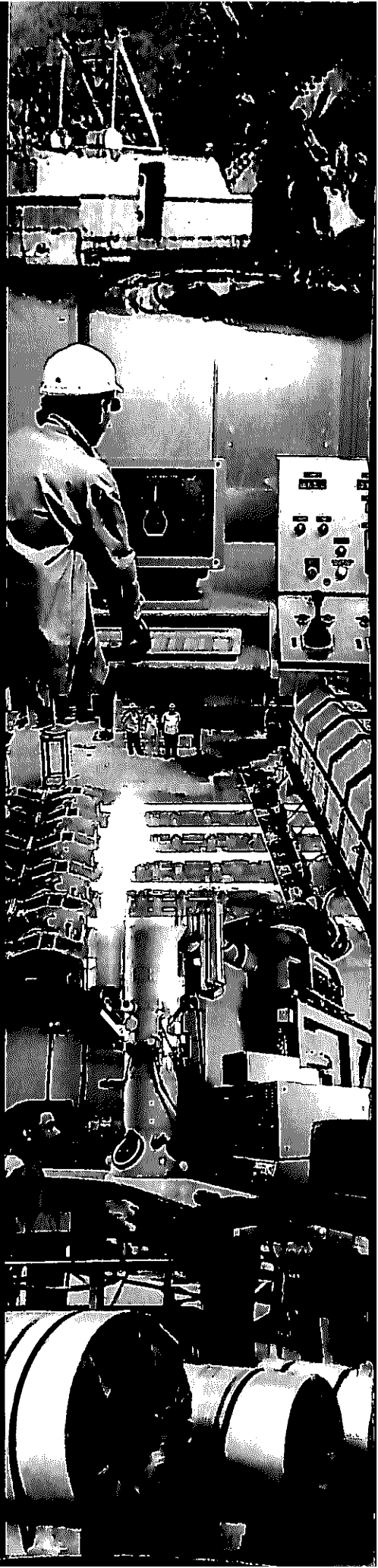
ANNUAL REPORT
1999-2000



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MINISTRY OF STEEL

Ministry of Steel

Annual Report

1999-2000

CONTENTS

YEAR'S HIGHLIGHTS

- The Indian Steel Industry, recorded production of 23.82 million tonnes, of finished steel which was 2% more than the previous year.
- India continued to be 10th largest Steel Producer in the world during 1998-99.
- India exported about 2.4 million tonnes of iron and steel valued at Rs.2,509 crores.
- India continued to be the second largest producer of sponge iron in the world. During 1998-99, India produced 5.16 Million Tonnes of Sponge Iron.
- SAIL recorded a turnover of Rs.14,994 crores during 1998-99. The turnover (Prov.) for the first half of 1999-2000 was Rs.7145 crores.
- SAIL in its four Integrated Steel Plants achieved production of Hot Metal (11.18 MT), Crude Steel (9.86 MT), and Saleable Steel (8.33 MT) during 1998-99. During April-Sept., 1999 the production was 5.29 MT, 4.68 MT and 4.69 MT of Hot Metal, Crude Steel and Saleable Steel respectively.
- Steel and Pig Iron worth of Rs.553 crores was exported by SAIL to USA, Nepal, Europe, Middle East South Africa and neighbouring countries during 1998-99.
- During 1998-99 all major units of VSP received ISO-9002 certification.
- During 1998-99 VSP has consistently improved its Techno-Economic Parameters especially specific energy consumption and coke rate.
- India exported 31.02 million tonnes of iron ore during 1998-99 as against 29.8 million tonnes in 1997-98.
- NMDC produced 11.65 million tonnes of Iron Ore during 1998-99.
- NMDC exported 6.0 million tonnes of iron ore valued at Rs.448.55 crores.
- NMDC paid highest ever dividend of 25% on paid-up capital amounting to Rs.36.67 crores including tax on dividends for 1998-99. This is the ninth year in succession for payment of dividend.
- Kudremukh Iron Ore Company (KIOCL) paid dividend for 1998-99 at the rate of 2.50%. This was the 7th year in succession for payment of dividend.

YEAR AT A GLANCE

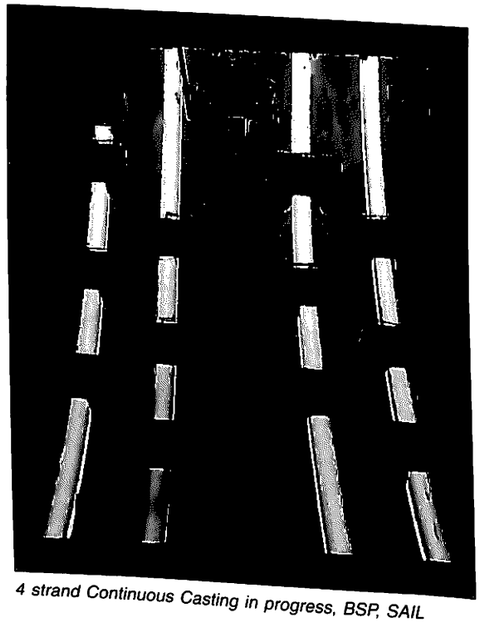
Demand and Availability of Steel

Total demand for finished steel including domestic requirement and exports in 1998-99 was 24.43 million tonnes. Against this, the domestic production during the year was 23.82 million tonnes leaving a gap of 0.61 million tonnes which was met through imports. During 1999-2000, the demand for finished steel (carbon & alloy steel) is 27.145 million tonnes. Against this, the availability is projected at 27.10 million tonnes of finished steel.

Production of Steel

Total production of finished steel in 1998-99 was 23.82 million tonnes. India is the 10th largest steel producing country of the world. Main producers contribute 9.91 million tonnes (41.6%)and secondary producers 13.91 million tonnes (58.4%). During 1998-99, the share of main and secondary producers in the total production of finished steel has remained more or less the same as in 1997-98.

Production of finished steel (carbon & alloy steel) in the four integrated steel plants of SAIL including IISCO during 1998-99 was about 6.3 million tonnes registering an increase of 9.01% over last year. Production of finished steel in Visakhapatnam Steel Plant (VSP) was 1.34 million tonnes in 1998-99 as against 1.62 million tonnes in 1997-98 registering a decrease of 16.9%. TISCO prod-uced 2.27 million tonnes of finished steel in 1998-99 as against 1.90 million tonnes in 1997-98.



4 strand Continuous Casting in progress, BSP, SAIL

Steel Consumers' Council

The Steel Consumers' Council was constituted on 31.1.1986 under the Chairmanship of Minister of 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 30.6.1998.

Steel Industry

Steel Authority of India Limited (SAIL)

Performance of SAIL

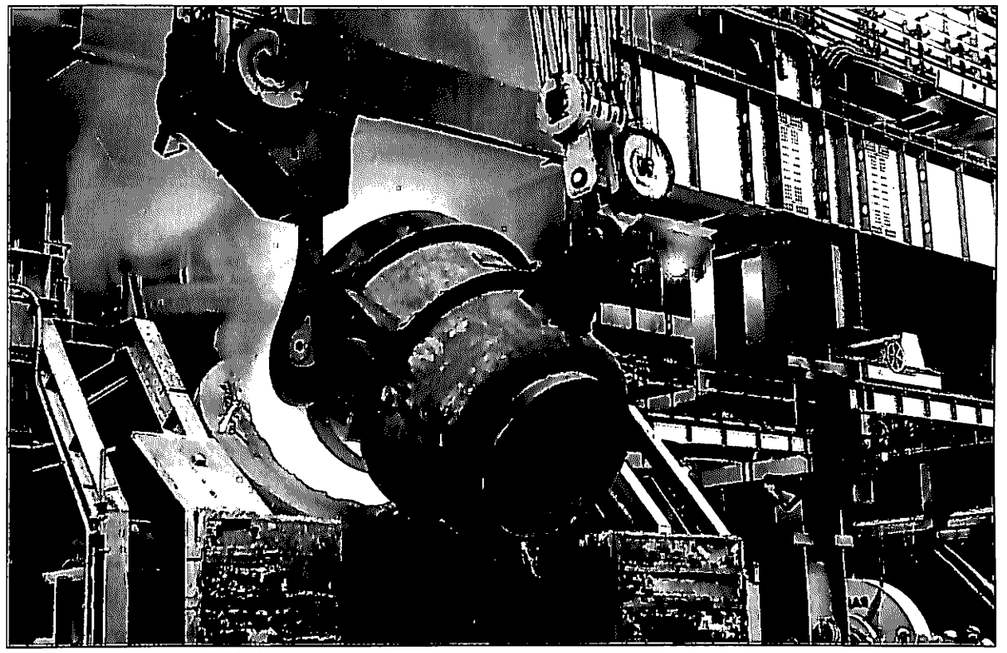
The production of Saleable Steel in the four integrated and Special Steel Plant of SAIL for 1998-99 was 8.60 million tonnes as against 9.043 million tonnes in 1997-98. During the year 1999-2000 (Upto Sept., 1999) production of saleable steel was 4.69 million tonnes against the target of 4.71 million tonnes.

IISCO

Production of saleable steel in IISCO, a subsidiary of SAIL in 1998-99 was 0.285 million tonnes as against 0.315 million tonnes in 1997-98. During 1999-2000 (Upto Sept., 1999) IISCO has produced 0.123 million tonnes of saleable steel as against the target of 0.121 million tonnes.

Working result of SAIL

During the year, SAIL has achieved a turnover of Rs.14,993.85 crores (Previous year Rs. 14,624.07 crores). The post tax net loss stood at Rs.1573.66 crores against previous year's profit before tax of Rs.148.59 crores.



Basic Oxygen Furnace, DSP, SAIL

Major Projects of SAIL

Capital Schemes

The modernisation schemes at Durgapur, Rourkela and Bokaro Steel Plants started yielding results during the year. Durgapur Steel Plant after modernisation, has reached 83% of its rated capacity and the techno-economic parameters like energy consumption, coke rate, yield etc. have shown significant improvements.

Rourkela Steel Plant Modernisation was completed in August, 1998 except Reheating Furnace No.5 of Hot Strip Mill which is expected to be completed by March, 2000. After completion of the modernisation, significant improvement in production has been achieved in all the units and the major modernised units have achieved around 70% of the capacity utilisation and at times have exceeded the rated capacity.100 % of the steel produced in the plant is now through Basic Oxygen Furnace-Continuous Casting route.

At Bokaro Steel Plant, modernisation work was completed by February, 1999 except for Reheating Furnace No.3 and fourth Coiler, which are in advanced stage of completion. After the completion of modernisation, there has been a considerable improvement in the quality of the finished products.

The Coal Dust Injection facilities at Bhilai and Bokaro Steel Plants were introduced at Blast Furnace-6 and 4 respectively during the year.

The installation of Sinter Plant-3 at Bhilai Steel Plant is in advance stage of construction and is likely to be completed by March 2000.

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

VSP had fixed a target of 3.4 million tonnes of Hot Metal, 2.65 million tonnes of Liquid Steel, 2.305 million tonnes of Saleable Steel for the year 1999-2000. During the first half of the year in spite of sluggish international market and unfavourable domestic market conditions VSP has achieved production of 1.335 million tonnes of Hot Metal, 1.225 million tonnes of Liquid Steel and 1.078 million tonnes of Saleable Steel which represents target fulfillment of 39.2%, 46.2% and 46.7% respectively. The yield of Blooms, Billets, Bar products, Wire rods and MMSM products during 1998-99 was 91.72%, 97.40%, 98.10%, 96.91% and 95.20% of the respective targets.

PRIVATE SECTOR
The Tata Iron and Steel Company Limited

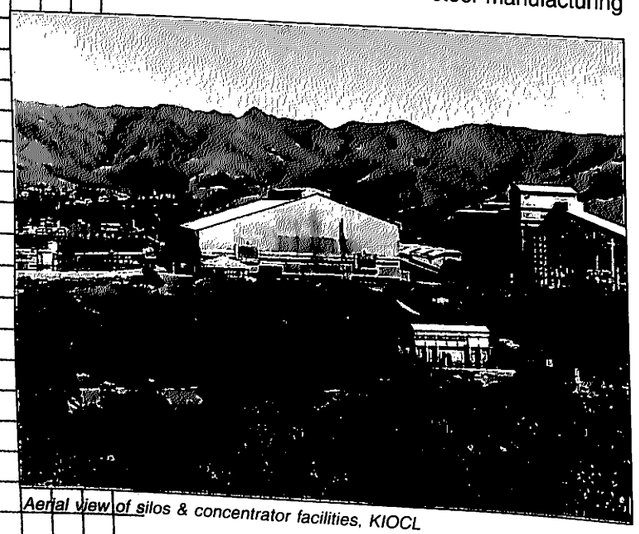
The company achieved a saleable steel production of 3.11 million tonnes which was about 3.7% higher than the previous year's production. However, in spite of higher volume of production, net profit of the company reduced from 322.08 crores during 1997-98 to 282.46 crores during 1998-99 mainly due to the demand slow-down and stagnant market conditions.

TISCO is on the verge of completion of their Phase-IV modernisation programme. With this, TISCO will achieve 100% oxygen steel making and over 95% continuous casting remitting in higher yield, lower energy consumption & lower operating cost.

TISCO is also setting up a 1.2 million tpa capacity cold rolling mill complex with state-of-the-art facilities to produce cold rolled as well as galvanised steel sheets/strips/coils. The plant is in advanced stage of completion and is scheduled to be commissioned during the year 2000.

New Steel Projects

During the last year no new/green-field steel project have been sanctioned by the Financial Institutions (FIs). However, four new units which were earlier sanctioned by the FIs have commissioned part of their steel manufacturing facilities and are under trial production. These projects are Southern Iron and Steel Company Ltd. (SISCOL), Jindal Vijaynagar Steel Ltd. (JVSL), Ispat Industries Ltd. (IIL) and Mukand Ltd. Nine more units sanctioned earlier by the FIs are at various stages of implementation.



Aerial view of silos & concentrator facilities, KIOCL

The new plants have also been adversely affected by the general slow-down in the economy and have been facing time and cost over-runs. With the assistance being extended by the Govt. and the FIs, it is expected that the units will come out of the present problems and will be in a position to commission the plants during the IX Five Year Plan.

Electric Arc Furnace Industry

Electric Arc Furnace based steel plants have been contributing significantly in its overall steel availability in the country. Presently, there are 188 electric arc furnace based steel plants in the country with an aggregate capacity of 12.05 million tonnes per annum. Of these, as many as 40 units with an aggregate estimated capacity of 6.44 million tonnes are reportedly working. Various reasons such as rising cost of inputs, increasing electricity tariffs, shortage of power, shortage of finance etc. are believed to be responsible for the closure of large number of EAF units, underscoring the forces of change sweeping the steel sector.

Production of Ingots/concast billets by EAF units, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during 1998-99 and was estimated at 3.85 million tonnes.

This does not include production of steel by the Casting Units registered with erstwhile DGTD.

Induction Furnace Industry

During 1998-99 there were about 934 Induction Furnace Units with a capacity of about 9.4 million tonnes. However during the year it is estimated only 661 units were in operation. The capacity utilisation of the IF Units was only about 51%. The total production of the IF Units was estimated to be around 3.59 million tonnes.

Alloy and Stainless Steel Industry

The Alloy/Stainless Steel industry contributes about 4.5% of the country's production of finished steel. During 1998-99 the production of Alloy/Stainless Steel was about 1.09 million tonnes which was about the same as last year.

Iron Ore Mining Industry

Production of Iron Ore (including Concentrates) during the year 1998-99 was 70.68 million tonnes against 73.45 million tonnes showing a decrease of 3.7% than the previous year. State-wise production figures indicate that Madhya Pradesh was the chief iron ore producing State accounting for 23% of the total production during 1998-99, followed by Goa with 22%, Karnataka with 21%, Bihar 17% and Orissa 16%. The remaining production would be from Andhra Pradesh, Maharashtra and Rajasthan.

The performance of the two Public Sector Iron Ore Mining Companies viz: National Mineral Development Corporation Limited (NMDC) and Kudremukh Iron Ore Company Limited (KIOCL) was as under :

National Mineral Development Corporation Limited (NMDC)

During the year 1998-99 NMDC produced 11.65 Million Tonnes of Iron Ore and 34201 Carats of Diamonds. In the year 1999-2000 (upto Sept.99), NMDC produced 5.15 Million Tonnes of Iron Ore and 17378 carats of diamonds. For the year 1998-99, the Company paid a dividend of 25% on the equity capital amounting to Rs.36.67 crores, including tax and dividend which was the ninth year in succession for payment of dividend.

NMDC has scope to expand its capacity of iron ore production with marginal investment in the existing iron ore projects and also by opening new iron ore project. NMDC has taken up project construction of Bailadila-10/11A with a production capacity of 5 MT ROM per annum. NMDC is also planning to develop Kumaraswamy Mine with a capacity of 3 MT per annum in Karnataka to meet the expected increasing domestic demand and also as a replacement to the depleting Donimalai Iron Ore Mine.

Kudremukh Iron Ore Company Limited (KIOCL)

During the year 1998-99 KIOCL recorded a gross margin of Rs.67.03 crores and a net profit of Rs.25.36 crores as against a target of Rs.101 crores and Rs.50.03 crores respectively. The shortfall in meeting the financial target was due to additional provisions made by the Company for settlement of power claims raised by the Karnataka Electricity Board amounting to Rs.77.50 crores. The Company paid a dividend at the rate of 2.50% of the paid up capital amounting to Rs.15.86 crores for the year 1998-99.

Sponge Iron Industry

Sponge iron is a metallic product. Also known as Direct Reduced Iron (DRI) or Hot Briquetted Iron (HBI), it contains a large percentage of metallic iron. This is a substitute for steel melting scrap used mainly by the electric arc furnaces & induction furnaces. The indigenous availability of metal scrap is not sufficient to meet indigenous demand.

Growth made by Indian Sponge Industry has been quite impressive. Today India is the 2nd largest producer of sponge iron in the world. The production of sponge iron in 1998-99 has been 5.16 million tonnes.

Pig Iron Industry

The contribution of private/secondary sector units adopting mini blast furnaces in the overall production of pig iron in the country continued to increase during the year from 50% in 1997-98 to 55% in 1998-99. Total production of pig iron in the country during 1998-99 was 2.99 million tonnes which was lower then the previous year's production of 3.39 million tonnes. These units have also been significantly contributing to the availability of the special grade pig iron including low sulphur and low phosphorus varieties.

Ferro Alloy Industry

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 (Fe Cr.)—called the Bulk ferro alloys. There are 35 large and medium size units (including four 100% EOUs) with an installed capacity of 1.3 million tonnes. The production of Ferro Alloys during 1998-99 was about 6.93 lakh tonnes which was 12% less than the previous year.

Refractory Industry

Refractories are the primary materials used in the internal lining of industrial furnaces and are classified on the basis of chemical composition into Acid Refractories, Basic Refractories and Neutral Refractories. 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. In general, it can be said that all these improvements have resulted in lowering specific consumption of refractories per tonne of steel. The production of Refractories during 1998-99 was 6.89 lakh tonnes which was 2.82% lower than the previous year.

Management Information System (MIS)

The Computerised Management Information System (MIS) developed for Ministry of Steel with the assistance of National Informatics Centre (NIC) is functional in the area of Accounts and Budget Section, Activity Monitoring System, Industrial Entrepreneurs memoranda System, VIP References Monitoring, Monthly D.O. and Monthly Summary on PSUs performance for Cabinet Secretariat and Public Grievances Monitoring.

A Local Area Network (LAN) of about 65 nodes has been established by NIC in the Ministry for resource and information sharing. An attempt is being made to set up a Ministry-wide Intranet by computerising Work-Flow applications at Section/Desk level and providing Web-enabled interfaces for monitoring applications such as On-line lodging of complaints, monthly indents for issuing of stationery, booking of staff car on Local Area Network (LAN). Replies to Parliament Questions are also sent on LAN by the section to Parliament Cell and onward to Lok Sabha & Rajya Sabha Secretariats the very next day of reply.

Plantation at mines, MOIL

Pentium based computers have been provided to all officials/Desks/Sections in the Ministry. Software Standardisation has been achieved in the Ministry by providing Window-based Office Automation Suit to ensure compatibility among the Computer Systems provided with End-users. All the computers on LAN have been provided with browsing and e-mail facility on Internet. An in-house training programme spanning over 1½ month on Windows-based Office Automation Suits, LAN operations, E-mail and browsing on Internet have been organised at the level of Under Secretary and below for about 80 users in the Ministry by NIC Computer Centre.

In addition, the Ministry's existing homepage on Internet has been updated as per the PMO guidelines by making it bilingual and providing linkages to the Ministry's PSUs and attached offices to have a wide coverage of information on steel sector.

Finally, NIC Computer Centre has played a key role in getting the Y2K problem resolved for NIC provided systems and services in Ministry of Steel. Ministry's PSUs and attached Offices were also advised from time to time and a well structured approach was followed by having periodical reviews on Y2K related problems and issues at Ministry level so that the remedial action could be initiated at PSUs/attached offices well in time.

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. The research areas cover mining & beneficiation of minerals, improvement of properties of coal, reduction in energy consumption, reduction of refractory consumption, improvement in productivity, utilization and treatment of wastes, control of pollution, improvement in quality, development of human resources etc.

In pursuance of the decision of the Cabinet to spend up to Rs. 150 crores per annum for Research & Development efforts in the iron and steel sector, the Empowered Committee has met thrice since 1998-99 and till 19.11.1999 has approved 20 R & D projects. The total cost of these projects is Rs. 149.30 crore; out of this Rs. 79.20 crore is to be funded from SDF. So far as on 19.11.1999, Rs. 13.89 crore (Rs. 0.32 crore in 1998-99 and Rs. 13.57 crore in 1999-2000) has been disbursed.

Energy Conservation

Iron & Steel Plants, both in public and private sectors continued to give thrust on the reduction in the consumption of energy.

Introduction of coal dust injection in the blast furnaces; mixed gas firing in stoves of blast furnaces; installation of Zirconia grade ceramic fibre in Pre-heating Furnace of Bar Mill of ASP and introduction of low thermal mass lining in Annealing Furnace of Heat Treatment Shop, ASP (SAIL Plants) have resulted in substantial reduction in energy consumption.

TISCO have also taken various measures for reduction of energy consumption like 100% Blast Furnace firing in boiler No. 3 with CO gas as flame support and additional Recovery of LD from LD-II Shop, used for enrichment of Blast Furnace Gas for use in Boilers and HSM re-heating furnaces, have resulted in reduction of energy consumption.

At Essar Steel Ltd. and other private sector steel plants like Usha Martin Industries, Sun Flag Iron and Steel Co. Ltd, Mukand Ltd., Usha Ispat, Lloyds Steel Industries Ltd. and Jindal Vijaynagar Steel Ltd., a good amount of developmental work has been going on for energy conservation

Environmental Management and Pollution Control

The Iron & Steel Plants have drawn up short term and long term action plans for expeditious achievement of Pollution Control norms, wherever these have not so far been achieved. The Environment Laboratory Group of RDCIS, SAIL provide services to steel plants in the field of specialized statutory assessment of air, water and noise in steel plants and mines and also development and transfer of methodologies, air and water pollution control, and water and solid waste management. Some major projects undertaken & services offered by RDCIS, SAIL during 1999-2000 are given below:-

- Hazardous waste management at DSP
- Assessment of Poly-aromatic hydrocarbons (PAH compounds) at BSP,DSP,RSP & IISCO.
- Effect of recalcitrant toxic constituents in Coke oven effluent on their biodegradability.
- Use of fly ash as soil conditioner in plant growth.
- VSP has been according high priority for maintaining a very clean and healthy environmental monitoring activities in respect of ambient air, stack emissions and effluents are being carried out regularly to ensure good work environment. Several schemes like recycling of Tar sludge in Coke Oven Batteries and recycling of dust in sinter making has resulted into substantial revenue saving as well as reduction in the waste accumulation.

In the private sector, TISCO has installed CCTV Camera for scanning the chimney dust emission and state of the art facilities in 1.2 MTPA CRM Complex. Other private sector companies like Mukand Limited, Sun Flag Iron and Steel Company Limited, Lloyds Steel Industries Limited, Ispat Industries Limited and Essar Steel Limited are among some of the companies making efforts to keep the pollution levels within the prescribed acceptable limits.

Welfare of Scheduled 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 subject.

The Hon'ble Steel Minister made an appeal on 14th September, 1999 to all the officers and staff of the Ministry, its attached office and PSUs to further increase the use of Hindi in their official work. A Hindi fortnight was organised in the Ministry of Steel from 1st to the 15th Sept., 1998. Various competitions were held during this period and winners were awarded prizes.

OVERVIEW OF IRON & STEEL INDUSTRY

Introduction

Steel is crucial to the development of any modern economy and is considered to be the backbone of the human civilisation. The level of per capita consumption of steel is treated as one of the important indicators of socio-economic development and living standard of the people in any country. It is a product of large and technologically complex industry having strong forward and backward linkages in terms of material flow and income generation. All major industrial economies are characterised by the existence of a strong steel industry and the growth of many of these economies has been largely shaped by the strength of their steel industries in their initial stages of development.

Historical Perspective

The finished steel production in India has grown from a mere 1.1 million tonnes in 1951 to 23.82 million tonnes in 1998-99. During the first two decades of planned economic development, i.e. 1950-60 and 1960-70 the average annual growth rate of steel production exceeded 8%. However, this growth rate could not be maintained in the decades to follow. During 1970-80, the growth rate in steel production came down to 5.7% per annum and picked up marginally to 6.4% per annum during 1980-90. Though India started steel production in 1911, steel exports from India began only in 1964. Exports in the first five years were mainly due to recession in the domestic iron and steel market. Once domestic demand revived, exports declined. India once again started exporting steel only in 1975 touching a figure of one million tonne of pig iron export and 1.4 million tonnes of steel export in 1976-77. Thereafter, exports again fell rapidly to meet rising domestic demand. Only after liberalisation of steel sector the exports of iron and steel have once again started increasing. Though the country's production of iron and steel is sufficient to meet the domestic demand, however, some quantity of steel is always needed to be imported, especially those grades and qualities which are required in small quantities and therefore do not justify setting up of production capacities.

6 strand Continuous Casting in progress, DSP, SAIL

The progress of the steel industry has a critical influence on the pace of India's development and as such great importance is attached to capacity expansion in line with expected demand at cost and prices, which make Indian Steel internationally competitive. The new economic policies being pursued by the Government have opened up new opportunities for the expansion of the steel industry. With a view to accelerating the growth of the steel sector, the Government has initiated a number of policy measures since 1991.

Liberalisation of the Indian Steel Sector

The important policy measures which have been taken for growth and development of the Indian Iron and steel sector are as under:

- In the new industrial policy announced in July, 1991, Iron and Steel Industry, among others, was removed from the list of industries reserved for the public sector and also exempted from the provisions of compulsory licensing under the Industries (Development and Regulation) Act, 1951.
- With effect from 24.5.92 iron and steel industry was included in the list of 'high priority' industries for automatic approval for foreign equity investment upto 51% (now 74%).
- Price and distribution of steel were deregulated from January, 1992. At the same time, it was ensured that priority continued to be accorded for meeting the requirements of small scale industries, exporters of engineering goods and North Eastern Region, besides strategic sectors such as Defence and Railways.
- The import regime for iron and steel has undergone major liberalisation moving gradually from a controlled import by way of import licensing, foreign exchange release, canalisation and high import tariffs; to total freeing of iron and steel imports from licensing, canalisation and lowering of import duty levels. Export of iron and steel items was also freely allowed.
- Import duty on capital goods was reduced from 55% to 25%. Duties on raw materials for steel production were reduced. These measures reduced the capital costs and production costs of steel plants.
- Freight equalisation scheme was withdrawn in January,1992 removing freight disadvantage to states located near steel plants. At the same time, it was ensured that far flung areas and distant states were protected by stipulating that beyond the freight ceiling distance, the main producers would continue to bear the freight charges.
- Levy on account of Steel Development Fund was discontinued from April'94 providing greater flexibility to main producers to respond to market forces.

Current Global Scenario

The global production of crude steel declined to about 775 million tonnes in 1998 against 799 million tonnes in 1997, a decline of about 3%. The world steel consumption has also declined from 699 million tonnes in 1997 to 692 million tonnes in 1998. The international steel trade constitutes around 250 million tonnes or one-third of production.

World steel industry witnessed major ups and downs in the last two decades and especially over the past five years, the pattern of trade has been upset by two important developments. These are the collapse of the Soviet Union and the severe financial crisis in most of South East Asian countries, including Korea and Japan.

The Asian crisis and the collapse of USSR has transformed importers of steel into exporters. Till the recent financial crisis, the Asian countries were large importers of steel. In 1996, e.g. eight of the ten largest steel producing nations were in Asia and import by the region in the mid 1990s was around 80-90 million tonnes of finished and semi-finished steel per year which is equivalent to a third of total steel trade. After the Asian crisis, the region got transformed into a net exporter of steel.

Hence, the world steel industry is today being characterised by excess capacity and poor demand. This scenario led to undesirable impact on two fronts, firstly breeding protectionism within the developed countries, and secondly dumping of cheap imports. During this year Indian exports have been subjected to Anti-dumping /CVD investigations in EU, USA & Canada which eroded the export base to some extent.

It is in this global context that the Indian steel industry will have to cast its future role.

Growth of the Indian Steel Sector after Liberalisation

Finished Carbon Steel

Today, India is the 10th largest steel producing country in the world. This sector represents around Rs.90,000 crores of capital and directly provides employment to over 5 lakh of people. The Indian steel sector was the first core sector to be completely freed from the licensing regime and the pricing and distribution controls. This was done primarily because of the inherent strengths and capabilities demonstrated by the Indian iron and steel industry. During 1996-97, finished steel production shot up to a record 22.72 million tonnes with a growth rate of 6.2% while in 1997-98, the finished steel production increased to 23.37 million tonnes, which was 2.8% more than the previous year. The growth rate has drastically decreased in the last 2 years, being only 2.8% in 1997-98,and 1.9% in 1998-99 as compared to 20% in 1995-96 and 6.2% in 1996-97.

This sharp fall in the growth rate of steel production has been brought about by several factors which inter alia include, general slow down in the industrial production and construction activities in the country coupled with lack of growth in major steel consuming sectors. The total production of finished steel and the share of main and secondary producers during 90s and upto the present has been as follows:

(Quantity in million tonnes)

Year	Main Producers	Secondary Producers	Total
1991-92	7.96 (55%)	6.37 (45%)	14.33
1992-93	8.41 (55%)	6.79 (45%)	15.20
1993-94	8.77 (57.6%)	6.43 (42.4%)	15.20
1994-95	9.57 (53.8%)	8.25 (46.2%)	17.82
1995-96	10.59 (49.5%)	10.81 (50.5%)	21.40
1996-97	10.54 (46.4%)	12.18 (53.6%)	22.72
1997-98	10.44 (44.6%)	12.93 (55.4%)	23.37
1998-99	9.91 (41.6%)	13.91 (58.4%)	23.82
1999-00 (upto Dec'99)	8.08 (41.4%)	11.39 (58.5%)	19.47

(Figures in brackets indicate % age share)

The Economic reforms and the consequent liberalisation of the iron and steel sector which started in the early 1990s , brought about a sea change in the industry, particularly in the field of setting up of new /greenfield steel plants in the private sector.

All India Fianancial Institutions cleared 19 projects involving an annual capacity of about 13 million tonnes of saleable steel at an investment of Rs. 30,000 crores. Out of these, 6 projects involving about Rs. 7081 crores have already been commissioned with an annual capacity of 3.54 million tonnes. 4 more projects have been partially commissioned and are in trial production. Other projects are at various stages of implementation. Thus it will be seen that in the years to come, the percentage production of the private sector will be much larger than production of the public sector in the steel industry.

Pig Iron

Along with the production of steel, the production of pig iron in the country during the period 1991-92 to the present has also increased. The details are as under:

(Quantity in million tonnes)

Year	Main Producers	Secondary Producers	Total
1991-92	1.485	0.102	1.587
1992-93	1.679	0.165	1.844
1993-94	1.977	0.237	2.250
1994-95	2.005	0.780	2.785
1995-96	1.735	1.060	2.795
1996-97	1.733	1.557	3.290
1997-98	1.760	1.687	3.393
1998-99	1.354	1.644	2.998
1999-2000 (April-Dec)	0 .959	1. 382	2.341

Sponge Iron

During the early 90s, sponge iron industry had been specially promoted so as to provide an alternative to steel melting scrap which was increasingly becoming scarce. The production of sponge iron (Direct Reduced Iron – DRI) during the period 1991-92 to the present was as under:

(Quantity in million tonnes)

Year	Production	% Increase
1991-92	1.31	-
1992-93	1.44	9.9
1993-94	2.40	66.7
1994-95	3.39	41.3
1995-96	4.40	29.8
1996-97	5.01	13.8
1997-98	5.35	6.78
1998-99	5.16	(-)3.55
1999-2000 (till Nov.,99)	3.53	3.2

Today, India is the second largest producer of sponge iron in the world. The production of sponge iron in the country has also resulted in providing an alternative feed material to steel melting scrap which was hitherto imported in large quantities by the Electric Arc Furnace Unit and the Induction Furnace Unit. This has resulted in considerable saving in foreign exchange.

Apparent Consumption of Steel

The long term projections of steel demand, which formed the basis of capacity planning, during second and third five year plans were based on an optimistic rise in per capita consumption of steel and high absorption of steel in the economy. This optimism was based on the growth rates of different sectors, structural changes in the economy and import substitution. The finished steel consumption which was only 18.66 million tonnes in 1994-95 has increased to 23.54 million tonnes in 1998-99.

India's per capita crude steel consumption as per the figures available for 1997 was only 22 kg., which is far below the level of other developed and developing countries- 395 kg, 289 kg and 84 kg in USA, the EU (15) and China respectively. The world average was around 126 kgs in 1997. With the ongoing economic liberalisation resulting in faster economic growth, the steel consumption is expected to increase rapidly.

Apparent consumption of steel is arrived at by subtracting export of steel from the total of domestic production and import of steel in the country. Change in stock is also adjusted in arriving at the consumption figures. It is also treated as the actual domestic demand of steel in the country. The year wise apparent consumption of finished steel since 1990-91 is given in the table below :

(In million tonnes)

Year	Apparent Consumption
1990-91	14.37
1991-92	14.83(3.2%)
1992-93	15.00 (1.2%)
1993-94	15.32(2.0%)
1994-95	18.66 (21.8%)
1995-96	21.65 (16.0%)
1996-97	22.13(2.27%)
1997-98	22.63 (2.28%)
1998-99	23.54(4.02%)
1999-2000(Till Dec.1999)	18.48 (6.3%)

(The figures in brackets indicate the percentage increase over the previous year /period)

The apparent consumption of steel did not show any substantive increase in 1998-99 mainly due to slowdown being faced by some of the steel using industries like automobile and engineering industries and construction. With the revival of the demand for automobile and engineering goods and general improvement in the economy, it is expected that consumption of steel will increase further.

