

REPORT 1985-86
DEPARTMENT OF STEEL
MINISTRY OF STEEL & MINES



GOVERNMENT
OF
INDIA

REPORT

1985-86



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I The year at a glance

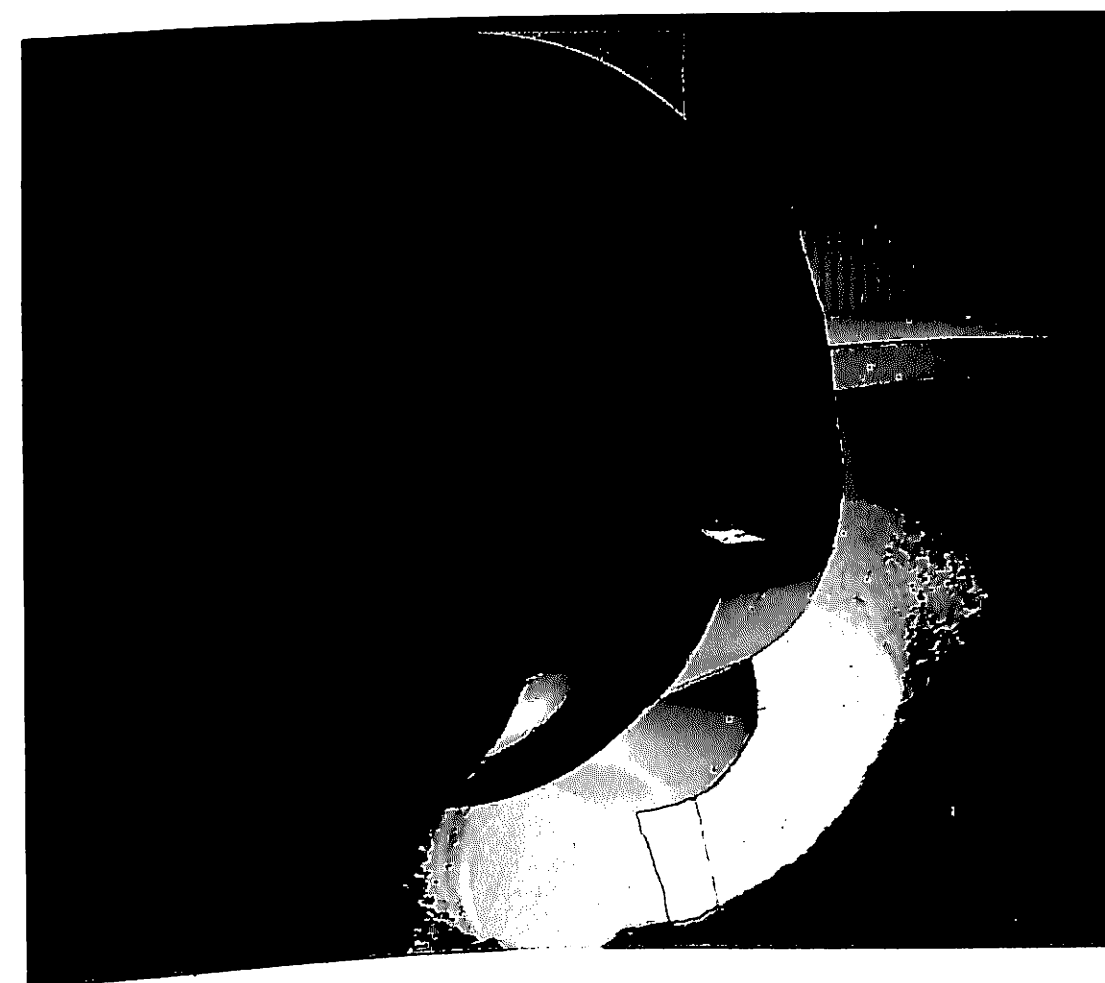
1. Production of Steel

After many years of slow growth, saleable steel production in 1985-86 in the public sector steel plants is expected to show a sizeable increase over previous years. In 1985-86, production in the public sector steel plants is expected to increase by about 7.5 lakh tonnes over the previous year and to cross the six million tonnes mark for the first time, representing a growth rate of 14%. In 1986-87, public sector steel production is targetted to increase further to a level of about 7 MT, representing a further growth of 16% over the current year's production. Thus, in two years, steel production from the public sector steel plants is expected to increase by 1.75 MT.

As against this during the 6th Plan period, the production of steel in the public sector steel plants grew from 4.77 MT in 1980-81 to 5.28 MT in 1984-85, an increase of approximately 5 MT during a five year period.

There has also been a sizeable growth in the production from mini steel plants due to improved scrap availability and better supply of power in most states. Production from mini steel plants this year is expected to be about 2.8 MT against a production of about 2.3 MT last year. In order to meet the increased requirement of scrap of mini steel plants, imports of melting scrap and sponge iron are expected to reach 13 lakh tonnes in the current year against 8 lakh tonnes in 1984-85.

Total production of saleable steel from integrated steel plants and mini steel plants in the country in 1985-86 is likely to be 10.0 MT against a production of 8.8 MT in 1984-85.



Basic oxygen furnace
Bhilai Steel Plant

2. Demand and availability of Steel

As a result of the increase in production from the public sector steel plants and the mini steel plants in the current year, there has been a marked improvement in the availability of steel and conditions are now fairly good in the market. This is evident from the prices of the small quantities of steel that are traded in the market. The price of such traded steel has dropped by about Rs. 1,000 per tonne since April last year. The availability represents a considerable improvement over last year's position when many engineering units faced a number of difficulties in getting their full requirements of steel. Steel stocks in public sector steel plants and stockyards stand at 8.7 lakh tonnes at the beginning of January this year as compared to about 6.9 lakh tonnes at the same time last year.

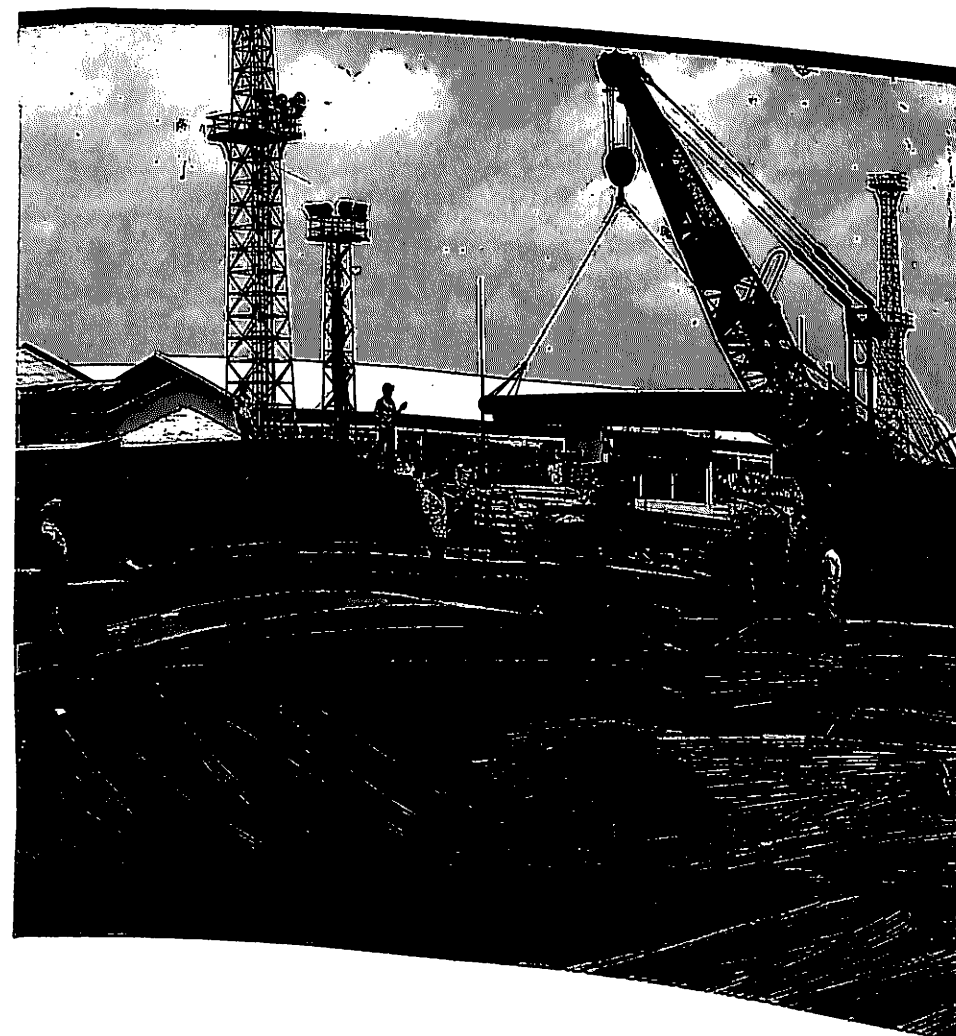
3. Performance of SAIL

During 1985-86, SAIL has shown distinct improvement in its capacity utilisation. SAIL's achievement in capacity utilisation of saleable steel is likely to be 80% in 1985-86 as compared to 73% for 1984-85. During the year under report, Bhilai will reach about 90% capacity utilisation from its 2.5 MT stream and Bokaro about 87%. There has also been noticeable improvement in the technical performance

of the steel plants with coal consumption per tonne of saleable steel having come down, energy consumption having been reduced and blast furnace productivity having been increased. The techno-economic improvements have brought about a saving of Rs. 26 crores in SAIL during the first 9 months of the year.

This improvement is also reflected in the financial picture of SAIL. As against a profit of Rs. 4 crores in 1984-85, SAIL's profits up to the end of December have already touched Rs. 68 crores and by the end of the year, are likely to exceed Rs. 100 crores.

Labour Unions are fully cooperating in the programme of improving the overall performance of SAIL. They have assured the undertakings of their fullest cooperation in implementing measures to increase productivity and production and to contain costs.



Stockyard, CMO SAIL.

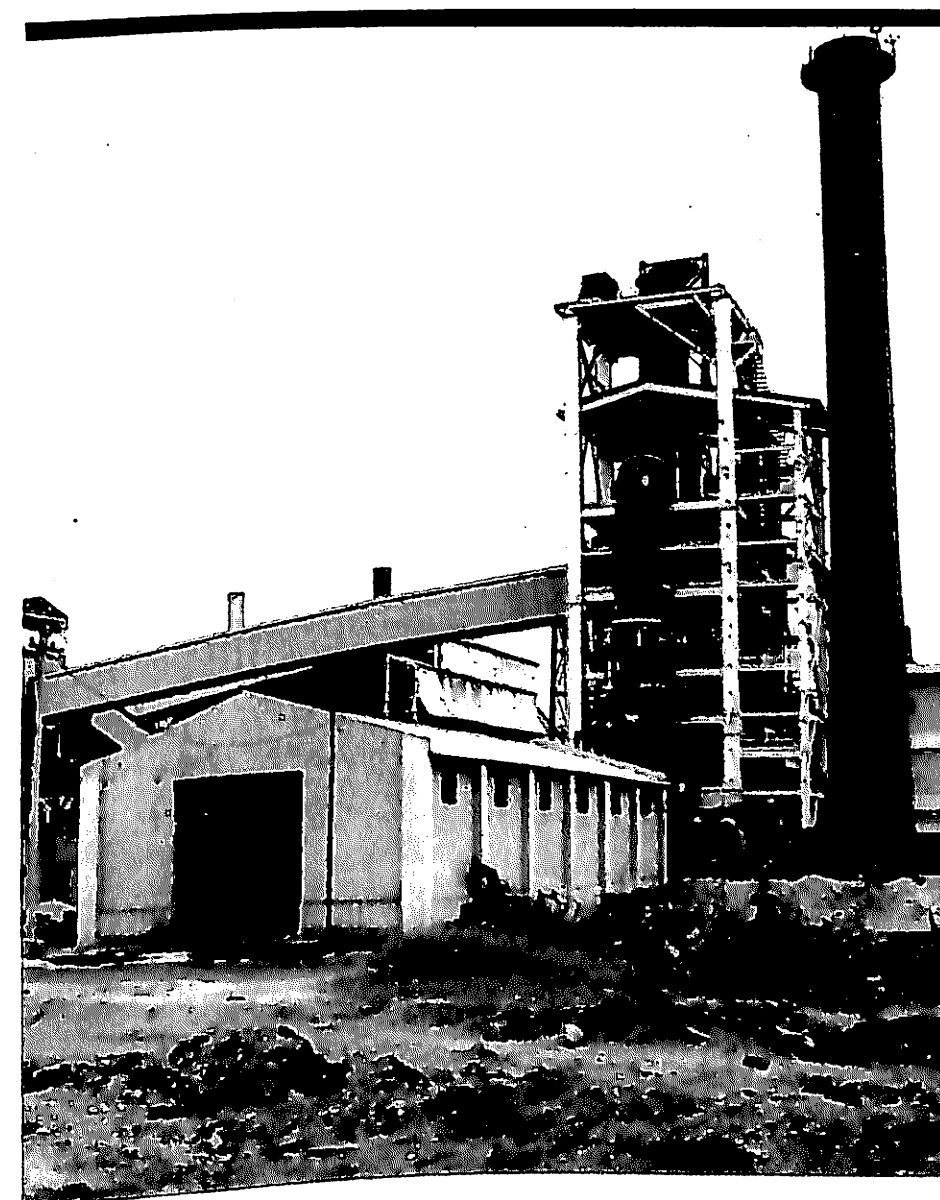
4. Construction of the Pellet Plant by KIOCL

The construction work of the Pellet plant at Mangalore has been completed. This Plant will convert 3.00 MT per annum of Kudremukh iron-ore concentrate into pellets. The Plant is expected to be commissioned by April, 1986.

Initially the export of concentrates was confined mainly to Romania and Czechoslovakia. Due to persistent and aggressive marketing efforts, KIOCL has now succeeded in entering major market areas such as Bahrain, Japan, Holland and France. It is expected that exports of concentrate to Yugoslavia and China will also commence in the near future. As against export of 1.57 million tonnes of iron ore concentrate in 1984-85, the export in 1985-86 is expected to be about 2.00 million tonnes.

5. The expansion of Sponge Iron India Ltd.

The successful operations of the Demonstration Sponge Plant of SAIL has led to its expansion from the capacity of 30,000 tonnes per annum to 60,000 tonnes per annum. This plant has been indigenously designed, and was completed within the stipulated time and the estimated cost. The Plant was formally dedicated to the nation by Shri K.C. Pant Minister for Steel and Mines on 20th January, 1986. A cash award of Rs. 450 each to all the employees has been given in appreciation of their having completed the work within the cost and time estimates for the project implementation.



