavour is made by FSNL towards upliftment of the weaker sections in the society, by adopting nearby village for distribution of books, note books, life saving medicines etc.

During the year 1997-98, so far training imparted to 28 SCs, 17 STs and 13 OBC employees of the Company.

PROGRESSIVE USE OF HINDI

The Ministry continued its efforts for greater use of Hindi in official work during the year 1997-98 keeping in view the Annual Programme prepared by the Department of Official Language (Ministry of Home Affairs) for implementation of the Official Language Policy of the Union.

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 Deputy Secretary. The Hindi Section consists of a Deputy Director, an Assistant Director, a Senior Translator, three Junior Translators and two LDCs. One post of the Junior Translator is vacant. There are 54 Devnagari Typewriters including 31 bilingual electronic Typewriters. Adequate reading material in Hindi is available in the Ministry. A number of measures have been taken for the promotion of progressive use of Hindi in the Ministry and in the office of the Development Commissioner for Iron and Steel as well as in the PSUs under the administrative control of Ministry of Steel.

Some important items in regard to the use of Hindi in the working of the Ministry and its PSUs

(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 Act and Rules in its attached office and Public Sector Undertakings under the administrative control of the Ministry. During the year under review, the inspection team had made 24 such inspections.

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 review four such meetings were held.

Hindi Salahakar Samiti (Hindi Advisory Committee)

The Committee is under reconstitution.

Implementation of Section 3 (3) of the Official Language Act

In pursuance of the Official Language Policy of the Government of India, 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 Region "A", "B" & "C" checkpoints have been identified in the Ministry for compliance of the Official Language Policy.

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 Vaijayanti (Running Shield), a Rajbhasha Shield and two Trophies have been instituted. These awards are given every year to the Offices/ Undertakings on the basis of the annual performance. Besides, a medal is also awarded to the officer/employee whose work in Hindi is rated the best in the Ministry.

Incentive Scheme for the 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.

Cash Prize Scheme for Dictation in Hindi

An incentive scheme for officers for giving dictation in Hinidi is in operation in this Ministry. Under this scheme two cash prizes of Rs.1000/- each are given to the officers who give maximum dictation in Hindi.

Award for Writing of Hindi Books

A scheme for awarding cash prizes for writing technical books in Hindi on various disciplines related to the steel industry and its allied subjects is also in operation in the Ministry. An amount of Rs.15,000/-, Rs.10,000/- and Rs.7,500/- each are awarded respectively for the first, second and third prizes.

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 1st Sept. to 15th Sept., 1997. An appeal was made by the Honourable Minister encouraging staff of the Ministry and the Public Sector Undertakings to increase the use of Hindi in Official work.

During the Fortnight Hindi Essay writing/Hindi typing/Hindi stenography competitions were organised and prizes awarded. Besides, Hindi workshops for various categories of officers and staff were also organised. Patriotic and Hindi films were also shown to the staff of the Ministry. The Hindi Fortnight concluded with the distribution of prizes by the Honourable Minister for Steel and Mines.

"Prati Din ek Shabd" scheme was launched in the Ministry two years back and being continued during the year. Under this scheme one word of Hindi and its English equivalent are written daily on the black-board installed on all the three floors of the Ministry. These are generally administrative or technical words, used in day to day official use.

To work in Hindi on every Wednesday

Wednesday has been designated "Hindi day" in the Ministry and all officials are expected to carry out their entire official work in Hindi.

Official Language Officers Conference

A Conference was organised for the Official Language Officers of the Ministry and its PSUs. This conference was inaugurated by the Secretary(Steel) and presided over by the Joint Secretary in-charge of Hindi. In this conference incentive schemes for promoting the use of Hindi and the difficulties being faced in implementing the Official Language Policy of the Govt. were discussed.

Inspection by Committee of Parliament on Official Language

The Committee of Parliament on Official Language interalia undertakes inspection of various government offices so as to ascertain the progress in the use of Hindi and in the implementation of the Official Language Policy of the Union. 6 Offices under the administrative control of the Ministry were inspected in the year under Report.

This committee under the chairmanship of Prof. Ram Dev Bhandari, Convenor of the 3rd Sub-Committee inspected the Ministry. Secretary (Steel) and ohter senior officers of the Ministry replied the questions asked by the committee. The committee was more or less satisfied with the progressive use of Hindi in the Ministry. Follow-up action in compliance with the fulfillment of the assurances given to committee during the inspection are being taken in the Ministry.

Training in Hindi/Hindi Typewriting/ Hindi Stenography

A programme has been drawn up for imparting training in Hindi/Hindi Typing/Hindi Stenography to those employees for whom in-service training is obligatory. Out of a total of 172 officers and staff (except group "D" employees) 161 possess working knowledge of Hindi.