Long Term Demand Availability Projections of Finished Steel

In order to have a long term perspective and planning, a Working Group for IX Five Year Plan was constituted for iron and steel sector under the aegis of Planning Commission. The Working Group deliberated upon all aspects including supply-demand projections for finished steel during the terminal years of VIIIth and IXth Five Year Plans i.e. 1996-97 and 2001-02, taking a GDP growth rate of 5% during the 8th plan and 6% thereafter and a GDP elasticity of demand for steel of 1.33. The Working Group also suggested various strategies for an integrated and harmonious growth of the steel sector during IXth plan period and thereafter.

The Ministry of Steel (9th Plan Working Group) has estimated that the demand for finished steel (including demand for exports) in 2001-02 would touch 38.68 million tonnes. The domestic availability of finished steel from all sources for 1998-99 was about 22.75 million tonnes. It is expected that by 2001-02, it would be 38.01 million tonnes. The projected availability is almost adequate to meet the domestic demand and also export potential of 6 million tonnes as identified by the Working Group during 9th Five Year Plan period. The installed capacity is expected to reach 43.606 million tonnes by the end of the Ninth Five Year Plan. Similarly, by 2006-07 the demand for finished steel is estimated to be of the order of 48.80 million tonnes, whereas production in the country would be 57.80 million tonnes, providing adequate surplus for meeting the projected export potential of 9 million tonnes.

The major public sector integrated steel plants of SAIL including IISCO and RINL would be able to contribute about 11.449 million tonnes and 2.41 million tonnes respectively. With TISCO's contribution of 3.1 million tonnes of finished steel, the integrated steel plants are expected to produce 16.959 million tonnes. The balance 21.053 million tonnes would be from secondary steel sector during 2001-02. In other words, the Secondary Sector is expected to contribute about 55.4 percent of the availability of finished steel in the country:

The Working Group has identified the following

pattern of the investment during the Ninth Five Year Plan:

Table-II:2

(Rs. in crore)

Area	Public Sector	Private Sector	Total
Steel	16,202.00	31,658.00	47,860.00
Sponge Iron	000.00	635.00	635.00
Pig Iron	0.00	200.00	200.00
Raw materials and others	3,479.00	0.00	3,479.00

It will be seen that out of the total estimation of investment of Rs.52,174.00 crores in iron and steel sector during IXth Plan period made by the Working Group, public sector's contribution was expected to account for about 38% and the balance 62% of the investment supposed to be coming from the private sector. But subsequently, the Planning Commission undertook a detailed and in-depth exercise to determine the exact investment, which the Public Sector Undertakings in the Steel Sector would be expected to make during the Plan period. The Planning Commission has finally approved a Plan Outlay of Rs.19,197.88 crores for PSUs for IXth Five Year Plan. Total approved outlay of Rs.19,197.88 crores for IX Five Year Plan for public sector undertakings includes a Budgetary Support of only Rs.90,00 crore, which constitutes only 0.47.%. The remaining investment proposed to be made by PSUs will be met from their internal accruals and extra budgetary resources.

In so far as private sector is concerned, as mentioned earlier, the All India Financial Institutions have cleared 19 medium/large projects involving an annual capacity of approximately 13 million tonnes of saleable steel and investment of over Rs.30,000 crores.

Ministry of Steel has formulated a well-knit scheme in consultation with Planning Commission for self-reliant and healthy growth of the steel sector keeping in view all gamut of growth perspective for this sector. This includes maintaining continuous growth coupled with projected investments both in public and private sectors as well as investment for raising technological and managerial skills, quick decision making for product planning , man-power deployment etc.

Distribution of Iron and Steel

As a part of the economic liberalisation process, the Government of India, on 16th January, 1992 abolished the price regulation of the Joint Plant Committee (JPC) on iron and steel, which had been in existence since 1964. However, the requirements of Defence, Railways, Small Scale Industries Sector, exporters of engineering goods and the North Eastern Region continue to be met on priority at prices that are announced by the producers from time to time.

The Development Commissioner for Iron and Steel continues to make allocations of pig iron to the designated consumers and the main producers supply the material on the basis of such allocation. To meet the requirements of steel of Small Scale Industries, allocations are made by the Development Commissioner for Iron and Steel. This is in addition to the purchases made by Small Scale Units, which draw their materials directly from the main producers. The Development Commissioner also continues to issue Release Orders for supplies to exporters of engineering goods and make annual supply plans for the North Eastern Region. The requirements of Defence and Railways are met by the main producers directly on priority in accordance with the past procedures .

Considering the special problems in meeting the requirements of consumers in the North Eastern Regions, special efforts are made to ensure adequate and timely supplies to that region.

Pricing of Iron and Steel

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

After deregulation, the main producers, i.e. Steel Authority of India Limited, Rashtriya Ispat Nigam Limited and TISCO are charging either the actual freight upto stockyard or freight element as it existed prior to deregulation (now Rs.1760/- per tonne in case of steel and Rs.1200/- per tonne in case of pig iron), whichever is lower. This has ensured that far flung areas and distant States are protected by stipulating that the main producers shall charge either actual freight or freight element existing prior to withdrawal of the scheme, whichever is less.

Import and Export of Iron & Steel

Policy frame work

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

(Qty. in '000 tonnes)

(Value in Rs. crore)

Category	1994-95		1995-96		1996-97		1997-98		1998-99(P)	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
Saleable Steel	1936	2536	1834	3175	1797	3041	1815	2900	1652	2459
Pig Iron	1	1	8	6	15	12	2	3	2	2.07
Steel Scrap	1417	758	974	618	1165	709	819	497	880	478

With the liberalisation of India's trade policy and commencement of the export-import policy for 5 years (from 1.4.1997 to 31.3.2002), the policy for import and export of iron and steel materials has undergone sweeping changes. Import of all items of iron and steel is freely allowed.

The value – based advance licence and the old pass-book scheme has been replaced by a new scheme-Duty Entitlement Pass-Book (DEPB) scheme which combines the positive features of both the schemes besides being easy to administer and more transparent. Under this scheme, exporters on the basis of notified entitlement rates, will be granted due credits, which would entitle them to import goods duty free.

Exports of all items of iron and steel are also freely allowed. Exports of high grade iron ore, chrome ore and manganese ore are made through designated canalising agencies subject to the ceilings imposed by the Government, in order to conserve high grade ores for domestic consumption and production of value added materials.

Consistent efforts are being made by the Ministry of Steel / Development Commissioner for Iron & Steel to ensure adequate supplies of domestic raw materials to meet requirements of engineering exporters.

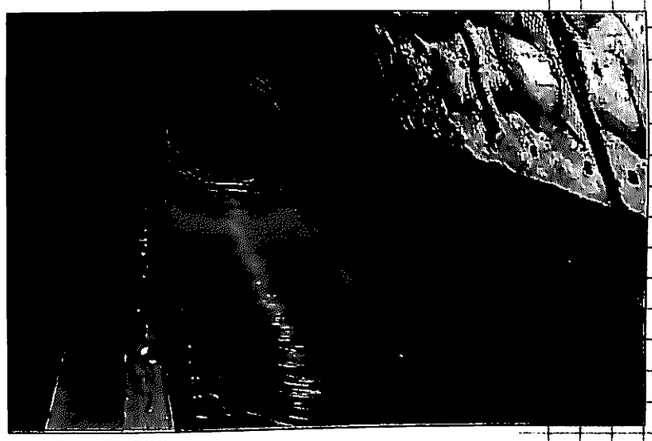
Import of Steel

India had been annually importing about 10 to 15 lakh tonnes of steel. However, due to picking up of domestic demand, the import of saleable steel in 1994-95 increased to 1.93 million tonnes. The increase in import was mainly in hot rolled coils, cold rolled coils and semis. Import of saleable steel during 1998-99 was about 1.6 million tonnes which was about 9% less than import in 1997-98.

The total import of steel, pig iron and scrap during the last four years and value thereof are as under :

Export by Iron & Steel sector

It may be mentioned at the outset that India has already registered its presence in the global market in the recent years. While India started steel production in the year 1911, steel exports from India started only in 1964. However, steel exports have been sporadic in the initial years. From 1964 to 1968 India exported a large quantity of steel mainly due to recession in the domestic iron and steel market. Subsequently, exports declined with revival of domestic demand. India once again started exporting steel from 1975, touching a record export of steel in 1976-77. In the year 1976-77, India exported 1 million tonne of pig iron and 1.4 million tonnes of steel.



Wire Rod Mill, RINL

Thereafter, exports again declined only to pick up in 1991-92, when main producers exported 3.87 lakh tonnes valued at Rs. 283 crore.

As a result of various policy measures taken up by the Government like liberalisation of import-export policy, introduction of flexibility in the advance licensing scheme and convertibility of rupee on the capital account, the export of Iron & Steel (including Sponge Iron) showed a quantum jump to 2.92 million tonnes valued at Rs. 1,978 crore in 1993-94. In 1995-96, the export was of the order of 2.79 million tonnes valued at Rs. 2,275 crore. The export of Iron & Steel during 1996-97 was 2.71 million tonnes valued at Rs. 2,396 crore. During 1998-99,the export of iron and steel was 2.4 million tonnes valued at Rs. 2,509 crore.

The quantity and value of steel, pig iron and sponge iron exported from the year 1992-93 is as given in Table –II given below.

Table-II

Exports of Steel and Pig Iron and Sponge Iron

(Quantity in lakh tonnes)

(Value in Rs. crore)

Year	Saleable Steel		Pig Iron		Sponge Iron		Total Iron & Steel	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1993-94	16.01	1417	6.20	261	7.00	300	29.21	1978
1994-95	13.19	1238	4.67	200	6.66	280	24.52	1718
1995-96	15.02	1696	5.04	243	7.90	335	27.96	2275
1996-97	19.92	2039	4.06	192	3.80	165	27.08	2396
1997-98	18.78	2343	7.84	404	3.74	190	30.36	2937
1998-99	19.45	2293	2.76	131	1.69	85	23.90	2509

Earlier, exports consisted mainly of plates, structurals, bars and rods, whereas now apart from semis, hot rolled coils, cold rolled coils, colour coated sheets, GP/ GC sheets, pig iron and sponge iron are also being exported. In future, it is expected that the exports of more value added items will increase.

Steel Exporters Forum

The Ministry of Steel has set up a Steel Exporters Forum in February 1998 with a view to fulfil 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 & 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.

Indian steel is exported to China, Japan, USA, Korea, Taiwan, Indonesia, Thailand, Malaysia, Italy, U.K., Germany, Canada, Spain, Australia, etc.

The IXth Plan Working Group for Iron and Steel has estimated that India will have an export potential of 6 million tonnes of steel by 2001-02 and 9 million tonnes by 2006-07. The above projection for export has been made keeping in view the need for projecting export as a distinct market, which need to be developed, of course, after meeting the domestic requirements.

Development Commissioner for Iron & Steel

After the deregulation of distribution and pricing of iron and steel, the major functions of the Development Commissioner for Iron & Steel are as follows :

a) Collection processing and dissemination of basic information relating to the Iron & 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 Industry 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 segment 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.

Reasons for current slow down of the Iron & Steel sector

The iron and steel sector has been experiencing a slow down in the last 2 years. The growth of the steel sector is dependent upon the growth of the economy in general and the growth of industrial production and infrastructure sectors in particular. The major reasons for the slow growth in the last few years include:

a) Sluggish demand in the steel consuming sectors

Steel being the basic raw materials for the construction industry, the capital goods and engineering goods industry, as also the auto sector and white goods sector, its growth is dependent upon the demand for steel by these segments of the industry. Since no major infrastructure or construction projects have been implemented in the last few years, demand for steel has remained low. No major projects in the oil sector, power sector, fertiliser sector where intensity of steel consumption is high, have come up in the recent past.

b) Overall economic slow down in the country

All major core sectors of the economy have been facing an economic slow down. These include, power, coal, cement, industry, mining and steel. The slow down phenomenon is not restricted to the steel sector alone. Only when the overall economy of the country picks up, would the steel sector also show signs of revival.

c) Lack of investment by Government/ Private sector in major infrastructure projects

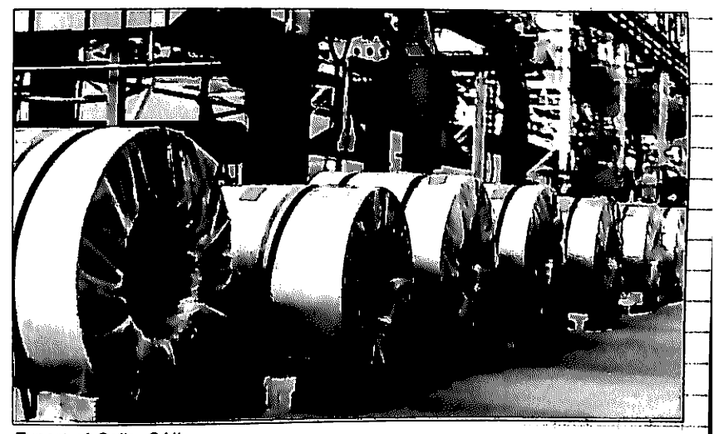
Due to budgetary constraints, no major construction activity in mega projects including fertiliser, power, coal, railway etc. have been planned by the Government. Despite liberalisation of the economy and relaxation in the investment norms, private sector investment is yet to materialise in the core sectors of the economy. This has also contributed in slowing down demand for steel.

d) Cost-escalation in the input materials for Iron & Steel

Power tariff, freight rates, coal prices etc. have been under the administered price regime. These rates have been frequently enhanced, thereby contributing to the rise in input costs for steel making.

e) Continuous reduction in import duty on Iron and Steel

After liberalisation import duty rates on iron and steel items have been gradually reduced over



Export of Coils, SAIL

the years. This has opened up the domestic iron and steel sector to international competition. Due to rationalisation in the import duty structure in 1999-2000, the rates of basic custom duty has gone up. The table1 below indicates the extent of changes brought about in the customs duty of some of the items of steel since 1993-94.

(Table-I Import Duties % Ad valorem)

Item	93-94	94-95	95-96	96-97	97-98	98-99	99-2000
HR Coils	50	40	30	25	25	25	25
CR Coils	75	50	40	25	30	30	35
Plates	75	50	40	30	30	30	35
Bars/ Rods							
Structurals	85	50	40	30	30	30	35

f) Continuous increase in excise duty on iron and steel

During the period 1991-92 onwards upto 1994-95, the iron and steel materials have been constantly subjected to an increase in the excise duty rates, as is evident from the table below. Even in the year 1995-96, though there was no increase in rate of excise duty, the methodology of computation of excise duty was widened by adding to the ex-factory prices, the stockyard and distribution charges in the basic price. This resulted in increase in the prices of steel all over the country. Whereas in other sectors of the economy, drastic reduction in excise duties were announced during 1994-95 & 1995-96. In fact, the steel sector is the highest revenue earner for the country and contributes about Rs. 5,000 crores by way of excise duty alone. In the budget 99-2000, as a rationalisation of excise duty structure, the duty on finished steel items has been raised to 16%.

(Excise Duty Rates in % Ad valorem)

	92-93	93-94	94-95	95-96	96-97	97-98 & 98-99	99-2000
HR Coils	11.5	12.5	15	15	15	15	16
CR Coils	11.5	12.5	15	15	15	15	16
Plates	11.5	12.5	15	15	15	15	16

g) Greater competition from imports

Due to the drastic reduction in import duties in iron and steel materials along with sharp fall in international prices, the imports of finished steel even in those sectors where adequate capacity exists have shown an increasing trend.

h) Dumping of finished steel in the country

Taking advantage of lower tariff regime and the unrestricted import of all iron and steel materials with the liberalisation of the EXIM policy, some countries are reportedly dumping their finished steel products in India.

i) Adverse conditions in export markets for iron and steel

Due to economic crisis, the South East Asian countries, the traditional market for Indian iron and steel exports has dried up. Countries, which were hitherto importing steel from India, have cut down on imports to conserve scarce resources and Indian exports have been forced to look for newer markets elsewhere in the globe. These countries particularly Indonesia, Malaysia & Korea in fact, have now become competitors to Indian exports in other global markets. Moreover exports of Indian Steel have been subjected to AD/CVD proceedings in EU, USA and Canada.

Action being taken by Ministry of Steel

The Ministry of Steel has been making all out efforts to help the domestic steel sector to overcome the problems faced by the steel industry at present. These include :

a) Boosting demand in the steel consuming sectors

To boost the demand and consumption of steel an Institute for Steel Development and Growth (INSDAG) has been set up in Calcutta with leading steel producers in the country as its members. The Development Commissioner for Iron & Steel (DCI&S) has launched a National Campaign for increasing the demand for steel, in non-traditional sector, particularly in the construction, rural and agro-based industrial sector.

b) Duty on project imports

To increase consumption of steel in the country, the Finance Ministry has been asked to provide a level playing field to the domestic steel producers to participate in infrastructure development of the country. The suggestions made are:

a) All mega projects at least those under the public sector should be required to go for international competitive bidding to provide equal opportunity to the indigenous steel industry.

b) To restrict duty free import to only capital equipment required for mega power projects and those raw material and components which are not indigenously available.

c) 15% price preference for BHEL as equipment supplier may also be extended to SAIL as steel supplier, both being under public sector.

c) Reduction in Power & Rail tariffs

The Ministry of Steel has been interacting with State Governments to provide power at reduced/ concessional tariffs especially to mini steel plants all over the country. Similarly, the freight rates adopted by the Railways have been rationalised after inter action with the Railway Board and freight cost on raw material transportation for steel producers is reduced.

d) Reduction in input costs

The Ministry of Steel has also been able to rationalise the classification of coking coal in consultation with the Coal Ministry so as to reduce the impact of royalty payable on this basic raw material. Import duties on several raw materials, such as, scrap, ships for breaking, coke, non-coking coal etc. used by the steel industry has been reduced steadily over the past 4-5 years.

e) Import duty

In the last Budget, import duties on finished steel items has been increased as a result of rationalisation of tax structure.

f) Excise duty

The Finance Ministry was requested not to resort to further increase in Excise Duties on iron and steel materials, in the last few budgets. On the other hand, a case has been made to reduce the excise duty levels on all finished steel items, especially long products (which are consumed by the construction sector) by at least 10%, as the construction sector cannot avail of MODVAT benefit. However, Excise duty on steel items has been increased.

g) Strengthening of anti-dumping mechanism

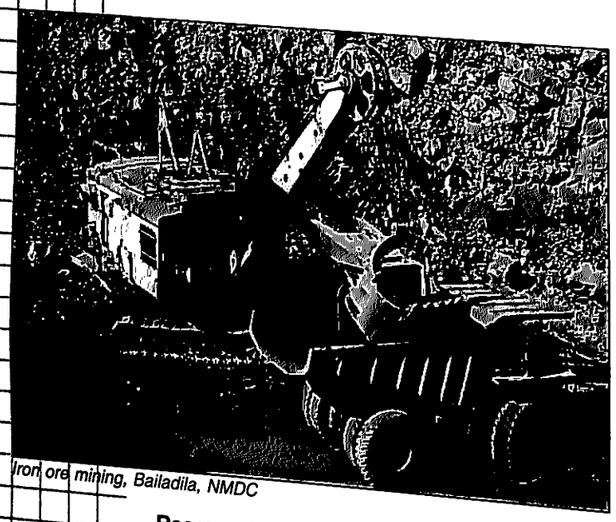
To check the increasing trend of cheap imports in certain categories of flat products especially from CIS and South East Asian countries, the Ministry of Steel has urged the Commerce Ministry and the Finance Ministry to strengthen anti dumping mechanism so that fast decision on dumping can be taken.

Future Prospects

With the onset of liberalisation, the steel industry has now to gear-up, not only to domestic competition, but also to global competition in terms of product range, quality and price. The growth of the steel sector is intricately linked with the growth of the Indian economy and especially the growth of the steel consuming sectors. India has become self-sufficient in iron and steel materials in the last 3-4 years. Exports are rising and imports are falling. Production and production capacities are increasing. This position needs to be further consolidated and issues affecting production and consumption need to be resolved on a continuous basis. At the same time, productivity of our steel plants must be maintained at levels close to international standards. The Ministry of Steel continues to play an active and major role in helping the steel industry to overcome bottlenecks in the growth of this sector. With these efforts, the IXth Plan projection for finished steel of 32 million tonnes for domestic consumption and 6 million tonnes of export can be achieved, as also the projections for availability of 3.75 million tonnes of pig iron and 6.18 million tonnes of sponge iron.

India is already recognized as a global player in the steel industry and this sector is poised to play a key role in the international steel scenario by the turn of the century.

RAW MATERIALS



Iron ore mining, Bailadila, NMDC

Iron Ore

As per the Survey conducted by the Indian Bureau of Mines (IBM) in April,1995, India had 10,052 million tonnes of Recoverable reserves of Heamatite and 3,408 million tonnes of Magnetite. While Zone 'A' comprising of Bihar & Orissa is the largest Heamatite Ore bearing Zone in the country with reserves of 5,951 million tonnes consisting mainly of Medium Grade & Low Grade Ore (Iron content 65% and below), Madhya Pradesh has the largest quantity of High Grade Ore reserves (Iron content greater than 65%) in the country at 570 million tonnes. Karnataka has the highest reserves of Magnetite at 2,784 million tonnes followed by Andhra Pradesh and Goa.

The details of Recoverable reserves of Heamatite and Magnetite are as under:

Recoverable reserves of Heamatite as on 01.04.1995

Sl No.	Zone/State	High grade ore (Fe+65%)	Medium grade ore (Fe 62-65%)	Low grade ore (Fe Below 62%)	Unclass-ified	Other/ Not Known	Blue dust Black Iron	Total
1.	Zone 'A'							
	Bihar	24	1594	844	144	-	51	2657
	Orissa	280	1916	737	350	-	11	3294
	Total	304	3510	1581	494	-	62	5951
2.	Zone 'B'							
	Madhya Pradesh	569.9	480.7	517	397.4	14.1	18.9	1998
	Maharashtra	7.3	128.7	46.8	32.2	12.0	-	227
	Total	577.2	609.4	563.8	429.6	26.1	18.9	2225
3.	Zone 'C'							
	Karnataka	299.9	600.8	73.1	94.2	3.5	0.5	1072
	Total	299.9	600.8	73.1	94.2	3.5	0.5	1072
4.	Zone 'D'							
	Goa Region	2.5	219.5	469.1	34.1	8.1	11.4	744.7
	Total	2.5	219.5	469.1	34.1	8.1	11.4	744.7
5.	Zone 'E'							
	Andhra Pradesh	14.3	1.90	31.70	2.6	0.3	-	50.8
	Rajasthan	-	0.28	7.68	1.0	0.04	-	9
	Total	14.3	2.18	39.38	3.6	0.34	-	59.8
	Grand Total	**1197.9**	**4941.88**	**2726.38**	**1055.50**	**38.04**	**92.80**	**10052.5**

Recoverable reserves of Magnetite as on 01.04.95

Sl. No.	State	Metallurgical	Coal washery grade	Foundry	Unclassified	Other/ Not known	Total
1.	Andhra Pradesh	37.87	-	-	380.0	-	417.87
2.	Bihar	-	4.93	-	0.21	0.08	5.22
3.	Goa	98.33	-	-	64.48	0.40	163.21
4.	Karnataka	1162.69	-	-	1615.77	5.40	2783.86
5.	Kerala	36.08	-	-	-	-	36.08
6.	Maharashtra	0.19	-	-	-	-	0.19
7.	Rajasthan	-	-	0.30	-	-	0.30
8.	Tamil Nadu	1.07	-	-	-	-	1.07
	Total	**1336.23**	**4.93**	**0.30**	**2060.46**	**5.88**	**3407.80**

Production

Production of iron ore (including concentrates) during the year 1998-99 was 70.68 million tonnes as against 73.45 million in the previous year. State-wise production figures indicates that Madhya Pradesh would continue to be the leading iron ore producing State accounting for 23% of the total production during the year, followed by Goa with 22%, Karnataka with 21%, Bihar with 17% and Orissa with16%. The remaining production was from Andhra Pradesh, Maharashtra and Rajasthan.

Despatches

Despatches of iron ore (including concentrates) for 1998-99 was 66.99 million tonnes as against 71.41 million tonnes last year. The despatches of iron ore for internal consumption and exports were 38.43 million tonnes and 31.02 million tonnes respectively.

Production and despatches of Iron Ore during the last 5 years was as under:

Year	Production		Despatches		
	Quantity (MT)	Value (Rs. in crore)	Total (MT)	Internal Consumption	Export (MT)
1994-95	64.51	1186.24	61.68	33.37	31.75
1995-96	67.42	1355.32	65.32	37.19	31.77
1996-97	68.17	1479.58	67.67	38.16	29.65
1997-98(P)	73.45	1642.84	71.41	40.27	35.26
1998-99(P)	70.68	1757.21	69.45	38.43	31.02

Source: IBM (except for exports)

Iron ore exports

The exports during the year 1998-99 were at 31.02 (prov.) million tonnes as against 35.26 million tonnes in 1997-98.

Manganese Ore

Reserves

As per the latest inventory the recoverable reserves of manganese ore are estimated at 167 million tonnes . The main reserves found in India are of blast furnace grade. The reserves of ferro manganese grade are very limited i.e. 19.75% of the total reserves only.

Production

Production of manganese ore during 1998-99 is estimated at 1.53 million tonnes as against 1.61 million tonnes in 1997-98. Orissa, Madhya Pradesh, Maharashtra and Karnataka were the principal producing states accounting for 33%, 21%, 21% and 18% respectively in the total production of manganese ore in 1998-99.

Despatches

Despatches of manganese ore during 1998-99 were 1.46 million tonnes of which 1.26 million tonnes were for internal consumption and 0.20 million tonnes for exports.

Production and despatches of manganese ore from 1995-96 to 1998-99 and April,99 to August, 1999 are indicated below :

Year / Period	Production			Despatches	
	Qty. ('000T)	Value (Rs. in crore)	Total ('000T)	For Domestic consumption ('000T)	For Exports ('000T)
1995-96	1837	159.88	1796	1597	199
1996-97	1871	176.07	1800	1551	249
1997-98	1642	177.78	1677	1457	220
1998-99	1526	176.06	1461	1259	202
1999-2000 (Apr. to Aug.)	609	68.06	583	502	81

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 1999-2000 the maximum ceilings of manganese ore allowed for export are as follows:

Item	Ceiling for 1999-2000 (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 export during last two years have been as follows :

Year	Quantity (in lakh tonnes)	Value (Rs. in crore)
1997-98	2.59	42.20
1998-99	2.42	39.80
1999-2000 (Apr. to Aug, 1999)	0.96	15.05

Chromite Ore

Reserves

As per the latest inventory, the total recoverable reserves of chromite are estimated at 86 million tonnes.

Production

Production of Chromite in 1998-99 was 14.04 lakh tonnes as against 15.15 lakh tonnes in 1997-98. Orissa continued to be the chief producing state accounting for 99% of the total production.

Iron ore mining, SAIL

Despatches

Production and despatches of Chromite during the year 1995-96 to 1999-2000 (April to August,99) are given below :

Year / Period	Production		Despatches		
	Qty ('000T)	Value (Rs. in crore)	Total ('000T)	For Domestic consumption ('000T)	For Exports ('000T)
1995-96	1700	356.82	1597	1121	476
1996-97	1457	289.47	1224	698	526
1997-98	1515	304.55	1366	872	494
1998-99 (Provis.)	1404	281.89	1298	861	437
1999-2000 (Apr. 99- Aug. 99)	624	134.60	521	252	269

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 year 1997-98, a five year Export policy has been decided upon by Government so as to enable the exporters to establish their presence in the international market. The maximum ceilings for export of Chromite ore for 1999-2000 are as follows :

Item	Ceiling for 1999-2000 (in lakh tonnes)
i) Low silica friable/fine chromite ore with chromium oxide not exceeding 52% & Silica exceeding 4%.	3.00
ii) Chromite lumps containing Chromium Oxide not exceeding 40% .	1.00
iii) Beneficiated chromite concent-rates (average feed grade tobe less than 33%).	No ceiling

Actual exports during last two years have been as follows :

Year	Quantity (in lakh tonnes)	Value (Rs. in crore)
1997-98	2.70	106.00
1998-99	1.19	41.15
1999-2000	1.80	47.50

Apr.99 to Aug.,99

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 (Fe Cr.)- called the Bulk ferro alloys. There is another category of ferro alloys, called Noble ferro alloys, which consist of Ferro Vanadium, Ferro Titanium, Ferro Molybdenum, Ferro Niobium, Ferro Tungsten 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 four states viz. Orissa, Maharashtra, Andhra Pradesh and Karnataka for their being rich in the basic raw materials for the production of the ferro alloys.

Capacity and Performance of the Industry

There are over 80 large, medium and small sized units including 100% EOUs with export capacity of over 1.4 million tonnes. The Industry has broad banding capacity and this allows the producers enough flexibility to shift from one product to another with relevant ease. It has already made an investment of over Rs. 30,000 million on capital equipments, giving employment to thousands of people directly and indirectly.

Ferro Alloy Industry is a highly power intensive industry and power plays a major role in the production of ferro alloys, constituting 40 to 70% of the cost of production depending on the ferro alloys produced. Average consumption of power per tonne of different bulk ferro alloys ranges from 3100 to 11,000 KWH. Capacity utilisation of the

industry is hardly 50 to 55% including export production for the last couple of years. Production of ferro alloys is directly related to the plan of production and growth of the steel industry.

Production of major bulk and noble ferro alloys during last five years is given hereunder :

Year	Quantity (in lakh tonnes)
1994-95	7.16
1995-96	7.96
1996-97	6.94
1997-98	7.91
1998-99	7.24

* Source : Indian Ferro Alloys Producers' Association, Mumbai.

Different types of refractory bricks, BRL

Export of Ferro Alloys

Industry has been exporting ferro alloys and after initiation of the liberalisation programme, there has been a spurt in export of bulk ferro alloys and showing upward trend. Details of export of ferro alloys for last five years and the percentage of exports over production are given hereunder :

Year	Quantity (in lakh tonnes)	Value (Rs. in million)	% of export over production
1994-95	1.74	2573	24.27
1995-96	2.20	5000	27.65
1996-97	2.11	4079	30.50
1997-98	2.59	5045	32.88
1998-99	2.48	5190	34.32

* Source : Indian Ferro Alloys Producers' Association, Mumbai.

India is already established as a regular exporter of Silico Manganese, Ferro Chrome and Charge Chrome. The industry exports mostly to Indonesia, Korea, Japan, US and Europe. The industry has potential to increase its exports substantially from the present level, as raw materials like ore and reductants are abundantly available in the country.

Coal

Coal is a major raw material for the Iron & Steel Industry which consumes both Coking & Non-Coking coal.

Consumption of Coking Coal

During 1998-99 the consumption of coking coal in SAIL Steel Plants (including IISCO), TISCO and VSP was as under :

(in million tonnes)

	SAIL	TISCO	VSP
Indigenous Sources	6.706	2.23	0.37
Imports	5.697	0.76	1.79
Total	**12.403**	**2.99**	**2.16**

Consumption of Non-Coking Coal

During the year 1998-99, SAIL Steel Plants (including IISCO) consumed 4.197 million tonnes of non-coking coal and TISCO consumed 1.47 million tonnes of coking coal. During 1998-99, VSP consumed 1.72 million tonnes of non-coking coal.

Refractories

Refractories are heat and corrosion resistant materials used in the construction and operation of furnaces in the steel industry. These include the blast furnace, basic oxygen furnace, steel ladles, ladle furnaces and electric arc furnaces, including vacuum degassing units.

In India there are over one hundred refractory manufacturing units accounting for a capital investment of about Rs. 750 crores, annual sales of about Rs. 1200 crores and a work force of approximately 35,000. Many of the refractory units however are in the small-scale sector spread out practically all over India but predominating in Bihar, Gujarat and elsewhere. The large units are mainly concentrated in Bihar, Orissa, Madhya Pradesh, Maharashtra and Tamil Nadu.

The production in the last three year was as follows:

Refractory Item	Production(M.T.)		
	1996-97	1997-98	1998-99
Firebricks Shapes	186191	172193	165319
High Alumina bricks and shapes	246559	240138	260193
Silica bricks and shapes	3955	38471	28452
Basic bricks and shapes	208539	202106	175529
Special Products	20118	17427	20765
Others	93151	39075	39522
Total	**794116**	**709410**	**689780**

Practically all the units have their testing laboratories while the larger units have set up sophisticated R&D facilities. Thus with indigenous R&D as well as technical collaboration with overseas parties the Indian refractory industry is producing the full range of Refractories from the blast furnace and electric arc furnace to the BOF, ladle and tundish including slidegate plates and auxiliaries, continuous casting Refractories and gas purging elements, etc. It is estimated that about 75% of the indigenous production of Refractories are consumed in the steel industry. The balance is used in the cement, non-ferrous metals, glass, petrochemical and such other industries.

Being a feeder industry for the steel sector, the indigenous refractory industry has received a set back in production, sales and profits over the last couple of years or so because the steel industry itself is going through a slump. Progress has been made in exports, which has reached about Rs. 40 crores in 1998-99. The import of refractory items in 1998-99 (April-Nov.,98) was 32460 tonnes at a value of Rs. 15.28 crores.

The industry is engaged in cost control through energy conservation, waste management and development of sophisticated high performance refractories in keeping with the technological changes in the steel and other industries.

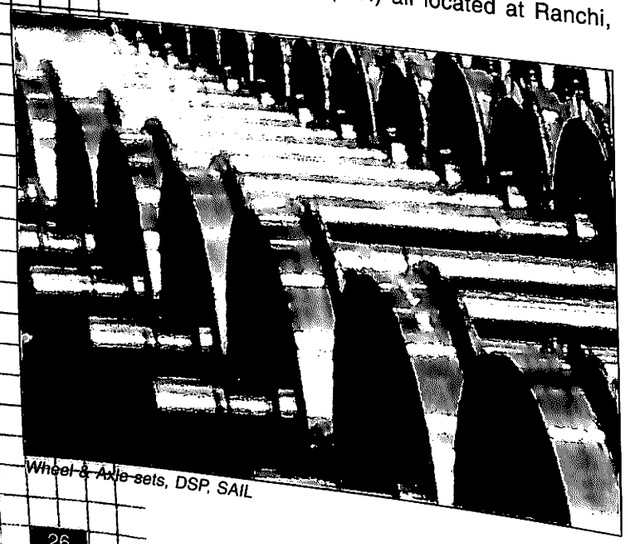
PUBLIC SECTOR

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 Indian Iron and Steel Co. Ltd., Burnpur (West Bengal), which is a 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 plant at Chandrapur belongs to the Maharashtra Elektrosmelt Limited which is a subsidiary 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 (SAILCON) 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.