Pan view, Sponge Iron India Ltd.

6. Technological Improvement

The Research and Development Centre of SAIL has been working on about 400 research projects mainly involving upgradation areas. Approximately 100 areas have been identified for commercial use in Indian Steel Plants, and a number of processes developed by the Centre have been used on a commercial scale.

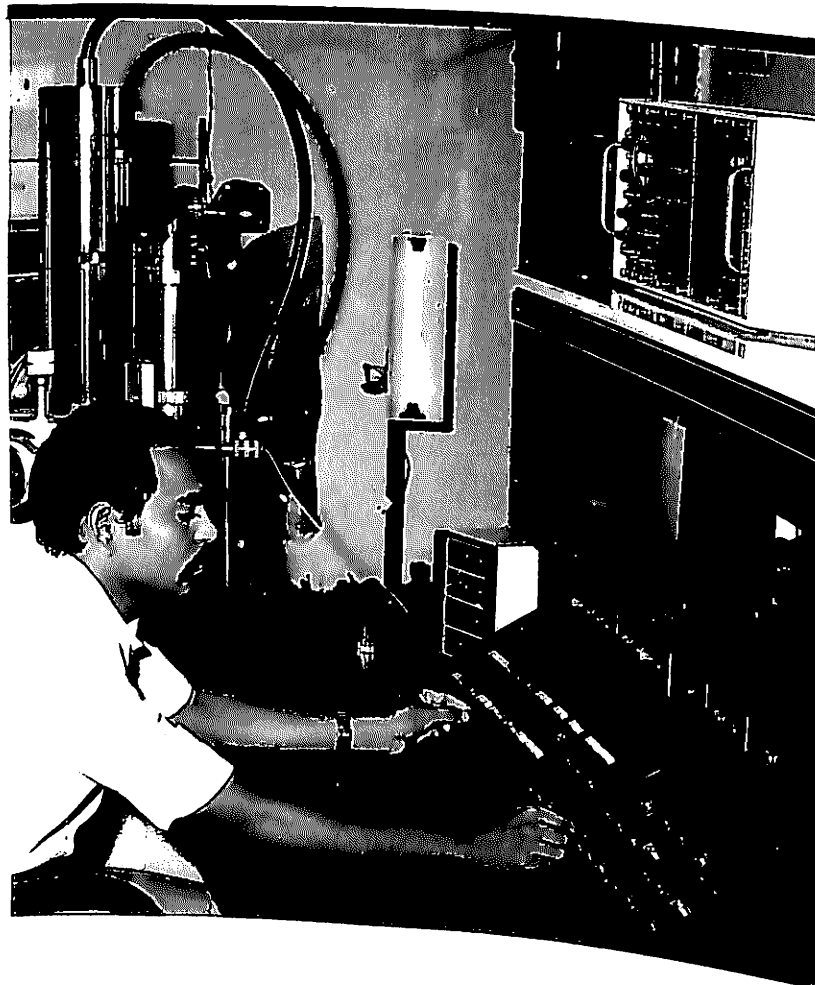
A new laboratory complex of the R and D Centre has been set-up at Ranchi. The Complex, built at a cost of Rs. 24 crores, will give an impetus in the field of diagnostic research for different areas of iron and Steel. The Department of Steel has constituted a Science Advisory Committee with Dr. V.S. Arunachalam, Scientific Adviser to the Defence Minister as its Chairman. Science Advisory Committee is a broad-based Committee and its membership consists of academicians, administrators, steel technologists and scientists. The Terms of Reference of the Committee are:

- (i) To examine all aspects of science and technology in the iron and steel industry.
- (ii) To advise the Minister of Steel on:
 - (a) Policies and programmes that should be pursued in developing domestic capabilities in scientific and technological research.

- (b) Development of design, engineering to achieve scientific excellence.
- (c) Research in Iron and Steel process and products.
- (iii) To review the progress of science and technology programmes of national importance in the iron and steel industry.

An investment plan for about Rs. 200 crores has been drawn up for the introduction of an integrated computer control system in Bhilai Steel Plant. Bhilai Steel Plant has been selected as a model plant by a national level committee for this purpose. The benefits to Bhilai Steel Plant from this project would be a 10% increase in production and 10% savings in energy consumption. It will substantially reduce the time between processing and despatch of materials. There would also be a considerable improvement in quality and consequent reduction in wastes. It is expected that this system will increase the profitability of the plant and the gains so substantially that the investment would be fully recovered in around three years.

After the introduction of this system in Bhilai, it is proposed to transfer it to other steel plants under SAIL.



Special testing facilities
RDCIS, Ranchi.

7. Mini Steel Plants

There are at present 159 mini steel plants in production in the country with a total capacity of approximately 5 MT of steel. Total production of mild steel from mini steel plants, this year, is expected to be about 2.3 MT against about 1.9 MT in the last years. This is a result of improvement in availability of power and scrap.

To reduce imports of scrap, a major thrust is being given to the setting up of sponge iron plants. The new plants have been delicensed. As a result, against a capacity of about 1.2 MT covered by industrial licences or letters of intent in March, 1985, we have now reached a level of almost 6 MT of capacity covered by registration. At present, two units with a capacity of 2.1 lakh tonnes are in production and three more units with a capacity of nearly 4 lakh tonnes are under implementation. The department has set up a Coal Linkage Committee to facilitate supply of coal to sponge iron units.

A Development Council is also being set up for the electric arc furnace and sponge iron industry. The Department recognises that the electric arc furnace industry will play a significant role in meeting the country's demand for steel production in coming years and the Development Council which would have representatives of all concerned interests will provide a forum to help promote the growth of this industry.

8. Steel Consumer Council

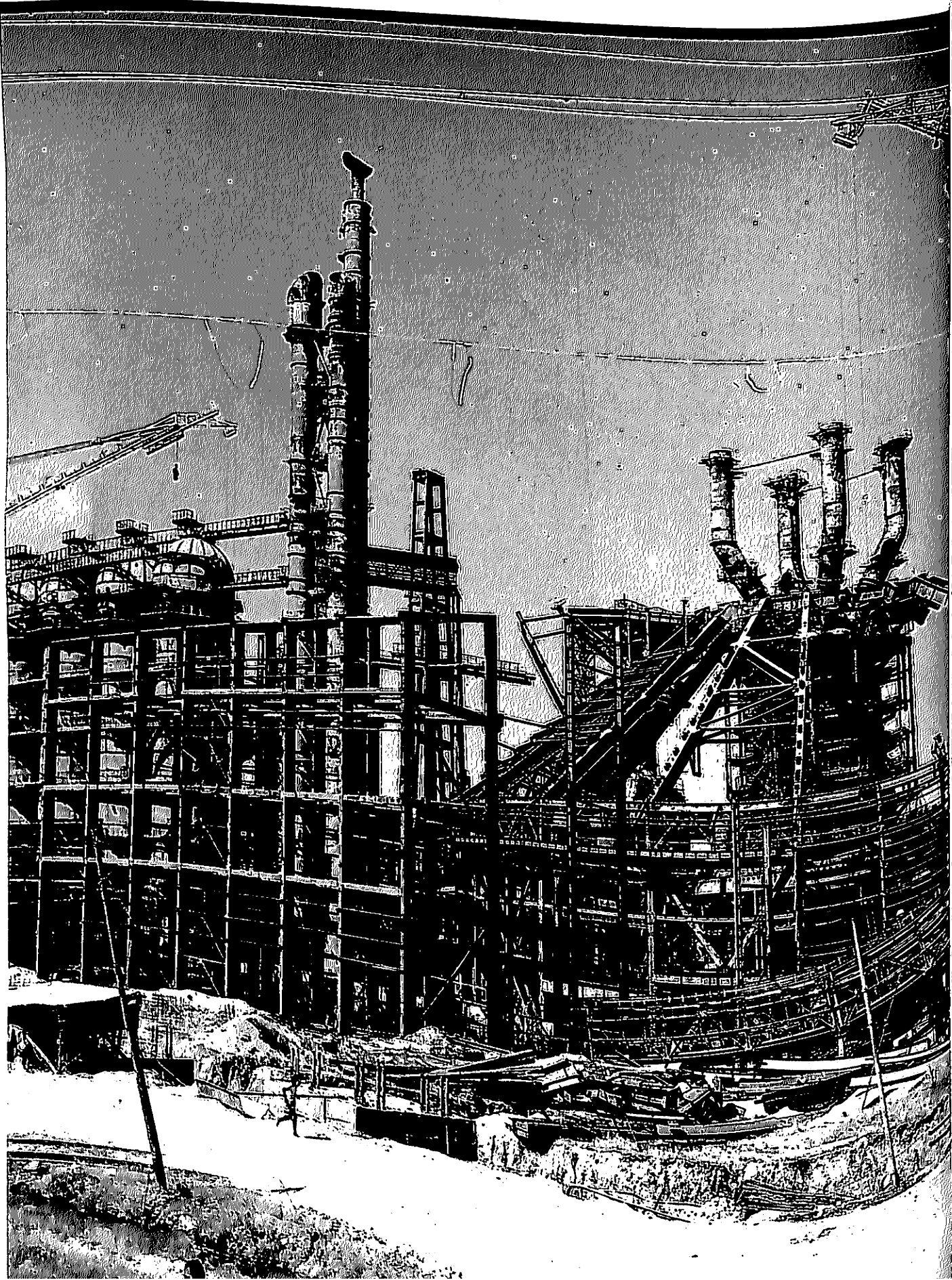
A Steel Consumer Council under the Chairmanship of Minister for Steel & Mines consisting of representatives of the major consuming sectors has been set up. This Council will enable an assessment of the problems and needs of consumers to be made by Government so that appropriate steps are taken to deal with the difficulties experienced by the consumers. The Council is expected to meet twice a year. The first meeting of Council took place on the 8th March, 1986.

9. Round Table on Steel Industry for the Next Decade

A meeting of eminent steel experts was organised by the Department on the 18th and the 19th February, 1985. This was followed up by a meeting held by Shri K.C. Pant, Minister for Steel and Mines on 18-10-85 with persons who are knowledgeable in the field of iron and steel industry with a view to get informal consultation on certain crucial questions relevant to the Indian Steel Industry. The issues which emerged in these two meetings are being further examined by the working group constituted to prepare a long term profile for the development of Iron and Steel Industry upto 2000 A.D. The working group is expected to finalise its report in 1986-87.

The 7th plan allocations for the Steel sector are Rs. 6420 Crores. The requirements of the sector are much larger. The Department had requested for an allocation of Rs. 14224 crores. The requirements had to be tailored owing to the overall constraints on resources. With this allocation, higher priority will be given to the continuing schemes and to the modernisation of the existing steel plants.

Blast Furnace under construction Vizag Steel Plant



II

A perspective view of the steel scene upto the year 2000 A.D.

In the strategy for development, steel is one of the critical materials required for sustaining the growth of the economy. The capital goods manufacturing programme depends largely on the timely availability of its material needs—steel being the basic item on this list. Undoubtedly, steel has to play a vital role in the overall development of the national economy.

A review of past apparent consumption shows that during the last three decades (1950-51 to 1980-81) the apparent consumption of steel in terms of crude steel has risen from a meagre 1.76 million tonnes in 1950-51 to 11.37 million tonnes in 1980-81, thus registering an average growth of 6.4% per annum.

The Working Group on Steel has projected the following demand and availability of finished steel upto the year 2000 AD:

Finished steel (Million tonnes)				
7th Plan	Demand	Availability	Gap	
1986-87	11.9	10.7	(-)	1.2
1989-90	13.9	13.0	(-)	.9
8th Plan	17.7	17.2	(-)	.5
1994-95				
9th Plan	22.5	17.2	(-)	5.3
1999-2000				

Sources of Saleable Steel (Million tonnes)				
	1986-87	1989-90	1994-95	1999-2000
SAIL	7.0	7.9	8.9	8.9
TISCO	1.7	1.7	2.0	2.0
Vizag.	—	.6	2.7	2.7
Mini Steel Plants	2.3	2.7	3.2	3.2
Scrap re-rollers	.4	.4	.5	.5
Total	11.4	13.3	17.3	17.3

Assumptions

- Vizag Steel Plant goes into production on schedule i.e.,

1988-89	1st stage	1.2 mt.
1991-92	2nd stage	3.4 mt.

With the allocations being made, this assumption may not hold good, commissioning will be delayed by about 2-3 years.
- Expansions of Bhilai and Bokaro 4mt capacities would be completed by 1987-88 without further slippages.
- Modernisation of IISCO, Durgapur and Rourkela would be completed in 6 years from start of work yielding additional steel making capacities.

The demand/availability was based on a study of the National Council for Applied Economic Research (NCAER). The NCAER, besides taking other factors like single major users, domestic sales data etc. worked out the finished steel demand on the basis of mainly two variables which are the import policy and growth rate of GNP. On this basis, the NCAER has 4 sets of projections of finished steel demand upto 2000 AD. The result of these are as follows:

(Million tonnes)				
Year	Alternative I 4% growth in GNP with restricted imports	Alternative II 4% growth in GNP with liberal imports	Alternative III 5% growth in GNP with restricted imports	Alternative IV 5% growth in GNP with liberal imports
1983-84	1.03	1.05	1.04	1.07
1984-85	1.08	1.11	1.11	1.14
1989-90	1.38	1.45	1.52	1.59
1995-96	1.15	1.97	2.28	2.44
2000-2001	2.35	2.54	3.03	3.34

Capacities of various steel plants have to be planned taking into consideration market demand, provisions for export and cyclic fluctuations in demand resources, construction and gestation period of new plants etc. The production plan projected for the integrated steel plants during the 7th Plan has taken into consideration better capacity utilisation. The production programme would result in an increase in the availability of steel as indicated in the table below:

(In 000 tonnes)					
Plant	1984-85	1989-90	Increase in VIIIth Plan	1994-95	Increase in VIIIth Plan
BSP	2435	3750	1315	3750	320
DSP	900	1170	270	1490	320
RSP	1265	1300	35	1620	320
BSL	2000	3300	1300	3600	300
IISCO	500	660	160	900	240
TISCO	2160	2160	—	2400	240
VSP	—	1180	1180	2162	982
Secondary producers	2200	2800	600	3500	700
	11460	16320	4860	19412	3108

As can be seen from the above table, greater emphasis has been laid on achieving high levels of productivity. The expansion of Bokaro Steel Plant and Bhilai Steel Plant upto 4MT capacity and the commissioning of the first phase of the Vizag Plant will contribute substantially. Total increase in Ingot Steel production in the 7th Plan would be about 4 million tonnes. The major contribution for this would come from the plants of SAIL. The production of mini steel plants is expected to go upto 2.8 million tonnes by 1989-90 and 3.5 million tonnes by 1994-95.

As indicated above, the capacities at the Bhilai and Bokaro Steel Plants are being expanded to 4MT ingot Steel. Schemes have also been formulated for the modernisation of steel plants at Durgapur, Rourkela and Burnpur and it is expected that their modernisation would be completed by about the middle of the 8th Plan. In case all these three plants are modernised by about the middle of 8th Plan, it would be possible to retrieve a capacity of 1.2 million tonnes of ingot steel which is presently not possible to achieve. Apart from retrieving this capacity, technological features which in the long run will help in containing the rising cost of production of steel.

The production of mini steel plants is expected to go up from 2.8 million tonnes by 1989-90 to 3.5 million tonnes by 1994-95. 1196 Mini Steel Plants have so far been licenced out of which 159 plants with a capacity of 4.7 million tonnes have already been

With the creation of additional capacities at Bhilai, Bokaro, Durgapur, Rourkela and Burnpur and increase in the production from the mini steel plants, the gap between demand and availability by 2000 A.D. would be approximately 5 million tonnes. As per the estimates worked out by the Working Group and the programme for additional availability there would be a substantial gap between demand and availability for HR Coils and Sheets during this period. In respect of Structural, the gap would continue around 0.6 million tonnes per annum through-out the 7th Plan and there would be a surplus of over 0.6 million tonnes in this category in 1994-95 provided the Vizag Steel Plant is completed in time and the production build up takes up as per schedule. With regard to Bars and Rods, the gap will continue to exceed through out the 7th Plan and a surplus of 0.44 million tonnes is anticipated in 1994-95 on account of contribution from VSP. The table below indicates the demand availability of finished steel upto the year 2000 A.D.

(Million tonnes)			
7th Plan	Demand	Availability	Gap
1986-87	11.9	10.7	(-) 1.2
1989-90	13.9	13.4	(-) .5
8th Plan			
1994-95	17.7	17.2	(-) .5
9th Plan			
1999-2000	22.5	17.2	(-) 5.3

At present, there are no proposals under active consideration for expanding any of the Public Sector Integrated Steel Plants. The gap of 5 million tonnes therefore, would have to be made by working out alternative strategies. One of the options that is open before the country to meet the future requirements of steel is through electric arc furnace route using scrap or sponge iron as the raw material. The need to encourage the sponge iron industry has been, therefore, recognised. This industry has been de-licenced and as a result, from a capacity of 1.2 million tonnes which was covered under licences or letters of intent, a capacity of 6 million tonnes has so far been covered by registration. The sponge iron industry needs to be encouraged and expanded not only because it will be a substitute for import of scrap but there would also be a demand for sponge iron by the integrated steel plants and electric arc furnaces. The present electric arc furnaces in the country can use sponge iron upto 30% of the charge without any modification and with suitable modifications upto 70%. It is in view of this factor that the Department of Steel has set up a Coal Linkage Committee and a Development Council for Sponge Iron Industry to ensure its proper planning.

Setting up of an Iron and Steel Plant is an intricate process. It involves conception, detailed engineering, and detailed designing of plant and equipment prior to manufacturing, erection and commissioning. There

are many emerging technologies before us in the horizon. As it stands today, there are two basic options for the growth of the Steel Industry in India till 2000 A.D. Steel plants can be built based either on liquid pig iron or on solid scrap/DRI (Directly Reduced Iron), both these routes being commercially established. The adoption of either of these two options would depend on the scale of operation of the plant.

The large scale integrated steel plants would continue to be based on the blast furnace process route involving liquid pig iron whereas medium steel plants can be set up following the scrap/DRI melting route.

Side by side, with the growth of new technologies, an awareness has developed about the greater emphasis that will have to be paid on the quality of iron ore and coal, the two major raw materials for production of iron and steel. Iron ore should be beneficiated to upgrade the Fe content and to remove the clay matter. Beneficiation of coal is also of vital importance. Increasingly high ash content in coal has been recognised as a very adverse factor, seriously affecting the economics of iron production in India. Washeries have, therefore, to be so modified or designed as to keep the ash content within the level desirable for iron making.

At the present, it appears that with the increasing efficiency of operation the blast furnace route will continue to remain as one of the major contributors to steel production. In addition, it is likely that the emerging technologies of DRI which are still in the pilot stage would stake its claim for commercial acceptance. The direct reduction process using coal gasification technology is developing. Coal gas can be used for direct reduction as well as for generation for electric arc furnace steel making. This integrated process concept, particularly as it does not require coking coal, is one which has interesting possibilities under Indian conditions & the further advances in this sphere will be of great importance to us in India.

About 55% of the total crude steel production in the world is presently achieved by refining the liquid pig iron in basic oxygen furnace (BOF) process while the electric arc furnace (EAF) by melting scrap/DRI has contributed about 22% of the total crude steel. As per projections for the future of the world steel industry the contribution of the EAF process is going to increase substantially. As far as India is concerned, it appears that the BOF process will continue to be the appropriate technology for the larger scale integrated steel plants while for small and medium capacity market steel plants of one million tonnes capacity per annum, the EAF route appears to be the obvious choice.



III

Raw materials—major inputs into steel industry

1. Iron Ore

India is well endowed with rich resources of iron ore, both in quality and quantity. Production of iron ore in our country is organised broadly in three types of mines.

- i) Captive mines, owned and operated by individual steel plants mainly for their own use.
- ii) Public sector mechanised mines, owned and operated by "National Mineral Development Corporation Limited" and State Government undertakings for export and internal consumption of steel plants.
- iii) Smaller mines, owned and operated by private parties, mainly on manual and semi-mechanised methods of mining.

2. Reserves of Iron Ore

The iron ore reserves of the country are presently estimated at 13,500 million tonnes, out of which 10,500 million tonnes, are haematite and 3000 million tonnes magnetite distributed in five, more or less distinct areas, i.e. Bihar, Orissa, Bailadila, Dalli, Rajhara in M.P. Bellary-Hospet in Karnataka, Ratnagiri in Maharashtra and Goa. With a step-up in the pace of exploration, it is expected that there should be substantial increase in the present estimates of reserves.

3. Production and Despatches

The production of iron ore (including concentrates) during the year 1985 is estimated at 44.5 million tonnes as against the recorded figure of 42.0 million tonnes in the previous year. Statewise projections indicate that Goa would be the chief iron ore producing State accounting for 15.3 million tonnes (34%) of the total production during 1985, followed by Madhya Pradesh 8.6 million tonnes (19%), Bihar and Orissa 7.0 million tonnes each (16%) and Karnataka 5.4 million tonnes (12%). The remaining production of 1.2 million tonnes would be accounted for by Andhra Pradesh, Maharashtra and Rajasthan.

Despatches of iron ore (including concentrates) in 1985 are estimated at 44.3 million tonnes, the share of internal consumption and exports being 16.2 million tonnes (37%) and 28.1 million tonnes (63%) respectively.

Consumption of iron ore at SAIL steel plants

During the year 1984-85, SAIL steel plants (including IISCO) procured 127.7 lakhs tonnes of iron ore-102.5 lakh tonnes from its captive mines and 25.2 lakh tonnes from other sources. SAIL plants consumed 124 lakh tonnes of the ore in that year.

The consumption of iron ore in SAIL steel plants in 1985-86 is likely to be about 133 lakh tonnes 76.3 lakh tonnes lump and 56.7 lakh tonnes fines.

Consumption of iron ore at TISCO

During the year 1984-85, Tata Iron and Steel Company Limited (TISCO) consumed about 29.6 lakh tonnes of iron ore. This was procured entirely from TISCO's captive mines.

TISCO consumed about 19.78 lakh tonnes of iron ore during April to December 1985. This was procured entirely from TISCO's captive mines.

Manganese Ore

Total reserves of manganese ore in the country are estimated to be 128 million tonnes. Out of these 17 million tonnes are measured, 23 million tonnes are indicated, and 88 million tonnes are inferred. The reserves are located in Andhra Pradesh, Bihar, Gujarat, Goa, Madhya Pradesh, Maharashtra, Karnataka, Orissa and Rajasthan.

Manganese is essential to the production of virtually all varieties of steel and it is also important to the production of cast iron. In addition to its general de sulphurizing, deoxidizing and conditioning effects, such as inhibiting formation of grain boundary carbides, it imparts the alloying effects of strength, toughness, hardness and hardenability to steels. Manganese is used in steel industry chiefly in the form of ferro-manganese or silico-manganese.

Manganese imparts strength, hardness and stiffness to aluminium and hardness, stiffness and corrosion resistance to magnesium. The common dry-cell battery uses manganese dioxide as the depolarizer in the cell, either as battery grade natural ore, synthetic dioxide or a blend of both.

Manganese dioxide ore are used also as oxidants in the production of hydroquinone, in the leaching of uranium ores, in the electrolytic production of zinc and in various chemical processes.

Manganese ore (including carbonate ore), ferro-manganese, manganese metal powder and manganese chemicals are used in the manufacture of welding coatings and fluxes. Manganese ores and/or chemicals made from them are employed to produce various colour effects in face brick and to a much less extent, to colour or decolour glass and ceramic products. They also have use as paint and varnish dryers, and in the production of dyes, fungicides and pharmaceuticals. Manganese dioxide has use as a constituent of the frits for bonding glass and porcelains to metal. The manganese zinc ferrites used in magnets for electronic applications have their manganese introduced as manganese oxides or electrolytic manganese metal powder. Manganese or manganiferous ores may be used as a flux in the smelting of base metal ores.

Production of manganese ore during the year 1985 is estimated at 1.14 million tonnes as compared to the recorded figure of 1.13 million tonnes during 1984. Orissa, Madhya Pradesh, Karnataka and Maharashtra would be the principal producing States accounting for 35%, 22%, 20% and 18% respectively of the total production of manganese ore in 1985.

Despatches of manganese ore are estimated at 1.24 million tonnes in 1985 of which 0.80 million tonnes (65%) are for internal consumption and 0.44 million tonnes (35%) for exports.

During the year 1984-85, SAIL steel plants (including IISCO) purchased 3.9 lakh tonnes of manganese ore. The consumption of the ore that year was also about 3.9 lakh tonnes.

The consumption of manganese ore in SAIL steel plants in 1985-86 is likely to be 4.4 lakh tonnes.

Chromite

The total reserves of chromite in the country are estimated to be 135 million tonnes. Major portion of the reserves are located in Sukinda-Naushai belt of Orissa. Other states where deposits are located are Bihar, Andhra Pradesh, Tamil Nadu, Karnataka, Manipur and Maharashtra. Deposits are reported to occur also in Andaman and Nicobar Islands.

Chromite is used mainly in three sectors of production, namely (i) steel industry (metallurgical grade) (ii) refractories and (iii) chemicals. Steel industry uses chromite in the form of ferro-chrome for the production of alloy steels. The usefulness of chromite as a refractory is on account of its high melting point (about 2111°C), moderate thermal expansion, stability of crystalline form at high temperatures and a comparatively neutral chemical behaviour.

The production of chromite during 1985 is estimated at 553 thousand tonnes as against the recorded figure of 454 thousand tonnes in 1984. Orissa is expected to continue as principal producing State

and would account for 475 thousand tonnes (86%) of the total production followed by Karnataka 70 thousand tonnes (13%).

Despatches of chromite in 1985 are estimated at 522 thousand tonnes of which 366 thousand tonnes (70%) are for internal consumption and 156 thousand tonnes (30%) for exports respectively.

Ferro Alloys

Ferro Alloy addition for the purpose of deoxidation or alloying is an integral part of steel making. Traditionally, integrated steel plants producing tonnage steel basically use manganese and silicon in the form of several ferro alloys. These alloys, Ferro-Manganese, Ferro-Silicon and Ferro-Chrome are called bulk/tonnage ferro alloys. Other ferro alloys which are more critical and strategic ferro alloys, such as ferro molybdenum, ferro tungsten, ferro niobium, ferro nickel are called high value ferro alloys. These minor ferro alloys are mostly being produced by the aluminothermic and other batch processes. These elements, such as vanadium, tungsten, molybdenum, niobium, titanium are sometimes introduced into steel in the form of ferro alloys because their production is simpler and cheaper. These alloys are generally used in the production of alloy steels, special steels, special quality pig iron etc.

The consumption of the various major ferro-alloys in SAIL steel plants (including IISCO and Alloys Steels Plant, Durgapur) in 1984-85 was as follows:—

	Tonnes
Ferro-manganese	88,032
Ferro-silicon	8,949
Ferro-chrome	4,170
Ferro-niobium	38
Ferro-vanadium	32
Ferro-phosphorus	54
Ferro-titanium	44
Ferro-nickel	68
Ferro-tungsten	15
Silico-manganese	25

The consumption of ferro-manganese in SAIL steel plants in 1985-86 is likely to be 1.1 lakh tonnes and that of ferro-silicon 13 thousand tonnes.

The consumption of the various ferro-alloys in TISCO during 1984-85 was as follows:—

	Tonnes
Ferro-manganese	18,072
Ferro-silicon	4,564
Ferro-chrome	602
Other Ferro alloys	676

Of the above Ferro-alloys, 15372 tonnes of ferro manganese was procured from TISCO's captive plant and the rest of the Ferro-alloys were procured from other sources.

The consumption of the various ferro alloys in TISCO during April to December 1985 was as follows:

Ferro-manganese	11,292 tonnes
Ferro-silicon	3,160 tonnes
Ferro-chrome	466 tonnes
Silico-manganese	6,855 tonnes
Other ferro-alloys	572 tonnes

Refractories

The quanta of the various kinds of refractories purchased by Steel Authority of India in 1984-85 and their value was as follows:—

Category of refractories purchased	Quantity in '000 tonnes	Value in Rs. in lakhs
1. Fireclay	132	1322
2. High Greg	41	667
3. High Alumina	6	164
4. Silica-General purpose	14	211
5. Silica-Coke Oven	4	135
6. Basic	47	2336
7. Others	34	1024
Total	278	5859

During the year 1984-85, Visakhapatnam Steel Project placed orders for the purchase of 3868 tonnes of Fireclay Refractories and 2686 tonnes of Insulation Refractories.