Wheel & Axle sets, DSP, SAIL

Finance

The authorised capital of SAIL is Rs.5000 crores. The paid-up capital of the Company was Rs.4,130.40 crores as on 30th September, 1999 which was held to the extent of 85.82% by the Government of India and the balance 14.18% by the financial institutions / GDR-holders / banks /employees / individuals etc.

Turnover and Profit

The Company recorded the sales turnover of Rs.14993.85 crores in 1998-99. The post-tax net loss for the year 1998-99 was Rs.1573.66 crores. Due to loss, the Company had not declared a dividend for the year ended 31st March, 1999.

The Gross margin (profit before depreciation and interest) and net loss for the half year ended 30th September, 1999 was Rs.371.04 crores and Rs.1347.97 crores respectively. The company recorded a sales turnover of Rs.7145.49 crores during the period. domestic supplies led to sharp drop in the Net Sales Realisation. This coupled with higher burden of depreciation and interest on the commissioning of major modernisation schemes at Rourkela Steel Plant (RSP) and Bokaro Steel Plant (BSL) affected the bottom line of the Company. The benefits of the modernisation would, however, materialise in phases over a period of time.

With a view to overcome the adverse situation, the Company has undertaken massive cost control and revenue maximisation measures resulting in a saving of about Rs. 902 crores during 1998-99. The cost reduction drive has resulted in increased operational efficiencies, improvements in techno-economic parameters, reduction in arising etc. and lower administrative expenses.

Capital Expenditure

The Company incurred capital expenditure of Rs.1174 crores on Fixed Assets and Capital Work-in-progress in the year 1998-99 and Rs.237 crores during the period April-September, 1999 which have been primarily financed through borrowings from external sources. Capital investment is being restricted to only on-going capital schemes and schemes relating to statutory requirements viz. safety, environment, etc.

Merger of VISL with SAIL

Pursuant to order No. 1124 (E) dated 29th December, 1998 issued by Ministry of Law, Justice & Company Affairs, Visvesvaraya Iron & Steel Limited (VISL), a wholly owned subsidiary of SAIL has been dissolved and amalgamated with the Company. The entire business and undertakings of VISL on "as is where is basis" was transferred to and vested in SAIL on and from the appointed date i.e. 29th December, 1998. For accounting purposes, the amalgamation has been given effect with reference to the audited accounts and Balance Sheet of VISL as on 31st March, 1998. This also adversely affected the financial results of the Company for the year 1998-99.

Financial and Business Restructuring

To overcome the adverse business scenario, Company has formulated a Turnaround Plan and identified the areas of intervention and the actions required for ensuring both the long term and short term viability of the Company. A four pronged strategy consisting of Financial Restructuring, Assets Restructuring, Operational improvements and Organisational Improvements has been identified. Based on the IDBI's recommendations and the Turnaround Plan, a proposal prepared by M/s McKinsey for financial and business restructuring submitted by the company to the Government of India has been considered and approved. This proposed restructuring will help in mitigation of financial risk by reducing debt/ equity ratio and improvement in debt servicing capability and help improve profitability.

Production Performance

The four integrated steel plants of SAIL at Bhilai, Bokaro, Durgapur and Rourkela ended the year 1998-99 with an output of 11.18 million tonnes of hot metal, 9.86 million tonnes of crude steel and 8.33 million tonnes of saleable steel. Alloy and Special Steels Plant produced saleable steel of 275 thousand tonnes.

The details of production plan and achievement for 4 integrated steel plants during 1998-99 are as follows :

(In million tonnes)

Item	Target	Actual	Fulfilment(%)
Hot Metal	12.07	11.18	93
Crude Steel	11.01	9.86	90
Saleable Steel	10.1	8.60	85

(including Alloy and Special Steel Plants)

Production Performance: 1999-2000 (April-Sept 99)

The details of production plan and achievement during 1999-2000 (April-September 1999) was as follows :

(In million tonnes)

Item	Target	Actual	Fulfilment(%)
Hot Metal	5.34	5.29	99
Crude Steel	4.87	4.68	96
Saleable Steel	4.71	4.69	99

(including Alloy and Special Steels Plant). Production was regulated to match with sales as a matter of policy.

The plant-wise production performance of saleable steel during April-September, 99 is given hereunder

(in '000 tonnes)

Plant	Target	Actual	Fulfilment (%)
Bhilai Steel Plant	1635	1725.9	106
Bokaro Steel Plant	1679	1657.6	99
Durgapur Steel Plant	701	630.3	90
Rourkela Steel Plant	576	536.2	93
(A) Total Four Plant	**4591**	**4550.0**	**99**
Alloy Steel Plant	35	48.8	138
Salem Steel Plant	57	52.9	94
Visvesvaraya Iron & Steel Plant	27	33.6	125
(B) Total Three Plants	**119**	**135.3**	**114**
Total SAIL (A+B)	**4710**	**4685.4**	**99**

There was continued thrust during 1998-99 on improvement in techno-economic parameters.

Energy Conservation

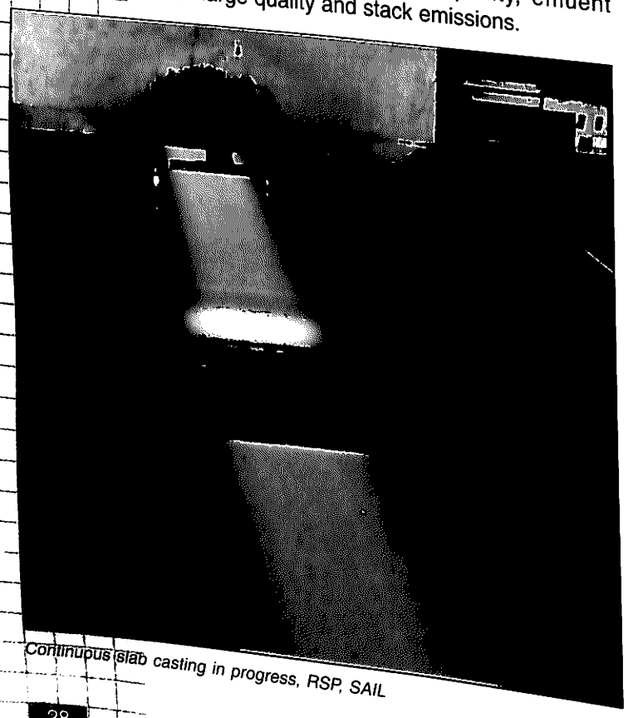
The continued emphasis on energy conservation measures helped further in reducing energy consumption per tonne of crude steel for the 12th successive year and reached a level of 8.09 G.Cal/tcs during 1998-99. During the period April-September, 1999 energy consumption was 8.08 G.Cal/tcs.

Captive Power Generation

Captive power generation in SAIL during 1998-99 at an average of 464 MW per month, was 3% higher than previous year. Captive power generation during April-September,1999 stood at an average of about 463 MW as compared to 444 MW during April-Sept.98.

Environment Management

During the year 1998-99, one more Pollution Control Action Plan Scheme was completed, bringing the total number of schemes completed to 110. Implementation of these schemes has led to improved performance in respect of compliance with norms for ambient air quality, effluent discharge quality and stack emissions.



Continuous slab casting in progress, RSP, SAIL

A drive was initiated for implementation of Environment Management System (EMS) linked to ISO-14001 at some of SAIL Plants/Mines. Salem Steel Plant has been awarded ISO-14001 certificate by M/s. TUV, an authorised certification agency.

Several training programmes, aimed to sensitize practising managers to meet the environmental requirements of SAIL have been periodically conducted during 1998-99.

SAIL as a responsible corporate citizen took an early initiative to encourage school children to participate in activities related to environmental conservation through formation of Eco-clubs. Sustained efforts to green the SAIL Plants, Mines and Townships with plantation were continued during the year.

Sales and Marketing Performance

Marketing Strategies

During the year, the steel market exhibited definite signs of stagnant demand mainly due to the lower growth in steel intensive segments like heavy machinery, consumer durables and construction and also poor investment in infrastructure sector. Excess availability of steel in the domestic market coupled with cheap inflow of imports particularly of flat products adversely affected the sales realisation of the Company. SAIL had adopted aggressive marketing strategies which included intensified customer contact and feedback system coupled with a customer friendly order booking system and after sale services. The requirements of specific market segments were met through regular improvement in the quality parameters of the new modernised mills at Durgapur, Rourkela and Bokaro. Steel Industry had also taken up the issue of fixation of a floor price against cheap import of HR Coils and the Government of India issued notification on Reference Prices for HR Coils and other flat products in December 1998.

Sales

SAIL had marketed 8.97 million tonnes of saleable steel and 0.66 million tonnes of Pig Iron in the domestic and International markets during the year under review. Consequently the Company was successful in depleting around 5 lakhs tonnes of saleable steel inventory. The continuous decline in international prices and economic slow down in the various countries had affected the export of steel during the year. The financial turmoil in South East Asia had forced SAIL to look for other destinations for exports like Europe, Middle East, South Africa and neighbouring countries, in addition to USA and Nepal. In view of this, the company could export only 0.49 million tonnes of steel and pig iron and earned Foreign Exchange of about Rs. 553 crores through exports and other activities.

During the period April-September,1999, the total sales of saleable steel was 4.38 Million Tonnes. In addition 0.36 Million Tonnes of pig iron was also marketed. Export have increased by 78.57% over last year. Cumulative exports from April to Sept.,1999 reached a level of 4.2 lakh T against 2.57 lakh T during the corresponding period last year.

Capital Schemes

The Modernisation schemes at Durgapur, Rourkela and Bokaro Steel Plants started yielding results during the year. Durgapur Steel Plant after modernisation, has reached 83 per cent of its rated capacity and the techno-economic parameters like energy consumption, coke rate, yield, etc. have shown improvements.

Rourkela Steel Plant Modernisation was completed in August, 1998 except Reheating Furnace No.5 of Hot Strip Mill which is expected to be completed by March, 2000. After completion of the modernisation, improvement in production has been achieved in all the units and the major modernised units have achieved around 70 per cent of the capacity utilisation and at times have exceeded the rated capacity. 100 per cent of the steel produced in the plant is now through Basic Oxygen Furnaces- Continuous Casting route.

At Bokaro Steel Plant, modernisation project, major facilities have been completed except for Reheating Furnace No.3 and fourth Coiler, which are in advanced stage of completion. After the completion of moderni-sation, there has been a considerable improv-ement in the quality of the finished products.

The Coal Dust Injection facilities at Bhilai and Bokaro Steel Plants were introduced at Blast Furnace-6 and 4 respectively during the year.

The Installation of Sinter Plant-3 at Bhilai Steel Plant is in advanced stage of construction and is likely to be completed by July 2000.

Research & Development

Research & Development Centre of the Company completed 98 R&D projects during the year. These projects provided technol-ogical inputs to SAIL plants/units with thrust on cost reduction, value addition, quality improvement and development of new products. Out of these projects, some of the noteworthy ones were:

- Technology upgradation for production of Cold Rolled Non- grain Oriented (CRNO) steel grades at RSP through Continuos Casting route.
- Introduction of slag splashing technology in converters at BSL, DSP and RSP have resulted in substantial increase in lining life.
- Development and introduction of innovative burner designs and heating systems at BSP, RSP and VISL.

The Centre has filed 3 foreign and 42 Indian patents in 1998-99. During the year 2 Patents which were filed earlier have been sealed by the Patent Office. The centre also filed 15 copyright proposals. In addition, RDCIS undertook contract research work, provided significant consultancy services and know-how to organisations outside SAIL yielding external earning of Rs. 116 lakhs.

During the year 8 prestigious national awards were bagged by the employees of RDCIS.

Raw Materials

The Company met entire requirement of its iron ore and half of fluxes requirements from captive sources. SAIL Captive Mines produced 20.01 Million Tonnes of Iron Ore Lumps and Fines during 1998-99 and 8.82 million Tonnes during the period April - September 99. Fluxes production was 2.75 Million Tonnes in 1998-99 and 1.17 Million Tonnes during the period April-September 1999.

In-House Engineering

Centre for Engineering & Technology (CET) has been providing its services in the areas of modernisation, technological upgradation and additions, modifications and replacement schemes to plants and units within SAIL and clients outside SAIL - both in India and abroad.

Some of the major projects implemented during 1998-99 with in-house consultancy services include Coal Dust Injection System in

BF-6 of Bhilai Steel Plant and BF-4 of Bokaro Steel Plant, Installation of Re-heating Furnace No.6 in the Hot Strip Mill, Ladle Furnace and Slab Casting Shop-I at RSP and On-line Ultrasonic Testing of Rails at BSP.

Besides the above, Sinter Plant No.3 (raw materials handling package) of BSP, Rebuilding of Coke Oven Battery No.3 of BSL and Rebuilding of Coke Oven Battery No.5 at RSP are some of the major projects under implementation with in-house service.

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 31.3.99 and 30.9.99 was 1,74,736 (comprising 18,249 executives and 1,56,487 non-executives) and 1,70,972 (comprising of 18428 executives and 152544 non-executives) respectively. The manpower productivity was 95 tonnes crude steel per man year during 1998-99 and 90 tonnes during April-September,1999. As a consequence of the Government's decision, the retirement age for employees has been increased from 58 to 60 years with effect from 29th May, 1998. As a result no natural separations occurred during the period. A Voluntary Retirement Scheme based on a system of deferred payment was introduced by the company. About 6000 persons separated under the scheme.

Training

Training for developing the competencies of employees based on organisational requirements continued. During 1998-99, 77,228 employees were trained under on-going company-wide schemes. During April-September,1999, 39138 employees were trained.

Employees' Welfare

Various welfare measures for the benefits of the employees, like free medical services (including extending medi-claim schemes to retired employees), housing, education for children, facilities of co-operative societies as well as providing avenues for socio-cultural activities were undertaken. On this account, the Company spent an amount of Rs.439.29 crores during 1998-99 and Rs.220.25 crores during April-September,1999.

Sports

In line with sports policy of the Company efforts and investments in youth sports were intensified further during the year. "Catch them young" particularly at SAIL Plants through top coaches was the main theme. Indian Handball youth team from Bhilai reached Finals of the tournaments. Under-14 Subroto Cup was lifted by SAIL Bokaro Academy and SAIL Hockey team was declared most promising team of Jawahar Lal Nehru Hockey during the year. SAIL sponsored sports persons rose to remarkable performance levels. Subroto Cup soccer was sponsored and won by SAIL during the year. More than two dozens of SAIL youths from its townships were amongst National Medal winners in different disciplines of Sports. Pursuit of excellence in youth sports is now a way of life at SAIL.

Industrial Relations

A conducive and congenial work environment was maintained through the support and co-operation of the trade unions and officers association.

Safety

Preventive measures for averting accidents at work sites received top most priority in the Safety Management Programme of the Company. Steps initiated to enhance safety performance in Steel Plants included system of internal benchmarking, guidelines to line Managers for their responsibilities towards safety, spread of 5-Star Safety & Health Management System, development of Standards on Safety Procedures for hazardous jobs, inclusion of safety measures in Standard Operating Practices (SOPs) & Standard Maintenance Practices (SMPs) with a view to integrate safety with work processes and realistic assessment of cost of accident. Award for "Best Safety Man of the year" was introduced under Ispat Suraksha Puraskar in addition to existing awards under various competitions organized for motivating employees towards safety.

Official Language Policy

The company continued its efforts in the implementation of Official Language Policy of the Government of India. Emphasis was given to create an environment in which employees voluntarily adopt Hindi in their office work. SAIL's quarterly journal on Official Language "ISPAT BHASHA BHARTI" received wide acclaim from all quarters. Raw Materials Division, Calcutta, Central Marketing Organisation, Chennai and Bokaro Steel Plant were awarded prizes by the Deptt. of Official Language, Ministry of Home Affairs for noteworthy implementation of Hindi.

Scheduled Castes and Scheduled Tribes

The Presidential Directives on Scheduled Castes/Scheduled Tribes continued to be implemented during the year. As on 31.12.98 Scheduled Caste and Scheduled Tribe employees were 15 per cent and 11.13 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. 218 lakhs was spent on peripheral development during 1998-99 and Rs. 61 lakhs (Prov.) during April-September, 1999.

Awards

A team of four employees from BSP was selected for the Prime Minister's Shram Ratna Award during the year. This is the second time since its inception, this highest award has been bagged by a SAIL team. In addition one employee from BSL and one employee from VISL have been selected for Shram Vir and Shram Shree Award respectively during the year.

Total Quality Process

SAIL continued its efforts in implementing ISO 9000 standards in its plants/units. During the year, Blast Furnaces and Hot Strip Mill of RSP, Coke Ovens and Blast Furnaces of BSP, Hot Rolled Coil Finishing Lines (HRCF) and Cold Rolling Mill-1 of Bokaro, Kakinada Port of CMO and SAIL Consultancy Division (SAILCON) have achieved ISO 9002 Certification.

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.

Production Performance

Burnpur Works

During 1998-99 the Steel Plant produced 737.9 thousand tonnes of Hot Metal, 375.1 thousand tonnes of Pig Iron, 301.02 thousand tonnes of Crude Steel and 285.1 thousand tonnes of Saleable Steel.

Production Performance (Burnpur): 1998-99

('000/T)

	Plan	Actual	Fulfilment (%)
Hot Metal	725	737.9	102
Crude Steel	325	301.02	93
Pig Iron	342	375.1	110
Saleable Steel	327	285.1	87

Production Performance(Burnpur)-
April - September, 1999 ('000/T)

	Plan	Actual	Fulfilment (%)
Hot Metal	372	363.7	98
Crude Steel	150	143.7	96
Pig Iron	198	197.2	100
Saleable Steel	121	122.9	101

Kulti Works

Total Castings output during 1998-99 and April-September, 1999 was 23.7 thousand tonnes and 9.6 thousand tonnes respectively. Spun Pipes production was 31.9 thousand tonnes and 18.2

thousand tonnes during 1998-99 and April-September, 1999 respectively.

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

Collieries

Total coal raisings from three Captive Collieries was 834.9 thousand tonnes during 1998-99.

Ores Mines

Iron Ore Lump production was 1029.6 thousand tonnes during 1998-99 from two Captive Ore Mines.

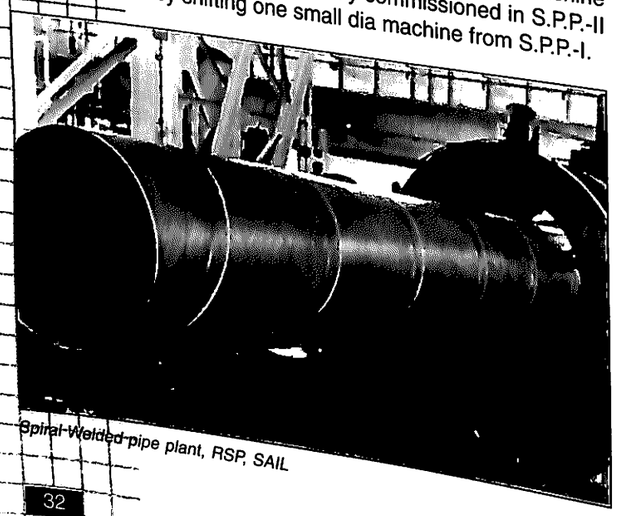
Capital Schemes

Burnpur Works

During the year 1998-99 the Company incurred capital expenditure of Rs. 34.24 crores on fixed assets on various capital schemes including additions, modifications and replacements. Financial constraints have affected the progress of ongoing schemes and no major new schemes were taken-up during the period. A scheme for installation of a new clarifier for the B.O.D. Plant of No.8 Coke Oven Battery has been taken up.

Kulti Works

At Kulti Works Two Gas Cleaning Plants for Cupolas of L.C.D. and S.S.P. -III have been installed during 1998-99. Fifth Spinning machine has been successfully commissioned in S.P.P.-II by shifting one small dia machine from S.P.P.-I.



Spiral-Welded-pipe plant, RSP, SAIL

Financial Performance

During 1998-99 the Company achieved a turnover of Rs.910.64 crores. The net loss for the year after charging depreciation (Rs.25.41 crores) and interest (Rs.193.69 crores) was Rs.357.24 crores. The net realisation has been adversely affected due to continued sluggish market coupled with steep competition for domestic producers and availability of imported materials at cheaper prices.

Company achieved sales turnover of Rs. 442.05 crores during April-September, 1999. During this period Company incurred net loss of Rs. 183.60 crores.

The Company is in arrears in repayment of loans (including interest) to Financial Institutions amounting to Rs.75.29 crores as on 31.3.99. The repayment of loan to OECF SAIL and Govt. of India were also due as on 31.3.99 pending outcome of the revival package pending with Govt. of India/BIFR.

As on 31st March, 1999, 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, during 1998-99 sales of 290.7 thousand tonnes of Steel (previous year 293.1 thousand tonnes) was achieved. Sales of Pig Iron were 294.5 thousand tonnes (previous year 298.0 thousand tonnes).

During April-September,1999 105.6 thousand tonnes of saleable steel and 197.3 thousand tonnes of pig iron were sold.

Exports

Export of steel materials during 1998-99 was 2795 MT to Nepal and export of Pig Iron of 1058 MT tonnes was to Bangladesh.

Environment Management

Environment Management and Pollution Control continues to be the priority areas in the activities of the Company. Environment Awareness Campaign through observance of World Environment Day and Environment Month was organised.

About 8800 sapling of different plants were planted in Burnpur Township and Works area.

Water consumption per tonne of crude steel was further reduced from 13.06 m3/t in 1997-98 to 12.72 m3/t in 1998-99. All the Gas Cleaning Plants are working efficiently.

Dust extraction systems at LC Department and Spun Pipe Plant No.3 at Kulti Works have been commissioned, Consent for air emission and effluent discharge has been received from West Bengal Pollution Control Board. Blast Furnace Slag has been used for road construction as per waste utilisation programme.

Human Resource 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, 1999 and 30th September 1999, was 26,068 (comprising 1255 executives and 24,813 non-executives) and 25,467 (comprising 1233 executives and 24,234 non-executives) respectively.

During 1998-99 a sum of Rs. 10 crores was received from National Renewal Fund for implementation of Voluntary Retirement Scheme and 237 employees were allowed voluntary retirement. A scheme of Voluntary Separation was also introduced for contract labourers w.e.f. 18.3.99. 96 contract labourers are separated through voluntary separation scheme funded by the Company upto 31.3.99.

Industrial relations remained normal and peaceful during the year 1999-2000

The thrust towards Safety and Occupational Health continued. 195 bi-partite meeting on safety were held. About 6876 employees and 2176 contract labourers were trained on various safety aspects during 1998-99.

Scheduled Caste and Scheduled Tribe employees were 11.63 per cent and 2.90 per cent respectively of the total manpower as on 31.3.1999.

Welfare Measures

Company undertook various welfare measure like maintenance of houses, education for children, medical facilities, socio-cultural activities and other facilities and spent Rs.40.87 crores during the year.

Official Language Policy

The Company continued to pursue vigorously implementation of the Official Language Policy of the Government. Employees are encouraged to carry out their official work in Hindi and liberal incentives for such work are given. Official Language Fortnight Celebrations and workshops & Seminars on technical writing in Hindi were organised during the year. Rajbhasha Shields, cash prizes and certificates were awarded in the various competitions to encourage the employees. Regular inspections were carried out and departmental competition and workshops were also organised.

IISCO Ujjain Pipe & Foundary Co. Ltd.

IISCO-Ujjain Pipe & Foundary Company Limited, a wholly owned subsidiary of IISCO, is a sick company and its production has been suspended since 27th January, 1993. The Hon'ble High Court of Calcutta at its hearing on 10th July, 1997, directed that the company be wound up. The Official Liquidator has taken over the possession of the assets of the Company. However, the Hon'ble High Court vide order dated 29th April, 1999, recalled its earlier order of winding up and BIFR has been directed to consider a fresh Scheme of Rehabilitation of IISCO-Ujjain. IISCO has filed an appeal before the Divisional Bench of Calcutta High Court against the order dated 29th April, 1999 for revival of the Company. Present status is that IISCO Ujjain is still under the Official Liquidator. This is as per subsequent order of Hon'ble Calcutta High Court order dated 15.6.1999.

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.

Financial Performance

During 1998-99, the Company achieved turnover of Rs.157.95 crores. Due to increase in power tariff, raw material cost and sluggish market conditions, the company could not sell its products at a remunerative price. As such company ended with a net loss of Rs. 11.07 crores. The turnover and Net loss of the Company during April-

September, 1999 was Rs. 83.18 crores and Rs. 16.79 crores respectively.

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

Production Performance

The production of all grades of Ferro Alloys during 1998-99 was as under:

	1998-99 (Tonnes)
High Carbon Ferro Manganese	53533
Silico Manganese	33369

Production performance: 1999-2000 (April-September)

	1999-2000 (Tonnes)		
	Plan	Actual	Fulfilment (%)
High Carbon Ferro Manganese	27000	23179	85.8
Silico Manganese	17600	18696	106.2

Research & Development

Studies were carried out for reduction in energy consumption by installation of Split Burner in SP-I, optimisation of Mn ore/flux sizes for improved performance of SAF for SiMn production and introduction of SAF gas fired combustion system for heating of tamping paste.

For improvement in charging system in SP-I to improve the sinter yield, studies are being carried out.

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 1000 teak and other saplings were planted in addition to the regular maintenance of existing 13000 teak plants.

To comply with environmental standards set up by Maharashtra Pollution Control Board (MPCB), Gas Cleaning Plant for SAF-II costing around Rs. 1.6 crores has been installed. This would also enhance the availability of clean gas for gainful utilisation as a fuel to Sintering Plant, Lime-Kiln and Gas based Captive Power Plant of 4.2 MW capacity.

Continuous steps were taken towards gainful utilisation of High MnO Slag in SiMn Production, Lumpy SiMn Slag as rail ballast and Granulated Slag as stowing material in WCL mines and Sale of SiMn Slag for road construction and repairs, dedusting system in Sintering Plant and Pelletization of GCP of sludge.

Sales & Marketing Performance

In order to meet the challenges arising out of the new economic policies and further liberalisation in import, measures were taken by the Company to find markets outside SAIL under the policy framed "Strategy for Managing Change".

The sale of different grades of Ferro Alloys during the year was 83236 tonnes as compared to 91423 tonnes in the previous year.

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.

Human Resource Management Review

The manpower strength as on 31.3.99 and 30.9.99 were 1028 (152 executives and 876 non-executives) and 1024 (152 executives and 872 non-executives), respectively.

The number of Scheduled Castes and Scheduled Tribes employees as on 31.3.99 were 137 and 49 respectively.

The industrial relations throughout the year remained normal.

A total of 538 employees were trained during 1998-99.

Total Quality and Industrial Safety

After achieving ISO-9002 Certificate way back in August, 1996, MEL has successfully maintained Quality Assurance System in the Organisation during the last three years. This has been verified by the Certifying Body M/s. LRQA, Mumbai, through five surveillance Audit and also by SAIL Plants Auditors through periodical Interplant Audits. The revised documental system has been implemented and functions are being performed for achieving better results for further Organisational development. The Quality System of MEL is now due for re-certification in August'99

During the year under review in Industrial Safety the Company was bestowed with National Safety Award from British Safety Council, London, Steel Minister's Trophy for Best Safety performance for the year 1997, SAIL Chairman's Silver Plaque for No Fatal Accident during the year 1997.

Rashtriya Ispat Nigam Ltd. (RINL) (Visakhapatnam Steel Plant)

Introduction

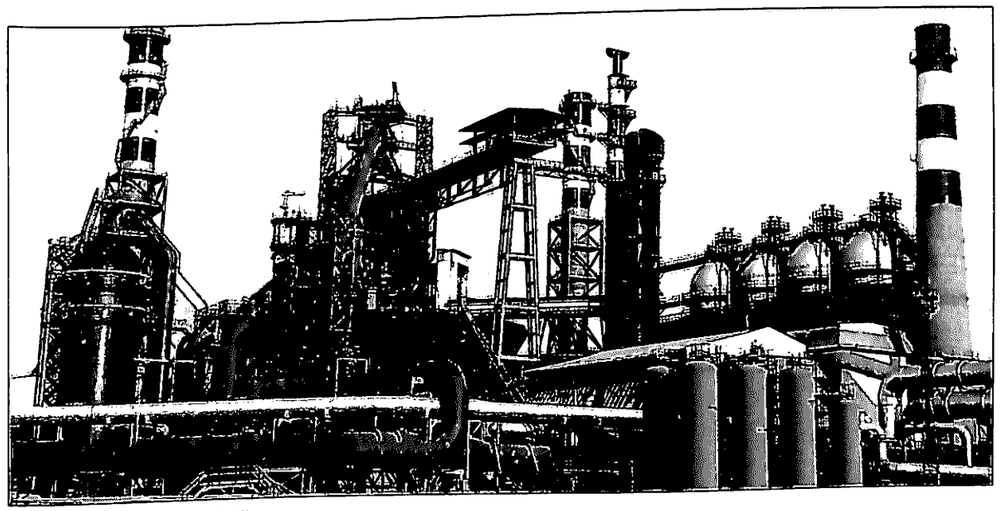
Visakhapatnam Steel Plant (VSP) is the newest Plant in the Public Sector and has the most modern technology amongst all. This is the 6th Integrated Steel Plant in the Public Sector and has a reputation for quality of its products. Being based on shore, it has locational advantage and an excellent work force. It is also the first Steel Plant amongst the PSUs which has 100% Continuous Casting. It has attained high levels of growth in production and superior technological norms within a short period of time. It has a record of high labour productivity, efficiency and positive work culture. VSP has emerged as a good corporate citizen and has contributed its mite for the development of the region. VSP has established its presence in the domestic and international markets due to superior quality of its products. All its major units have received ISO 9002 certification. It hopes to get total certification within the first half year of 2000.

Production Performance

The production for the year 1998-99 and 1999-2000(Apr-Sept '99) is given below:

Unit : In million tonnes

Item	1998-99			1999-2000	
	Target	Actual	% Fulfilment	Target MoU (Annual)	Actual (Apr-Sep)
Hot Metal	3.400	2.510	74	3.400	1.335
Liquid Steel	2.920	2.225	76	2.650	1.225
Saleable Steel	2.580	1.933	75	2.305	1.078
Pig Iron(for Sale)	0.346	0.275	79	0.675	0.096



Blast Furnace complex, RINL

The production of value added items was 1,83,873 tonnes in 1998-99 and 1,30,737 tonnes in Apr-Sept'99

Techno-economic Parametres

VSP's performance in this field has remained quite commendable. It has consistently improved its performance over the years. However, in 1998-99 it suffered a set-back due to the breakdown of its Coke Ovens which forced the company to undertake a lengthy repair schedule and also resort to import of coke. Targets and performance of VSP for its techno-economic parameters for 1998-99 and Apr.-Sept.99 is as follows:

Item	1998-99		1999-2000	
	Target	Actual	Target	Actual (Apr-Sept)
BF Productivity(t/cum/day)	1.5	1.11	1.47	1.17
Specific Energy Cons. (G.cal/tls)	7.6	8.17	7.60	7.8
Coke Rate (Kg/thm)	527	540	535	553
Labour Productivity(t/man year)	213	161	200	176

The yield of Blooms, Billets, Bar products, Wire Rods and MMSM products during the period 1998-99 was 91.72%, 97.40%, 98.10%, 96.91% and 95.20% of the respective targets.

Power and Mines

Power requirement of VSP is completely met from its capital power generation sources. VSP is the first Integrated Steel Plant in India to have entered into an MoU with the State Electricity Board for exporting power for the period of three years commencing January, 1997. Net export of power from VSP to APSEB in 1998-99 was 35 MW which was higher than the corresponding figure of 32 MW in 1997-98. Till September 99, the export of power was at the average level of 18 MW.

The performance of the captive mines of VSP at Jaggayyapeta, Madharam and Garbham in the 1st ½ of the year is as under:

Captive Mines	1998-99 (tonnes)	1999-2000 (Apr-Sept) (tonnes)
Jaggayyapeta Limestone Mines, Jaggayyapeta.	282253	87015
Madharam Dolomite Mines, Madharam	434484	190867
Garabham	43461	18900

The lower levels of production in the current year are on account of the poor market conditions.

Marketing

1998-99 and 1999-2000 were years in which the Steel Industry in India faced sluggish demand, cheap imports and over capacity. In addition to these factors, VSP faced stiff competition from the secondary sector. The comparative figures for these years are as below:

	1998-99 (Rs. in cr.)	1999-2000 (Apr-Sept) (Rs. in cr.)
Domestic Sales	2403	1087
Exports	288	115

Further, the Economic crisis in South-East Asian market and large scale dumping of steel from CIS countries adversely affected the export performance.

Despite all these problems, VSP sharply reduced its inventory levels. It also embarked on serious cost cutting exercises which aims at saving of Rs.91.58 crs. in 1999-2000.

Financial Performance

The financial performance of VSP has not been satisfactory due to historical reasons and also due to sluggish market conditions in the domestic and international market. In spite of cost cutting exercises and improved techno-parameters and emphasis on marketing, VSP's financial performance has not been upto the mark. VSP registered a cash loss of Rs.168.34 crs. (Prov.) and a net loss of Rs.399.47 crs. for the 6 months Apr-Sept'99.

Research & Development

The research and development efforts of the company are directed towards process improvement in the form of carrying out small but decisive changes, continuous search for variation in raw materials, recycling of wastes, additions in the technologies available in the company and optimisation of process parameters to derive the benefits of enhanced efficiency, reduction of cost, improved productivity and improved product quality.

Energy Conservation

The energy consumption for the last two years is as shown below:

Unit: G.Cal/t of Liquid Steel

Year	Plan	Actual
1997-98	7.6	7.57
1998-99	7.6	8.17
1999-2000(Apr-Sep)	7.6	7.8

Sustained monitoring has resulted in marked reduction of heat consumption in the following shop floors.

Unit: '000 Kcal/ton of product

	1997-98	1998-99	1999-00 (Till Sept'99)
BF&SP	59	62	61
SMS	72	67	42
LMMM	560	595	530
MMSM	445	503	413
LD Gas Yield	90.45	96.14	107

Industrial Relations

By and large Industrial relations throughout the period were peaceful. In order to promote and sustain a peaceful IR climate, various IR initiatives were taken up through tailormade shopfloor Human Resource Development programmes. A series of interactive sessions under a communication forum called 'SAMALOCHANA' were held by the HODs in various departments to make the employees aware about the Company's financial position and to work hard for its betterment. These sessions have yielded fruitful results with the active participation of the employees. The support of the Workers Unions was cultivated for implementation of a number of cost reduction measures.

Open Interaction Sessions were held with Unions, Line Managers and Steel Executive Association to develop commonalities of perception on vital issues concerning the organisation.