The consumption of the various kinds of refractories in TISCO during 1984-85 was as follows:—

	Tonnes
Basic Bricks	30,250
Low Alumina quality firebricks below 45% Alumina	20,000
High Alumina quality firebricks above 45% Alumina	16,500
Insulating bricks	220
Others	470

Of the above refractories, 8600 tonnes of basic bricks were manufactured by TISCO, 650 tonnes of basic bricks and 470 tonnes of other bricks were imported and the rest were purchased from indigenous sources.

Coking Coal

SAIL steel plants received about 117 lakh tonnes of coking coal from indigenous sources and about 6.3 lakh tonnes from abroad. The consumption of coking coal in the year was about 113 lakh tonnes.

The consumption of coking coal at SAIL steel plants in 1985-86 is likely to be about 122 lakh tonnes 104 lakh tonnes procured from indigenous sources and 18 lakh tonnes imported.

Limestone

SAIL steel plants procured 26.8 lakh tonnes of blast furnace grade limestone-19.3 lakh tonnes from its captive mines and 7.5 lakh tonnes from other sources. SAIL plants consumed 27.55 lakh tonnes of B.F. grade limestone in that year.

SAIL steel plants procured 11.1 lakh tonnes of steel melting shop grade limestone-6.8 lakh tonnes from its captive mines and 4.3 lakh tonnes from other sources. SAIL plants consumed 12.5 lakh tonnes of SMS grade limestone in that year.

The consumption of limestone at SAIL steel plants in 1985-86 is likely to be about 41.6 lakh tonnes.

Dolomite

SAIL steel plants procured 7.8 lakh tonnes of blast furnace grade dolomite, 2.4 lakh tonnes from its captive mines and 5.4 lakh tonnes from other sources. SAIL steel plants consumed 8.7 lakh tonnes of BF grade dolomite in 1984-85.

SAIL steel plants procured 6.4 lakh tonnes of steel melting shop grade dolomite-3.0 lakh tonnes from its captive mines and 3.4 lakh tonnes from other sources. SAIL plants consumed 5.2 lakh tonnes of SMS grade dolomite in that year.

The consumption of dolomite at SAIL steel plants in 1985-86 is likely to be about 12.7 lakh tonnes.

TISCO used about 34 lakh tonnes of Coal; 26 lakh tonnes procured from its captive mines and 8 lakh tonnes procured from other sources.

TISCO consumed about 23.95 lakh tonnes of coal during April to December 1985. Out of this 17.68 lakh tonnes was procured from TISCO's captive mines, 5.16 lakh tonnes was procured from other indigenous sources and 1.11 lakh tonnes was imported.

TISCO utilized about 7.2 lakh tonnes of Lime Stone-1.3 lakh tonnes procured from its captive mines and 5.9 lakh tonnes procured from other sources.

About 5.22 lakh tonnes of limestone were consumed by TISCO during April to December 1985. Out of this about 0.49 lakh tonnes was procured from TISCO's captive mines and 4.73 lakh tonnes was procured from other sources.

TISCO consumed about 5.3 lakh tonnes of dolomite, 3.5 lakh tonnes procured from its captive mines and 1.8 lakh tonnes procured from other sources.

TISCO used about 3.70 lakh tonnes of dolomite during April to December 1985. Out of this 2.75 lakh tonnes was procured from TISCO's captive mines and 0.95 lakh tonnes was procured from other sources.

There is an autonomous body-Mineral Development Board-under the Department of Steel to advice the Government in, the internal needs and the potential for exports, of mineral raw materials.

Mineral Development Board

The Mineral Development Board was established on 15th June, 1979, by reconstituting the Iron Ore Board. It is a registered society and advises as to how to ensure a stable supply of mineral raw materials and intermediates of industry and such steps as may be necessary to promote the exports of specified minerals consistent with resources and internal needs.

The Mineral Development Board commenced this year with a total of 17 on-going programmes of study. 18 new programmes were approved by the Board in September 1985. Thus, there are a total of 35 projects presently in hand with the Board. Several of these projects are likely to be completed by the end of this financial year. Some of the important areas where study programmes are currently being handled are:

- A study of the factors responsible for low productivity in Indian mines to recommend measures for its improvement.
- A study on the origin of mineral wastes in mining as currently practised in India with a view to evolving methods of utilising much of these wastes.
- Identification of refractory grades of Chrome ores in areas of Orissa, as this minerals is in short supply.

iv) Investigation for Tungsten in Burugubanda/Tapaskonda areas in Andhra Pradesh with a view to increasing the availability of Tungsten so as to meet the increasing national demand of this strategic metal, which is required both for defence purposes and in industry.

v) Manufacture of superior quality bricks from indigenous low grade refractory raw materials as a satisfactory substitute for imported refractory bricks manufactured from co-clinkers.

vi) Techno-Economic study for the recovery of iron values presently being lost in enormous quantities in the tailings of the iron ore washing plants of existing steel plants. Similarly, another study has been taken up for the recovery of iron values lost in the tailing of Kudremukh Iron Ore Plant so as to increase the recovery of concentrates from approx. 33% at present to approximate of the 50% run-of-mine material.

vii) Study regarding energy consumption in the iron and steel industry in India (including integrated steel plants, mini-steel plants and re-rolling mills), since on an average the steel industry in India consumes double the energy as compared to countries in the advanced world.

viii) A study on the mineral resources of Andhra Pradesh including a technology survey and assessment of investments required for development of the minerals as revealed by this resource audit.

IV Steel distribution, overall availability and imports & exports

1.1 Table below gives the availability of iron and steel to the home market during 1984-85 and April-December, 1985 as compared to April-December, 1984:

	'000 tonnes			
	Pig iron		Steel	
	April-Dec. 85		April-Dec. 85	
	1984-85	1985 86	1984-85	1985 86
1. Production				
a) Main Producers	1125	773.1	6904.8	5347.2
b) Secondary producers	73.8	62.4	1864.1	1440.0
2. Import arrivals (canalised)				
a) SAIL	0.4	—	625.1	518.8
b) MMTC	—	—	—	296.6
3. Total (1+2)	1199.2	835.5	9394.0	7602.6
4. Exports	—	—	153.4	—
5. Net availability (3-4)	1199.2	835.5	9240.6	7602.6

Note: Availability in Col. 5 above gets supplemented by direct imports, data about which is yet to be published. It is estimated that during the entire year 1985-86 domestic production of steel would be about 9.8 million tonnes and that of Pig iron will be 1.1 Million tonnes.

Though there has been an overall increase in availability of steel mainly due to increased production by integrated steel plants, shortages were felt in the first half of 1985-86 in various types of steel products like HR coils/skelp, CR coils/sheets, plates, bars and rods including wire rods, structurals. This availability position of flat steel products like HR coils/skelp, CR coils/sheets, plates got affected during the first half of the year due to production dislocations at Bokaro Steel Plant due to strike for 40 days during April-May, 1985 and due to power availability at Rourkela Steel Plant.

1.2 Strategy to meet the home requirements and to ensure fair distribution of available materials.

The measures introduced in the previous years to ensure fair distribution of available material were continued during the year. During the year main producers namely, SAIL and TISCO made greater use of the conversion scheme, under which they got the billets produced by them converted into bars and rods for meeting the requirements of priority sector consumers.

With effect from the quarter January-March, 1986 SAIL has introduced a scheme for timely supply of certain material like HR coils/skelp, CR coils/sheets, plates. This scheme envisages orders by customers for specific quantity giving month-wise delivery schedules with an earnest money deposit and financial arrangements in the form of a Letter of Credit. SAIL has undertaken to ensure supplies as per accepted schedule and to compensate the consumer by payment of penalty in case of delays in supplies. The scheme has just been introduced and depending on its operation it could be expanded.

1.3 Distribution Procedure for Steel

Priority sectors under Status Group 'A' like Defence Irrigation, Power, P&T, Railways and EEPC units are allocated steel annually by the Joint Plant Committee. Allocations to the Small Scale Industries Corporations are now done by the Iron and Steel Controller. Consumers other than these have to register their requirements with main producers/their branch sales offices for supplies of all items. Small Scale Units are normally to register their demand with their respective SSICs. However, small scale units having an offtake of more than 100 tonnes or more during any quarter during the past 5 years have been given option of receiving supplies either from main producers directly or through their respective SSICs. Apart from this, small scale units in the State of Jammu & Kashmir and the Union Territory of Delhi have an option to receive their supplies either through their SSICs or directly from the main producers.

1.4 Distribution of Pig Iron

The Iron & Steel Controller/Joint Plant Committee makes allocation of pig iron to consumers under Status Group 'A', Rly. Sleeper manufacturers and spun pipe manufacturers taking into account their projected demands, past offtake and availability. DGTD units having foundries obtain their requirements directly from the plants/stockyards. Small Scale units continue to get their pig iron supplies through the State Small Scale Industries Corporation except in the case of Tamil Nadu where the State SSI Corporation is not handling pig iron. Registered associations/cooperative societies can also get direct supplies of pig iron from the producers for distribution to their member Small Scale Units on being sponsored by the State Director of Industries and out of their State Corporation allocation. Currently supplies are also being made to these associations and even individual small scale units without sponsorship from the State Director of Industries but out of the State Corporations' allocation.

1.5 Small Scale Industries Corporations-Allocations and Supplies of Iron and Steel

Allocations of iron and steel to SSICs are made by Iron and Steel Controller annually. The table below indicates the allocations to and offtake by/supplies of iron and steel to SSICs in 1984-85 and during 1985-86 upto December, 1985:-

Year	Allocations		(Tonnes) Offtake/Supplies	
	Pig Iron	Steel	Pig Iron	Steel
1984-85	7,38,748	5,29,214	2,10,815	2,26,946
1985-86	5,68,800	5,77,435	3,93,284*	2,03,258**

*(Upto January, 1986)
**(Upto December, 1985).

Rate of supplies during the current year are higher than the previous year.

1.6 Rebates for Supplies of Iron and Steel

Small Scale Industries Corporation have been entrusted with the distribution of iron and steel materials to the small scale industrial units since 1972. They are supplied steel at rebate by the main producers so that it could be made available to the small scale industrial units at prices comparable to main producers' stockyard prices. The Corporations have been representing for some time that the handling margins given to them for distribution of iron and steel materials are inadequate and should be revised. Presently SSICs get a rebate ranging from Rs.210 to Rs.300 per tonne. No rebate is given for

handling pig iron. Indigenous pig iron is generally supplied to the Corporation directly from the plants on JPC plant price which is less by Rs.175/- per tonne than the stockyard price and the Corporations are required to sell pig iron to the SSI units at the corresponding prices of main producers stockyard. They are expected to cover their handling charges for pig iron from this difference of Rs.175/- per tonne.

1.7 Distribution Net-Work

SAIL including IISCO have a net-work of 48 departmental stockyards, 12 consignment agency yards and 69 other conversion agents/twisting yards throughout the country. TISCO has 11 stockyards and 87 other distribution outlets. TISCO closed down their stockyard at Cochin during the year. SAIL has opened a new stockyard at Dharmanagar, in Tripura and a consignment agency yard at Jabalpur in Madhya Pradesh. Efforts are also on for reactivating SAIL yards at Lucknow and for opening outlets at Kolhapur and Goa during the year. IISCO has opened a stockyard at Burnpur (West Bengal) during the year.

Considering the special problems in meeting the requirements of consumers in the North-Eastern Region mainly arising out of transport bottlenecks and logistics, special efforts are being made to ensure that adequate quantities are moved to that region by regular coordination between the producers and the Railways. The producers are also reimbursed the actual cost of transportation by alternate routes by road/river by the Joint Plant Committee.

1.8 Distribution by Other Steel Producers

Distribution of the products of ministeel plants, rerollers and secondary producers is done by the producers themselves. Similarly alloy steel products are distributed by the producers through their sales network.

1.9 Pricing

As a result of deregulation of the iron and steel prices by Govt. in April, 1982 the regime of administered prices was over and the prices of steel produced by integrated steel plants are now fixed and announced by the JPC. During the year there has been no increase in steel prices.

Iron and steel materials are supplied by the main producers at a uniform price throughout the country. Similarly sales through stockyards are also at uniform prices throughout the country. For this purpose: a freight equalisation fund is operated and maintained by the Joint Plant Committee. Presently the freight element for steel is Rs.470/- per tonne and Rs.320/- per tonne for pig iron.

On the recommendations made by the National Transport Policy Committee headed by Shri B.D. Pande, Govt. has taken a decision, in principle, to phase out freight equalisation in respect of industrial commodities including iron and steel.

1.10 Imports

Three year import policy for 1985-88, now in force, is more liberal than the previous import policy for 1984-85. The thrust of the current policy is to allow greater direct imports to meet the requirements of industrial users. There has also been a change in the canalising agency for imports of iron and steel. The work has now been shifted from SAIL and entrusted to Minerals & Metals Trading Corporation of India Ltd. (MMTC). Facilities for direct import available to registered exporters, export houses, trading houses and other designated agencies has been continued. Metals Scrap Trade Corpn. Ltd. (MSTC) continues to be the canalising agency for import of steel melting scrap, rerollable scrap, sponge iron/hot briquetted iron and old ships for breaking.

Consequent to change in canalising agency some transitional arrangements were necessary. The matter was considered and SAIL was allowed to import materials against orders placed by them upto 31-3-1985 and against tenders floated by them upto 31-3-85 where import orders had not been placed. Even in respect of applications pending with SAIL on 31-3-85, where no tenders had been issued SAIL was allowed to import except in respect of items that were canalised through the new canalising agency, MMTC. In respect of such items SAIL passed on the applications to MMTC for further action. In respect of applications that remained with SAIL consumers were given an option to withdraw their applications from SAIL and follow the supplementary licensing procedure. As a result during 1985-86 SAIL will also be importing sizeable quantity of steel in addition to imports by MMTC-the new canalising agency.

Consequent to doing away with the list of automatic permissible items in the current import policy all items not importable under Open General Licence or through the canalising agency have to be by issue of specific import licences. List of items subjected to this procedure of issue of licences is relatively large compared to the previous year. To deal with this increased work a streamlined procedure has been evolved. Under this procedure all applicants for issue

of supplementary licence have to forward 2 copies of their import licence applications to the Iron & Steel Controller while they forward the other 2 copies to their sponsoring authority for being sent with their recommendations to the licensing authority, the CCI&E. The cases are put up to the Supplementary Licensing Committee for consideration and Iron & Steel Controller gives his comments from indigenous angle for consideration by the Supplementary Licensing Committee. Even though all the applicants have not been sending 2 copies of their import licence application to the Iron & Steel Controller the system has worked well and the Iron & Steel controller is able to offer his comments within a period of less than a fortnight. The Iron & Steel Controller has also been entrusted with the work of indigenous clearance in case of canalised imports through the canalising agency-MMTC. Thus a single window namely, Iron & Steel Control Organisation has been made responsible for indigenous clearance both in respect of canalised imports and supplementary licence imports. During April 85—Feb. 86, canalised imports through the new canalising agency have been 5,07,218 tonnes valued at Rs.197.48 crores. In addition imports through SAIL during this period have been 6,01,087 tonnes valued at Rs.295.5 crores. SAIL as the canalising agency imported 0.7 million tonnes of steel valued at Rs.356 crores during 1984-85.

According to DGCI&S publication during 1981-82 steel import was about 2.8 million tonnes valued at Rs.1009.9 crores.

1.11 Exports

The requirements of exporters of engineering goods get highest priority along with other nationally important sectors like power, defence, irrigation etc. Demand of EEPC is mainly met from indigenous production. During 1984-85 the export target of engineering goods was fixed at Rs.1750 crores. Supplies of iron and steel to engineering exporters whose demands were sponsored by EEPC, during 1984-85 amounted to 16,944 tonnes of pig iron and 60,874 tonnes of steel as against an allocation of 52,381 tonnes of pig iron and 92,235 tonnes of steel. The export target for the current year 1985-86 also is Rs.1750 crores. To help meet this target a quantity of 96,600 tonnes of steel has been allocated to the EEPC sector from domestic sources. Supplies during April 85—Feb. 86, was 52678 tonnes of steel and 13759 tonnes of pig iron. Sizeable supplies are expected to be made during remaining part of the year.

Export of iron and steel has been limited to minimum level as there is demand within the country. In fact, SAIL was advised to stop fresh contracting for export. During 1984-85, 1,53,000 tonnes of steel valued at Rs.34.38 crores was exported. The items of export were billets, bars and rods, structurals and plates.

Itemwise details of imports by the canalising agency during April 1, 1985-February, 86.

Import of Iron & Steel during 1984-85 and 1985-86 (April-Feb '86) (Shipments from abroad) by Canalising Agency

Sl. No.	Category	1984-85		1985-86 (April'85-February'86)				Total	
		Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10
A.	Pig Iron	—	—	—	—	—	—	—	—
B.	Steel	—	—	—	—	—	—	—	—
	Semis	—	—	193.06	50.90	0.13	0.06	193.19	50.96
	Bars & Rods	32.5	12.63	52.80	16.40	12.01	6.55	64.81	22.95
	Structurals	5.3	2.25	52.88	18.08	10.66	4.55	63.54	22.63
	Plates	74.33	38.86	36.89	26.07	129.79	53.85	204.12	79.92
	HR Coils/Sheet/Strips	98.7	36.89	—	—	110.09	43.93	110.09	43.93
	CR Coils/Sheets	215.3	92.53	—	—	172.48	79.80	172.48	79.80
	Tin Plates	3.2	2.79	—	—	5.30	4.47	5.30	4.47
	Tin mill Black Plate	135.7	83.24	106.94	61.49	58.98	36.19	165.92	97.68
	Tinplate Waste	5.6	2.57	—	—	29.59	14.52	29.59	14.52
	Electrical Sheets	53.6	52.25	19.03	18.57	23.07	24.71	42.10	43.28
	GP/GC Sheets	8.3	4.82	3.44	2.21	1.58	1.07	5.02	3.28
	Stainless/Special Steel	5.8	5.15	4.42	3.34	12.84	12.64	17.26	15.98
	Others	25.3	11.82	0.30	0.42	34.56	13.15	34.86	13.57
	Total Steel	700.8	345.80	507.20	197.48	601.08	295.49	1108.28	492.97
	Total Iron & Steel	700.8	345.80	507.20	197.48	601.08	295.49	1108.28	492.97

1.12 Functions of Iron and Steel Control Organisation

The Iron and Steel Control Organisation was initially set up to perform the regulatory functions envisaged in the Iron & Steel (control) order, 1956. Its responsibilities have expanded over the years. It now plays a very important advisory role, in addition to its regulatory functions, in practically all matters relating to the Iron and Steel Industry. The Iron and Steel Controller monitors the working of electric arc furnace industry, the secondary producers, the tinplate manufacturers, the ferro-alloy industry etc. From the year 1985-86 work of indigenous clearance in respect of all import applications (both supplementary licensing applications as well as canalised import applications) has also been entrusted to the Iron and Steel Control Organisation so that there is a single window clearance of all imports of iron and steel. He also monitors supplies of iron and steel to priority sectors and the North-Eastern region

Statement showing the number of cases of Inspections of units/suspensions of supplies/ debarments in 1984-85 and 1985-86.

Region	Inspections		Suspension		Debarments	
	1984-85	1985-86	1984-85	1985-86	1984-85	1985-86
	1984-85	1985-86	1984-85	1985-86	1984-85	1985-86
1.	2.	3.	4.	5.	6.	7.
Bombay	344	435	—	79	4	24
Calcutta	257	224	—	4	4	1
Delhi	288	281	3	44	1	15
Hyderabad	459	565	14	16	4	5
Kanpur	81	356	12	62	8	16
Madras	573	563	17	85	11	39
Total	2002	2424	73	290	32	100

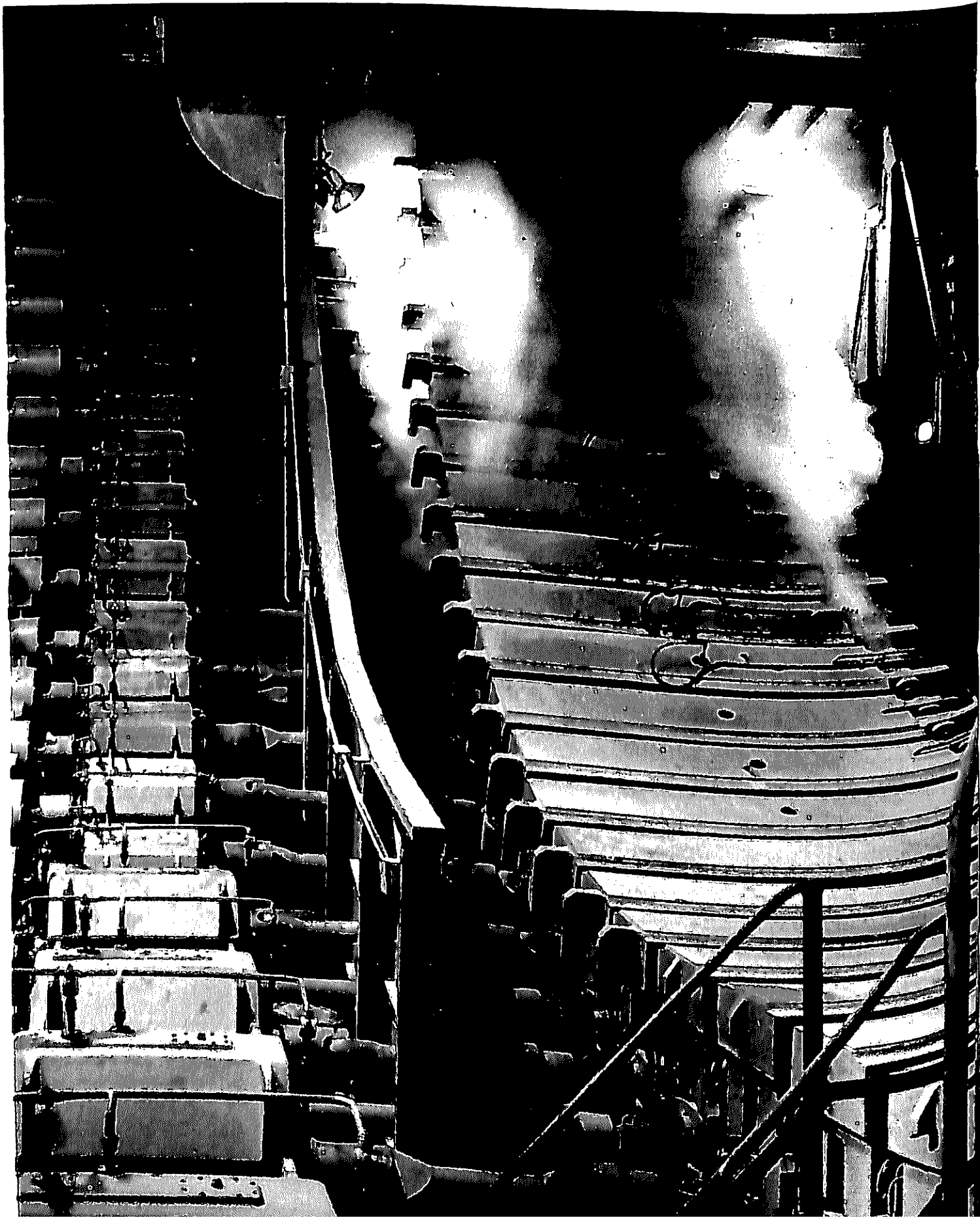
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The Public Sector

The Public Sector conceived by our planners to attain the commanding heights of Indian economy has shown its size and strength in the steel sector. Over the years, the public sector has increased its areas of activity and today encompasses virtually all aspects of steel industry in India. There are five integrated steel plants under the public sector in the country. There is a network of distribution of iron and steel items over the length and breadth of India. There are mines producing iron-ore, manganese ore, and other mineral raw-materials for the consumption in the steel industry. Infra-structural development including consultancy for sophisticated technologies forms part of the activities of the public sector under the administrative control of the Department of Steel.

A provision of Rs.6,420.13 crores has been made in the 7th Five-Year Plan for iron and steel sector. Detailed outlay for various units is shown at page 60





Steel Authority of India Limited

1.1 General

The Steel Authority of India Limited (SAIL) is a wholly owned Government of India Undertaking and is responsible for the management of four integrated steel plants at Bhilai, Rourkela, Durgapur and Bokaro and two alloy steels plants at Durgapur and Salem. SAIL has a fully owned subsidiary (IISCO) which manages the integrated steel plant at Burnpur.

2. Financial Performance

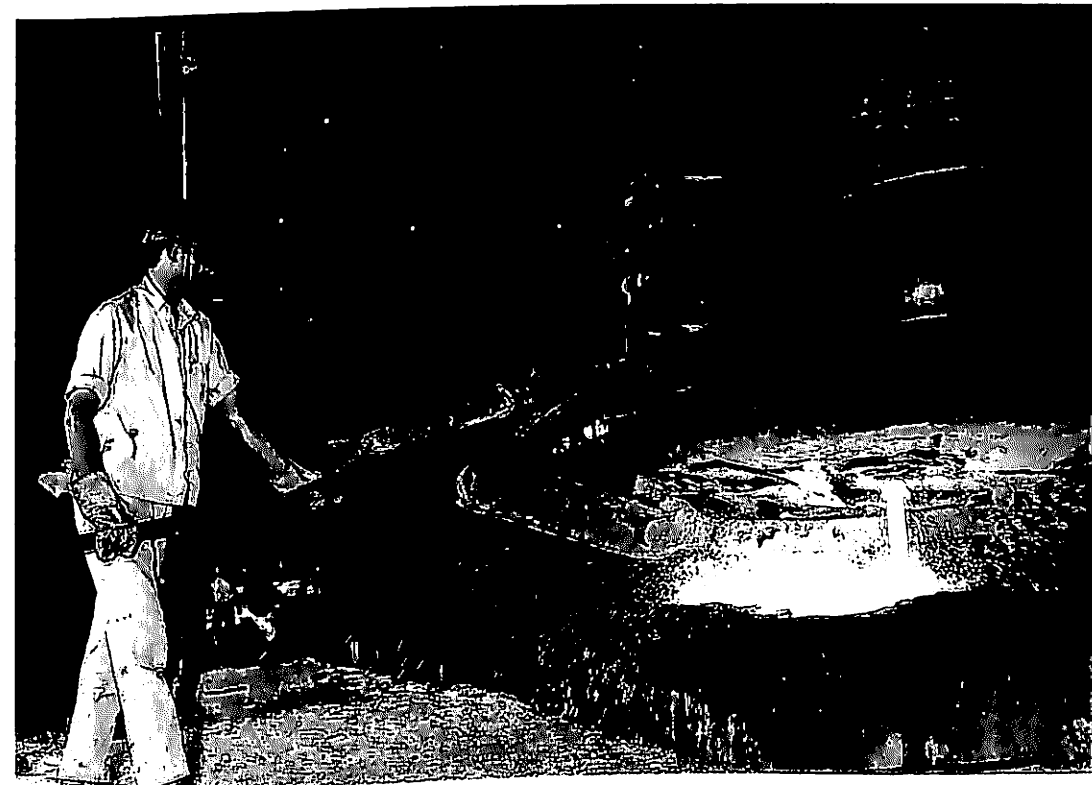
Authorised and paid-up share capital

The authorised capital of the Company remained unchanged at Rs. 4000 crores. During the year, Government provided equity funds in cash amounting to Rs. 279.09 crores, including Rs. 9.44 crores for the Indian Iron and Steel Company Limited. After adjustment of Rs. 5 crores for the transfer of Vijayanagar Steel Project to Vijayanagar Steel Limited the paid up capital of the Company increased from

Rs. 3422.73 crores (excluding share money of Rs. 16.83 crores pending allotment) as on 31st March, 1984 to Rs. 3583.31 crores (excluding share money of Rs. 130.34 crores pending allotment) as on 31st March, 1985.

2.2 Borrowing

During the year 1984-85 the Company borrowed Rs. 254.51 crores from the Steel Development Fund and Rs. 70.75 crores including Rs. 1 crore each for the Indian Iron & Steel Company Ltd. and for Visvesvaraya Iron & Steel Limited from the Government of India to finance capital schemes. The Government also advanced non-plan loan of Rs. 55.48 crores for meeting the working capital requirements of IISCO. After adjustment of repayments of Rs. 112.66 crores of Government loan during the year, the total borrowing as on 31st March, 1985 amounted to Rs. 1207.41 crores from the Steel Development Fund and Rs. 987.16 crores from the Government of India.



Steelmen in action

2.3 Public Deposits

The amount of fixed and cumulative deposits with the Company under the Public Deposit Scheme at the close of the year was Rs. 96.24 crores as against Rs. 49.14 crores at the close of the previous year. This amount has increased to Rs. 155 crores as on 31st August, 1985.