With a view to ensuring optimum utilisation of existing manpower, as also to inculcate a sense of discipline among the employees, a Daily Attendance Recording System (DARS) was introduced w.e.f. 1.4.99. Consequently, the general trend of absenteeism has come down and the availability of manpower in Shopfloor has significantly improved. The contentious issue of 'Job Rotation in RMHP, SMS and rotation scheme for Coke Oven Electrical section was resolved. IR problems arising out of nation-wide strike organised by the unions were tackled smoothly without causing any effect on the production. Critical IR problems relating to agitations by Contract Labour were resolved with timely intervention.

Welfare of SCs/STs and Minorities

As on 30.9.99, the representation of SCs/STs and Minorities in the overall manpower is furnished below:

Total Manpower as on 30.09.1999	.. 17,317
No. of SCs	.. 2,882(16.64%)
No. of STs	.. 1,033 (5.97%)
No. of Minorities	.. 588 (3.40%)

The measures taken for welfare of SC/ST and Minorities, interalia, includes the following:

a. Two parks in the Steel Township have been named after Dr.B.R. Ambedkar and Babu Jagjeevan Ram respectively. Also a separate Library-cum-Reading Room was named after Dr.B.R. Ambedkar.

b. A certain percentage of houses (10% of A&B types and 5% of C&D types) have been reserved for and allotted to the SC/ST employees in Steel Township.

c. In addition to the above, RINL/VSP has introduced a Scholarship Scheme exclusively for the children of SC/ST employees, under which two Scholarships of Rs.250/- per month and one more Scholarship of Rs.150/- per month are awarded each year. RINL has also launched a Merit Cash Award Scheme for the students of SC/ST Communities under which a First Merit Award of Rs.500/-, a Second Merit Award of Rs.250/-, are given to students who pass 10th class every year from each of the Schools in the Company's Township.

Pollution Control & Waste Management

Action taken in respect of Pollution Control and Waste Management are as follows:

All Parameters in respect of Ambient Air, Effluents and Noise levels are within norms.

A. Air

i) Water mist spray (Cone-Spray) is being done over boiler coal in RMHP to prevent dust in the work zones of RG Building.

ii) In the CVS of SMS, the suction duct has been modified to suck maximum fumes during pouring of hot metal in the ladle and thereby prevent fugitive dust emission.

iii) Higher capacity fan with re-routing of duct has been done for the A-6 aspirator system in Sinter Plant to increase its capacity and to improve the work zone environment.

iv) Ambient Air Monitoring Stations have been installed permanently at 4 locations to facilitate monitoring of ambient air.

Expenditure on Pollution Control Measures & Waste Management

1997-98 : Rs.85.11 Crs.

1998-99 : Rs.74.24 Crs.

The reduction in 1998-99 is due to:

a) Lesser cost of production of power, compressed air and water and

b) Lesser consumption of water, chemicals compressed air and spares.

1999-2000 : Rs.37.0 cr. (Upto Sep'99)

Afforestation

Status of afforestation in VSP (upto September'99):

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)	% of Survival
Inside Plant 1730	1400	330	80.92	4.30	3.05	70%
Township 7265	6508	717	89.58	30.00	21.00	70%

Note: The Natural Green Cover available in an extent of 226 Ha in the areas earmarked for afforestation has also been taken into consideration for the coverage of the land. However, the plants available in Natural Green Cover has not been taken in to account.

B. Water

i) Water leakages during 1998-99 have been reduced by 600M³/Hr over the previous year by making intensive inspections and follow-up.

ii) Effluents from various out-fall are monitored regularly for quality and necessary action taken for keeping within norms.

C. Waste Management

i) Tar sludge is being recycled in coke-oven batteries. Total quantity recycled in 1998-99 was 500 MT (approx.) yielding a saving of Rs.5 lakhs.

ii) Dust collection in the DE system of IRUT/SMS is now being recycled for sinter making. Annual savings is about Rs.18 lakhs.

iii) Spillage pipes have been provided at ISBH/SMS and converter areas to facilitate recycling of the spilled dust/raw materials.

Safety

Safety is accorded highest priority in VSP. Training in safety and remedial actions have led to a lower number of accidents over the years. Elimination of unsafe conditions, adoption of safe working practices and high standards of house keeping have been ensured. Safety committees have been formed at central and department levels for spreading safety consciousness among the employees. Contract workers are allowed to be engaged only after their training in safety. Regular and periodical safety inspections, audits and supply of high quality of personal protective equipment have also been ensured.

Safety engineering department of VSP has implemented work procedure strictly in accordance with ISO 9002. As a testimony of excellent performance in the safety area, VSP has got the following awards.

Steel Minister's Trophy for the best safety performance for the year 1998 jointly with Rourkela Steel Plant. This was the third year in succession and fifth time since inception. Total number of awards won by VSP since 1990 is 15 consisting of five Steel Minister's Trophies and Ten "Ispat Suraksha Puraskars".

Implementation of Official Language

During the period from April, 1999 to September, 1999, 123 employees were trained in Hindi Prabodh & Praveen courses. 2 Hindi Workshops were organised in which 27 employees were trained. Out of these one was organised at Liaison Office, New Delhi. Two meetings of OLIC were also organised during the period of consideration as per the directives of Government of India. Inspections were also conducted in different departments of VSP i.e., Coke Oven, TPP and Sinter Plant and in the Outstation Offices of VSP i.e. New Delhi, Ghaziabad and Faridabad regarding the use of Hindi in those offices.

Hindi Pakhwada (Fortnight) was celebrated in VSP during the month of September, 1999. During this period various Hindi Competitions like Hindi Noting & Drafting, Essay Writing, Terminology, General Knowledge, Hindi Slogan competitions for VSP employees were also conducted and prizes were given to the winners of the competitions in the Hindi Day Celebrations organised on 14.9.1999.

Under the training programme to train employees to work in Hindi on Computers, 26 employees were trained in Microsoft Office through 'SHUSHA FONTS'. Through these Fonts employees can do work in Hindi without the knowledge of English Typewriting also.

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 1998-99, NMDC produced 11.65 Million Tonnes of Iron Ore. During the year 1999-2000 (upto Sept.99), 5.15 million tonnes of iron ore has been produced.

Exports

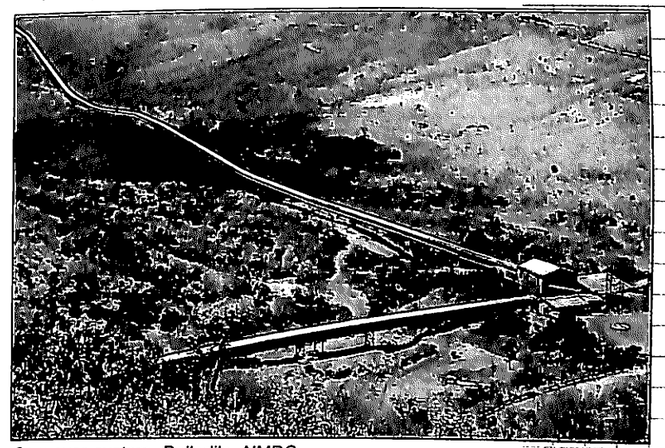
Exports of iron ore produced by NMDC is canalized through Minerals and Metals Trading Corporation (MMTC). Iron Ore export is mainly to Japan, South Korea and China. In 1998-99 Export (Shipment) of Iron Ore stood at 6.00 Million Tonnes valued at Rs. 448.55 Crores. In 1999-2000 (upto Sept.99), NMDC exported (Shipment) 2.64 million tonnes of iron ore valued at Rs.210 Crores approximately.

Domestic Sales

During 1998-99, Domestic Sales of Iron Ore was 6.72 Million Tonnes. In the year 1999-2000 (upto Sept.99) sale of iron ore to domestic consumers was 3.35 million tonnes.

Diamonds

During 1998-99, 34201 Carats of Diamonds were produced. In the year 1999-2000 (upto Sept.99) the production was 17378 Carats.



Conveyor system, Bailadila, NMDC

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

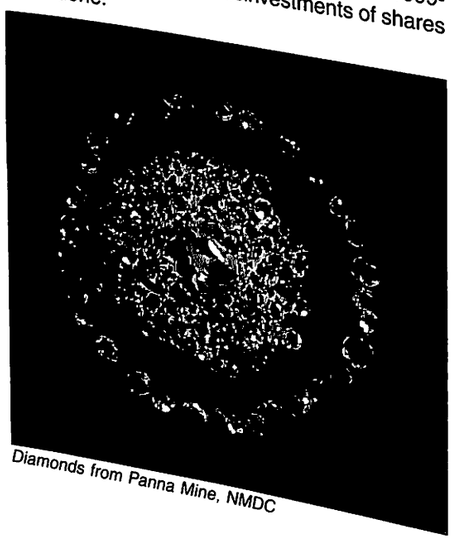
The financial performance of the company for the year 1998-99 and 1999-2000(upto Sept.99) are given below:

(Rs. in crore)

Item	1998-99	1999-2000 (upto Sept.99)
Sales/Turnover	725.23	310.77
Gross Margin	202.25	74.65
Profit/loss before tax	171.99	60.25

Disinvestment of Shares of NMDC

The Government of India has 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. In the year 1998-99 & 1999-2000 (upto Sept.99) no disinvestments of shares were done.



Diamonds from Panna Mine, NMDC

Operating Results

During 1998-99, the company earned a profit of Rs.171.99 crore and in the year 1999-2000 (upto Sept.99) the Company earned a profit (before tax) of Rs. 60.25 crore.

Recognition/Awards in 1999-2000

Received CAPEXIL Top Export Award in respect of Bulk Minerals&Ores on 28.10.99 for the year 1998-99.

Received Indira Gandhi Rajbhasha Puraskar Award on 14.5.99 for Implementation of Hindi in Region 'C' as Second Prize for 1996-97.

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 meeting of the Joint Councils takes place regularly and follow up action taken.

Capital Schemes

a) 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 Equipment required for construction and mine development which were ordered have arrived. These are deployed at Deposit-11A suitably for mine development work. M.P. Govt. while giving the final forest clearance stipulated in the letter that orders of Hon'ble Supreme Court have to be complied. As per the orders of Hon'ble Supreme Court dated 25.2.97, no tree can be cut in Bastar District even with the permission from Local authorities. In this aspect NMDC filed an interlocutory application in the Hon'ble Supreme Court. Due to delay in getting the clearance from the Hon'ble Supreme Court, the project has been delayed and it would take approximately 33 months from the date the Hon'ble Supreme Court clearance is given.

b) Ultra Pure Ferric Oxide Plant, Visakhapatnam

NMDC's Board of Directors in Feb. 95 approved setting up an Ultra Pure Ferric Oxide Plant at Visakhapatnam, A.P. at a cost of Rs.45.98 crores. The construction of this plant is over and is under trial runs.

c) Panna Diamond Mining Project-Expansion schemes

The expansion of Panna Diamond mines to produce 84,000 carats per annum has been approved by the board in its meeting held on 24.2.98 at an additional estimated cost of Rs.2457.30 Lakhs. It is likely to be completed by April '2000.

d) NMDC Iron & Steel Plant (Romelt Process) at Geedam, Dantewara

The feasibility report for setting up of a commercial pig iron plant of 0.30 MTPA capacity utilising iron ore slimes from Bailadila mines based on Romelt technology was approved by the NMDC Board on 19.12.98 at an estimated capital cost of Rs.298.68 crores including foreign exchange component of Rs.34.89 crores. An agreement was made with M/s.Romelt Sail India Ltd.,(RSIL) and M/s Amet Ltd., Russia for basic engineering and grant of sub-licence for setting up of ROMELT Pig Iron Plant, on 19.1.99 and subsequently amended on 25.5.99.

An application has been given to Collector after identifying a total land requirement of 1034 acres, out of it Government land is 624 acres and Private land is 410 acres. Survey work on Romelt Plant site is completed.

Report on the collection of secondary environmental data is completed. Agency for soil investigation has been tied up and soil investigation works are in progress. Work is awarded for the Engineering (Reconnaissance) Survey for the purpose of acquisition of land for laying the rail track from the existing K.K. line at Geedam Road Railway Station to entry point of Romelt Plant site. The survey work at site has commenced in Sept 99.

A loan of Rs.40 crores is sought from Technology Development Board, New Delhi. Approval is awaited.

e) Tertiary Crushing Plant at Bailadila Deposit-14/11C

NMDC Board has approved the setting up of Tertiary Crushing Plant at Bailadila Deposit-14/11C on 30.3.99 with a capital investment of Rs.31.47 crores for 100% production of calibrated lump ore in size -40/-30mm, +10/+6mm by crushing of lump ore in size -150+40/+30mm. The construction period of the project is 24 months i.e. to be completed by March, 2001. Action has been taken up on various fronts to complete the project in time.

New Business Development

a) Silica Sand, UPSMDC

All the formalities for taking over the plant at Lalapur have been completed. Agreements have been signed for transferring the lease and assets. Mining lease has been transferred to NMDC. Action is on hand to start mining activities, commissioning of plant and carryout PG Test.

b) Exploration of Gold in Madagascar

Initial reconnaissance report has been prepared. Report has suggested detailed exploration work in Beforana and Vohilava areas. Technical Report on Gold Prospection work in Madagascar has been submitted.

NMDC Board on 28.5.99 approved the Madagascar Gold Investigation work to be carried out in two phases in association with NGRI. A team of NMDC was deputed to Madagascar for registering the Wholly Owned Subsidiary (WOS) Company and the same has been registered and incorporated with the name "National Mineral Development Corporation-SARL" in the Republic of Madagascar.

Now exploration is going on in Beforana area. 640 rock samples have been collected and sample preparation is in progress. Reports on North Madagascar areas have also been studied and proposals are under examination for further decision.

c) Exploration/Exploitation of Diamonds/Gold in Namibia, Angola, Botswana and Tanzania

The team of Mining Engineers and Geologists has visited various areas in Namibia, Angola and Tanzania. Discussions have taken place through the Ambassador in Namibia, Mining Company, M/s. ENDIAMA in Angola and the Ambassador in Tanzania. As and when some

suitable area is made available to NMDC for carrying out detailed prospecting and mining, the same will be looked into.

Manpower Position

As on 30th Sept 1999 the manpower position in different units of the company was as follows:

Group	Total no. of regular Employees	No. of S/C Employees out of Col.2	No. of S/T Employees out of Col.2	No. of OBC Employees out of Col.2
(1)	(2)	(3)	(4)	(5)
A	1060	99	32	51
B	1198	128	83	31
C	2720	493	659	83
D	1810	414	414	167
Total	6788	1134	1188	332

Research & Development

Objective /Thrust

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

New Technology/Process

- Pilot Plant Studies for Production of Pigment Grade Ferric Oxide from Blue Dust.
- Development of process for production of Synthetic Rutile, Metallic Iron & high-grade ferric oxide from Ilmenite concentrate obtained from Bhimunipatnam beach sand.
- Laboratory Studies for Preparation of fluffy silica from Kimberlite waste
- Laboratory Study for Preparation of Caustic MgO from Panna Tailings and Panthal Magnesite.
- Laboratory Studies with Kimberlite Tailing for removal of fluoride from water.
- Production of High resistivity Ferrite Powder.
- Development of power ferrite mix and high permeability ferrite mix from UPFO.
- Setting up of fire assay lab for gold analysis.
- Development of mineral Beneficiation process for production of High Grade Ferric Oxide from powdery type of Iron Ore known as Blue Dust.

Utilisation of Mine Waste

a) Setting up of Pilot Plant

A Pilot Plant has been set up for Brick / Hollow Bricks from Kimberlite waste and its evaluation.

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.

v) Synthetic Rutile, Pig Iron and High Grade Ferric Oxide from Bhimunipatnam Beach Sand.

vi) Caustic Magnesia from Kimberlite tailings for application in areas like Animal feed, Fertilizer etc.

vii) Fluffy silica from Kimberlite waste for application in Rubber industries.

viii) Filter candles from Kimberlite waste for removal of Fluoride from potable water.

d) Quality Improvement Programme

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

ISO 9000 Certification - Regular Internal Quality audits and management review meetings are carried out. Quality system is being maintained effectively.

R&D Expenditure

(Rs. in crore)

Year	Turnover	Expenditure on R&D	R&D Expenditure as % of Turnover
1997-98	757.67	4.86	0.64
1998-99	725.23	4.72	0.65
1999-2000 (Upto 30.09.99)	311.69	2.33	0.74

Project Status

a) No. of Projects in hand as on 01.04.98 : 5, viz.

(1) Process development for treatment of UPFO effluents.

(2) Development of Ferrite powder mix for High Grade Ferric Oxide / UPFO

(3) Creation of Pilot Plant facilities & process development for PGFO.

(4) Process development for production of Caustic Magnesia from Kimberlite waste.

(5) Setting up of Pilot Plant for brick / hollow blocks from Kimberlite waste and its evaluation.

b) No. of projects planned for 1999-2000 : 4, viz.

(1) Pilot plant studies for production of Pigment Grade Ferric Oxide from Blue Dust.

(2) Production of Ultra Pure Silica from Kimberlite waste.

(3) Production of High Resistivity Ferrite Powder.

(4) Production of Power Ferrite and High Permeability Ferrite Powder.

c) No. of projects due for completion in 1999-2000 : 4, viz.

(1) Pilot plant studies for production of Pigment Grade Ferric Oxide from Blue Dust.

(2) Production of Ultra Pure Silica from Kimberlite waste.

(3) Production of High Resistivity Ferrite Powder.

(4) Production of Power Ferrite and High Permeability Ferrite Powder.

(d) No. of projects completed in 1998-99: 5, viz.

(1) Process development for treatment of UPFO effluents.

(2) Development of Ferrite powder mix for High Grade Ferric Oxide / UPFO

(3) Creation of Pilot Plant facilities & process development for PGFO.

(4) Process development for production of Caustic Magnesia from Kimberlite waste.

(5) Setting up of Pilot Plant for brick / hollow blocks from Kimberlite waste and its evaluation.

Pollution Control & Environmental Management

Actual work carried out during the year 1999-2000 (Upto Sept. '99) includes pollution control measures at

1. Bailadila.14//11C project
2. Bailadila.5 project
3. Donimalai Iron ore Mine
4. Panna Diamond Mine

Mandovi Pellets Limited

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

During the year 1998-99 the company produced 4.46 lakh tonnes of pellets & despatched 4.78 lakh tonnes of pellets. During 1998-99, the company's income was Rs. 5744 lakh. During the year 1999-2000 (upto Sept. 99) the company produced 0.89 Lakh tonnes of pellets and despatched 0.65 lakh tonnes of pellets. The company's income for the year 1999-2000 (upto Sept.99) is Rs.996 lakhs which includes miscellaneous receipts of Rs.14 lakhs. After adjusting the operating expenditure of Rs.1384 lakhs, depreciation of Rs.9 lakhs and interest of Rs.67 lakhs, the loss for the year 1999-2000 (upto Sept.99) is Rs.464 lakhs.

Energy Conservation

1. Consumption of Energy per tonne of Iron Ore Excavated

A) Electrical Energy - KW /Tonne of excavation

Year	Target	Actual
1997-98	2.85	2.27
1998-99	2.22	2.24
1999-2000 (upto Sept.,99)	2.21	2.48

B) Diesel Consumption - Ltrs./Tonne of Excavation

Year	Target	Actual
1997-98	0.32	0.29
1998-99	0.28	0.30
1999-2000 (upto Sept.,99)	0.30	0.31

Projects implemented during 1999 - 2000

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. Recycling of Lubricants.

g. Formulation of Energy Audit Teams and carrying out energy audits.

h. Award schemes for best Suggestions.

J&K Mineral Development Corporation Limited (J&KMDC)

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 Dead Burnt Magnesite (DBM) plan of 30,000 tonnes per annum was sanctioned by Govt. of India in Nov.'92. 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, with the improvement in market situation, it was decided in JKMDC Board in the meeting held on 23.12.97 to develop 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 of 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.

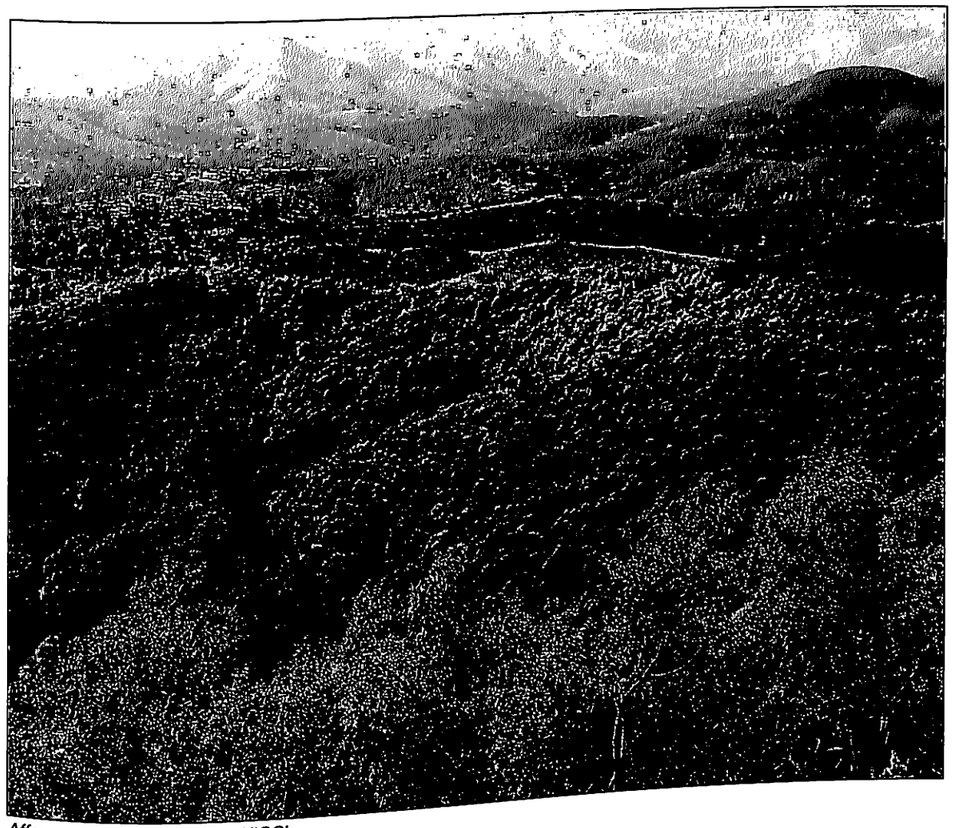
The Board of Directors of J&KML and NMDC have also agreed to the above proposal and Ministry of Steel has been informed accordingly. Works have been taken up in the project in accordance with the above modified plan to start Phase-I. The bench development is in progress. The widening of approach road to the mine has been completed except for a patch work.The construction of two bridges on mine road is nearing completion. Orders for procurement of water sprinkler, explosive van etc. have been released. Two tippers and weighbridge have been received.

On 16.9.99 discussions were held between NMDC and J&K Government officials wherein J&K Govt. has agreed to issue amendment to clause-4 of Special Conditions of the Mining Lease to allow initially to sell Raw Magnesite outside the State for two years and thereaftera final decision on this issue will depend upon setting up of a Dead Burnt Magnesite Plant.

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



Afforestation at Kudremukh, KIOCL

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 in Mangalore in May, 1981. The plant went into commercial production in 1987 and is now exporting both Blast Furnace and DR grade Pellets to many countries including Japan, Australia, Iran, China, Taiwan, etc., and also to domestic Sponge Iron units such as Vikram Ispat and Ispat Industries.

Production

A target of 5.6 million tonnes and 3.2 million tonnes is set for production of Iron Ore Concentrate and Iron Ore Pellets respectively during the year 1999-2000. As against a target of 2.775 million tonnes of Iron Ore Concentrate fixed for the period April to September, 1999, the actual production was 2.895 million tonnes which represents 104% target fulfilment. Production of Pellets during the period April to September, 1999 was targeted at 1.560 million tonnes and the actual production during this period was 1.595 million tonnes representing 102% target fulfilment. In addition to this, 39483 tonnes of Pellet Fines were generated during the said period.

Highlights

During the first half of the current financial year, the Company's performance in all areas barring

a few has touched almost the "Excellent" target in the MOU, besides, several new records were also set during the said period. The highlights are as under:

a) the turnover of Rs.75.34 crores during September is the highest achieved in any month so far;

b) the sales turnover of Rs.314.40 crores is the highest during the first half of financial year in any year so far;

c) production of 1.620 million tonnes of Concentrate in the second quarter is the highest for any second quarter so far;

d) as regards Pellets also, the production in the first half of the current financial year at 1.634 million tonnes (including Pellet Fines) is the highest produced in the first half of any year so far;

e) production of 0.783 million tonnes of Pellets (including Pellet Fines) in the first quarter and 0.851 million tonnes of Pellets in the second quarter of the current year is also the highest quantity produced in the first and second quarter of any year so far;

f) production of 550,000 tonnes of Concentrate and 235,000 tonnes of Pellets (including Pellet Fines) in the month of September, 1999 is the highest quantity produced in the month of September of any year so far;

g) export of 0.870 million tonnes of Pellets (including Pellet Fines) in the first half of the current financial year is the highest quantity exported in the second quarter of any financial year so far;

h) export of 1.642 million tonnes of Pellets (including Pellet Fines) in the first half of the current financial year is the highest quantity exported in the first half of any financial year so far;

i) production of 2.895 million tonnes of Concentrate and 1.634 million tonnes of Pellets during the first half of current financial year represent an increase of 13% and 52% respectively over the production in the first half of the previous year;

j) the sales turnover at Rs.314.40 crores during the first half of the current financial year represents an increase of 27% as compared to the turnover during the first half of the previous financial year 1998-99; and

k) the Net Profit after tax at Rs.27.41 crores during the first half of the current financial year represents an increase of 56% as compared to the similar period of the previous financial year.

Exports

During the year 1998-99, total shipments were 5.026 million tonnes comprising 2.376 million tonnes of Concentrate and 2.650 million tonnes of Pellets. For the year 1999-2000, a target of 2.7 million tonnes of Concentrate and 3.1 million tonnes of Pellets has been fixed. As against a target of 1.360 million tonnes of Concentrate and 1.515 million tonnes of Pellets fixed for the period April,1999 to September, 1999, actual shipments were 1.441 million tonnes of Concentrate and 1.588 million tonnes of Pellets representing 106% and 105% of the relevant targets respectively. In addition to this, 53787 DMT of Pellet Fines were shipped during the first half of 1999-2000.

Total sales for the year 1998-99 were Rs.547.76 crores. Estimated sales for the year 1999-2000 is Rs.662.07 crores. As against a target of Rs.320 crores fixed for the period April,1999 to September, 1999, actual sales were Rs.314.40 crores representing 98% of the target.

The Export earnings during the last five years from 1994-95 and upto September,1999, during 1999-2000 are detailed below:

(Rs. in lakhs)

Year	Concentrate	Pellets	Total
1994-95	16729	20205	36934
1995-96	20676	27172	47848
1996-97	21900	27359	49259
1997-98	23310	36081	59391
1998-99	18407	36369	54776
1999-2000 (Upto Sept.99)	10461	20979	31440

Financial Performance

An overview of the performance of KIOCL during the year 1999-2000 upto September, 1999 together with actuals for the previous three years, is indicated below:

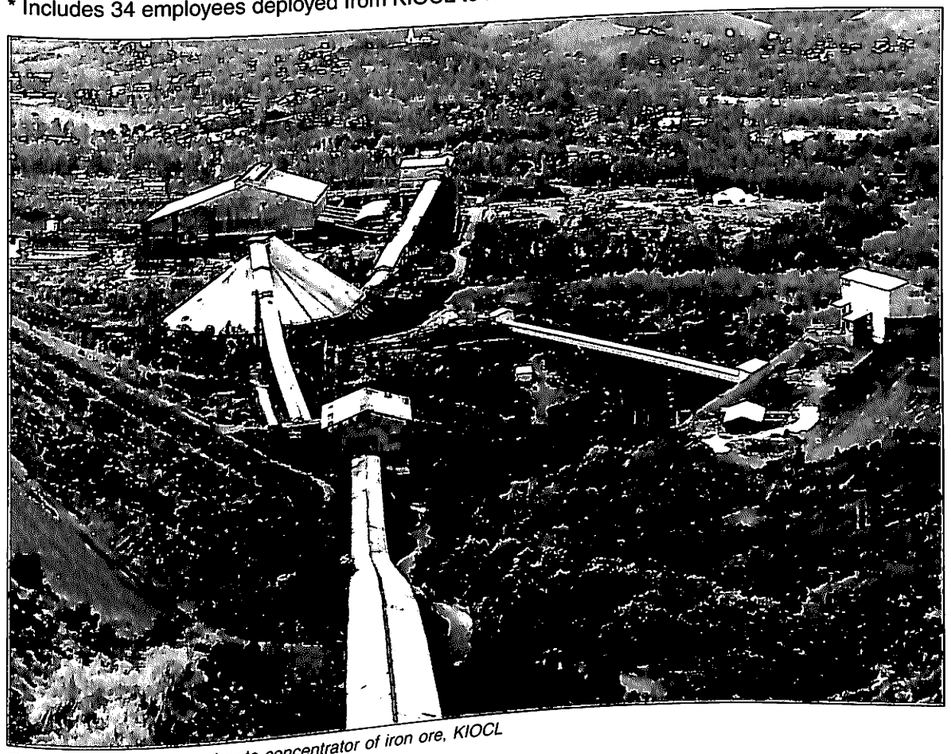
Particulars	96-97	97-98	98-99	1999-2000 (upto Sept'99)
Total value of sales	49259	59391	54776	31440
Gross Margin on account of plant operation	13040	14250	6703	5562
Total profit on account of operations of the year	8562	9151	2536	3099
Inventories (excluding finished stock)	11712	11763	10708	11337

Manpower Position

As on 30th September,1999, the total number of employees in KIOCL were as follows:

Group	Total no. of employees including SC/ST as on 30.09.99	SC as on 30.09.99	ST as on 30.09.99
A	483	56	12
B	309	12	01
C	1420	217	53
D	183	39	23
D (Sweepers)	45	36	03
Total	**2440***	**360**	**92**

* Includes 34 employees deployed from KIOCL to KISCO.



Panoramic view from crusher to concentrator of iron ore, KIOCL

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 Wokers' 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 is the practice, 'Safety Week' was observed during the year.

Progressive use of Official Language

The Company follows the directives issued by the Government of India regarding progressive use of Hindi for official purposes. Hindi teaching programmes for the employees are a part of training programme of the Company. Cash awards and increments are given to those who perform well in these programmes. The Company's House magazine is published in English, Hindi and Kannada langages. Hindi Week was celebrated between September 14-20 at all locations at Kudremukh, Mangalore and Bangalore.

Manganese Ore (India) Ltd. (MOIL)

General

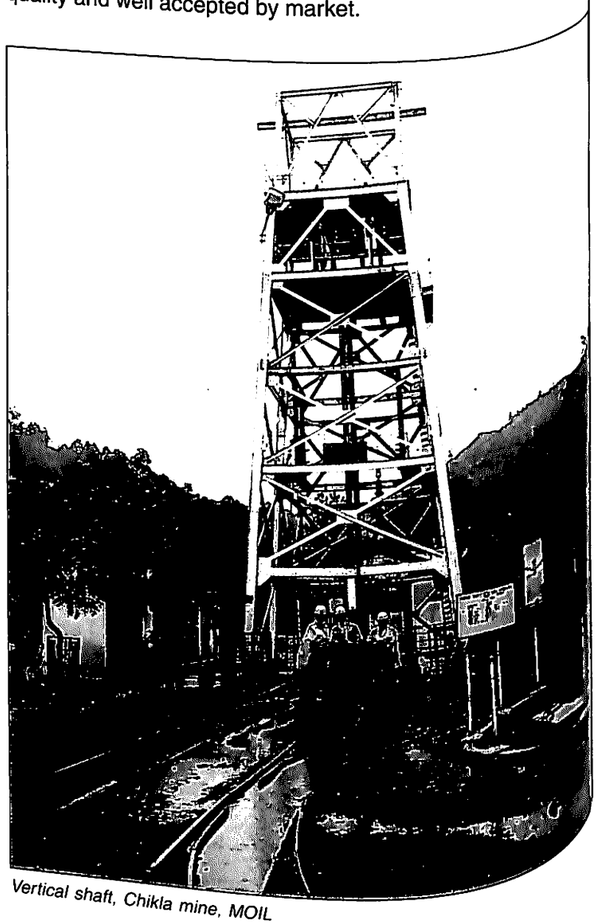
Manganese Ore (India) Limited (MOIL), was established in 1962. It is the largest producer of Manganese Ore in India. At the time of inception 49% of its shares were held by the Central Province Manganese Ore Co. Limited (C.P.M.O.) and the remaining 51% in equal proportion by Govt. of India and the State Govt. of Madhya Pradesh and Maharashtra. Subsequently, in 1977 the shares held by C.P.M.O. in MOIL were acquired by Govt. of India and MOIL became a wholly owned Govt. Company with effect from October 1977. As on 31.03.1999, the Government of India held 81.57% shares in MOIL with State Governments of Maharashtra and Madhya Pradesh, holding 9.62% and 8.81% shares respectively.

MOIL produces and sells different grades of Manganese Ore.

These are :

- High Grade Ores for Production of Ferro Manganese,
- Medium Grade Ore for Production of Silico Manganese.
- Blast Furnace grade ore required for production of Hot metal and,
- 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(EMD). This product is also used for the manufacture of dry battery cells. E.M.D. produced by the Company is of good quality and well accepted by market.



Vertical shaft, Chikla mine, MOIL

Finance

Authorised capital of the company is Rs. 30.00 Crores and paid-up capital was Rs.15.33 Crores as on 31-10-1999.

Performance

Operating and Financial Results

The Physical and Financial Performance of the Company for the last 3 years i. e. 1996-97, 1997-98, 1998-99 is given below:

	1996-97	1997-98	1998-99
1. Production			
a. Manganese Ore (Thousand Tonnes)	642	661	614
b. E.M.D. (Tonnes)	620	750	764
c. Ferro Manganese (Tonnes)	-	-	2690
2. Turnover (In crores)	108.39	112.80	118.27
3. Profit before Tax (Rs. crores)	22.88	23.76	20.03
4. Reserves (Rs. crores)	44.65	55.18	65.53
5. Net Worth (Rs. crores)	59.97	70.51	80.85
6. Book Value per share (Rupees)	391.19	459.94	527.40
7. Earning per share (Rupees)	86.76	92.69	89.42

Performance of the Company in 1999-2000 (upto Oct, 99) is as under :

	1999-2000 MOU Target	1999-2000 (Actual) Upto 31-10-99 (Prov.)
1. Production		
a. Manganese Ore (Thousand Tonnes)	650	328
b. E.M.D. (Tonnes)	800	419
c. Ferro Manganese (Tonnes)	5000	5583
2. Turnover (Rs.in crore)	110.00	64.82
3. Profit Before Tax (Rs. in crore)	12.08	7.05

Marketing

Due to slow down in the steel Sector, consumption of Ferro Manganese in the country has come down, thereby affecting the domestic sale of Manganese Ore. In order to reduce inventory, Company has made efforts to export the Ore. This year the Company has exported more than 33000 tonnes (till Oct.)

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 under taken to conserve energy and minimise power consumption.

Research & Development and Technology Upgradation

MOIL has undertaken several Research & Development Scheme for technology upgradation and conservation/ optimum utilisation of valuable mineral resources, resulting in reduction in cost of production, improvement in productivity and safety. Some of these schemes are as under :

- 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 cavability studies.
- Diamond drilling to locate new Manganese bearing areas and prove further reserves in the existing leasehold areas in greater depth by use of latest Technology.
- Beneficiation of medium low grade ores as well as medium grade dioxide ore to battery grade.
- Optimisation of process parameters for EMD Plant.

Capital Schemes/Projects

MOIL is planning/implementing the following projects/schemes:

EMD Plant

The capacity of the existing 800 TPA EMD Plant is being enhanced by another 200 TPA during the year.

New EMD Plant

Company plans the setting up of another Electrolytic Manganese Dioxide (EMD) plant with a capacity of 1200 TPA. The Company is studying the project report prepared by MECON.

Ferro Manganese Plant

The commercial production at the Ferro Manganese plant has started and the Company has already sold 1647 tonnes of Ferro Manganese during the year 1998-99. The plant is presently running into loss due to sharp decrease in the prices of Ferro Manganese all over the country and rising price of power and Coke. The Company is making all possible efforts to reduce the cost of production and ultimately reduce the losses being incurred by the plant. The production capacity has been achieved with quality being one of the best in the country. The consumption norms have stabilised and plant is operating satisfactorily.

Back-hoe in operation, Dongri Buzurg mine, MOIL

Captive Power Plant

Considering the increases in Power Tariff imposed by M.P.E.B. and its poor quality and also restrictions, the Company is setting up Captive Power Plant at Balaghat Mine. Due to slow down in the Steel Industry and the high cost of imported Furnace Oil based D.G. Set, the Company has decided to install indigenous Diesel based D. G. Set. In the First phase, 2x1000 KVA DG sets are being installed for use in mines. Regarding Captive Power Plant for Ferro Manganese Plant, techno-economic studies for diesel based indigenous D.G. sets are being carried out.

Cost Reduction Plans

The Company has introduced following cost reduction measures :

- Proper manpower planning and introduction of Voluntary Retirement Scheme (without replacement) to reduce surplus manpower.
- Judicious mechanisation of various mining operations.

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 deep under-ground working. This requires extra attention to be paid to various aspects viz.support system, ventilation and efficient filling of the voids arising out of extraction of ore. Continuous emphasis is laid on training of employees. Mine working is regularly inspected by members of Pit Committees Workman Inspectors, Safety Officer and General Manager (Safety).

Safety weeks are observed & exhibitions are held to inculcate safety habits to ensure safe working. Safety Committee meetings are regularly held during which any unsafe act committed/observed by any mine worker is discussed to avoid recurrence. The Company pays special attention to ensure safety of the mines & work force employed therein. The Company has participated in Regional Safety Competition and has won 50 prizes. The Company has bagged the prestigious National Safety Award for the years 1995 and 1996 for its Balaghat, Ukwa and Tirodi Mines.

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 solutions to major problems. There is continuing effort to strengthen this arrangement. In addition works/ Canteen/ Grievance committees are functioning satisfactorily at each unit. The members of these committees are from different sections of employees.

Environmental Protection

The Company is conscious of its responsibility towards protection of environment in it's leasehold areas. 42000 saplings were planted during 1998-99 at different mines with a survival rate of about 80%. The Company has been awarded the Misrilal Jain, Environment Award by Federation of Indian Mineral Industries(FIMI). This is a national level award and has been given for the commendable work done in the field of Environment protection.

Progressive use/Awards for implementation of Hindi

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

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

The Company has received the National level Indira Gandhi Raj-Bhasha Award instituted by Govt. of India, Ministry of Home Affairs. The Company has also bagged the Raj-Bhasha Chal-Vaijayanti Award from Ministry of Steel.

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 social welfare promotion scheme.

Personnel

The composition of the work force of the Company as on 31st October 1999 was as under :

Group	S.C.	S.T.	O.B.C.	Others	Total
A	22	6	20	159	207
B	20	11	23	165	219
C	343	394	490	718	1945
D	1115	1663	2112	883	5773
Total	**1500**	**2074**	**2645**	**1925**	**8144**

Out of the total number of 8144 employees 948 are women.

MSTC Limited

Introduction

MSTC Limited (formerly known as Metal Scrap Trade Corporation Limited) was incorporated as Public Limited Company under the Companies Act, 1956 on 9th September, 1964. The status of the Company underwent change in February 1974 to that of a subsidiary of Steel Authority of India Limited (SAIL). In the year 1982-83, the Corporation was converted into a Government of India Company transferring the shares of SAIL to President of India. It was the Canalising Agency for import of carbon steel melting scrap, sponge iron/hot briquetted iron and re-rollable scrap till February, 1992. It was also the canalising agency for import of old ships for breaking, import of which was decanalised and put under OGL w.e.f. August, 1991. Presently, Company undertakes disposal of ferrous and non-ferrous scrap arisings from integrated steel plants under SAIL/RINL etc. and disposal of scrap, surplus stores, etc. from other Public Sector Undertakings and Govt. Departments in competition with any other private trader.

Capital Structure

Share capital

The Company has an authorised capital of Rs.5 Crores and paid up capital of Rs.2.20 Crores as on 31.3.99 of which approximately 90% is held by President of India and balance 10% by members of Steel Furnaces Association of India, Iron and Steel Scrap Association of India and others. Paid up capital of Rs.2.20 crore includes Bonus Shares issued in the year 1993-94 in the ratio of 1:1.

Reserve & surplus

Reserve & Surplus balance as on 31.3.99 was Rs.50.32 crores.

Location of units

The registered and corporate office of the Company is in Calcutta, with four Regional offices located at Calcutta, Delhi, Chennai and Mumbai and Branch offices at Visakhapatnam, Bhopal, Bangalore and Vadodara and two resident offices at Bokaro and Rourkela.

Organisational Structure

The Chief Executive Officer of the Company is the Chairman-cum-Managing Director who is assisted by three Chief General Managers and five General Managers in-charge of various Divisions.

Activities

The Company has two major spheres of activities i.e., International Marketing and Domestic Marketing.

Domestic Marketing

Company undertakes disposal of ferrous scrap and other secondary arisings generated in integrated steel plants under SAIL, RINL, etc. and disposal of scrap, surplus stores, etc. from other public sector enterprises and Govt. Departments including Ministry of Defence. Company is now endeavoring to enter into trade of finished steel products.

International Marketing

After decanalisation in February 1992, the demand for imported scrap was considerably reduced in the country. The company has, therefore, enlarged its import basket and it now undertakes import of scrap on behalf of large industrial houses on back to back order basis, and other items such as petroleum products, superior kerosene oil, furnace oil, ferro-alloys, slab-end cuttings, DR Pellets, etc. as per the needs of actual users in competition with other private parties.

Subsidiary of MSTC

MSTC plays yet another role of a holding company of FERRO SCRAP NIGAM LIMITED (FSNL) whose 60% share are held by MSTC and 40% by Harsco Corporation incorporated, USA. FSNL is engaged in salvaging and processing of scrap for recycling in the SAIL Steel Plants and elsewhere)

Performance during 1998-99

Volume of sales achieved during the year 1998-99 was Rs.486.18 crores against a target of Rs.565 crores and Rs.497 crores during the corresponding period last year. The main reason for short fall in the area of Domestic Marketing compared to target and last year's achievement was lower disposal of scrap from Steel Plants under SAIL. Generation of scrap from integrated steel plants have come down drastically due to Modernisation of Steel Plants and due to cash crunch. Steel plants are selling directly to customers at a heavy discount and also recycling their own scrap to the maximum extent possible.

In the area of International Marketing total volume of sales achieved during the year 1998-99 was Rs.82.57 crores as against a target of Rs.100 crores and 'nil' imports for the corresponding period last year.

Marketing Scenario : 1999-2000

Domestic Marketing

Volume of sales achieved during the period April-September 1999 was Rs.232.68crores against a target of Rs.228 crores and Rs.215.56 crores achieved during the corresponding period last year. The achievement is 102% of the target and 108% of the corresponding period last year.

In the area of Domestic Marketing, a target of Rs.565 crores was fixed for the year 1999-2000.

It was anticipated that MSTC will be able to do some business in finished steel. However, despite best efforts it has not been possible to do any business in finished steel. The prospect of business in various steel plants is also coming down primarily because of fall in the disposal of scrap. It is, however, expected that disposal from defence sector will be more than the target for the year 1999-2000. MSTC has also tapped most of the PSUs for sale of their scrap and unserviceable/surplus items and is now pursuing with them for sale of their finished products. It has also entered intoa purchase and sale contract with DSP this year on back to back basis with no risk to MSTC. If this trend continues, it is expected that MSTC will achieve the target of domestic marketing of Rs.565 crore during 1999-2000.

International Marketing

Volume of imports achieved during the period April-September 1999 was Rs.89.35 crores as against a target of Rs.55 crores and Rs.28.78 crores achieved during corresponding period last year. MSTC has imported SKO of around 23,673 tonnes, HR Coils 1071 tonnes, Slab End Cuttings 11,675 tonnes, pellets 61,073 tonnes, Lam Coke 14250 tonnes, HMS 63,310 tonnes, Zinc Ingots 200 tonnes, Ferro Niobium 20 tonnes, shredded scrap 12,000 tonnes. Due to low demand in secondary steel sector, MSTC had to diversify its import basket and import ferro alloys steel items, scrap and petroleum products based on the back to back arrangement with actual users and traders of commodity. During the year MSTC has started import on behalf of large industrial houses such as ESSAR, ISPAT, MUKUND etc. for their imported raw material. It is hoped that the target of Rs.110 crores set for the year 1999-2000 will be achieved.

MOU with Government

During the year 1998-99, MSTC has been awarded "GOOD" rating by DPE on MOU Performance evaluation based on provisional figures of 1998-99.

Physical and Financial Performance

The physical and financial performance for the years 1997-98, 1998-99 and 1999-2000 upto September, 1999 are given below :

Financial Performance

(Rs. in crore)

	1997-98	1998-99	1999-2000 (Upto Sept '99 (Prov.)
Turnover	17.09	104.53	74.48
Operating Profit (before interest depreciation and other provision),	3.19	5.00	3.41
Interest and depreciation	0.34	1.94	1.50
Profit before tax	2.85	3.06	1.91

Physical Performance

	1997-98	1998-99	1999-2000 (Upto Sept '99 (Prov.)
International Marketing			
-Quantity ('000 tonnes)	NIL	148.48	187.27
Value (Rs. in crore)	NIL	82.00	89.35
-Domestic Marketing (Rs. in crore)	497	486.00	232.68
Total volume of business (Rs. in crore)	497	568.00	322.03

For the year 1998-99 the Company declared a dividend of 25% on the paid-up Capital.

Employment Statistics (As on 30.09.1999)

The employment statistics of the company including SC/ST as on 30th September, 1999 are given below :

A) General

General	Executive	Non-Executive	Total
Head Office (Calcutta)	50	89	139
Calcutta (ER)	8	21	29
New Delhi (NR)	13	14	27
Bombay (WR)	12	15	27
Chennai(SR)	11	8	19
Branch Offices			
Bangalore	8	12	20
Vizag	9	4	13
Rourkela	0	2	2
Vadodara	3	0	3
Bhopal	1	0	1
Bokaro	1	0	1
Total	**116**	**165**	**281**

B) Scheduled Casts/Tribes, Ex-Servicemen and Physically Handicapped Persons

Group	Total	SC	ST	PH	Ex-S.	OBC
A	116	12	7	1	-	4
B	104	24	4	2	3	-
C	35	10	3	1	-	2
D	26	11	1	1	-	-
Total	**281**	**57**	**15**	**5**	**3**	**6**

c) Male/Female

	Executive	Non-Executive	Total
Male	101	135	236
Female	15	30	45
Total	**116**	**165**	**281**

Ferro Scrap Nigam Limited (FSNL)

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

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 also 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 one CGM & five GMs. The Corporate office is situated at Bhilai and the Corporation has six field units in the steel plants at Bhilai, Burnpur, Rourkela, Bokaro, Visakhapatnam & Durgapur.

Physical & Financial Performance

Physical Performance

The production performance of FSNL for the last two years and for the year 1999-2000 (upto 30.09.99) are given below :

Item	97-98	98-99	99-2000 (30.09.99) Prov.
Recovery of scrap (Lakhs M.T.s)	14.73	14.98	7.06
Market Value of Prod. (Rs. in crore)	648.12	659.28	310.56

Financial Performance

(Rs.in lakhs)

Item	97-98	98-99	99-2000 (30.09.99) Prov.
Total Turnover i.e, Service charge realised including misc.Income,etc	7214.48	7135.25	4012.09
Gross Margin Before Int.& Dep.	2384.94	2401.00	1336.43
Int.& Dep.	567.77	738.01*	415.50
P.B.T	1817.16	1662.99	920.93

* Includes Rs.58.82 lakhs towards repayment of interest on loan for the moratorium period.

Sales Realisation

Sales realisation per metric tonne for the last two years and the estimated sales realisation for the year 1999-2000 upto 30th Sept.'99 (provisional) are indicated below:

(in Rs.)

Item	1997-98	1998-99	1999-2000
Sales realisation	479.26	460.56	568.43

Employment Statistics

The employment statistics of the Company, including SC/ST as on 30/9/99 are given below:

A. General

General	Executive	Non Executive	Total
Corporate Office	29	38	67
Rourkela Unit	19	203	222
Burnpur Unit	15	124	139
Bhilai Unit	18	258	276
Bokaro Unit	19	225	244
Durgapur Unit	17	150	167
Vizag Unit	19	207	226
Total	**136**	**1205**	**1341**

B. Scheduled Castes/Tribes, Ex-Servicemen and Physically Handicapped Persons

Group	No. of Employees	SC	ST	Ex-S.	OBC
A	136	9	4	3	-
B	326	16	3	-	-
C	875	181	139	56	2
D	4	4	-	-	-
Total	**1341**	**210**	**146**	**59**	**2**

C. Male/Female

	Executive	Non-Executive	Total
Male	136	1186	1322
Female	-	19	19
Total	**136**	**1205**	**1341**

Future Programmes

The integrated steel plants have switched over from conventional open hearth route to BOF-concast route. This has resulted in reduction in scrap & slag arisings without affecting the demand for high quality scrap. In order to meet the increased requirements of the integrated steel plants both in quality and quantity of scrap, FSNL is going for modernisation so as to upgrade the present technology for which discussion with Heckett Multiserv is in progress.

On the basis of discussions/negotiations with steel plants, it has been possible to get some additional jobs awarded to FSNL as per details given below:

1. a) Scarfing of slabs at Bokaro & Durgapur Steel Plant

   b) Crushing, Screening and transportation of L.D.Slag to be used in the Sintering Plant, Blast Furnace and Rail Ballast has been started at Rourkela, Durgapur and Vizag Steel Plant. The Crushing and Screening Plant at Bokaro is under construction and is expected to be commissioned in Feb/March 2000.

   c) It has been decided to install Loading Station having the facility for recovery of scrap from the slag available in the dump

at Durgapur Steel Plant. This will not only effect cost reduction but will fulfill the demand of customers for additional quantity of scrap.

2. FSNL has taken up the job of handling of lime and sludge at Bokaro Steel Plant which is a diversification from the conventional job of ferrous scrap and slag handling activities.

In addition, FSNL is also contemplating to expand their activities in the Private Sector Steel Plants for scrap recovery and processing jobs for which discussions/ negotiations are in process.

MOU with Government

The Company has been awarded 'Very Good' rating by DPE on MOU Performance Evaluation for the year 1998-99.

The Production performance of the Company for the half year ending 30th September'99 is 706158 M.T compared to 683166 M.T. for the same period during 1998-99, thereby achieving a growth of 3.37% over last year.

The Financial performance of the Company for the half year ending 30th September'99 is Rs.4012.09 lakhs compared to Rs.3390.91 lakhs for the same period during 1998-99, thereby achieving a growth of 18.32% over last year.

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 available at various regions in Andhra Pradesh and neighbouring states of Madhya Pradesh and Karnataka went into regular operations in November, 1980. Being a Demonstration plant it is designed to be operated on a semi commercial basis, i.e., both for production of saleable product and for R&D work. Several improvement 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 also paved way for the development of 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 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 used by electric arc furnaces and were being discarded. The Briquetting 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 is set up by SIIL for smelting sponge iron (including sponge iron fines) into high quality (low phos,) pig iron. After having completed the trial runs by January, 1996 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.

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 equipments after making some modifications. The plant is not in operation due to commercial reasons after completion of the modification works.

Finance

The authorised share capital of the Company stood at Rs.40.00 crores on 31/3/1999; 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 production and Financial performance of the Company during the last two years together with provisional figures for 1999-2000, is furnished in the table below:

	1997-98	1998-99	1999-2000 (Provi.) Upto 30.9.1999
Production			
Sponge Iron (t)	57,610	44,110	18,086
Power Generation (LKwh)	115	59	4.49
Capacity utilisation(%)	96	73	60
Sales (t)			
Sponge Iron	45,905	51,520	23,154
Sales Turnover (Rs.in lakh)	2074	2,169	927
Generation of Internal			
Resources (Rs. in lakhs)	-157	-772	-602
Net Profit (Rs.in lakh)	-336	-964	-704

As against the target of 22,300 tonnes, actual sponge iron production upto September, 1999 was 18,086 tonnes representing 81% of the target.

Sales and Profitability

Against a target of 27,850 tonnes upto 30 September, 1999, actual despatches were 23,154 tonnes representing 86% achievement of the target.

Operations upto the end of 30th September, 1999 have resulted in provisional net loss of Rs. 704 lakhs, mainly due to the market condition.

Cost Reduction

The Company has been putting thrust on cost reduction in all the areas so as to reduce the cost of production. The following steps have been taken for cost reduction:

i) CISF has been replaced with the local Home Guards resulting in a saving to the extent of Rs. 35 lakhs per annum.

ii) 103 employees have been separated under VRS so far during the current year resulting in lower wage cost.

iii) Hiring of vehicles in the company has been reduced.

iv) Inventory level of spares and consumables and raw materials also has been brought down.

v) Telephone facilities have been curtailed.

vi) Consumption of iron ore per tonne of sponge iron has been brought down.

vii) Some of the perks to the employees have been curtailed.

Efforts made towards Indigenisation

i) The Company has been putting all its efforts for indigenisation of all the equipment which were earlier being imported. At present the Company has done 100% indigenisation of all equipment and spares.

ii) About Rs. 1.00 lakh worth Double Pendulum Flaps were procured and used in Reduction Plant as import substitution.

Manpower

The total number of Non-Executives as on 30/9/1999 was 352 out of which 65 employees belong to SC Category (18.47%), 35 persons belong to ST Category (9.94%). There are 27 women (7.67%), 7 Physically Handicapped persons.

The total number of Executives as on 30/9/1999 was 58, out of which 11 employees belong to SC Category (18.97%) and no employee belong to ST category.

Group	Total No. of Employees	SC	ST	Ex-Service men	Physically Handicapped	Women
Group A	58	11	-	-	-	-
Group B	62	12	4	-	1	2
Group C	151	32	12	-	3	9
Group D (Excluding Sweepers)	131	15	18	-	3	9
Group D1						
Total	8	6	1	-	-	7
	410	76	35	-	7	27

Employees' participation in Management

As per the directives of the Government of India, a Scheme for Employees participation in Management has been implemented in the Company. Various Committees under the Scheme are reconstituted. The members of the Committees are nominated by the Recognised Union and Officers' Association. With a view to increase in induction of women at various levels in the Management, the women employees are also included in the Committees. The Committees are functioning systematically and their contribution by way of suggestion wherever feasible are implemented.

Some of the Committees have been reconstituted after the Elections for declaring majority union were recently held.

Hindi Implementation

From 01/04/1999 to 30/9/1999, 63 documents were released in bilingual form in accordance with Section 3(3) of Official Languages Act, 1963. 'Learn Hindi Sentences' and 'Hindi Noting, Drafting' Schemes are under progress. Hindi Day has been celebrated on 14/9/1999 and Essay Writing and Elocution Competitions were conducted and winners were rewarded with prizes. The year from 14.9.1999 to 14.9.2000 is being observed as Hindi Golden Jubilee Year and various programmes on Hindi Implementation are being organised as per the directives of Government.

Anti-Pollution Measures

As a part of afforestation programme to control pollution levels, about 400 plants were planted. Regularly the pollution level of stacks emissions and water outlets are being checked by A.P. Pollution Control Board and the actions suggested by them, basing on their report, are attended immediately. Besides, with available facilities pollution level monitoring is done departmentally also, to keep pollution within levels.

Waste Land Development

About 2 hectares of waste land was levelled and about 400 saplings were planted as a part of afforestation and waste land development during the half year.

MECON Limited

General

MECON is the first consultancy and engineering organisation in the country to be accredited with ISO:9001. During the last 39 years, MECON emerged 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 basic engineering, 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 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 and it continues to acquire state-of-the-art technologies from leading 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 addition to its traditional area, MECON has entered into infrastructure area including power, water management, roads & highways, flyovers, material handling & ports etc. MECON is installing an external coal handling system for TNEB on turnkey basis. Further MECON is also providing its consultancy services for Sardar Sarovar Canal Based drinking water supply project of Govt. of Gujarat. In the area of power MECON is providing services to Nevyeli Lignite Corporation, HPCL, etc. MECON has also entered into the area of providing procurement services to various government agencies for execution of health related schemes being financed by multilateral funding agencies.

Location of Various Units

The Registered Office and Head Office of MECON is situated at Ranchi in the state of Bihar. It has a regional office at Bangalore, Engineering Offices at Delhi, Calcutta, Mumbai, Hyderabad and Chennai. Besides, MECON has its major site offices at Bhilai, Bokaro, Durgapur, Rourkela and Duburi to render consultancy, engineering and supervision services to the various steel plants at these locations.

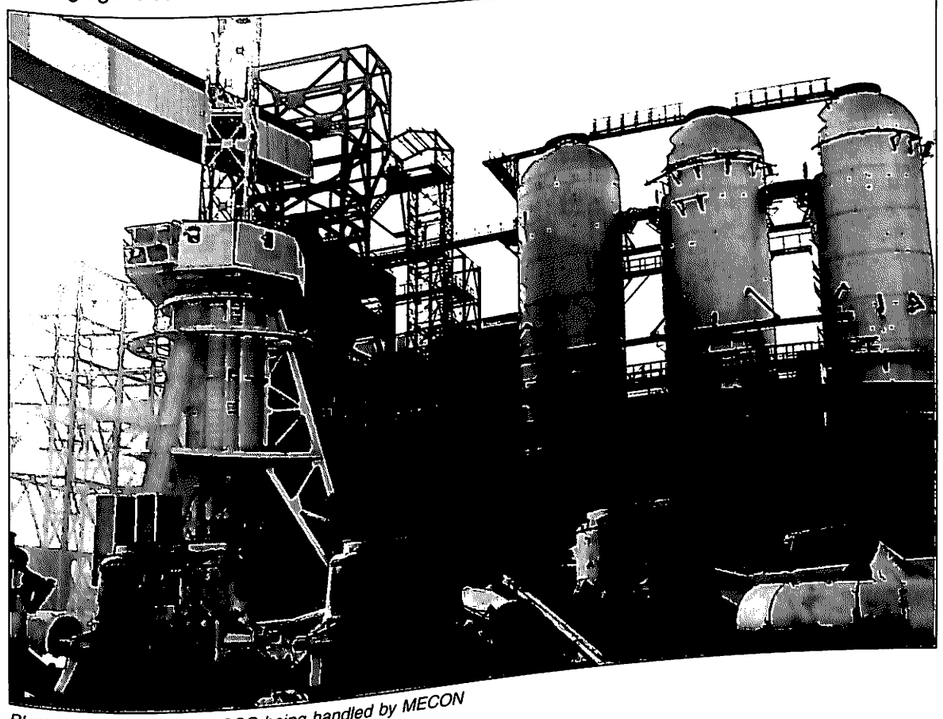
MECON also has an overseas Office at Ajaokuta (Nigeria).

Financial Results

Capital Structure

(Rs in lakhs)

	As on 31.3.1998	As on 31.3.1999
Authorised Capital	400	400
Paid-up Capital	242	242
Secured Loans	300	1,879



Blast Furnace complex, KISCO being handled by MECON

All the shares are held by the President of India or his nominees. Out of the paid up capital of Rs. 241.84 lakhs, Bonus Shares of Rs. 40.31 lakhs were used during the year 1996-97.

Financial Performance

The table below summarises the financial performance of the company during 1997-98, 1998-99 and for 1999-2000 (upto 30.09.99).

(Rs. in lakhs)

Particulars	1997-98	1998-99	1999-2000 (upto 30.09.99)
Turnover	18,581	20,793	8,612
Profit/Loss before Tax	317	(-)1,117	(-) 3,005
Tax Provision	150	Nil	Nil
Profit after tax	167	(-)1,117	(-) 3,005

Management Initiatives

During the year, a number of steps were taken for keeping pace with customer needs and emerging business scenario of working with foreign companies both in India and abroad. Some of these are :

State-of-the-art technology Incorporation

Refineries world over as well as in India are adopting a State-of-the-Art Technology of Integrated Gassification Combined Cycle (IGCC) Power generation from heavy bottom residues for power generation in view of stringent environmental guide- lines in respect of sulphur contents. IOCL assigned MECON to prepare a Detailed Feasibility Report for a 600/700 MW refinery residue based IGCC Plant for Haldia Refinery. MECON carried out the assignment successfully without help from any foreign organisation.

MOU Agreements on Technology & Business Promotion

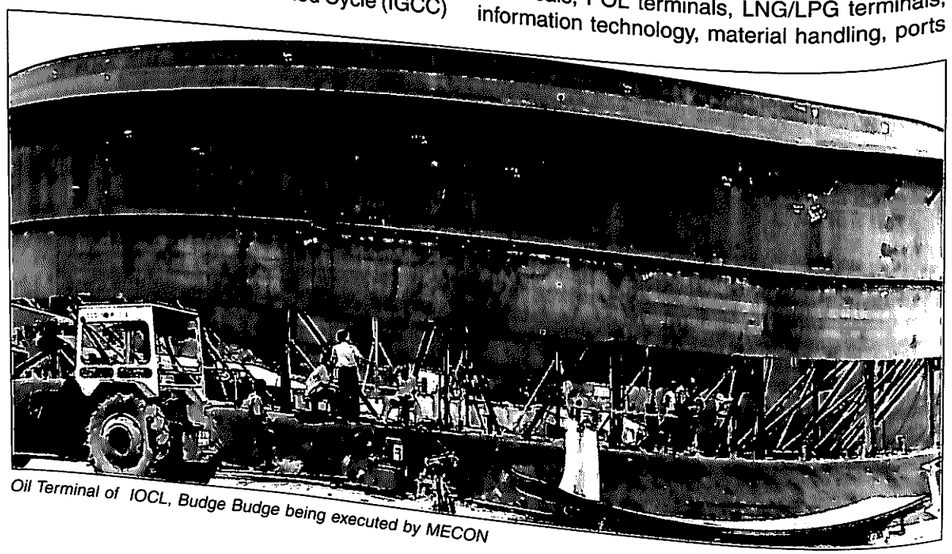
Considering the needs for diversification, gaps in in-house Know-how were evaluated and selective acquisition of Know-how through appropriate tie-ups have been taken up. Accordingly, during the year MECON has signed agreements with reputed national/international organisations. Some of them are:

MOU Agreement with Ministry of Steel on Performance

Like the previous years MECON has signed an MOU with Ministry of Steel & Mines, Department of Steel on 1st May, 1998 for the year 1998-99.

Business Diversification

Oil and gas pipelines, power, refineries, petro-chemicals, POL terminals, LNG/LPG terminals, information technology, material handling, ports and infrastructure continue to be the main thrust area identified for business diversification of your MECON and notable success has been made in securing jobs in these areas.



Oil Terminal of IOCL, Budge Budge being executed by MECON

Foreign Assignments in progress during the year 1998-99

Saudi Arabia

After rendering project execution assistance for Phase-I activities, MECON has signed a Contract with United Gulf Group Company (UGG) for setting up of 3,50,000 tpa Medium Section Mill for providing Consultancy, Engineering, Construction Supervision and Project Monitoring Services for proposed Rolling Mill in the Kingdom of Saudi Arabia.

Nepal

Presently MECON is rendering Basic Engineering and Procurement Services for a Zinc-Lead Pilot Plant Project in Nepal for M/s Nepal Metal Company Limited.

Others

- World Bank, USA has awarded MECON a job to arrange 5 workshops in different States in India on Environmental issues in Power Sector and imparting training to State Government officials on decision making tools.
- Civil, structural engineering and consultancy services for Asian Engineering Project for Zee Engineering Consultants Private Limited, Indonesia.
- Market Survey and Feasibility Study for revival of Chittagong Steel Mill - Bangladesh.
- Saudi Designers Engineering Consultants (SDEC), Kingdom of Saudi Arabia has given a job for consultancy services for ISO-9000 accreditation for their design office at Damman.
- Preparation of 2D detailed and assembly drawings for ABB Preciflex Systems, France.
- Providing engineering services for highways for Tamil Nadu Road Project for Kinhill, Australia.

Indian Assignments in progress during the year 1998-99

- Detailed engineering and consultancy for installation of 1.1 Mt/yr integrated steel plant for Neelachal Ispat Nigam Limited.
- Detailed engineering and consultancy services for installation of 7 m tall coke oven battery for Konark Metcoke Limited.
- Design, engineering, supply of equipment, erection, construction and commissioning of coke oven battery No.5 of RSP, SAIL, Rourkela, on turnkey basis.
- Detailed engineering for Stainless Steel Cold Rolling Mill(CRM) for Jindal Strips Limited, Detailed engineering for Hot Strip Mill of Jindal Vijayanagar Steel Plant.
- Consultancy for Rowghat Iron Ore Mines of Bhilai Steel Plant
- 350 m^3 Blast Furnace of KISCO for Indomag Steel Technology Limited and fabrication, supply and erection of 1600 T of structures for overhead conveyor of Captive Power Plant and Central Repair Shop of KISCO, Mangalore.

Assignments in diversified areas in progress during the year 1998-99

Oil and Gas

- Engineering, procurement, supply, fabrication, erection and commissioning of Insitu Combustion System at Santhal Phase-II, Mehsana of Oil & Natural Gas Corporation Limited.
- Engineering, procurement and construction of Butene-I Revamp at MGCC of Indian Petrochemicals Corporation Limited, Nagothane (Maharashtra).
- Basic and detailed engineering, consultancy, procurement services for Petroleum Coke Handling Facilities for Indian Oil Corporation Limited, Barauni.

Power

- Consultancy, engineering and project monitoring services for expansion of Steam Generation Plant at Alumina Refinery at Damanjodi for National Aluminium Company Limited.
- Engineering and consultancy services for 2 x 25 MW Gas Turbine based Cogeneration CPP and Consultancy services for 60 tph HRSG Cogeneration Power Plant for HPCL, Visakhapatnam.
- Consultancy for 2 x 210 MW expansion of Thermal Power Station-I of Neyveli Lignite Corporation, Neyveli.

- Engineering and procurement services for 57.5 MW Cogeneration Power Plant at Hospet for Kalyani Steels.

Environment

- Consultancy for Industrial Pollution Control Project for West Bengal Pollution Control Board.
- Supply, erection, testing and commissioning of Ventilation System for waste management facility and air handling units for control building and turnkey contract for ventilation facilities for Nuclear Power Project at Kaiga for Nuclear Power Corporation, Karnataka.

Material Handling

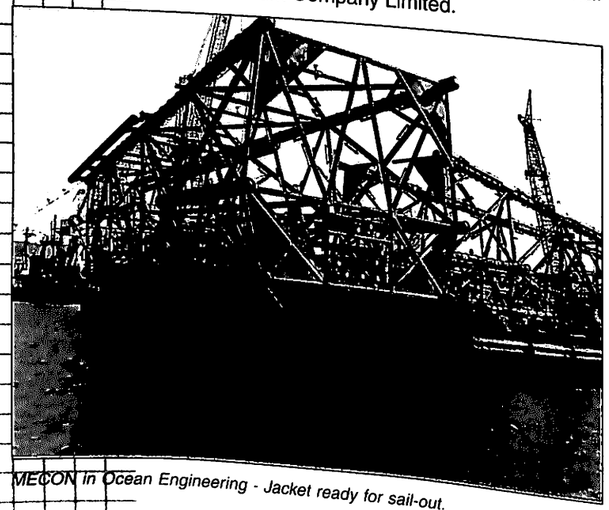
- Design, engineering, manufacture, supply, storage, construction of civil and structural works, erection, painting, testing and commissioning of External Coal Handling System Package-II for Tamil Nadu Electricity Board, Chennai.

Ports

- Consultancy services for ship unloading system,Ennore Port.
- Detailed engineering for 4th Oil Jetty,Kandla Port trust for FRH(India).

Infrastructure

- Consultancy for Rail Transportation System at Damanjodi/ Visakhapatnam for National Aluminium Company Limited.



MECON in Ocean Engineering - Jacket ready for sail-out.

- Engineering, procurement and site supervision services for NALCO's Township at Damanjodi.

Information Technology

- Computerisation of oil accounting system for Indian Oil Corporation Limited, Mathura.
- Software engineering for supply and customisation of IMS 2000 package for Madras Refineries Limited, Chennai.

ISO-9001/ISO 14000

- Consultancy services for implementation of ISO Quality System for National Aeronautical Laboratory, Bangalore.
- Consultancy services for implementation of ISO Quality System for National Institute of Oceanography, Goa.

Other Assignments

- Design, engineering, manufacture, supply, storage, civil works, erection, testing and commissioning of a Geo-technical Centrifuge for IIT, Mumbai.
- Quality Assurance (QA) services for construction of industrial sheds/buildings, fire water tanks and pipes for LPG Bottling Plant of Indian Oil Corporation Limited.
- Consultancy services for hillock protection at Rokhia for Gas Authority of India Limited (GAIL).