2.4 Investment in Subsidiary and other Companies

As on 31st March, 1985 the Company had made the following investments:-

SUBSIDIARY	Rupees in crores
IISCO	78.61
OTHER COMPANIES	
i) VISL	18.56
ii) North Bengal Dolomite Ltd.	0.12
iii) Belpahar Refractories Ltd.	1.12
iv) Almora Magnesite Ltd.	0.28
v) Indian Potash Ltd.	0.02

2.5 Turnover and Profit/Loss

The gross turnover of the Company during 1984-85 was Rs. 3722.10 crores as against Rs. 3108.22 crores in 1983-84. The gross operating profit increased from Rs. 58.45 crores in 1983-84 to Rs. 252.83 crores during 1984-85. The net profit after

adjustment of Rs. 55.32 crores pertaining to previous years, was Rs. 4.24 crores during 1984-85 as against a net loss of Rs. 214.53 crores in 1983-84.

2.6 Working Results

The working results of the various units of the Company are indicated below:-

PLANTS/UNITS	(Rupees in crores)
Bhilai Steel Plant	Profit (+)/Loss (-)
Durgapur Steel Plant	(+) 49.27
Rourkela Steel Plant	(-) 53.36
(including Fertilizer Plant)	
Bokaro Steel Plant	(+) 27.10
Alloy Steels Plant	(+) 11.47
Salem Steel Plant	(-) 30.02
Others	(+) 0.53
	(-) 0.75
Net Profit	(+) 4.24

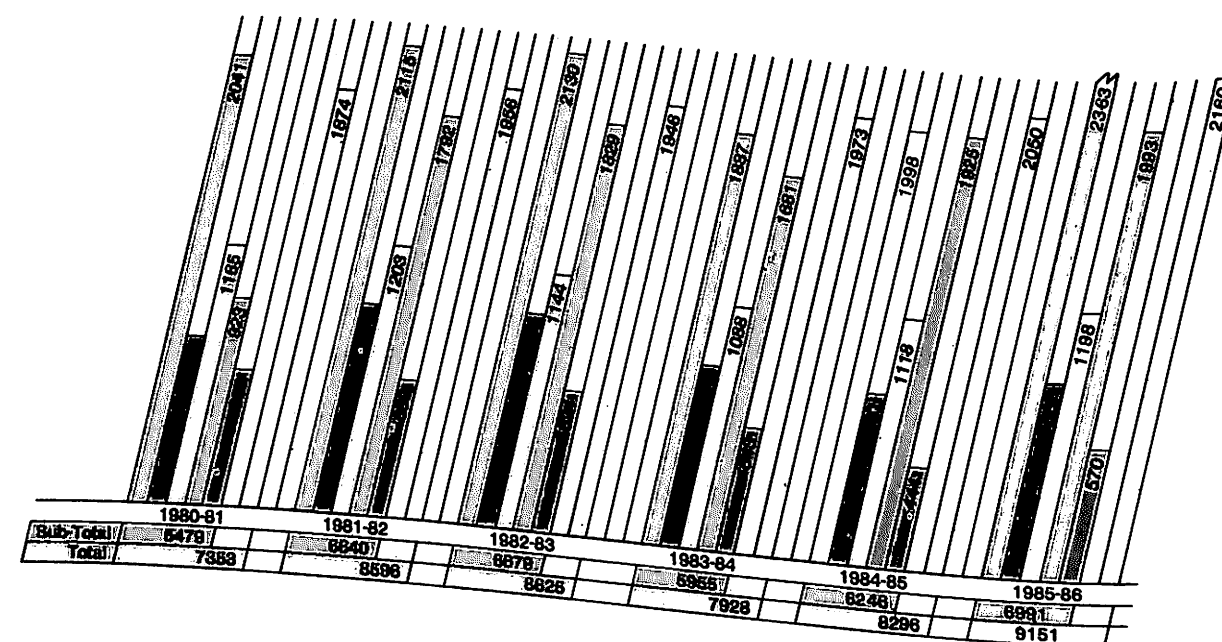
3. Production Performance

3.1 Production Capacity Utilisations

The production performance and capacity utilisation of SAIL plants during the last five years are as follows:-

Production Performance of Steel Plants

INGOT STEEL	
Bhilai Steel Plant	
Durgapur Steel Plant	
Rourkela Steel Plant	
Bokaro Steel Plant	
Indian Iron & Steel Co. Ltd.	
TISCO	



PRODUCTION PERFORMANCE OF STEEL PLANTS 1980-81-1985-86

Plant Products	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
INGOT STEEL						
BSP	2041	2115	2130	1837	1998.1	2363
DSP	741	930	952	806	760.2	867
RSP	1165	1203	1144	1088	1118.8	1198
BSL	923	1792	1829	1681	1925.2	1993
IISCO	609	600	624	543	444.1	570
SAIL GROUP	5479	6640	6679	5955	6246.4	6991
TISCO	1874	1956	1946	1973	2050.3	2160
TOTAL	7353	8596	8625	7928	8296.7	9151
SALEABLE STEEL						
BSP	1818	1819	1838	1574	1810.1	2012
DSP	598	782	813	602	620.7	700
RSP	985	1091	992	862	1013.5	968
BSL	844	1474	1529	1288	1458.7	1681
IISCO	523	488	500	444	380.4	490
SAIL GROUP	4746*	5651**	5671	4771**	5283.4	5851
TISCO	1537	1606	1621	1626	1714.1	1740
TOTAL	6283	7257	7292	6397	6997.5	7591
SALEABLE PIG IRON						
BSP	430	504	457	544	534	384
DSP	102	88	105	159	64	144
RSP	13	66	29	47	22	31
BSL	730	452	393	528	436	481
IISCO	64	59	119	130	69	91
TOTAL	1339**	1169	1104**	1408	1125	1131
ASP—Ingot Steel	70.39	86.01	81.12	67.43	85.1	100.00
Saleable Steel	41.71	52.04	46.80	43.69	58.9	59.00
SSP Saleable Steel	—	3.21	6.75	6.92	17.1	24.20

* Excludes inter-plant transfer

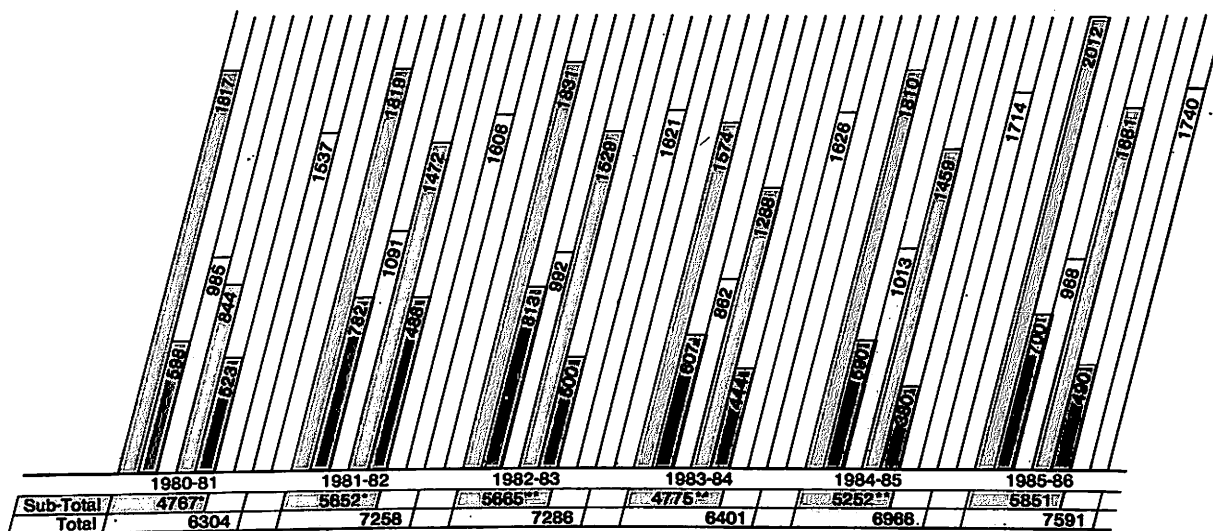
** Rounded off

*** Based on actuals of April, 85- February, 86 & estimates for March, 86

Production Performance of Main Steel Producers

SALEABLE STEEL

Bhilai Steel Plant	
Durgapur Steel Plant	
Rourkela Steel Plant	
Bokaro Steel Plant	
Indian Iron & Steel Co. Ltd.	
TISCO	



* Excludes inter-plant transfer
** Rounded off

Production performance of SAIL

PIG IRON

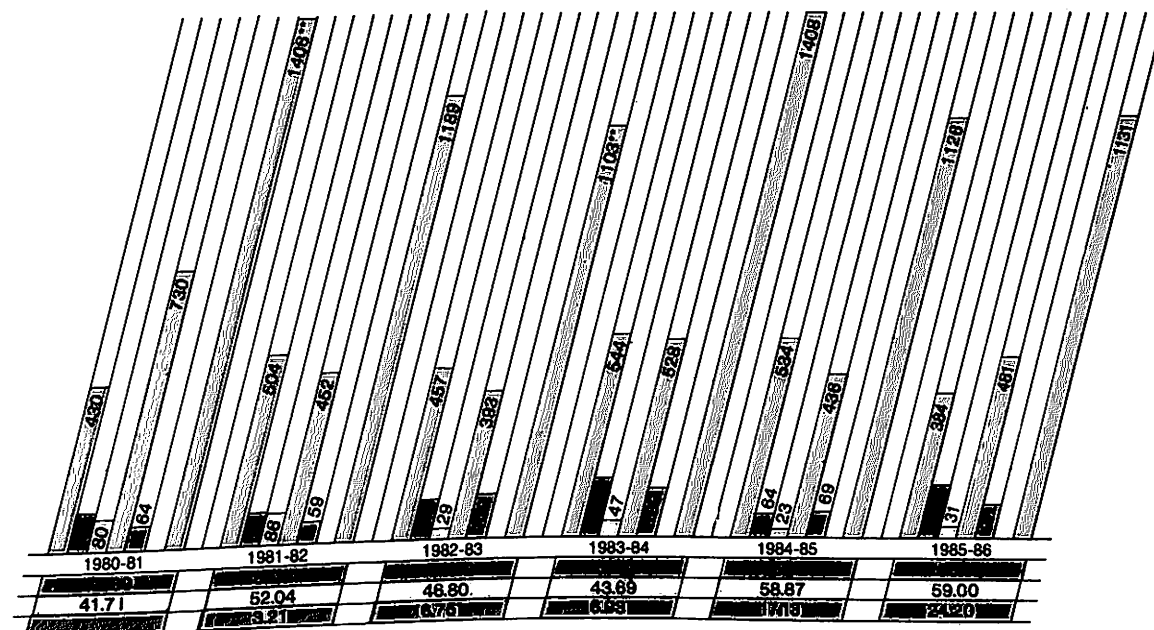
Bhilai Steel Plant	
Durgapur Steel Plant	
Rourkela Steel Plant	
Bokaro Steel Plant	
Indian Iron & Steel Co. Ltd.	

ALLOY STEELS PLANT

Ingot Steel	
Saleable Steel	

SALEM STEEL PLANT

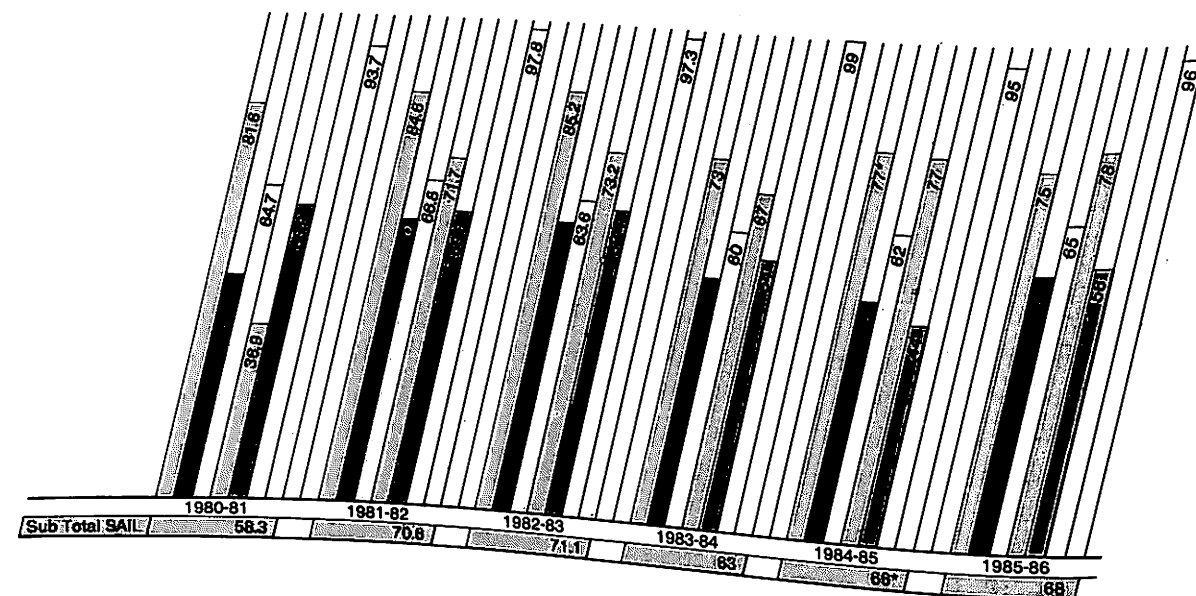
Total



** Rounded off

Capacity Utilisation Percentage

INGOT STEEL
Bhilai Steel Plant
Durgapur Steel Plant
Rourkela Steel Plant
Bokaro Steel Plant
Indian Iron & Steel Co. Ltd.
TISCO



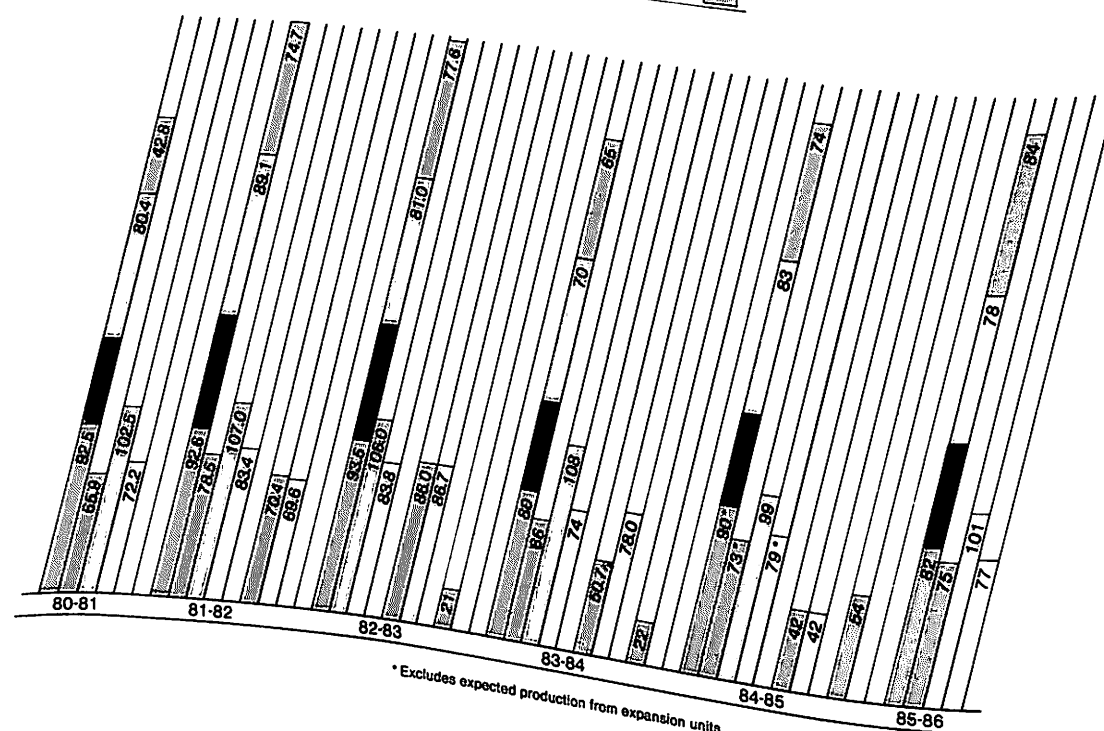
Percentage capacity utilisation of Main Steel Producers

SALEABLE STEEL
Bhilai Steel Plant
Durgapur Steel Plant
Rourkela Steel Plant
Bokaro Steel Plant
TISCO

ALLOY STEELS PLANT
Ingot Steel
Saleable Steel

SALEM STEEL PLANT
Saleable Steel

Sub-Total SAIL
Total



* Excludes expected production from expansion units

3.2 11 months production during the current year

Production performance of integrated steel plants during the first eleven months of the current year upto 28.2.86 is as follows:

	'000 tonnes		
	Ingot Steel	Saleable Steel	Pig Iron
BSP	2118	1811	363
DSP	789	623	127
RSP	1075	872	28
BSL	1798	1515	425
IISCO	510	442	34
SAIL	6290	5264	1027

3.3 Improvement in production & capacity utilisation

The production of 4.872 million tonnes of saleable steel at SAIL's plants at Bhilai, Durgapur, Rourkela and Bokaro was higher by about 12.5% over the previous year and was 97% of the target for the year. The capacity utilisation also rose to 74 per cent from 68 per cent in the previous year. The Company also improved its shares of the total saleable steel production of the integrated steel plants in the country to 70 per cent from 67.64 per cent in the previous year.

The Company produced 1.056 million tonnes of saleable pig iron, which was 96 per cent of the target. The two special steels units at Durgapur and Salem also performed better than the previous year. Alloy Steels Plants production of saleable steel was 58,779 tonnes which was 35% higher than in the previous year. Salem Steel Plant improved its production to 17,139 tonnes from 6920 tonnes in the previous year.

3.4 Constraints

The production at SAIL steel plants could have been better but for the basic input constraints—viz power coking coal (quality and quantity) and to a limited extent rail transport which continued to affect performance this year as well. The worst affected were Rourkela Steel Plant, Durgapur Steel Plant and Bokaro Steel Plant which were subjected to severe restrictions from OSEB and DVC throughout the year, this being particularly severe in the first quarter of the year.

3.5 Measures taken to step up production

To secure better supplies of coking coal and power, close liaison continued to be maintained with major input suppliers like Coal India Ltd., DVC, State Electricity Boards and the Railways. Infrastructure Coordination Committees have been set up at the plant level which include representatives of plants, Railways, Coal India Limited and concerned power supplying agencies as members to meet monthly and

sort out problems of input supplies. Equipment maintenance has also received close attention during the year. Inter-plant steel standardisation was also pursued with vigour and 46 more standards were brought out this year, the cumulative number being 150.

3.6 Improvement in techno-economic parameters

It was encouraging to note that SAIL improved on its techno-economic parameters during the year. The coke rates were brought down at all the plants during the year. The average consumption of coke in kilogrammes per tonne of hot metal in the plants with reduction over previous year's figures within brackets was: Bhilai—787(29), Bokaro—709(22), Durgapur—883(52), Rourkela—853(32).

4. Marketing Performance

4.1 Sales

The total sales of the company including imported steel during the year 1984-85 was 5.434 million tonnes. The sale of Company's own products in the domestic market as well as exports together was marginally higher at 4.80 million tonnes compared to 4.79 million tonnes in the previous year.

4.2 Canalised Imports

As a canalising agency, SAIL imported 647.2 thousand tonnes of saleable steel valued at Rs. 315.43 crores in 1984-85

4.3 Export

In 1984-85, SAIL exported 153.4 thousand tonnes of steel valued at Rs. 17.72 crores on FOB basis as against 24.4 thousand tonnes valued at Rs. 5.24 crores during the previous year. The main items exported were billets 15.1 thousand tonnes, bars and rods 87 thousand tonnes, structurals 48.8 thousand tonnes and plates 2.5 thousand tonnes.

4.4 Pig Iron

The sale of pig iron by the Company during the year was 1.107 million tonnes which was 12 per cent lower as compared to the previous year mainly due to stock demand.

4.5 Tool, Alloys and Stainless Steel

There was a record sale of tool, alloys and stainless steels despite sluggish market conditions and competition from import. The sale of products of Alloy Steels Plant aggregated to 62.4 thousand tonnes which was 25 per cent higher than in the previous year. The sale of stainless steel produced at Salem Steel Plant at 18.8 thousand tonnes during 1984-85 was 137 per cent higher as compared to the previous year.

5. Personnel & Welfare

5.1 Workforce

The total number of employees of the Company and its subsidiaries (including IISCO) as on 31st March, 1985 is given below:

Group	Total number of employees as on 31.3.85	Scheduled Castes	Scheduled Tribes	Women Employees
A. SAIL				
Group A	16516	408	151	276
Group B	18016	418	276	860
Group C (Excluding Sweepers)	165256	20138	18252	9320
Group C (Sweepers only)	4559	3590	234	1035
Total (A)	204347	24554	18913	11511
B. SUBSIDIARIES				
Group A	1755	44	12	32
Group B	3268	142	35	48
Group (Excluding Sweepers)	37932	5751	2157	1364
Group C (Sweepers only)	830	800	2	177
Total (B)	43785	6737	2206	1621
Total (A+B)	248132	31291	21119	13132

5.2 Manpower & Productivity

The total manpower of the Company as on 31st December, 1985 was 206,711 comprising of 16,670 executives and 1,90,041 non-executives. The productivity per man year measured in terms of ingot tonnes in the integrated steel plants of the Company improved slightly over the previous year.

5.3 Personnel Development

The Company has a regular policy to induct management trainees in technical and also in administrative disciplines and supplement these by induction of senior and junior operative trainees as well. During the year, the Company trained 783 management trainees in technical disciplines, 121 in administrative areas, 416 senior and 553 junior operative trainees.

The management development programmes to upgrade managerial skills of the middle and senior executives of the Company are also conducted in very well equipped Training and Management Development Centre in each of the plants as also in the Management Training Institute at Ranchi to enrich available human resources in the Company. The number of managers who went through these programmes this year was 7,906 and of workers 10,374.

Keeping in view the training needs of the future, additional thrust is being given to impart training in areas where technological upgradation/modernisation is taking place, and on acquisition of latest training aids, such as, closed circuit television and VCR and video packages, computerised training packages, simulation models, etc. The Company is conducting training programmes and creating facilities in specialised areas, such as, instrumentation and electronics, computers, tribology and energy resources.

5.4 Reservations for Weaker Sections

The Company has provided incentives and concessions in recruitment to attract candidates belonging to scheduled caste and scheduled tribe categories. The intake of scheduled caste and scheduled tribe candidates was 14.66 per cent and 11.65 per cent respectively this year. The share of scheduled caste and scheduled tribe employees in promotions was 10.14 per cent and 9.33 per cent respectively. The ex-servicemen and physically handicapped also receive preference in employment in the Company. Their shares in the total employment as on 31st March, 1985 were 1.53 per cent and 0.29 per cent respectively.

5.5 Harmonious Industrial Relations

The industrial relations situation in the public sector steel plants has been, by and large, normal. However, in Bokaro Steel Plant the worker's led by Bokaro Steel Rashtriya Mazdoor Sabha went on strike from 5.4.85 to 13.5.85 over their various demands. 137461 mandays were lost on account of this strike. In ASP, the unions other than INTUC opposed redeployment plan put into force by the Management, which resulted in stoppage of production activity of the Plant from 3.10.85 to 29.10.85. 76010 mandays were lost as a result of this strike.

5.6 Safety Measures

In every steel plant, there are full-fledged Safety Engineering Departments manned by experienced and qualified Safety Engineers. Monitoring of Accidents and Safety performance is being done by the plants as well as the Corporate Office to identify critical areas and take corrective action. Standing Committee on Safety has been functioning since 1973 and has provided valuable consultancy services and co-ordinated the activities relating to accidents and safety in the steel plants. For creating a safe and healthy working environment through accidents prevention programme and also for improving the commitment of the work-force, bipartite Safety Committees are operating in the Steel Plants at the shop and plant level. There were 1342 reportable accidents of which 14 were fatal during the year ending November, 1985.

5.7 Participative Management

The system of workers' participation in SAIL involves joint decision making and consultation in matters concerning wages, working conditions, production, productivity, safety, incentive, and welfare at the shop/zonal/plant level. The joint committee on production and productivity function at the corporate level while the NJCS functions at the national level. The system of workers' participation in the steel plants, has been functioning well in the steel plants, particularly, in RSP and BSP where the recognised unions are the workers' representatives in the bipartite forums. In DSP, ASP and IISCO the forum unions are involved in the participative forums. Since July, 1985, Shop Floor Committees have started functioning in 14 key departments in Bokaro Steel Plant. Apart from the formal system of workers' participation and informal system through Shop Improvement Groups, has also yielded very good results.

5.8 Housing & Employee Welfare

The housing and other facilities in the Company's townships were improved to meet the growing needs of employees. The Company spent Rs.29.90 crores to add new assets in steel townships this year, besides Rs.97 crores on maintenance of housing, medical, educational and other facilities. Other welfare schemes continued to be promoted by the Company were in respect of sports, recreational and cultural activities.

6. Capital Schemes

6.1 Important Schemes Under Implementation/Consideration:

- Expansion of Bhilai and Bokaro Steel Plants to a capacity of 4.0 millions ingot tonnes each.
- Increase in the capacity of Alloy Steels Plant, Durgapur to 2,60,000 tonnes of liquid steel under its stage-II expansion/modernisation programme.
- A projects to produce 37,500 tonnes per annum of cold rolled grain oriented electrical steel sheets and 36,000 tonnes per annum of cold rolled non-grain oriented steel sheets at Rourkela Steel Plant. The non-grain oriented stream is in production and the grain oriented stream is under hot trials.
- Modernisation of Rourkela, Durgapur and Burnpur Steel Plants to have increased productivity with minimum investment, is under consideration.
- The issue of achieving the rated capacity of 4 million tonnes per year of crude steel from both Bhilai and Bokaro Steel Plants at an early date has been examined by several agencies/Committees. Finally, Committee constituted by Chairman, SAIL in October'85 has after shifting all the earlier reports on the subject and

detailed consultations with plant officials submitted a report in Dec'85. The Committee has further classified the needs of the plant into:

- Debottlenecking;
- Technological upgradation;
- Additions, modifications and replacement; and
- Anti-pollution measures.

The recommendations of the Committee are under consideration.

- Additional power generation capacity at Bokaro (3x60 MW), Durgapur (2x60 MW) and Rourkela (2x60 MW) are under implementation. A 3x60 MW power plant at Bhilai has been sanctioned but is awaiting availability of funds for implementation.

6.2 Major Development Schemes:

Some of the notable achievements in implementation of capital projects during the period are:

- Commissioning of heat treatment facilities in Plate Mill Complex, two remaining convertors in Converter Shop and two Slab Casting Machines in Concast Shop at Bhilai.
- Commissioning of fifth blast furnace at Bokaro.
- Commencement of production of CRNO at RSP.

6.3 BSP's Expansion

In Plate Mill complex, heat treatment facilities and in Converter Shop, two remaining convertors have been commissioned. In Continuous Casting Shop, two slab casting machines (2nd & 3rd) of which the 3rd machine ahead of schedule (2 months) have been commissioned. Second Shear Line of Plate Mill and fourth slab caster are expected to be commissioned in December'85 and June'86 respectively. The remaining facilities of Phase-II expansion programme comprising 7th Blast Furnace alongwith 9th Coke Oven Battery & allied facilities are likely to be commissioned in 1987-88.

6.4 Technological Improvement Schemes in Bhilai Steel Plant.

Among technical improvement schemes being put through at Bhilai, the experimental coal dust injection in Blast Furnace No. 2 has been put on hot trials. The conversion of No. 10 open hearth furnace into twin hearth furnace is expected to be completed by May'86.