Assignments completed during the year 1998-99

- Preparation of Feasibility Report for 600/700 MW Refinery Residue based IGCC Power Plant of IOCL at Haldia and 2 x 250 MW at Vadodara.
- Commissioning of Birla Copper Project at Dahej.
- Detailed engineering for 1.57 Mt/Yr Jindal Vijayanagar Steel Project.
- Detailed engineering and consultancy services for New Note Press Project at Mysore.
- Detailed engineering for National Physical & Oceanographic Laboratory for Anechoic Tank Facility at Cochin.
- Renovation, modernisation and uprating study report, DPR and tender specifications for Hydel Power Stations at Periyar, Kodayar and Sholayar-I & II of TNEB.
- Renovation, modernisation and uprating, tender evaluation report for Units 3 & 4 (Phase-I) of Hirakund Hydel Power Station. The report has been accepted by KfW.
- Request for qualification (RFQ) document for 2 x 67.5 MW IPP for Bihta Thermal Power Station of BSEB.
- Request for proposal (RFP) documents for refurbishing of 1550 MW Obra Thermal Power Station of UPSEB.

Research & Development

- The first in-house developed 6-HI mill has been successfully commissioned during November,1998 at M/s Hero Cycles, Ludhiana. This project was jointly funded by DSIR,MECON and Hero Cycles under PATSER scheme of DSIR.
- An 'Optical Setting Device' for alignment of entry roller guide has been supplied to TISCO, Jamshedpur in October, 1998 and an 'Optical Setting Projector' for alignment of finishing mill guides has been supplied to VSP during March,1999. Both the products are in-house developed import substitution.
- An in-house developed 'Laser Based Positioning System for CO Battery' has been supplied and installed successfully on turnkey basis at the Pusher Car-I, Battery No.I of VSP. It is an import substitution product.
- The work on the DRDO sponsored project 'Development of Solid State Cooling Garment for Tank Crew' and DST sponsored project 'Development of Thermoelectric Cooling Boxes for Various Applications' are progressing satisfactorily.
- After successful installation of 'Off-line Intelligent Diagnostic Expert System' to various steel plants, a proposal on "Development of an on-line Expert System for Continuously Cast Products(billet/bloom/slab)" was submitted to Ministry of Steel & Mines for partial funding from SDF. The Ministry has sanctioned Rs.14 Lakhs out of total project cost of Rs.28 Lakhs. The work on the project is progressing as per schedule.

Conservation of Energy

MECON received a prestigious assignment from Ministry of Steel & Mines,Government of India,New Delhi for carrying out an in-depth study of 10t Electric Arc Furnace(EAF) and 5 Induction Furnace plants for overall improvement of energy conservation. The study has been conducted on an all India basis.

Human Resource Development

- As a knowledge-intensive organisation, MECON's core competencies are focussed on creativity and continuous pursuit for innovations. These issues are being deftly focussed through comprehensive HRD endeavours aimed at achieving organisational excellence. During the current financial year, greater emphasis has been laid on imparting training to the employees not only in the traditional areas of competence but also in the emerging areas. Some of the important fields in which training has been imparted are :
- Coastal structures and marine engineering
- Advanced computer courses
- Prima Vera package for Project Management
- Hydro engineering
- Management of turnaround and transformation
- Waste water management
- Energy management
- Infrastructure planning and financing
- Expert system and artificial neural network in civil engineering
- Cryogenics in air separation plants
- Seismic designs
- Modernisation of power plants
- Financing of energy sector in developing countries.

Besides these, employee empowerment on marketing, contract management, taxation, labour management etc have also been given sufficient stress.

Manpower Position

The company has been able to reduce its employee strength from 3287 as on 31.03.1998 to 3250 as on 31.03.1999. Out of the employee strength of 3250, 718 belong to Scheduled Caste and Scheduled Tribe categories. MECON continued with its Voluntary Retirement Scheme and 9 employees availed the benefits under the VRS.

Industrial Relations

At 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.

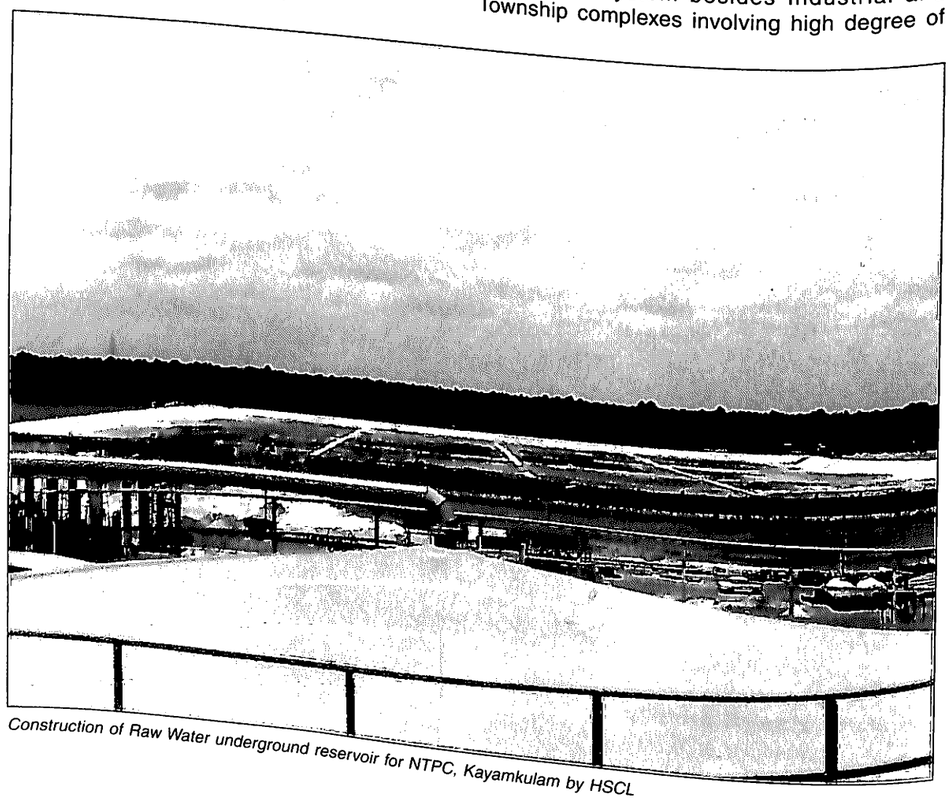
Official Language Policy (Use Of Rajbhasha)

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 Offices of MECON with full vigour. In addition to coaching, workshops and training programmes for doing work in Hindi were organised. MECON received a shield for propagating Official Language Policy by the Government of India, Ministry of Home Affairs, Deptt. of Official Language at a colourful function held at Bhubaneswar.

Hindustan Steelworks Construction Limited (HSCL)

General Background

Hindustan Steelworks Construction Limited (HSCL) was incorporated in June,1964 with the primary objective of creating in the Public Sector an organisation capable of undertaking complete construction of modern integrated steel plants. HSCL has executed works in Steel Plants right from the 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 Bhadravati Steel Plant. With the tapering of works, the company diversified its activities in other sectors like Power, Coal, Oil and Gas as also infrastructural facilities like Roads and Highways, Bridges, Dams, Underground communication and Transports system besides Industrial and Township complexes involving high degree of planning, co-ordination and modern sophisticated techniques.



Construction of Raw Water underground reservoir for NTPC, Kayamkulam by HSCL

The Company has developed its expertise in the areas of Piling, Soil investigation, Massive Foundation works, High rise structures, Structural Fabrication and Erection, Refractory, 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 allied areas in the Integrated Steel Plants.

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

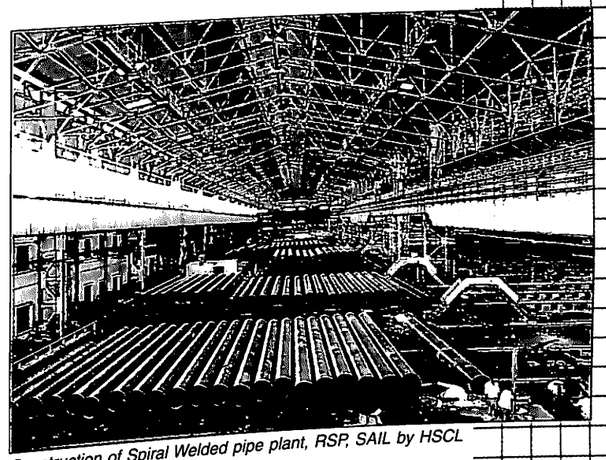
Capital Structure

The authorised and paid up capital as on 30.9.'99 was Rs.20 crores. Govt. of India has sanctioned conversion of Plan Loan of Rs.97.10 crores into equity through its approval of Financial restructuring-cum-Financial assistance package of HSCL. Actions are already in hand to increase the authorised and paid up capital from Rs.20 crores to Rs.150 crores and Rs.117.10 crores respectively during the current financial year.

The total amount of GOI loan outstanding at the end of Sept'99 was Rs.290.03 crores (Plan - Rs.100.10 crores and Non-plan - Rs 189.93 crores).

Financial Restructuring

The Government of India Ministry of Steel had approved the Financial Restructuring-cum-financial assistance package with effect from 1.4.'99 which includes inter-alia conversion of Plan Loan of Rs.97.10 Crores as on 31.3.'99 into Equity, Grant of Moratorium on repayment of Interest Holiday on all Govt.of India loans upto 31.3.99 for 10 years, waiver of interest accrued and outstanding on all Govt.of India Loans as on 31.3.99 upto Rs.975.17 Crores, providing further Non Plan Loan of Rs.79.33 Crores during 1999-2000 with moratorium on repayment and interest holiday for 5 years, waiver of commission on GOI guarantee,exemption from payment of Corporate Tax in 1999-2000.



Construction of Spiral Welded pipe plant, RSP, SAIL by HSCL

The Govt. has also approved a provision of "Govt. of India counter guarantee" as also full interest subsidy for raising loans of Rs.318.36 Crores, in phases, from Banks for the purpose of payment of terminal benefits to the employees estimated to be retiring under VRS during 3 years from 1999-2000.

Performance

The financial performance of the company during the period 1998-99 and 1999-2000 was as under:

(Rs.in crore)

Year	1998-99	1999-2000 (April-Sept.) Prov.
Turnover	222.77	96.59
Gross Loss	88.79	49.50
Net Loss	**281.58**	**54.72***

* On account of waiver of interest, on Govt. of India loan outstanding upto 31.3.'99, approved by Govt. of India, interest has not been considered while deriving the net loss.

The bulk of the total loss for 98-99 arises out of interest burden on Govt. loan.

On account of general recession in the economy coupled with substantial curtailment of capital projects by SAIL, HSCL's turnover has decreased. The downward slide is only temporary. With the expected turnaround in the economy, substantial improvement in turnover is expected in 1999-2000.

HSCL secured orders valuing Rs.199.11 crores from 1.4.'99 to 30.9.'99 (PSU Steel Sector Rs.15.46 crores(7.76 %) and Non steel works including Non PSU steel sector Rs.183.65 crores (92.24 %).

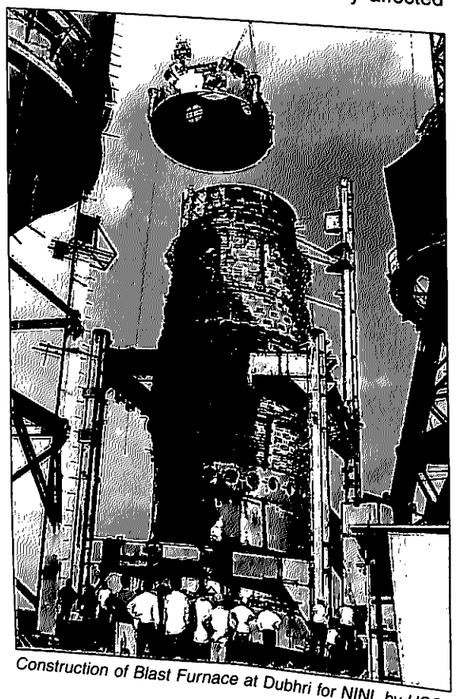
Manpower Position

The manpower position of the company as on 30.09.99 alongwith the statistics of the SC/ST, Female, Ex-servicemen & Physically Handicapped Employees is given below.

Group	Total Strength	SC	%age	Female Employees	Ex-servicemen	Phy. Handicapped
A	1,390	128	9.21	12	6	5
B	737	90	12.22	17	7	9
C	10,397	3,130	30.10	851	52	23
D	796	214	26.88	24	120	8
Total	**13,320**	**3,562**	**26.74**	**904**	**185**	**45**

Due to reasons beyond its control the Company was carrying excess manpower strength of 22902 in the year 1985-86 which was far beyond its requirement and adversely affected the profitability of the company, and to reduce the manpower, the company decided to introduce Voluntary Retirement Scheme on the line of DPE's approved scheme in 1986-87. Till March,1999 a total of 8068 no of employees could be separated under the scheme. In addition, 1514 employees were separated through normal retirement, resignation, death etc.

The present strength of 13320 is also considered, very high and a further reduction of around 6000 employees have been planned between 1999-2000 to 2001-2002. The current year's target of separation of 2000 employees is expected to be met, subject to availability of funds.



Construction of Blast Furnace at Dubhri for NINL by HSCL

As per the restructuring-cum-revival package approved by Govt. it is planned to raise Rs.318.36 crores in 3 years from Banks to meet the above target of VRS. Efforts are already on to raise the 1st instalment of Rs.103 crores through State Bank of India.

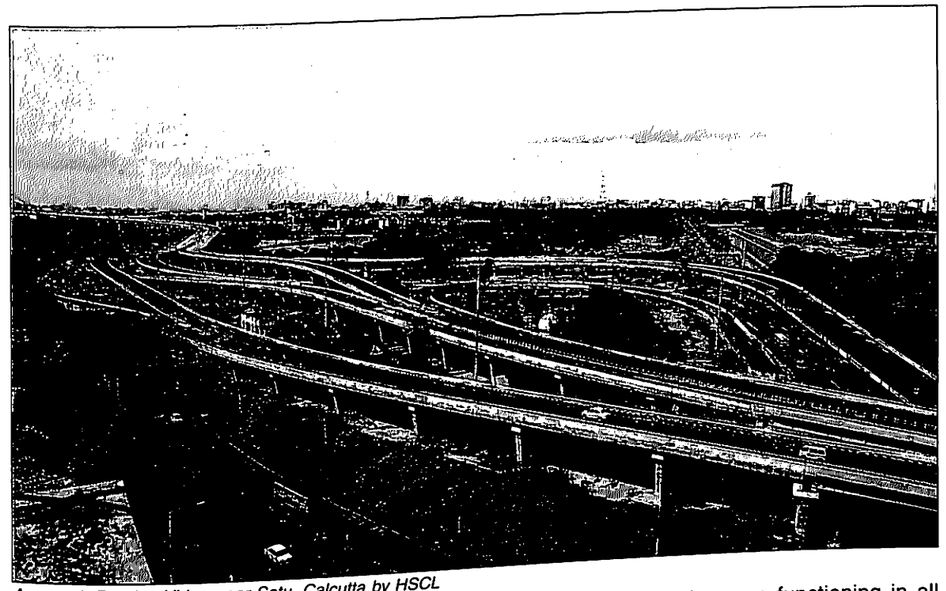
Social Welfare

Welfare Plan For SC/ST

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



Approach Road to Vidyasagar Setu, Calcutta by HSCL

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 dependants 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 of Rs.10/- per month.

Safety Measures

HSCL has formulated safety code andf ollowing steps have been taken for its implementation :

a) Safety Organisations are functioning in all the major Steel plant units with safetry engineers reporting to respective heads of units.
b) 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 worksite in HSCL.

Workers' participation in Management

S.No.	Name of the Committee/Council	Details
1.	Joint Productivity Council	Joint councils at unit level for major units at Shop Council BS 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 independent Unions. From the inception of the formation of the Apex level Joint Forum Body in 1981, there have been 31 meetings till 30.9.99

Bharat Refractories Limited (BRL)

Brief History

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

(i) Bhandaridah Refractories Plant at Bhandaridah;

(ii) Ranchi Road Refractories Plant at Ramgarh;

(iii) Bhilai Refractories Plant at Bhilai; and

(iv) IFICO Refractories Plant at Ramgarh;

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

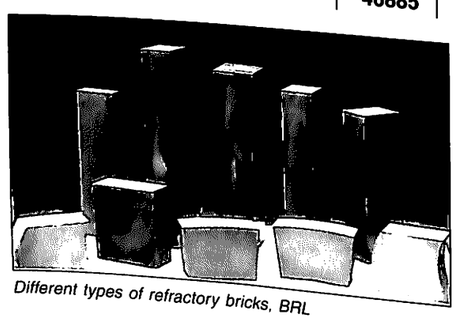
The authorised share capital of the Company as on 31st March, 1998 is Rs.11300 lakh against which the paid-up capital is Rs. 10390 lakh.

Production Performance

The production performance of the different units of the Company during 1998-99 and 1999-2000 (upto September, 1999) was as follows :

(Quantity in tonne)
(Value Rs. in Lakh)

	1998-99		1999-2000 (Prov.) upto Sept.1999			
	Actual		Target		Actual	
	Qty.	Value	Qty.	Value	Qty.	Value
Bhandaridah Ref. Plant (BhRP)	15635	1987.49	11544	1238.88	9071	1100.25
Ranchi Road Ref. Plant (RRRP)	5935	2133.45	3372	997.20	3267	947.33
Bhilai Ref. Plant (BRP)	11453	2087.80	16944	2865.18	6504	1136.72
IFICO Ref. Plant (IFICORP)	7862	1112.34	8640	1713.60	5217	752.53
	40885	**732.08**	**40500**	**6814.86**	**24059**	**3936.83**



Different types of refractory bricks, BRL

Foreign Collaboration

Bharat Refractories Ltd. has been able to adapt successfully, the technical know-how acquired from KRC Ltd., Japan 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, 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 has 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 is under active consideration of Government for its approval.

Research & Development

During the year 1998-99, in-house R&D was carried out in respect of the following areas :

1. Improving the life of the Magnesia Carbon Bricks used in L.D. converters
2. L.D. Gunning Mass
3. Fireclay bricks for capital repair of coke-oven of BSL
4. Zee quality refractories used in different areas i.e. ladle purging system.
5. Tundish well block etc.
6. Ladle well mix.
7. Inflow mass for S/G system

Most of the above products are developed and commercialised which in turn, resulted in an upward thrust towards the performance of the Company.

Expenditure on R&D during 1998-99 was Rs.82.23 lakh.

Energy Conservation

Some of the steps taken for improvement in the conservation of energy are as under:-

a) Pre-heating of Furnace Oil is done for achieving better atomisation of oil in burners.

b) Calibration of Fuel pump and nozzle of engines at regular intervals.

c) Adoption of appropriate setting pattern of green bricks.

d) Uses of recommended lubricating oil for engines.

e) Switching off of unwanted load for reducing electricity consumption.

Environment Management and Pollution Control

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

Industrial Relations

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

Safety Measures

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

Manpower

The manpower position of Bharat Refractories Ltd. as on 30th Sept, 1999 was as follows:

Indicator	Total no. of employees	No. of SC	No. of ST	No. of Ex-Servicemen	No. of Phy. Handicapped	No. of Women employees
BRL	3604	364	477	74	30	165

Contract Labour

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

Implementation of 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, Meetings and Training Programmes were conducted from time to time. As a result, the Company has been awarded the prestigious Indira Gandhi Rajbhasa Shield for the highest work done in Hindi in the 'A' region consecutively for four years from 1993-94 to 1996-97 and also Ispat Rajbhasa shield consecutively for two years from 1995-96 to 1996-97 for achieving targets of annual programmes to the highest extent.

Vigilance Organisation

The Company has a good organisational set up of officials looking after the vigilance functions including a part time Chief Vigilance Officer appointed under orders of the Government of India. Training programme on vigilance for non vigilance employees were organised in various units of the Company and a sense of awarness spread all over the Company by way of transparent communications on all sensitive matters according to the directives of the Central Vigilance Commission. Preventive vigilance excercises were carried out during the year in order to strengthen the vigilance administration.

Bird Group of Companies

Introduction

The undertaking of the erstwhile Bird & Company Limited was 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 of the Bird & Co. came under the administrative control of the Ministry of Steel:

a) Eastern Investments Limited (EIL)
b) The Orissa Minerals Development Co. Ltd. (OMDCL).
c) The Bisra Stone Lime Company Limited (BSLC).
d) The Karanpura Development Co. Ltd. (KDCL).
e) Scott & Saxby Ltd. (SSL).
f) Kumardhubi Fireclay & Silica Works Ltd. (KFSW).
g) Burrakar Coal Co. Ltd. (Burrakar).
h) Borrea Coal Co. Ltd. (Borrea).

The KFSW was engaged in manufacturing and marketing of refractory materials and was linked with Bharat Refractories Limited.

EIL is an investment company formed by amalgamation of other investment companies of Bird Group. Coal Companies - Burrakar and Borrea, have become non operational after nationalisation of coal mines. Three Companies, viz., OMDC, BSLC & KDCL are mining companies. Scott & Saxby Ltd. is engaged in jobs relating to sinking of deep tube-wells and mineral exploration.

Performance of Operational Companies of Bird Group (Excluding KFSW)

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

i) Excessive manpower, high wage structure and heavy burden of fixed expenses.
ii) Huge accumulated losses.
iii) Erosion of working capital.
iv) Heavy burden of outstanding liabilities.
v) Inadequate corporate plan.
vi) Inadequate market demand particularly of BSLC's products due to change in steel making technology.
vii) Continuous pressure from unions for higher wages leading to strained industrial relation.

During the past few years majority of the basic problems listed above were and are being tackled through carefully prepared action plans. With active support from the Ministry of Steel, problems relating to excessive manpower, erosion of working capital etc. have been tackled to a great extent. Side by side 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 for the past few years as well as the current year is indicated in the following table.

	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99- 2000 (April to Sept. 99)
Sales (Rs. in lakhs)	3312	3602	3908	4773	5147	3681	3494	1697
Gross Margin before charging int. on Govt. loans & Deprn. (Rs. in lakhs)	- 171	+ 13	+276	+538	+241	-112	- 104	- 175

It may be observed from the figures given above that the group had registered a continuous growth in terms of sales turnover till 1996-97. Against the negative gross margin before charging depreciation and interest on govt. loans during 1992-93 to the extent of Rs. 171 lakhs, the situation considerably changed during 1995-96 when there was positive figure of Rs. 538 lakhs. The highest turnover of Rs. 5147 lakhs was however achieved during 1996-97 against Rs. 3312 lakhs during 1992-93. The performance of the operating companies particularly the main companies i.e. Orissa Minerals Development Company Limited (OMDC) and The Bisra Stone Lime Company Limited (BSLC) had a setback since 1997-98 due to fall in demand of their product as a result of recession in Iron and Steel Industry. Though the overall turnover had considerably come down yet as a result of the efforts made for cutting the cost, the negative gross margin could be kept under control. It is anticipated that due to various steps taken, the group as a whole shall have positive gross margin during 1999-2000 of Rs. 261 lakhs.

Performance of Companies

The Orissa Minerals Development Company Limited (OMDCL)

OMDC 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 ore and manganese ore.

A number of steps have been taken since 1991-92 to improve upon the performance of the company. Earlier company used to be mainly engaged in mining and marketing of iron ore. The operations have now been reoriented towards mining and marketing of both iron ore and manganese ore with greater emphasis on production and despatch of high value manganese ore. The company made net profit during 1994-95, 1995-96 and 1996-97. However, the situation subsequently had a setback due to recession in Iron and Steel Industry. Steps have been taken to further increase production and despatch of manganese ore. Against the positive gross margin (i.e. without charging depreciation and interest on Govt. loan) of Rs. 209 lakhs during 1997-98 the current year is likely to end with a gross margin of Rs. 415 lakhs. The company has also taken steps to reduce manpower cost by implementing Voluntary Retirement Scheme with the help of Government of India, Ministry of Steel. So far 355 employees have been separated out of total strength of 3302 in April'92.

The performance of the Company for the last five years is given below:

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000 (Apr.99 to Sept. 99)
Production ('000 MT)	533	772	768	467	578	231
Turnover (Rs. in lakhs)	2096	2769	3302	1846	2042	805
Gross Margin before charging int. on Govt. loans & Depreciation. (Rs. in lakhs)	389	524	618	209	406	11
Net Profit/Loss (Rs. in lakhs)	31	53	43	-475	- 368	- 457

The Bisra Stone Lime Company Limited (BSLC)

The Company was incorporated in 1910 and was the largest producer of limestone and dolomite in India at one point of time. The Company has mining leases over 2771.62 hectares in Birmitrapur in the District of Sundergarh, Orissa. The mines of the company are situated in a backward area where most of inhabitants are from schedule tribe and schedule caste communities.

Due to change in steel making technology the demand for BSLC's products has considerably come down resulting in heavy losses year after year. Even before charging depreciation and interest on Govt. loans the negative gross margin during the year 1991-92 was Rs. 585 lakhs. Steps were taken to reduce the excessive manpower through Voluntary Retirement Scheme. Also product mix was changed and quality improved. The negative figure could be turned into positive for the first time in 1995-96 since management take over by Government of India. The company thereafter had suffered a set back due to recession in Iron and Steel Industry in general and RINL's almost stopping the lifting of materials from 1997-98 in particular. Efforts are on hand to further reduce manpower and to increase production/despatch of saleable products.

To enable it to survive the company will have to drastically reduce its manpower. With financial assistance from Govt. of India the company successfully implemented voluntary retirement scheme and is pursuing the same further. Against manpower strength of 5115 as on 1.4.92 the present strength is only 1944.

The performance of the Company for the last five years is as follows:

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000 Apr.99-Sept.99.
Production ('000 MT)	834	896	743	666	534	307
Turnover (Rs. in lakhs)	1601	1846	1740	1549	1157	750
Gross Margin before charging int. on Govt. loans & Depreciation. (Rs. in lakhs)	- 126	19 - 361	-332	-516	-185	
Net Profit/Loss (Rs. in lakhs)	**-1513**	**-1629**	**-1477**	**-2223**	**-2590**	**-1307**

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 setback 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.

During the year 1998-99, the company earned positive gross margin before charging interest on govt. loans and depreciation. It is expected that the company will maintain the same trend during the current year i.e. 1999-2000.

With a view to reduce the surplus manpower voluntary retirement scheme has been introduced. Till date 109 employees out of total strength of 203 (as on 1.4.92) have been separated under VRS.

The performance of the Company for the last five years is as follows :

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000 Apr.99-Sept.99.
Production ('000 MT)	93	57	24	83	76	38
Turnover (Rs. in lakhs)	98	47	170	170	156	77
Gross Margin before charging int. on Govt. loans & Depreciation. (Rs. in lakhs)	12	–6	18	9	4	–1.50
Net Profit/Loss (Rs. in lakhs)	**–17**	**–41**	**–56**	**–29**	**–32**	**–20.50**

Scott & Saxby Limited (SSL)

The Company is a wholly owned subsidiary of KDCL with an authorised capital of Rs. 1.00 lakh. The Company is mainly engaged in the activities of sinking deep tube-wells 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' was 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 1997-98 and 1998-99 and the same trend is expected during 1999-2000.

This company is also reducing manpower by introduction of Voluntary Retirement Scheme. Till date 243 employees out of total 365 (as on 1.4.92) have been separated under VRS .

Performance of the Company for last five years is as follows :

	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000 Apr.99-Sept.99.
Turnover (Rs. in lakhs)	57	60	58	116	139	65.00
Gross Margin before charging int. on Govt. loans & Depreciation. (Rs. in lakhs)	1	1	2	2	2	00.30
Net Profit/Loss (Rs. in lakhs)	**-123**	**-130**	**-136**	**-139**	**- 135**	**- 95.60**

Kumardhubi Fireclay & Silica Works Ltd. (KFSW)

Kumardhubi Fireclay & Silica Works Ltd. (KFSW) is one of the oldest refractory units in India, having been set up in 1919 in Kumardhubi in Dhanbad District of Bihar. Management of KFSW, an erstwhile Bird Group Company was taken over by the Govt. of India in 1980.

The company performed well upto end of 1982 whereafter due to its obsolete plant and machinery it started incurring losses. Because of its continued losses a reference was made to Board of Industrial & Financial Reconstruction (BIFR) in 1987 under the provisions of The Sick Industries Companies (Special Provisions) Act, 1985. BIFR declared it a sick company in 1989 . Efforts made to revive this ailing company did not succeed and BIFR in its meeting held on 13th September, 1994 decided to close down KFSW. An appeal was preferred by workers union against the decision of BIFR before the Appellate Authority for industrial and financial reconstruction, who, in their meeting held on 24th November, 1995, have dismissed the appeal of workers union.

Hon'ble High Court of Calcutta vide its order dated 7.01.97 passed the orders for winding up of KFSW and appointed Official Liquidator .

PRIVATE SECTOR

The Tata Iron & Steel Company Ltd.

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 the outdated Duplex Process was replaced by a modern LD Shop along with Continuous Casting and other allied facilities. Immediately, thereafter, the Company started work on Modernisation Programme Phase-II. The principal facilities in this phase included the modern high speed Bar and Rod Mill of 300,000 tpa capacity, raw material Bedding and Blending Yard, 1.37 mtpa Sinter Plant, 2 x 30 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 includes 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. The 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 embarked on the Modernisation Programme Phase-IV where among other projects, crude steel and saleable steel capacity was enhanced. Some facilities introduced in this phase included the 3rd LD convertor and the 3rd slab caster. Subsequently, 100% oxygen steel making and about 95% continuous casting will be achieved, resulting in improvement in yield, lower energy consumption and lower operating cost. The Company is on the verge of completion of the above modernisation programme.

With the additional/new facilities coming into operation, SMS-3, Rolling Mill-1, Sheet mill and Narrow Strip Mill have already been closed down. Rolling Mill-2 is also slated to close down shortly.

Cold Rolling Mill

TISCO is installing a 1.2 Million TPA Cold Rolling Mill at its Jamshedpur Works at a cost of Rs.1800 crores. The mill will have state-of-the-art facilities for pickling, rolling, annealing, galvanising, packaging etc. alongwith associated facilities. The mill is scheduled to be commissioned in 2000.

Production

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

(Unit: million tonnes)

Products	1997-98	1998-99	April-Sept.98	April-Sept.99
Crude Steel	3.226	3.264	1.640	1.669
Saleable Steel	3.009	3.110	1.519	1.579
Finished Steel	1.904	2.274	1.044	1.261

Performance Indices

Items	1997-98	1998-99	April -Sept. 98	April -Sept. 99
B.F Productivity				
A-F Furnace	1.29	1.32	1.28	1.38
G Furnace	2.04	2.19	2.10	2.20
Coke rate (Kg/tonne/ hotmetal)	554	543	546	546
Specific Energy Consumption (G.cal/tcs).	8.355	7.997	8.323	7.967

Other Private Sector Units

Status of various segment of steel industry in Private Sector is as under:

Electric Arc Furnace Units

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	188	12055860
Closed Units	148	5614860
Working Units	40	6441000

(ii) Production

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
Mild Steel	1606.70	1509.60	1119.5	420.2
Medium/High Carbon Steel	1086.40	1183.20	1223.2	818.8
Alloy Steel	1058.70	1093.10	769.5	553.9
Stainless Steel	149.60	146.20	314.3	198.7
Others	46.30	2.80	92.2	72.2
Total Reported	3947.70	3934.90	3518.7	2063.8
Total Estimated	166.90	125.40	129.6	-
Grand Total	**4114.60**	**4060.30**	**3648.3**	**2063.8**

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

Hot Rolled Long Products Units

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	1182	23732724
Closed Units	438	8124299
Working Units	744	15608425

(ii) Production

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

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
Bars/Rods (incl. Squares)	1847.6	1836.5	2108.0	908.8
Wire Rods	592.2	1023.4	935.2	449.2
Structure	684.5	814.6	969.4	849.5
Hoops	-	0.2	6.0	4.0
Special Sections	508.1	489.7	270.0	415.0
Slabs/Plates	9.3	0.6	406.6	10.5
Total Reported	3641.7	4165.0	4695.2	2637.0
Total Estimated	2263.6	2147.2	1873.1	1173.5
Grand Total	**5905.3**	**6312.2**	**6568.3**	**3810.5**

Steel Wire Drawing Units

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	88	1200375
Closed Units	43	448417
Working Units	45	751958

(ii) Production

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

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
Mild Steel	126.8	125.0	128.1	75.1
Medium/High Carbon	224.2	221.6	204.6	123.0
Alloy Steel	9.2	9.0	10.4	6.1
Stainless Steel	11.2	13.9	13.5	6.7
Others	9.7	12.9	12.3	3.6
Total Reported	381.1	382.4	368.9	214.5
Total Estimated	93.2	94.3	48.8	26.2
Grand Total	**474.3**	**476.7**	**417.7**	**240.7**

Hot Rolled Steel Sheets/Strips/Plates Units

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	12	6302500
Closed Units	5	262500
Working Units	7	6040000

(ii) 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 three years is given below :

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
Hot Rolled Steel Sheets/Strips	1979.7	2254.5	2604.9	1990.8
Plate	185.0	227.7	228.8	180.9
Total Reported	2164.7	2482.2	2833.7	2171.7
Total Estimated	60.3	73.8	-	-
Grand Total	**2225.0**	**2556.0**	**2833.7**	**2171.7**

Cold Rolled Steel Sheets/Strips Units

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	76	2980696
Closed Units	16	233480
Working Units	60	2747216

(ii) 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 three years is given below :

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
Mild Steel	1383.9	1558.9	1960.0	1155.9
Medium Carbon Steel	60.9	79.6	55.7	53.0
High Carbon Steel	-	-	-	-
Alloy Steels	0.6	0.6	1.3	0.6
Stainless Steel	17.1	22.3	29.3	16.8
Others	70.7	67.5	43.6	148.4**
Total Reported	1533.2	1728.9	2089.9	1374.7
Total Estimated	227.8	205.5	228.2	133.5
Grand Total (Including Electric Sheets 37.2)	**1761**	**1934.4**	**2318.1**	**1508.2**

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

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	19	1603250 (Incl. colour coated)
Closed Units	3	84500
Working Units (Including C.D. No. 2 Units)	16	1518750

(ii) Production

Production of GP/GC sheets/strips units, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during the last three years is given below :

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
GP/GC Sheets/strips (including colour coated)	628.6	777.0	911.1	664.1
Total Reported	628.6	777.0	911.1	664.1
Total Estimated	-	-	-	-
Grand Total	**628.6**	**777.0**	**911.1**	**664.1**

Tin Plate Units

(i) Status

	Number	Capacity (M.T.)
Commissioned Units	2	150000
Closed Units	1	60000
Working Units	1	90000

(ii) Production

Production of tin plate units, which are reporting their production to the office of the Development Commissioner for Iron & Steel, during the last three years is given below: -

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99)
Oil Can Size	35.3	39.0	66.7	44.7
Non Oil Can Size	13.0	14.5	-	-
Total Reported	48.3	53.5	66.7	44.7
Total Estimated	-	-	-	-
Grand Total	**48.3**	**53.5**	**66.7**	**44.7**

Sponge Iron Units

Presently there are 26 units covering a capacity of 6.479 million tonnes per year. Out of these, there are 23 coal based units covering a capacity of 2.719 million tonnes per annum and 3 gas based units, covering a capacity of 3.760 million tonnes per annum.

Production of Sponge Iron Units, which are reporting their production to the Office of the Development Commissioner for Iron & Steel, during the last three years is given in Table-I below:

Table-I

(In '000 tonnes)

Category	1996-97	1997-98	1998-99	1999-2000 (Apr.-Oct'99) (P)
Total Reported	4940.57	5325.00	5165.7	3089.4
Total Estimated	56.70	-	-	-
Grand Total	**4997.27**	**5325.00**	**5165.7**	**3089.4**

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.

Post liberalisation, considerable interest was shown by a large number of entrepreneurs, for setting up mini blast furnaces for production of hot metal/pig iron. The Financial Institutions/ Commercial Banks have sanctioned financial assistance to 21 units with net pig iron available capacity of approx. 38.74 lakh tonnes per annum (tpa). Of these, 16 units with an aggregate capacity of approx. 20 lakh tpa has already been commissioned and the 5 remaining units are at various stages of implementation.

The sector/ company-wise production of pig iron during the last 5 years are given in Table-II. It may be noted that though the overall pig iron production in the country was lower last year, the contribution of the private/secondary sector units has increased. This is mainly because of lower production by SAIL and RINL for various reasons.

Table-II

Sl. No	Name of the Unit	1995-96	1996-97	1997-98	1998-99	1999-00 (April-Oct.)
1.	SAIL	0.55	0.68	0.78	0.74	0.40
2.	IISCO	0.42	0.35	0.40	0.34	0.23
3.	RINL(VSP)	0.77	0.70	0.52	0.27	0.12
4.	**Total Main Producers**	1.74 (62%)	1.73 (52%)	1.70 (50%)	1.35 (45%)	0.75 (40%)
5.	Private/ Secondary Producers	1.06 (38%)	1.57 (48%)	1.69 (50%)	1.64 (55%)	1.13 (60%)
	Grand Total:	**2.87**	**3.30**	**3.39**	**2.99**	**1.88**

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

The pig iron industry continues to pass through difficult times. Several blast furnaces/units remained closed down. The industry has been adversely affected by the general economic slow down leading to stagnant demand and depressed market conditions, global slump, imposition of anti dumping duty on imported Chinese coke etc. Government have taken several measures for the benefit of the industry and the industry is expected to come out of the present situation soon.

New Steel Projects

The New Industrial Policy announced in July, 1991 have completely opened the iron & steel industry for private investment. Under the new policy and also various other policy initiatives taken by the Government, substantial interest was shown by the private sector in setting up new steel plants. The Financial Institutions also came forward in extending financial support to the initiatives of the Private Sector. Today, there are 19 such projects sanctioned by the Financial Institutions involving a total capacity of approx. 13 million tonnes (Saleable Steel). The aggregate investment is around Rs.30,000 crores.

Of the above, six units with a total capacity of 3.5 million tpa have already been commissioned. Some of the major players are ESSAR Steel Ltd., Lloyds Steel & Industries Ltd. and Jindal Steel & Power Ltd. Four more units namely Southern Iron & Steel Co. Ltd., Jindal Vijayanagar Steel Ltd., Ispat Industries Ltd. and Mukand Ltd. have commissioned part manufacturing facilities for steel and are under trial production. Other units are at various stages of implementation.

Most of the large steel projects under implementation have been facing time and cost over-runs due to the following :

(i) Inability of the promoters to bring in the equity or debt as per the envisaged means of financing

(ii) inability of the promoter to generate cash from their existing business, if any, because of global slump and general slow-down in the economy.

Government have been taking several steps to help the steel industry. The Financial Institutions have also reviewed the last mile steel projects and have extended them need based financial support to ensure their early completion.

RESEARCH AND DEVELOPMENT

Empowered Committee on Research & Development

Ministry of Steel has constituted on 24.2.1998 an Empowered Committee under the Chairmanship of Secretary to the Government of India, Ministry of Steel and with Members drawn from Ministry of Science & Technology, National Laboratories, Steel plants, Consultants, Educational Institutions etc.

Empowered Committee (EC) considers and approves specific research project proposals for funding fully or partially, from Steel Development Fund (SDF).

Research & Technology Mission which will work as the Secretariat of the Empowered Committee is under formulation. A Sub-Committee under the chairmanship of Joint Secretary (Steel) with representatives of the Steel Authority of India (SAIL) and the Tata Iron and Steel Company (TISCO) is working for finalisation of the Memorandum of Association, Rules and Regulations etc. for registration of R&T Mission under Indian Societies Act, 1860.

As per decision of the Cabinet on 19.7.1997, in order to supplement Research and Development effort in iron and steel sector in the country, financial assistance is being provided to R&D purposes from both private and public sectors.

Since 1998-99, the Empowered Committee has met thrice and till 1.3.2000 has approved 20 (18 in the Government and Public Sector and 2 in the Private Sector) R & D projects. The total cost of these projects is Rs. 149.30 crore; out of this Rs. 79.20 crore is to be funded from SDF. So far as on 19.11.1999, Rs. 13.89 crore (Rs. 0.32 crore in 1998-99 and Rs. 13.57 crore in 1999-2000) has been disbursed. The research areas cover mining & beneficiation of minerals, improvement of properties of coal, reduction in energy consumption, reduction of refractory consumption, improvement in productivity, utilisation and treatment of wastes, control of pollution, improvement in quality, development of human resources etc.

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.

Total amount of money spent on Research and Development by iron & steel plants and other related industries during last three years were as follows:

(Rs. in crore)

	97-98	98-99	99-2000 (Apr.-Sept. 99)
Public Sector			
Steel Authority of India Ltd.	38.03	44.50	23.12
Rashtriya Ispat Nigam Ltd.	2.50	2.50	1.20
National Mineral Dev. Corpn.	4.86	4.72	2.33
Kudremukh Iron Ore Co. Ltd.	2.00	0.60	1.87
Manganese (Ore) India Ltd.	0.85	0.93	0.28
Sponge Iron India Ltd.	0.06	0.03	0.01
Bharat Refractories Ltd.	-	0.82	-
Sub Total (a)	**48.30**	**54.10**	**28.81**
Private Sector			
Tata Iron & Steel Co. Ltd.	10.03	13.50	-
Mukand Ltd.	0.65	0.77	0.45
Sunflag Iron & Steel Co.Ltd.	0.85	0.16	0.22
Usha Martin Industries Ltd.	0.01	0.01	-
Usha Ispat Ltd.	0.22	0.45	-
Jindal Vijay Nagar Steel Ltd.	-	-.13	0.12
Ispat Industries Ltd.	1.10	0.63	0.40
Ferro Alloy Corpn. Ltd.	0.05	-	-
Mahindra Ugine Steel Co.Ltd.	0.54	-	-
Sub Total (b)	**13.45**	**15.65**	**1.19**
Grand Total (a + b)	**61.75**	**69.75**	**30.00**

Performance of individual/undertakings during 1999-2000 are reported to have been as follows:

Steel Authority of India Limited (SAIL)

Research and Development Centre of the company is pursuing 98 R&D projects during the current year. These projects provide technological inputs to SAIL plants/units with thrust on cost reduction, value addition, quality improvement and development of new products. 13 R&D projects have already been completed during the period from April to September'99.

The Centre has filed 5 Indian patents upto September'99. During the period 3 patents, which were filed earlier, have been sealed by the Patent office. The Centre also filed 2 copyright proposals and 8 copyright proposals, which were filed earlier, have been granted during the period. In addition, RDCIS undertook contract research work, provided significant consultancy services and know-how to organisations outside SAIL yielding external earning of Rs.25.10 lakhs.

Specific areas in which R&D activities were carried out by the Company

- Quality Improvement.
- Yield/Productivity Improvement.
- Energy Conservation.
- New Technology/Product Development.
- Waste Management/Pollution Control.

Benefits derived as a result of R&D Efforts

Quality Improvement

- A modified rear stabiliser roll system was indigenously designed, installed and commissioned on-line at Hot Dip Galvanising Line Complex, CRM, BSL for control of strip vibration at air knife zone. This has resulted in reduction in strip vibration by over 50% and reduced specific Zinc consumption by over 2.0 kg/t. Strip rinsing system was also intruded to improve surface cleanliness of zinc coated strips by over 10%.
- A fully automated oil spray system was introduced for controlling the oil coating on strip surface at Skin Pass Mill-1, RSP. This has resulted in reduction in specific consumption of oil by 21% and cleaner environment due to no oil spillage.

Yield/Productivity Improvement

- The productivity of BF #4, DSP was increased from 0.9 t/m3/day to 1.23 t/m3/day and coke rate reduced to 558 kg/thm (lowest ever achieved) through regulation of operating parameters including adjustment of burden distribution and RAFT control in the range of 1900-1950°C.
- Yield of sinter in Sinter Plant # 1 of MEL was increased from 40% to 55% through reduction in air infiltration; modification in balling drum, introduction of spray nozzles, installation and commissioning of drum feeder charging system.
- Trials at 5 stand Tandem Mill, BSL with synthetic rolling oils (Quakerol I-55L & Rolkleen 415 TH) resulted in increase in thin gauge strips production from 7% to 18% and reduction in specific oil consumption by over 30%.
- RDCIS has developed Al_2O_3-SiC-C ramming mass and the same was applied in trough of BF #4 at RSP. This has resulted in reduction in specific cost of cast house refractories by Rs.10-15/thm.
- Underrate suction of sinter machine #2 at SP #1, RSP was increased by 50% (from 298 to 450mm WC) through modification of wind boxes, introduction of electrically operated damper control system for ignition hood, introduction of permeability bars and reduction in air infiltration in suction track. This has resulted in increase in bed height by 7%, increase in specific productivity by 7.5 and reduction in gaseous energy consumption by 10%.

Energy Conservation

- Zirconia grade ceramic fibre modules of 50 mm thickness have been installed on the existing brick lining by a specially developed veneering technique in Preheating furnace of Bar Mill of ASP. This has resulted in fuel savings of about 30%.
- Introduction of low thermal mass lining in Annealing Furnace of Heat Treatment Shop, ASP has resulted in considerable saving in energy (25 – 30%) and increase in Furnace availability by 6% and reduction in shell temperature by 30°C.

New Technology/Product Development

- The design of the flange and the web guards were modified for all 8 passes between 2 to 9 for 300x140mm joists at IISCO. Trials with new flange and web guards have shown no mill stoppage due to guard problem and overall operational delay time has been reduced from 20 to 15 hrs. in 6 day campaign.
- A composite steel concrete beam design and its construction techniques have been developed using I-sections, Flange plates and profile deck for use under Indian conditions. Comparative study vis-à-vis RCC construction shows increased consumption of steel by 1.5 – 1.75 times and reduction in cost by 10-15% in case of slim floor construction.
- A user friendly software has been designed, developed and implemented with client server approach to cater to the needs of F&A Deptt. BSP dealing with Raw Materials accounts. The software has been integrated with existing on-line VMS software for data transfer to cash and centre accounts. The system enables computerisation of all data acquisition, processing of bills and documents, accounting etc. for RMA section.

Waste Management / Pollution Control

About 1500 T of iron ore waste fines (+6mm to -10mm) were screened manually and about 450T of +6mm material was generated. Trials were conducted in BF # 3, IISCO using +6mm iron ore @ 40T/day. Result indicated that the waste fines can be used in BF in similar doses.

Energy Consumption

Unit : G cal/tcs

Plant	During 1997-98	During 1998-99	During Apr. -Sept.99
BSP	7.33	7.18	7.28
DSP	8.38	7.86	7.73
RSP	10.97	10.49	10.49
BSL	8.48	8.50	8.31
IISCO	12.68	10.91	10.66
SAIL	8.40	8.17	8.16

R&D Expenditure

(Rs. in crore)

	1997-98	1998-99	1999-2000 (till Sept.,99)
Capital	8.95	4.82	3.26
Revenue	29.08	39.68	19.86
Total	38.03	44.50	23.12

The Tata Iron and Steel Company Limited (TATA STEEL)

Objectives

R&D activities of Tata Steel are primarily directed :

- To make Tata Steel a Profitable & World class producer of Quality Steels.
- To identify and develop new products and processes so that the Company stays ahead of its competitors.

Significant achievements during 1999-2000

- A commercial plant of Jigging has been commissioned at a cost of Rs. 4.5 crores in September, 1999 at Ferro Alloy Plant, Bamnipal based on the flow sheet developed by R&D for recovering Fe-Cr from mixed metal and granulated slag. The ROI in the first year is stipulated to be 90%.
- The use of imported low volatile semi-soft coal for coke making and for blast furnace injection has been established through plant scale trials. Further, inexpensive imported semi-soft coal as a part replacement or expensive, imported hard coal has been successfully incorporated in the top charging coal blend.
- CO_2 welding wire rods developed and successfully tried out for direct drawing upto 0.5 mm from 5.5 mm without intermediate annealing.
- An interstitial free high strength (IF-HS) grade has been developed for the first time. The coils have been cold rolled and annealed at CRC (West). The material has been sent to Telco, Pune for pressing into critical components and evaluation.
- Electrical stampings based on ultra-low carbon grade have been commercialized.
- Bricks have been produced using fly ash and other steel plant waste materials; the bricks meet the specification of 150 class designation with a comprehensive strength of 190 kg/cm^2
- An off-line simulator to predict the mechanical properties at HR-Coils has been developed through a joint activity with AFTC, Bangalore. It is now under validation for the EDD grade in the first phase.
- An integrated mathematical model of sintering process has been developed in collaboration with TRDDC, Pune. The model can predict the effect of input raw materials and process parameters for Sinter Plant # 2 and can be utilised for process optimisation as well as for improving sinter plant productivity.
- A mathematical model has been developed for predicting the bulk temperature at liquid steel as well as the refractory lining temperature profile for the complete ladle cycle at LD#2.
- An ultrasonic testing procedure has been developed to evaluate the soundness of cell/core in double poured high chrome iron finishing mill work rolls of HSM.
- Specific energy consumption in the sub-merged arc furnace at Fe-Cr plant has been reduced progressively by over 200 kWh/t of Fe Cr by increasing the percentage of hot charge and degree of preheat as a result of the combined work between R&D and Bamnipal Ferrochrome Plant.
- Cold models for submerged entry nozzle (SEN) optimizing for LD2/CC and mixing cum granulation drum for SP#2 have been commissioned.

Total Energy Consumption in G. Cal/tonne of Crude Steel during last 3 years has been as follows:

1997-98	1998-99	April-Sept.,(99-2000)
8.355	7.997	7.962

R&D Expenditure

(Rs. in crore)

Year	Turnover	Expen-diture R&D	R&D Expenditure as % of turnover
1997-98	5616.58	10.03	0.18
1998-99	6452.43	13.50	0.20

Rashtriya Ispat Nigam Ltd. (RINL)

Objectives

R & D activities of RINL are primarily directed towards trouble shooting, process improvement and product development.

Significant achievements during 1999-2000

- Through slag splashing and improved converter lining maintenance, converter life has improved to 575 (97-98 : 486, 98-99 : 496).
- Controlling of SMS slag chemistry for improvement in converter lining life.
- Trials with castable back up lining have been carried out for improving steel ladle lining life.
- Developed following new products :
  a) Corrosion resistant rebars
  b) High Carbon Steel Wire Rods for tyre bead application.

Process improvement & quality improvement

- LD slag has been used in Blast Furnace burden (about 1700 t during this year) instead of BF limestone as a cost effective measure.
- Monitoring of rolled-in scale, laps, seams etc. in wire rods after acid pickling has been introduced.

The energy consumption for the last three years has been as under :-

Year	G.Cal/t of liquid steel
1997-98	7.57
1998-99	8.17
1999-00 (upto Sept.,99)	7.8

R&D Expenditure

(Rs. in crore)

Year	Turnover	Expen-diture R&D	R&D Expenditure as % of turnover
1997-98	3071.19	2.5	0.081
1998-99	2761.13	2.5	0.090
1999-2000 (upto Sept.99)	1206.46	1.2	0.099

Kudremukh Iron Ore Company Limited (KIOCL)

Objectives

Objective of 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 to the present run of mine ore characteristic.

R&D activities undertaken at KIOCL include implementation of new technology / processes like column flotation and high rate thickner for reduction of silica in final product to enable value addition and ensure better quality pellets. By introduction of these techniques the concentrate quality has shown improvement with the higher Fe and reduction in silica in the product.

Highlight of R & D activities during 1999-2000

Feasibility report on the recovery of iron value from tailings were taken up in consultation with Mineral technologies, Australia. The quality of the tailings have been assessed by drilling and analysis.

Preliminary tests on primary ore samples were conducted in Canada and to establish the ore characteristics based on the preliminary results,. core drilling of about 5000 m is being taken up to collect bulk samples for testing and analysis.

Nellibeedu Ore characteristic were tested at Kudremukh in-house laboratory. Grant of mining lease for this deposit is awaited for further study.

M/s J.K. Tech of Australia were engaged for studies on optimization of energy consumption for Ball Mill Regrinding circuit as grinding consumes major portion of energy for the process requirement.

Short term recommendations viz.,

(i) Replacement of cyclone wortex finder to 8" from 10"

(ii) Replacement of cyclone inlet from 45 sq. inch to 60 sq. inch and

(iii) Replacement of 40 mm balls to all 25mm balls, were implemented.

By implementing the above, 16.8% throughout increase was achieved. As such, long term recommendations are under consideration for implementation.

R&D Expenditure

(Rs. in crore)

Year	Turnover	Expen-diture R&D	R&D Expenditure as % of turnover
1997-98	593.91	2.00	0.33
1998-99	547.00	0.60	0.11
1999-2000 (up to Sep. 99)	314.00	1.87	0.56

M/s Met-Chem of Canada have been engaged for mathematical modelling and detailing statistical process control methods for pelletisation. This work has been completed and implemented.

Project Status

a) Total No. of Projects on hand as on 1.4.1999- Two.

b) Number of Projects planned in 1999-2000- One.

c) Number of Project completed in 1998-99- Two.

Manganese Ore (India) Limited (MOIL)

Objectives and Thrust areas

The 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 level of the existing reserves.

(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 crore)

Year	Turnover	Expen-diture R&D	R&D Expenditure as % of turnover
1997-98	112.80	0.85	0.75
1998-99	118.27	0.93	0.78
1999-00 (Upto Sept.,99)	53.30	0.28	0.52

Sponge Iron India Ltd. (SIIL)

Objective

i) To make improvements in the existing coal based sponge iron technology for improving over all.

ii) Better utilisation of waste products and energy generated in the existing process.

iii) To find out the techno-economic feasibility on raw materials for coal based sponge iron manufacturer, received from any agency either from abroad or within our country.

Highlights of R&D activities

New Technology/Process

Frequent ring formation in between V6 and V7 shell fan air tubes was being observed in the campaigns which is forcing the operator to over load other zones thermally. Thereby there is considerable effect on campaign life as well as variation in the quality of the product etc. Investigation with the available facilities at the test centre was accomplished to assess the causes for quick ring formation at this zone and its faster growth. The conclusions derived from this helped the operator to reduce the probabilities for developing localised heating points in that zone to the extent possible and also to control ash percentage levels in the pulverised coal being injected pneumatically from the discharge end of the rotary kiln. This also provided information regarding the necessity of further distribution of pulverised coal at the reduction zone of the kiln.

Energy Consumption

Perlod	KWh/t of sponge iron
1997-98	116
1998-99	100
1999-2000 (Upto Sept.99)	114

R&D Expenditure

(Rs. in crore)

Year	Turnover	Expen-diture R&D	R&D Expenditure as % of turnover
1997-98	20.74	0.058	0.28
1998-99	21.69	0.034	0.16
1999-2000 (upto Sept.1999)	9.27	0.010	0.10

National Mineral Development Corporation (NMDC)

Objectives

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) Pilot Plant Studies for production of Pigment Grade Ferric Oxide from Blue Dust.

A mini Pilot Plan of capacity 10 kg. Per day has been set up at R & D Centre with internal funding to test the laboratory scale experiments for production of Pigment Grade Ferric Oxide at Higher scale. This plant could also be used for demonstration of other hydro-metallurgical processes developed during laboratory studies. The process parameters have been established through trial runs and about 50 kgs. of Pigment Grade Ferric Oxide of required grade has been produced. Samples of PGFO have been sent to Asian paints for evaluation studies and for customer assessment and acceptability.

(b) Development of process for production of Synthetic Rutile, Metallic Iron & High Grade Ferric Oxide from Ilmenite concentrate obtained from Bhimunipatnam beach stand. Successful Laboratory Studies have been

carried out for production of ilmenite concentrate from beach sand and production of Synthetic Rutile Metallic Iron.

Bharat Refractories Limited (BRL)

R&D Expenditure

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	757.67	4.86	0.64
1998-99	725.23	4.72	0.65
1999-2000 (upto September,1999)	311.69	2.33	0.74

During the year 1998-99, in-house R&D was carried out in respect of the following areas

1. Improving the life of the MCB used in L.D Converters
2. L.D Gunning Mass
3. Fire-clay bricks for capital repair of coke-oven of BSL
4. Zee quality refractories used in different areas i.e. ladle purging system
5. Tundish well block etc.
6. Ladle well mix
7. Inflow mass for S/G system

Most of the above products are developed and commercialised which in turn, resulted in an upward thrust towards the performance of the Company.

The revenue and capital expenditure on R&D during 1998-99 was Rs. 82.23 lakh and Rs. Nil respectively.

Mukand Limited

Objectives

- Yield improvement and quality upgradation for customer satisfaction.
- Increase in exports and substitution in imports.

The R & D laboratory has been recognised by Department of Scientific and Industrial Research, Government of India and has been accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL), New Delhi.

Highlights of R&D achievements

Process Development

- Quantifying and improving stress relieving operations through modern techniques.
- Shortening heat treatment of fabricated structures in Machine Building Division, resulting in significant cost reduction.

Product Development

- Development of high machining stainless steel grades.
- Establishing metallurgical parameters in hardening and tempering of martensitic stainless steel, for improved properties.
- Quality improvement in Ni-hard ring castings.
- Identification and analysis of effect of tramp elements on quality of stainless steel grades to drastically improve related product quality.
- Minimising surface defects in certain alloy grades (wire rods).

Expenditure on R&D

(Rs. in crore)

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	898.57	0.6532	0.07
1998-99	706.24	0.7783	0.11
1999-2000	412.18	0.4533	0.11

Sunflag Iron & Steel Company Ltd.

Highlights of R&D activities (1999-2000)

- Development of new generation synthesis flux for Ladle Refining Furnace.
- Development of multi-taper copper mould tubes
- Development of lead bearing free cutting steel, Grade – 12L14

Energy Consumption

Energy Consumption for the last three years is given below:

Year	G.cal/T of crude steel
1997-98	8.709
1998-99	8.688
1999-2000 (Upto Sept.99)	8.120

R&D Expenditure

(Rs. in crore)

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	337.53	0.85	0.251
1998-99	348.53	0.1624	0.046
1999-2000 (Apr.-Sept.99)	197.74	0.2174	0.109

Usha Martin Industries

Highlights of achievements

New Process developed under R&D

i) Oxygen enrichment and oil injection in Mini Blast Furnace to improve productivity and reduce consumption of imported low ash metallurgical coke.

ii) Electromagnetic Stirrer in the mould of Continuous Casting Machine to improve billet quality and increase casting speed.

iii) Improved control cooling in Wire Rod Mill Coil Conveyor to get closer bank of tensile strength.

iv) Production of calcined lime in a new Lime Kiln based on producer gas.

Energy Consumption

Unit: kwh per tonne of Billet

1997-98	1998-99	1999-2000 (Apr.-Sept.99)
3393	346	398*

**The Mini Blast Furnace was under planned shut-down and now it has been stabilized. Electrical energy consumption has come down to less than 325 kWh per tonne of billet in October'99.*

R & D Expenditure

(Rs. in crore)

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	304.57	0.0125	0.004
1998-99	361.92	0.0133	0.003
1999-2000 (Apr.-Sept.99)	174.53	0.0050	0.002

Ispat Industries Limited

Ispat Industries Ltd. will have tie up with many research institutions and organizations like I.I.T, Mumbai, I.I.T, Madras and National Metallurgical Laboratory, Jamshedpur for following R & D projects :

i) Ferritic Rolling
ii) Cold Briquetting
iii) Manufacture of Iron Carbide
iv) New Grades developed in CSP Mill, such as API grades having UTS above 550 Mpa
v) Manufacture of Synthetic Slag from EAF Slag for secondary refining.

Expenditure on R & D

(Rs. in crore)

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	1503.60	1.102	0.073
1998-99	1398.56	0.63	0.045
1999-2000 (upto Sept.99)	736.13	0.40	0.054

Jindal Vijaynagar Steel Limited

As the Corex technology of iron making is in the stage of development throughout the world, JVSL have taken up long term development projects with Department of Science and Technology, Govt. of India, Central Fuel Research Institute, Dhanbad and Indian Institute of Sciences, Bangalore on development of Corex process technology as well as upgradation of Indian coals to suit Corex process.

Expenditure on R & D

(Rs. in crore)

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	180.9279	-	-
1998-99	537.9177	0.1250	0.023
1999-2000	383.9413	0.1250	0.03255

Lloyds Steel Industries Limited

R & D work at Lloyds Steel is a continuous process with the main objective of process and product improvement with a mission to achieve customers' satisfaction and technology upgradation.

a) Following new grades were developed during 1999-2000 :
   i) API 5L X 65 for PSL
   ii) W85 for Clutch Auto
   iii) GOST 30 X TCA for Clutch Auto
b) Technology Development for production of LPG grade steel from 100% coal based DRI has been stabilised.

Expenditure on R & D

(Rs. in crore)

Year	Turnover	Expenditure R&D	R&D Expenditure as % of turnover
1997-98	775.3	-	-
1998-99	739.86	164.03	0.22
1999-2000 (upto Sept.99)	302.00	0.76	0.25

Essar Steel Limited

The following new products have been stabilised after extensive R & D efforts by Essar Steel Limited:

i) Extra deep drawing quality steel for critical applications for Automobile sector
ii) High Tensile steel plates for Connor wagons
iii) Non-grain oriented Silicon steel for making of lamination for motors, transformer etc.
iv) Steel for automotive applications such as axle housings, brake assembly
v) High Tensile cold forming grades for automobile wheels and dics.
vi) API grade steels for transport of crude oil, natural gas, petroleum products i.e. API 5L X 42 to API X 60, API X 65

MANAGEMENT INFORMATION SYSTEM

The Computerised Management Information System (MIS) developed for Ministry of Steel with the assistance of National Informatics Centre (NIC) is functional in the area of Accounting and Budgeting, Section Activity Monitoring System, Industrial Entrepreneurs Memoranda System, VIP References Monitoring, Public Grievances Monitoring and Monthly D.O. and Monthly Summary on PSUs performance for Cabinet Secretariat.

The Computer Centre in the Ministry has been established as a central facility and is equipped with two Pentium Servers (Unix & Windows-NT based) and 5 nos. of Pentium based Client nodes, one no. Scanner for document imaging operations, One CD-Writer and switches & hubs as a backbone for Local Area Network and Internet Operations in the Ministry. Apart from NIC Central facility, about 50 Pentium/486 based computers as client nodes on LAN have been operational with various Senior level Officials and key desks/sections in the Ministry.

A Local Area Network of about 65 nodes has been established in the Ministry with the assistance of NIC for resource and information sharing among the various user communities in the Ministry. The Internet access has been provided on all 65 nodes for browsing and E-mail operations. Efforts are being made to establish Ministry-wide Intranet by opening Work-flow and Web-enabled applications at Section/Desk level. E-mail accounts on Internet has been extensively used for getting data/information from Ministry's PSUs/attached offices and vice-versa on day-to-day basis.

The Ministry's Homepage on Internet has been re-designed in bi-lingual format as per PMO guidelines with the assistance of NIC officials in the Ministry, which will provide details on administrative set up, major activities of the Ministry, the policy framework, the Annual Report(1998-99), an overview of the steel sector, research and technology mission and links to Ministry's PSUs/attached offices homepages to have wide coverage of steel sector data/ information.

NIC Computer Centre is actively involved in promoting IT culture in the Ministry by providing state-of-the-art Window-based Office Automation suits, Ministry-wide Local Area Network(LAN) and e-mail & browsing facility on Internet. Various in-house training programmes on LAN operations, E-mail & browsing operations on Internet and Windows-based Office Automation Suits have been organised by NIC Computer Centre in the Ministry from time to time. Recently, an in-house training programme of 1½ month duration has been organised for about 80 nos. of Ministry's officers/staff of the level of Under Secretary and below in the above mentioned areas of Information Technology(IT).

NIC Computer Centre has played a key role in getting the Y2K problem resolved for NIC provided systems and services in Ministry of Steel. Ministry's PSUs and attached Offices were also suitably guided on Y2K methodologies from time to time and a well structured approach was followed by having periodical reviews on problems and issues at Ministry level to have remedial actions initiated at PSUs/Attached offices so that the related Y2K problems for Business and embedded systems could be resolved well in time.

ORGANISATIONAL STRUCTURE

The Ministry of Steel is under the Charge of the Minister of State for Steel.

The Ministry 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 given in Annexure –I

The Ministry has a Secretary, 3 Joint Secretaries, 4 Directors, 4 Deputy Secretaries, 15 Under Secretaries, one Deputy Director (Official Language) and other supporting level officers and staff. The Ministry also has a Financial Adviser in the rank of Additional Secretary and a Chief Controller of Accounts. A Technical Wing, Consisting of an Industrial Adviser, 4 Development Officers, 2 Assistant Development Officers provides support and give advice in respect of technical matters.

The Organisational Chart of the Ministry is at Annexure-II. The details of classification/ Category of personnel in position are given in Annexure-III.

The Ministry has an attached office viz., Office of the Development Commissioner for Iron & Steel (DCI&S) at Calcutta. The DCI&S is an Officer of the rank of Joint Secretary and is assisted by a Joint Development Commissioner. The DCI&S has 4 Regional offices, one each at Delhi, Mumbai, Calcutta and Chennai headed by Regional Development Commissioners for Iron and Steel. The Organisational 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, Lodhi Road, New Delhi-110003

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

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

1.3 Visveswaraya Iron & Steel Ltd., Bhadravati, Karnataka- 577301

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

2. Rashtriya Ispat Nigam Ltd, Administrative Building, Visakhapatnam-530031, Andhra Pradesh

3. MECON Limited 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 –500028, Andhra Pradesh

5.1 J&K Mineral Development Corpn, 19/9, Trikuta Nagar, Jammu- 180012 (Subsidiary of NMDC)

6. Hindustan Steelworks Construction Ltd., No.1, Shakespeare Sarani, 8th Floor, Calcutta- 700071 (West Bengal)

7. Bharar Refractories Ltd., Sector IV, Central Avenue, Bokaro Steel City, Bokaro –827004 (Bihar)

8. Sponge Iron India Ltd., Khanij Bhavan, 10-3-311/A Castle Hills, Hyderabad –500028 (Andhra Pradesh)

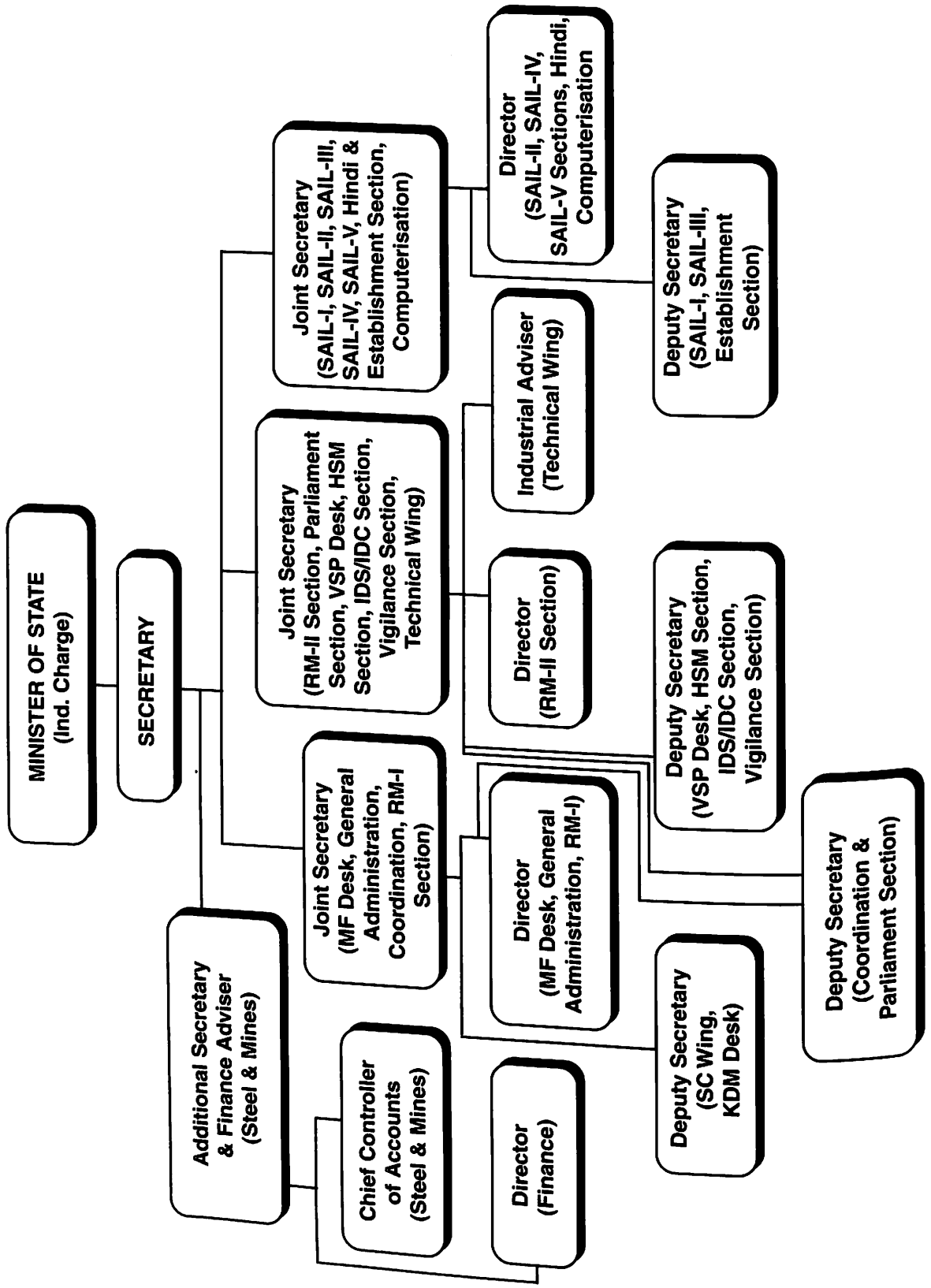
9. MSTC Limited, 225-F, Acharya Jagdish Bose Road, Calcutta-700020. West Bengal

9.1 Ferro Scrap Nigam Ltd., FSNL Bhavan, Post Bag No.37, Equipment Chowk, Central Avenue, Bhilai-490001, Madhya Pradesh (Subsidiary of MSTC Ltd.)

10. Manganese Ore India Ltd., 3, Mount Road Extension, Post Bag No.34, Nagpur- 440001, Maharashtra.

Annexure II

ORGANISATIONAL CHART OF MINISTRY OF STEEL



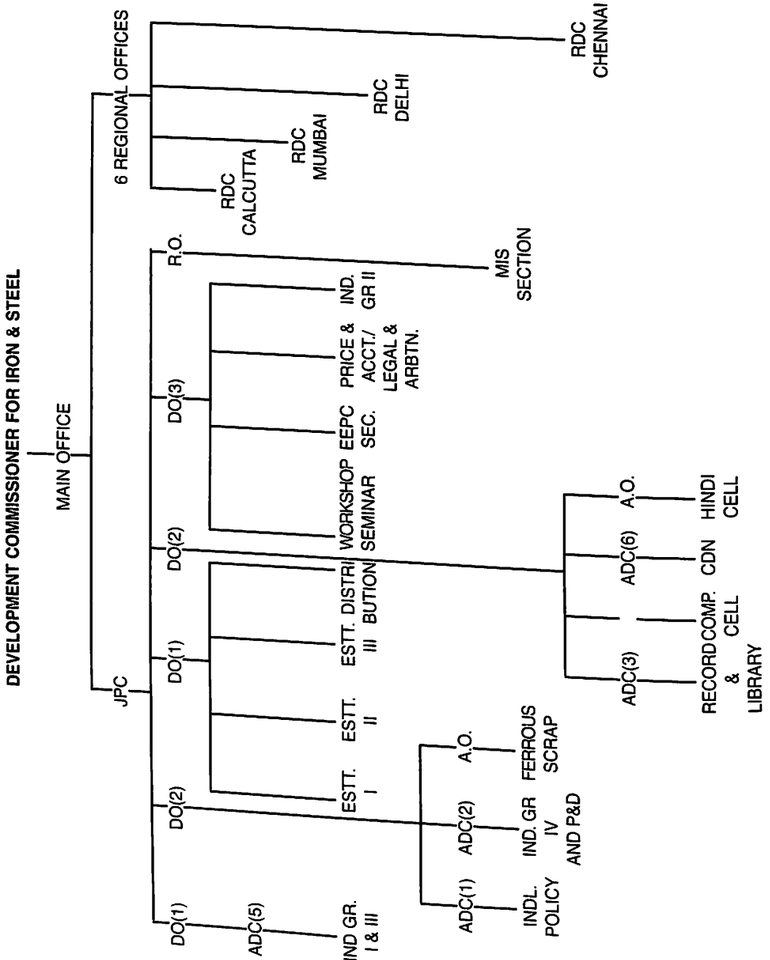
Annexure II

Statement Showing The Number Of SC/ST/OBC/Ex-Servicemen Men & Women as on 01.11.99 in respect of Ministry of Steel

Classification of Post	No. of Employees in Position	Men	Women	SC	ST	OBC	PH	EX-SER.
A	46	41	05	05	01	-	-	-
B	75	59	16	13	05	02	-	-
C	96	73	23	13	04	04	02	-
D	73	70	03	24	12	02	01	01
Total	**290**	**243**	**47**	**55**	**22**	**08**	**03**	**01**

Annexure-IV

Office of the Development Commissioner for Iron & Steel Organisational Chart



WELFARE OF WEAKER SECTIONS

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 Department 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 1999-2000 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 sections is provided as per the directives of the Government.

Recruitment for executives 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 employmentin 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 1998 are as under:

a) Percentage of SC/ST to total 24.81% (approx.) manpower in SAIL

b) Percentage of SC/ST to total 32.43% (approx.) recruitment during the year in SAIL.

c) Percentage of SC/ST to total 27.70% (approx.) promotions during the year in SAIL.

Scholarships

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

(a) The amount of Scholarship for wards of SC/ ST employees is as under:

	Total	Total No. Manpower as on 1.1.99	%age of SC/ST
Percentage of SC/ST to total manpower SAIL	2,00,482	49379	25
Percentage of SC/ST to total recruitment during the year in SAIL	1976	584	30
Percentage of SC/ST to total promotions during the year in SAIL.	8117	2249	28

For Engineering Undergraduates - @ Rs.500/- p.m. (IITs)

For 10+2 students - @ Rs.150/- p.m.

For Post-Graduate students - @ Rs.250/- p.m.

A total number of 67 scholarships (approx.) are awarded in the four integrated steel plants of SAIL including Corp. Office.

(b) Besides, for the SC/ST undergraduate Engineering students other than the wards of SAIL employees, the Company awards Scholarships @ Rs.450/- p.m. A total number of 14 Scholarships are awarded to the meritorious students.

Peripheral Development

During the year 1998-99, approximately Rs. 2.18 crores was spent on various peripheral activities. The following welfare activities/ developmental programmes were carried out by SAIL plants/units in the periphery areas during the year:

- provided facilities like drinking water, digging of wells and rigbore hand pumps etc.
- free education facility upto matriculation, including adult education, periodical literacy programme, film show etc.
- Mobile dispensary, regular eye camps, family planning camps.
- provision and maintenance of 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 and 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 year 1998-99, SAIL granted donations of around Rs. 40 lakhs to different agencies. This includes the donations towards the upliftment and development of the weaker sections of the society.

Land

During 1998-99, 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 sections of society.

Rashtriya Ispat Nigam Limited (RINL)

Activities undertaken by RINL/VSP 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 and 5% of C&D types) have been provided and implemented for SC/ST employees.

c) A Sports and Cultural Festival was organised during the month of April and May, 1999 at Community Welfare Centre, Ukkunagaram in connection with Dr. B.R. Ambedkar Jayanthi celebrations-1999. Painting & Essay writing competitions were also conducted for the school children during the celebrations.

d) In addition to the above, RINL/VSP has introduced a Scholarship Scheme exclusively for the children of SC/ST employees under which two scholarships of Rs.250/- and one more scholarship of Rs.150/- per month are awarded each year. RINL has also launched a Merit Cash Award Scheme for the students of SC/ST Communities under which a First Merit Award of Rs.500/- and a Second Merit Award of Rs.250/- are given to students who pass 10th Class every year from each of the schools in the Company's Township.

Training programme conducted during the year

Development Programmes

Category	1999-2000 (till 30.11.99)
SC	671
ST	181
OBC	723
PH	-
Women	-
Others	2353
Total	**3928**

Freshers Training Schemes

Category	1999-2000 (till 30.11.99)		
	Executives	Non-Executives	Apprentices
SC	62	5	9
ST	11	8	2
OBC	128	-	28
PH	-	-	2
Women	10	-	12
Others	121	2	32
Total	**332**	**15**	**85**

HRD Training Programmes

S.No	Category	1999-2000 (till 30.11.99)	
		In-House	External
1	SC	219	13
2	ST	66	1
3	OBC	189	11
4	PH	3	-
5	Women	9	8
6	Others	962	70
	Total	**14448**	**103**

Statistical information regarding representations of SC/ST/OBC/Women/PH/ExS are given below:

Classification of Posts	Total No. of employee	Men		Women		SC		ST		OBC		PH		Ex-SM	
		No.	%age	No.	%age	No.	%age	No.	%age	No.	%age	No.	%age	No.	%age
A	3678	3507	95.35	171	4.65	568	15.44	127	3.45	500	13.59	-	-	-	-
B	1370	1353	98.76	17	1.24	274	20	110	8.03	256	18.69	-	-	16	1.17
C	9080	8904	98.06	176	1.94	1513	16.66	562	6.19	1600	17.62	0.35	32	110	1.21
D	3164	3101	98.00	63	1.99	521	16.47	237	7.49	722	22.82	1.11	35	109	3.45
Total	17292	16865	97.53	427	2.47	2876	16.63	1036	5.99	3078	17.8	0.39	67	235	1.36

Classification of Posts	Vacancy notified from 01/1/99 to 30/11/99				Vacancies filled by		
	SC	ST	OBC	Other community	SC	ST	OBC
Group A	4	2	1	1	12	2	2	3
Group B	-	-	-	-	-	-	-	-
Group C	11	1	3	6	-	-	-	-
Group D	8	-	-	8	-	-	-	-
Total	**23**	**3**	**4**	**15**	**12**	**2**	**2**	**3**

Note : Some of the posts were notified in the year 1998 but filled in the year 1999 and the recruitment for some of the posts notified recently is still under process

National Mineral Development Corporation Limited (NMDC)

Manpower

The total number of regular employees in NMDC as on 30.9.99 was 6788 out of which 1134 persons belong to Scheduled Castes (16.71%), 1188 Scheduled Tribes (17.50%), 332 OBCs (5%) and 359 women (5.29%).

Other Welfare Measures

NMDC has become the forerunner in the social economic and peripheral development and fulfilling its social obligations. The neighbouring areas in its production mines particularly in Bailadila region have undergone a transformation in the very approach to life and work, ushering in better living amenities, education facilities and opportunities for growth. The Corporation has been drawing up peripheral development plans under each project management for the development of the area around these projects and such peripheral development has been gaining momentum year after year.

The Corporation has set up full-fledged hospitals in its production projects for the benefit of the employees and their families and the local population. In order to provide best medical facility, one of its hospital in Bailadila-5 is run by Apollo Hospital. Free out-patient and in-patient treatment is provided to the local adivasis in these hospitals.

Free diet is also provided to adivasi patients in case of in-patient treatment. Rest shelters have also been provided for the benefit of the family members of the adivasis, who are admitted in the hospitals. Primary health centres have been set up by our Bailadila projects in the nearby villages so as to provide basic medical facilities to the local adivasis at their door steps.

The projects also participate in eye camps organised by the State Government and render all necessary help by way of deputing Doctors, arranging such camps in project hospitals, distribution of sarees, dhotis, etc.

The children of the local adivasis get the educational facility in Project schools. In addition, five free ships for each academic year have been introduced in DAV School for the children of the local adivasis from the nearby villages. At Bailadila-5 Project, the Corporation has constructed a school building which has been handed over to the State Government for running a Senior Secondary School. The Corporation is also regularly undertaking repair/renovation of the state run school building in the vicinity of its projects for the benefit of children of local adivasis who are studying in these schools apart from distributing uniforms, text books, etc. to the SC / ST children of certain schools.

A skill development programme for the SC / ST candidates of the adjoining villages has been commenced by Bailadila projects which aims at imparting necessary knowledge, skill and proficiency in the operation of mines / plants for the purpose of helping them in seeking employment. The Corporation has also provided a building and other infra-structural facilities to the State Government of Madhya Pradesh for running an ITI at Bhansi.

Bailadila projects have provided facility to the local adivasis to sell their products directly to the consumers by constructing sheds in the market. The local tribals also get the facility of viewing weekly film shows in the Project Townships and also avail of the service of the Project Co-operative Societies even though not being a member.

At Donimalai Project in Karnataka 2 Community Centres have been constructed in the nearby villages of Narsingapura and Bhujanga Nagar with a total cost of Rs.20 lakhs each for the benefit of SC / ST and other Backward classes. NMDC conducts frequent eye, dental, cancer and orthopaedic, family planning and other health camps, where free counselling as well as free medical outdoor and indoor treatment is provided besides providing spectacles and family planning devices, sarees and dhoties to the tribal patients as part of encouraging Family Planning measures among the tribal population.

At Panna Project in MP protected water supply has been provided to the Hinota village for the benefit of the villagers. One auto analyser and one air conditioner machine costing Rs.2.4 lakhs has been provided to Government Hospital Panna for the benefit of patients. Free transport facilities are provided to the nearby village people from Majhgawan to Panna. Internal BT roads are laid in the nearby Hinota village. Cultural programmes are organised regularly by NMDC's projects in the Community Centres in the township. The local population is also benefitted by these programmes. Other important peripheral development works being undertaken by Projects in the villages include construction of approach roads, installation of hand pumps, assistance to State run school by way of providing furniture, educational aides, etc.

Training Programmes

In the training programmes conducted during the year 1999-2000 (Upto Sept. 99), 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 & Ex-S'men
1999-2000 (upto Sept.99)	181	361	1628

Kudremukh Iron Ore Company Limited (KIOCL)

Manpower

The total number of employees in KIOCL as on 30/9/99 was 2440 out of which 360 persons belong to SC (14.75%), 92 persons belong to ST (3.77%) and 292 persons belong to OBC (11.96%), moreover there are 151 women (6.18%), 29 physically handicapped (1.18%) and 118 Ex-servicemen (4.83%).

Welfare Measures

a) The Company has set up full fledged facilities at Kudremukh and Mangalore establishments by establishing modern township, hospital, recreation facilities etc., 10% type "A" and "B" quarters and 5% "C" & "D" type quarters are reserved for SC/ST employees.

b) 11 numbers of the Merit-cum-Means and Merit Scholarships are reserved for children of SC/ ST employees for whom the qualifying standard of First class of 60% whichever is higher is relaxable to 50% in the aggregate.

c) Kudremukh Sports & Recreation Council has donated 2 Nos. of Tailoring Machines to SC/ST Welfare Association, Mangalore to conduct tailoring classes for dependents of SC/ST employees. In addition, 2 more tailoring machines were purchased by the SC/ST Welfare Associatioin for the above purpose.

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, Dr. Ambedkar's Jayanti at Kudremukh, Mangalore and Bangalore was celebrated as in previous year.

Training Programmes

Various in-house Training Programmes were conducted for Non-Executives and Executives. These programmes covered Technical subjects, functional topics, and behavioural science based topics. The programmes included Joint Education programmes, Supervisory Development Programme, Executive Development Programme, Inter-personal Relation and Team Building, Managerial Skills and other topics. In addition, employees are also nominated to outside programme on various subjects. The SC/ST/OBC employees participate alongwith other employees in all these programmes.

They are also made to actively participate as core team member, internal auditor and internal trainees for designing, implementing, training and audit of the quality Management system and Environment Management system introduced in our Company as per ISO 9002 Standards and ISO 14001 Standards.

Manganese Ore (India) Limited (MOIL)

Manganese Ore (India) Limited is a Labour Intensive Organisation with over 8000 employees on its rolls. About 76% of the total strength belong to SC/ST/OBC. MOIL has undertaken several measures for the Welfare of the Weaker Sections. Some of them are as listed under :-

a) Adoption of Tribal village
b) Training in Sericulture for economic Developments
c) Help to the Schools in surrounding Mines
d) Organisation of Eye camps/child Welfare camps
e) Grant of subsidy to Gram Panchayat for Water supply Schemes
f) Giving financial assistance to Social Institutions who are working for its rehabilitation of the aged and handicapped persons.
g) Donated tricycles to handicapped persons. Provided Sewing machines for development and upliftment of the tribal women.

MOIL constantly upgrades various Welfare measures provided to the weaker sections with a view to improve the quality of life.

Manpower

Manpower as on 1-10-99 is 8144 out of which 1500 belong to the SC category (18.45%) 2074 (25.46%) belong to ST category and 2645 (32.47%) number of employees belong to OBC category. Moreover there are 1051 Female employees (12.90%) PH (0.20%) and 152 Ex-servicemen (1.86%) employees.

Group-wise %age of SC/ST/OBC

Group	SC	ST	OBC
A	10.62	2.89	9.66
B	9.13	5.02	10.50
C	17.43	20.26	25.19
D	19.31	28.81	36.58

MSTC Limited

The Presidential Directives issued from time to time pertaining to policies and procedures of the Government in regard to

reservation, relaxation, concession, etc., for the SC/ST/OBC candidates are kept in view while taking action/decision on any matter laid down therein.

Best efforts are made to comply with the Directives in matters concerning recruitment and promotion. Adequate representation of SC/ST/OBC members is made available in both Departmental Promotion Committees as well as Selection Committees (in case of recruitment).

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 is paid to their training and development in their respective fields of function. During the year 1999-2000, 5 SCs, 3 STs and 1 OBC employees of the company were sponsored for training programmes, both In-House and Institutional. Apart from this, all welfare facilities provided to other employees of the Company are also extended to them.

In addition, all possible co-operation and assistance is provided to the MSTC SC/ST Employees' Council, which functions primarily to safe-guard the interests of the reserved sections of employees of the Company.

Statistical Information Regarding Representation of Scheduled Castes/Tribes, Physically Handicapped Persons, Ex-Servicemen and OBCs is Given Below:

Group	Total	SC	ST	Physically handicapped	Ex-servicemen	OBC
A	116	12	7	1	-	4
B	104	24	4	2	3	-
C	35	10	3	1	-	2
D	26	11	1	1	-	-
Total	**281**	**57**	**15**	**5**	**3**	**6**

Ferro Scrap Nigam Limited (FSNL)

As on October, 1999 out of total manpower of 1339 persons, 210 belong to SC category (15.68%), 146 belong to ST Category (10.90%) and 97 belong to OBC Category (7.24%). Apart from this, there are 19 Women employees (1.41%), 2 Physically handicapped (0.14%) and 59 Ex-Servicemen (4.40%).

While recruitments, apart from the age relaxation for outside employment are applicable for such categories of employees, whereas, in the case of General candidates, such applications are considered only once in a Calendar Year, apart from other restrictions.

No restrictions in forwarding of application for outside employment are applicable for such categories of employees, whereas, in the case of General candidates, such application are considered only once in a Calendar Year, apart from other restrictions.

FSNL has also implemented a scheme viz., "Upliftment of Weaker Section", text books/note books are distributed to the first 3 male & female meritorious students of Standard IX, X & XII one each from SC/ST/OBC categories, of Government Higher Secondary School in a nearby village viz., Dundera. This scheme has commenced successfully from the academic session of 1998-99. For this purpose an annual amount of Rs.20,000/- has been allocated by FSNL.

During the year 1999-2000, training has so far been imparted to 14 SCs, 11 STs and 21 OBC employees of the Company.

Employment Statistics

The employment statistics of the Company, including SC/ST as on 30/9/99 are given below :

A. General

	Executives	Non-Executives	Total
Corporate Office	29	38	67
Rourkela Unit	19	203	222
Burnpur Unit	15	124	139
Bhilai Unit	18	258	276
Bokaro Unit	19	225	244
Durgapur Unit	17	150	167
Vizag Unit	19	207	226
Total	**136**	**1205**	**1341**

B. Scheduled Castes/Tribes, Ex-Servicemen and Physically Handicapped Persons

Group	No. of Employees	SC	ST	Ex-Servicemen	PH
A.	136	9	4	3	-
B.	326	16	3	-	-
C.	875	181	139	56	2
D.	4	4	-	-	-
Total	**1341**	**210**	**146**	**59**	**2**

C. Male/Female

	Executives	Non-Executives	Total
Male	136	1186	1322
Female	-	19	19
Total	**136**	**1205**	**1341**

Bharat Refractories Limited (BRL)

Manpower

The total number of employees in BRL as on 31.3.1999 was 3718, out of which 368 belong to SC and 489 belong to ST and 1568 belongs to OBC. There are 168 women, 28 Physically Handicapped and 75 Ex-Serviceman.

Welfare Measures

a) Free vaccination facilities 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 Chotanagpur, Bihar and Chattisgarh region of Madhya Pradesh.

b) A health centre has been constructed by Bhandaridah Refractories Plants and handed over to Government of Bihar. SC/ST/OBC people are largely benefited as they constitute 70-80% of the local population.

c) Different plants of the company have taken up construction of wells for supply of drinking water for nearby villagers.

d) Electricity transformer has been provided by IFICO Refractories Plant for extending power supply to the nearby villages in which most inhabitants are SC/ST/BC.

Training Programme

Training programmes 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.

Hindustan Steelworks Constructions Ltd.(HSCL)

a) HSCL had been assisting in providing schools in areas where SC/ST, OBC & physically Handicapped employees mostly reside.

b) Assistance is given for supply of drinking water.

c) Plots had been allotted to workers for making hutments in the land allotted at sites of client with free electricity, water supply and sanitation arrangements etc.

d) Children of SC/ST, OBC & Physically Handicapped employees get first preference in the matter of schooling at Projects.

e) Implementation of directives of the Central Government in case of recruitment and promotion in respect of SC/ST, OBC & Physically Handicapped employees.

Classification	Total	Men		Women		SC		ST		OBC		PH		Ex-SM	
		No.	%age	No.	%age	No.	%age	No.	%age	No.	%age	No.	%age	No.	%age
A	1317	1308	99	9	1	102	8	12	1	58	4	5	0.5	6	0.5
B	717	701	98	16	2	75	10	7	1	69	10	9	1	7	1
C	10,223	9383	92	840	8	1625	16	1402	14	210	2	23	0.5	52	0.5
D	754	730	97	24	3	147	20	45	6	13	2	8	1	120	16
Total	**13,011**	**12,122**	**93**	**889**	**7**	**1949**	**15**	**1466**	**11**	**340**	**3**	**45**	**0.5**	**185**	**1.5**

MECON Limited.

Manpower (as on 30.11.99)

Classi-fication	Total	Men		Women		SC		ST		OBC		PH		Ex-SM	
		No.	%age	No.	%age	No.	%age	No.	%age	No.	%age	No	%age	No.	%age
A	2470	2352	95.22	118	4.78	240	9.72	105	4.25	242	9.80	4	0.16	9	0.36
B	170	138	81.18	32	18.82	15	8.82	39	22.94	45	26.47	4	2.35	8	4.71
C	457	399	87.31	58	12,69	98	21.44	168	36.76	79	17.29	8	1.75	93	20.35
D	20	11	55.00	09	45.00	02	10.00	08	40.0	-	-	1	5.0-	-	-
Total	**3117**	**2900**	**93.04**	**217**	**6.96**	**355**	**11.39**	**320**	**10.27**	**366**	**11.74**	**17**	**0.55**	**110**	**3.53**

Particulars of Recruitment made from 01.01.1999 to 30.11.1999

Classification of Posts	Vacancy notified from 01/1/99 to 30/11/99				Vacanies filled by			
	Other community	SC	ST	OBC	Other community	SC	ST	OBC
Group A	-	04	-	-	-	04	-	-
Group B	-	-	-	-	-	-	-	-
Group C	-	-	-	-	-	-	-	-
Group D (Excluding Safai Karamchari)	-	-	-	-	-	-	-	-
Total	**-**	**04**	**-**	**-**	**-**	**04**	**-**	**-**

Welfare Activities

Provisions have been made in the Annual Plan(1999-2000) for Community Development activities for improvement of the facilities for SC/ST/OBC to the tune of Rs. 5.90 lakhs for Community Education, Vocational Training, Afforestation, Community medicine, Model Village, Resources Generation schemes & Misc. expenditure, etc.

Sponge Iron India Limited (SIL)

Reservation for SC/ST/OBC candidates

The directives issued by Govt. from time to time in the matter of reservation of posts for SC/ ST/OBC have been complied with. There was no backlog of vacancies reserved for SC/ST/OBC candidates in both Executive and Non-Executive Cadre.

Scheme for development of SCs, STs, and OBCs

In the matter of recruitment and promotions to various posts, SC/ST candidates are being given the benefits as per the Presidential Directives.

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

SIIL being situated predominantly in a Tribal area and in view of dearth of qualified SC/ST candidates, freshers from the Institute 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 acquired 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), Bhadrachalam as part of Special Drive, which is in addition to the candidates sponsored by local I.T.I.Number of persons sent for training is 5.

Statistical information regarding representations of SC/ST/OBC/Women/ Physically Handicapped/ Ex-servicemen as on 30.9.99 was as under:

Classi-fication	Total	Men		Women		SC		ST		OBC		PH		Ex-SM	
		No.	%age	No.	%age	No.	%age	No.	%age	No.	%age	No	%age	No.	%age
A	58	58	100	-	-	11	18.96	-	-	-	-	-	-	-	-
B	62	60	96.8	2	3.2	12	19.3	4.0	6.4	-	-	1	1.6	-	-
C	151	142	94.0	9	6.0	32	21.1	12	8.0	-	-	3	2.0	-	-
D	139	123	88.5	16	11.5	21	15.1	19	13.6	-	-	3	2.1	-	-
Total	**410**	**383**	**93.4**	**27**	**68.58**	**76**	**18.53**	**35**	**8.53**	**-**	**-**	**7**	**1.7**	**-**	**-**

ACHIEVEMENTS OF VIGILANCE UNIT OF MINISTRY OF STEEL

The Vigilance Unit of this Ministry is Headed by a Chief Vigilance Officer (CVO) of the rank of Joint Secretary appointed on the advice of the Central Vigilance Commission (CVC). The CVO with one Deputy Secretary and one Under Secretary and supporting staff, functions as the nodal point in the vigilance setup of the Ministry. The Vigilance Unit is inter alia responsible for the following in respect of the Ministry of Steel, the office of DCI & S Calcutta and the PSUs under its administrative control :

(i) identification of sensitive areas prone to malpractices/temptation and taking preventive measures to ensure integrity/efficiency in Government functioning;

(ii) taking suitable action to achieve the targets fixed by the Department of Personnel & Training on anti-corruption measures;

(iii) scrutiny of complaints and initiation of the appropriate investigation measures;

(iv) inspections and follow-up action on the same;

(v) furnishing the comments of the Ministry to the CVC on the investigation reports of the Central Bureau of Investigation;

(vi) taking appropriate action in respect of departmental proceedings on the advice of the CVC or otherwise;

(vii) obtaining second stage advice of the CVC, wherever necessary;

(viii) obtaining advice of the Union Public Service Commission in regard to the nature and quantum of penalty to be imposed, wherever necessary;

(ix) appointment of CVOs in the PSUs in consultation with CVC and Department of Personnel & Training;

(x) examination of complaints regarding allegations against the officials/officers of the PSUs under the Ministry for appropriate action.

(xi) maintenance and scrutiny of immovable property returns of officers and staff working in the Ministry.

2. 12 PSUs and one attached office, namely, Office of Development Commissioner for Iron & Steel, Calcutta are functioning under the administrative control of the Ministry. The Vigilance Unit in all PSUs and DCI&S is headed by a CVO appointed by the Ministry in consultation with CVC and DOPT;

During the year 1999-2000 (upto November, 1999) in all 52 complaints were received in the Ministry. Out of these 13 complaints have been disposed off after examining them in consultation with the CVC wherever necessary. The remaining 39 complaints are under various stages of investigation/examination.

GRIEVANCE REDRESSAL MECHANISM

Ministry of Steel has a well laid out three-tier grievance redressal mechanism which ensures very fast disposal of grievances. In the Ministry, time limits have not been fixed for grievance redressal because the cases are very few and are mostly settled within a period of 3 months. Computerisation of grievance redressal has been done.

The overview of status of public grievance redressal machinery in the office of DCI&S, Calcutta, a subordinate office of Ministry of Steel and PSUs is as under:

Development Commissioner for Iron & Steel (DCI&S)

The Public Grievance Redressal Machinery in DCI&S Office consists of a Director of Public Grievances assisted by a Deputy DCI&S who is also the Staff Grievances Officer. He prescribes guidelines for public grievance redressal which are being followed satisfactorily.

Steel Authority of India Ltd. (SAIL)

Effective Grievance Redressal exists in all plants/units of SAIL. Grievance Committees and Officers have been designated both at the Zonal level and at the Central level to redress grievances. The Grievance Committees are functioning satisfactory and the machinery is bi-partite. Other guidelines relating to staff grievance redressal are being followed in SAIL, such as, periodicity of meetings with staff associations, nominations of Grievance Officers, fixing time norms for disposal of grievances, maintenance of registers/computerisation of grievances received and their disposal.

Rashtriya Ispat Nigam Ltd. (RINL)

A well-defined Grievance Redressal Machinery is in place and detailed instructions have been issued to all units regarding procedure for handling grievances by Head of the Departments/Divisional Heads or Executive Director(Personnel). Grievance Councils have also been set up. Monitoring of grievances is done at the Head of the Department's level. Other guidelines are being complied with satisfactorily. Computerisation of employees' grievances is being done.

National Mineral Development Corporation (NMDC)

The Grievance Redressal Machinery in NMDC is headed by an Executive Director in the Head Office and by General Manager in each of the 4 projects. The Machinery is working satisfactorily. However, the volume of grievances handled is very low, as such, computerisation has not been done. Other guidelines relating to designation of Grievance Officer and Director(Grievances) etc. are being followed. Public dealing in the organisation is minimal, as such, no time norms etc. have been fixed.

Kudremukh Iron Ore Company Ltd. (KIOCL)

The Public Grievance Redressal Machinery is being looked after by Executive Director (P&A). Procedures for disposal of grievances have been worked out and given bue publicity. CMD is also personally monitoring the grievances. In view of the volume of grievances being small, no computerisation has been taken up.

Manganese Ore (India) Ltd. (MOIL)

The PGRM in MOIL is working satisfactorily. A Grievance Officer has been nominated in all units of the Company. Government guidelines relating to disposal of grievances are being followed both at the Corporate Office and in the units. As the volume of grievance is small, computerisation has not been done. Time norms for disposal of grievances have been fixed. The Company does not have much public dealing.

MSTC Ltd.

A Public Grievance Cell has been constituted with 3 senior and middle level executives to deal with any grievance of any member of the public relating to the functioning of the company. Constitution of this Cell has been widely circulated to all the offices of MSTC. Grievance received is examined by the Cell in consultation with the HOD concerned.

Sponge Iron India Ltd. (SIIL)

The Committee headed by General Manager(P&A) has been constituted to redress all public and staff grievances. As the number of

complaints/grievances is small, GM (P&A) is monitoring the grievances on a monthly basis. Other guidelines relating to designation of Grievance Officer, display of name and room numbers of Grievance Officer, installation of complaint box etc. are being followed.

MECON Ltd.

Public dealing in this PSU is minimal. However, guidelines regarding grievances are being followed and 3-tier system is in place for employee grievances to be handled at Section level, General Manager level (for officers) and Director level Apex Committee. Director(Grievance) & Grievance Officer have been duly appointed. Complaint/ Suggestion boxes are in place.

Hindustan Steelworks Construction Ltd. (HSCL)

A Principal Grievance Redressal Officer at AGM's level and a Staff Grievance Officer at DGM's level are in position. Government's guidelines relating to displaying of names Grievance Officers, Complaint Box, Scrutiny of newspapers for picking up grievances are all being followed. Norms have been fixed for disposing off employees' grievances only. Grievance Redressal Machinery is being followed in all the units and a grievance procedure has been drawn up and circulated to all units.

Bharat Refractories Ltd. (BRL)

Public Grievance Officer and Staff Grievance Officer have been designated. Departmental/ Unit Heads have also been empowered to redress public grievances as and when received. No Officer has yet been nominated as Director for Grievances, since there is no public interaction. Computerisation has not been done. Other guidelines relating to installation of complaint box and scanning of newspapers for grievances etc. are being followed.

Status of Public Grievances in respect of Ministry of Steel, its attached office and its PSUs during the period 1.4.1999 to 31.12.1999 is as under :

S. No.	Name of the PSUs and subordinate office outstanding	No of grievances from previous quarter	No of grievances received upto 31.12.99	No fo cases Disposed off	No of cases pending as on
1.	M/o Steel	1	12	10	3
2.	DCI&S, Calcutta	Nil	Nil	Nil	Nil
3.	SAIL	66	2721	2555	232
4.	RINL	Nil	Nil	Nil	Nil
5.	MECON Ltd.	N.A.**	N.A.	N.A.	N.A.
6.	NMDC	Nil	Nil	Nil	Nil
7.	BRL	Nil	Nil	Nil	Nil
8.	KIOCL	Nil	Nil	Nil	Nil
9.	MOIL	Nil	Nil	Nil	Nil
10.	HSCL	Nil	Nil	Nil	Nil
11.	SIIL	Nil	Nil	Nil	Nil
12.	MSTC* Ltd.	Nil	2	1	1
13.	FSNL	Nil	1*	-	1*
			Nil	Nil	Nil

* As on 30.9.99.
** Not available.

PROGRESSIVE USE OF HINDI

The Ministry of Steel continued its efforts towards greater use of Hindi in official work during the year 1999-2000 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 Director. The Hindi Section consists of a Deputy Director, an Assistant Director, a Senior Translator, three Junior Translator and two Lower Division Clerks.

There are 59 Devnagari Typewriters including 33 bilingual electronic Typewriters. Adequate reading material in Hindi is also available in the Ministry. A number of measures have been taken for the promotion of progressive use of Hindi in the Ministry, its attached office and PSUs under the administrative control.

Some salient features of the official Language implementation programme are as under:

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 regularly. Two such meetings have been held-up till 30th September, 1999.

Hindi Salahkar Samiti

Hindi Salahkar Samiti of this Ministry was reconstituted on 30.3.99. The first meeting of the reconstituted Samiti was held on 05.07.99 under the Chairmanship of the State Minister for Steel and Mines.

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 Regions "A", "B" and "C" checkpoints have been identified in the Ministry to ensure 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. A separate Rajbhasha Shield for PSUs located in Region "C" has also been instituted. These are given every year to the Office/undertakings on the basis of the annual performance in progressive use of Hindi. Besides, a medal is also awarded to the officer/employee whose work in Hindi is rated the best in the Ministry.

Incentive scheme for original work in Hindi

The cash incentive scheme for original work in Hindi introduced by the Department of Official Language is also being implemented in the Ministry. During the year under review 7 employees of the Ministry have received award under this scheme.

Cash prizes scheme for dictation in Hindi

An incentive scheme for officers for giving dictation in Hindi is also 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.

Awards for writing original books in Hindi

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 is awarded respectively for the first, second and third

prizes. During the year under review the above prizes were also awarded.

Hindi Diwas/Rajbhasha Swarn Jayanti Varsh

In order to encourage use of Hindi in official work amongst officers/employees of the Ministry an appeal was made by the Honourable Minister on 14th September, 1999. As per orders issued by Department of Official Language (Ministry of Home Affairs) various programmes are being organised to celebrate the Rajbhasha Swarn Jayanti Varsh from 14.09.99 to 14.09.2000.

"Prati Din Ek Shabd"

"Prati Din Ek Shabd" scheme launched in the Ministry four years back is being continued during the year. Under this scheme one word/phrase in Hindi and its English equivalent are written daily on the black boards installed on all the three floors of the Ministry. These are generally administrative and technical words/phrases used in day-to-day official work.

"Hindi Day" on every wednesday

Wednesday has been designated as "Hindi Day" in the Ministry and all officials & staff are expected to carry out their entire official work in Hindi on Wednesday.

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 such in-service training is obligatory. Out of a total of 177 officers and staff (except group "D" employees) 168 possess working knowledge of Hindi. Out of 24 LDCs, 10 know Hindi typing and out of 38 Stenographers, 27 know Hindi Stenography.