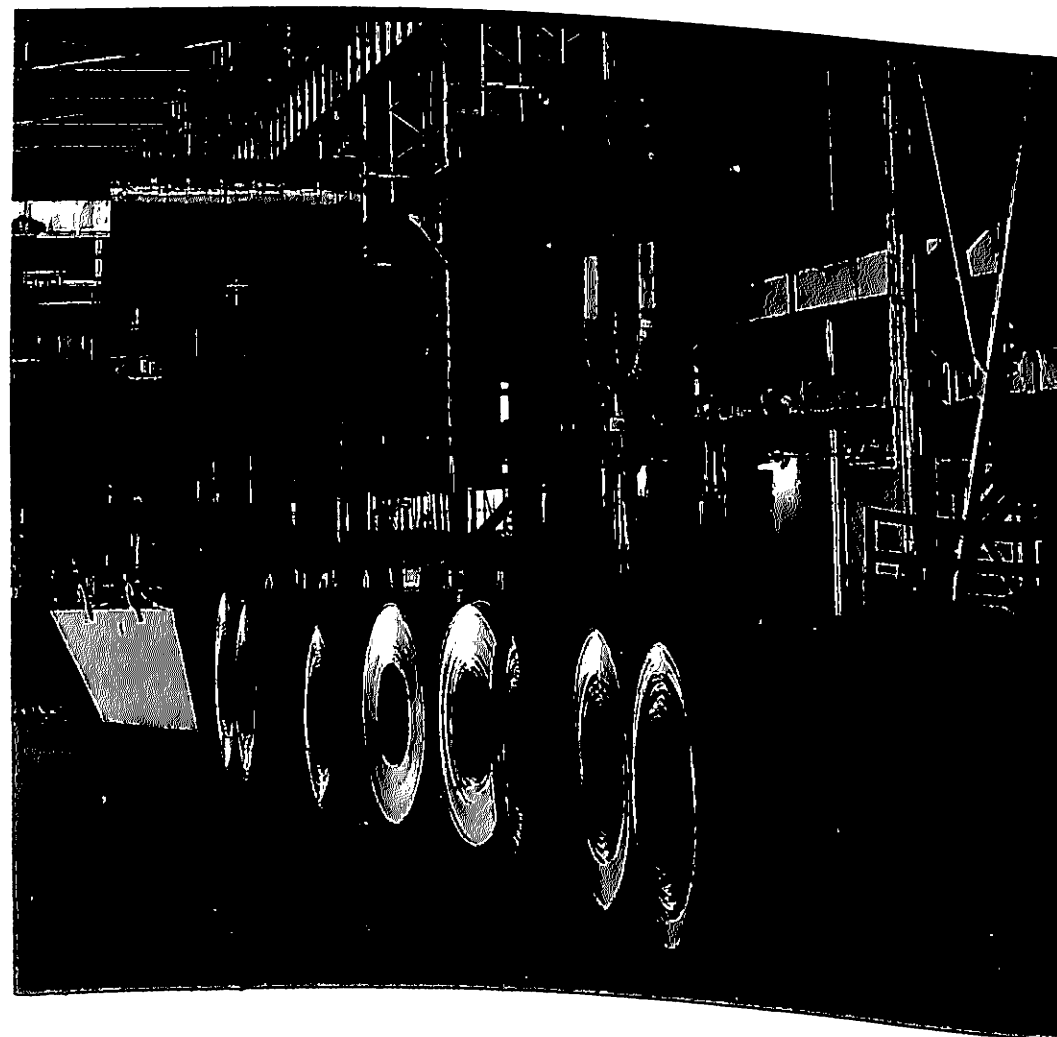
6.5 Expansion of Bokaro Steel Plant.

The expansion of Bokaro Steel Plant also to 4 million tonne capacity is now well advanced. The seventh coke oven battery and fifth blast furnace have been commissioned. The second steel melting shop is in

trial production. Stabilisation of operation is likely to be completed shortly. The second cold rolling mill being installed under the expansion programme is expected to be commissioned by February'88. Meghahatubury Iron Ore Project designed to meet requirements of iron ore for 4 million tonne stage of Bokaro Steel Plant has commenced production.

6.6 Renovation & Modernisation of Durgapur Steel Plant.

A scheme for renovation and technological upgradation of Durgapur Steel Plant has been approved in principle by Government of India in October'84. When implemented, this will improve the quality of raw materials, intermediate and finished products, reduce unit consumption of raw materials and energy, help in conservation of scarce raw materials like metallurgical coal, improve productivity and help produce value added items. A DPR has subsequently been finalised and enabling works connected with the modernisation have been taken on hand. An investment proposal based on the DPR is now under consideration.



Silicon Steel Plant
Rourkela

6.7 Silicon Steel Plant-Rourkela

The cold rolled non-grain oriented stream in the silicon steel plant designed to produce 36,000 tonnes of electrical sheets per year has gone into commercial production. The facilities for production of 37,500 tonnes of cold rolled grain-oriented electrical sheets are expected to be commissioned by December, 1985. When the plant is fully commissioned the country will save considerable amount of foreign exchange presently being spent on import of about 50,000 tonnes of silicon steel sheets to meet the needs of the growing power sector. A proposal for the modernisation of Rourkela Steel Plant is under formulation.

6.8 Stage-II Expansion of ASP.

The Stage-II expansion of Alloy Steels Plant with the object of upgrading its technology and thereby improving economic viability is scheduled to be completed during 1987. The civil and structural jobs are nearing completion. Equipment erection has been started.

6.9 Additional facilities at Salem Steel Plant

Additional facilities being planned at Salem Steel Plant to handle and process hot rolled stainless steel coils to be indigenously available from Alloy Steel Plant/Bokaro Steel Plant route are likely to be completed by May'87. Salem Steel Plant will not thereafter need to import hot bands from abroad.

6.10 Augmentating Captive Power Plants

The schemes for augmenting captive power generation by 600 MW in the integrated steel plants are in different stages of implementation. The first unit of 3x60 MW power plant at Bokaro has since been steam rolled on 16.12.1985 (prior to synchronisation) and other two units progressively during 1986-87. The first unit of 2x60 MW power plant at Durgapur is expected to be commissioned by March'87. The first unit of 2x60 MW power plant at Rourkela on which also work has begun, is expected to be commissioned by June'86 and the second unit by December'86. The Government also sanctioned a 3x60 MW captive power plant for Bhilai in June'83 on which the work could not be taken up due to non-allocation of funds.

7. Energy conservation efforts in SAIL steel plants

The energy conservation efforts in SAIL steel plants received further impetus during the year. There was improvement noticed in the major energy consumption indices like coke rate thereby resulting in the reduction of overall energy consumption rates. Certain specific measures have been identified and taken up for implementation. A new project for seeking UNDP assistance for developing methodologies for energy audit has been initiated.

8. Environmental Preservation

Being fully conscious of the importance of environmental preservation, the Company has taken steps to control some of the areas of water and air pollution which have been identified. An elaborate

programme on this has also been prepared for implementation during the Seventh Plan period. Special attention is paid to pollution control and afforestation in the captive mines as well.

9. Centre for Raw Materials & Mines

The Centre for Raw Materials and Mines at Ranchi concentrated during the year on developing a perspective plan for the major raw materials, other than coal, for SAIL steel plants. In addition, the Centre also took up monitoring of activities in captive mines, working out annual linkage plan in association with steel plants so as to minimise purchases from outside, monitoring of pollution control measures in mines, etc.

10. Centre for Engineering & Technology

The Company's Centre for Engineering and Technology at Delhi is assisting in the programme for introduction of new technologies, upgradation of existing production practices and such other studies which would help the plants in improving production and productivity. Towards attainment of these objectives the Centre prepared the feasibility report on introduction of inert gas purging technology for Bokaro, Bhilai and Rourkela vessels identified for improving productivity of their BOFs. The R&D Centre is taking up the technology for implementation at Bokaro Steel Plant. The Centre has prepared another feasibility report for setting up a longitudinally welded pipe plant at Bhilai.

The Centre has prepared the feasibility report for adoption of KORF technology for intensification of open hearth furnace suggested for introduction at Rourkela and Burnpur. The technology transfer agreement with the Messrs KORTEC for the purpose is expected to be finalised soon. The Centre is also making a study on stamp charging technology for coke ovens to help improve coke quality. The feasibility of introducing this in association with Messrs Saarberg is being pursued. The transfer of technology in the area of blast furnace stoves for higher blast temperature and technology for coal dust injection is also being pursued.

Visvesvaraya Iron and Steel Limited

The Visvesvaraya Iron and Steel Limited (VISL) is a major producer of special and alloy steels with a capacity of 77,000 tonnes per annum. In addition to special steels, it produces Mild Steel, Cement, Ferro Alloys, Castings, Pig Iron, etc.

As on 1.4.1985 the authorised capital of the Company was Rs. 75 crores of which Rs. 46.40 crores were subscribed and paid-up 60 per cent of the paid-up capital i.e. Rs. 27.84 crores was held by the Government of Karnataka and 40 per cent i.e. Rs. 18.56 crores by the Steel Authority of India Limited.

Production

The installed capacity of the plant, production during 1984-85 estimated production during 1985-86 are as follows:

Products	Installed capacity Tonnes/Annum	Production during	
		1984-85	1985-86 Estimates*
Mild Steel	48000	19021	10908
Alloy & Spl. Steel	77000	50549	49064
Steel Ingots	180000	84055	69454
Ferro-Silicon	20000	2190	1514
Cement	96000	47011	52783
Ferro Alloys	3800	5901	2732
Pig Iron	180000	55057	34842
Steel Castings	2500	329	404
Gray Iron Castings	15600	7621	3205
Cast Iron Spun Pipes	17000	1063	—
Refractories	9600	5309	5543

* On the basis of actual upto Feb'86 and estimates of March '86

During the year 1984-85 the company incurred a loss of Rs. 33.76 crores. According to preliminary estimates a loss of Rs. 35 crores is projected for 1985-86. Reasons for adverse working results during 1984-85 and 1985-86 in brief are: increased percentage of power cuts and phenomenal increase in power tariff, depression of the market, excess manpower and steep increase in salary and wage bills consequent upon the NJCS agreement, substantial increase in interest liabilities, substantial increase in cost of fuel, oil and other raw-materials and the alloy steel manufactures' inability of recovering increased cost of input by matching increase in selling prices of alloy steel due to the market depression and stiff competition.

Temperature measurement of Steel in a ladle at VISL, Bhadravati



Capital Scheme under Implementation

The Optimisation Scheme Phase-I is under implementation at VISL. Estimated cost at Rs. 13.92 crores, the major equipments to be installed under the scheme are:

- One continuous casting machine with connected auxiliaries in melting shop;
- One Oxygen Plant; and
- Other related facilities in Rolling Mills and HTS.

Continuous Casting Machine was erected in May, 1983. The auxiliary facilities for continuous casting machine have been completed during this year. The Oxygen Plant which was under trial run, is scheduled for commercial production by end January/February 1986.

Research and Development Activities Undertaken

The Project has undertaken research and development activities inter alia for energy conservation in electrical pig iron furnace. Standardisation and diversification of products and production processes.

Man-power

Total men working in the company as on 1.1.86	SC	ST	Ex-Service men	Physically handicapped	Women
10656	1299	79	165	18	368

Sponge Iron India Limited

1.1 The Demonstration Sponge Iron Plant of Sponge Iron India Limited (SIIL) which has been in operation for about 5 years has established that Sponge Iron suitable for conversion into steel in Electric Arc Furnaces can be produced using 100 per cent lump ore and non-coking coal. The Sponge iron produced is very stable, free from fire hazard and can be transported and stored with minimal precautions and is being successfully melted in Electric Arc Furnaces in different parts of the Country.

The plant is designed and instrumented in a manner which would facilitate its use both for commercial production and for R&D work. The Company has been successful in operating the plant at high levels of capacity utilisation inspite of the fact that the process was being tried out on commercial scale for the first time in the country. Considering the successful operation of the Demonstration Plant, the expansion of the project to raise the capacity from 30,000 tonnes to 60,000 tonnes per annum at an estimated cost of Rs. 8.55 crores was sanctioned in June, 1982. The plant was completed as per schedule and the production was started on 24-3-1985. After trial run and completion of inter-locking tests the plant has gone into production from July, 1985.

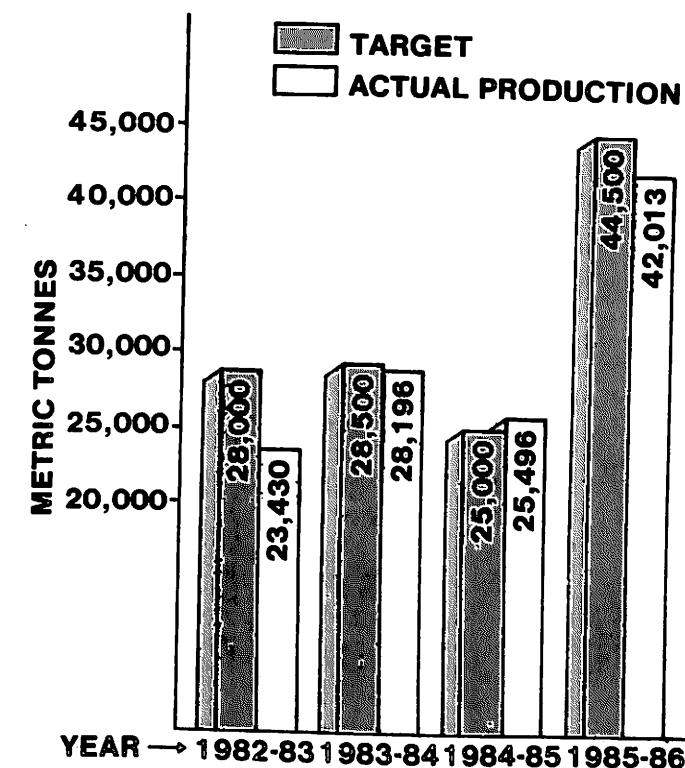
Finance

2. The authorised share capital of the Company as on 31-3-1985 was Rs. 12 crores and the paid up capital was Rs. 10.89 crores. The above include Rs. 10.06 crores held by the Govt. of India, the balance Rs. 0.83 crores by the Government of Andhra Pradesh.

3.0 Production

Taking into account the period for which the plant was used for R&D work, a target of 25,000 tonnes of saleable sponge iron was fixed for 1984-85 against which a production of 25,497 tonnes was achieved. On the assumption that the second unit of the Plant would be in operation from the middle of the year, the target for 1985-86 was fixed at 44,500 MT; 26,000 MT from the first unit and 18,500 MT from the second unit. The plant attained production of 36,213 MT upto February, 1986 as against the target of 38,600 MT. It is, therefore, anticipated that a production of about 42,000 tonnes would be attained for the year. The shortfall is mainly due to inadequate coal supplies from the identified linkage and the consequent need of using coal with high ash content which contributed to lower productivity of the Reduction Plant.

PRODUCTION PERFORMANCE



4.0 Sales and Profitability

During the year 1984-85, 25,533 tonnes of sponge iron was sold fetching a revenue of Rs. 401.25 lakhs. During the year 1985-86, sales are anticipated at 36,040 MT with a realisation of Rs. 686.28 lakhs. The year 1985-86 is expected to end with a net profit of Rs. 11.46 lakhs as compared to Rs. 9.57 lakhs during 1984-85. The profit would have been about Rs. 19.0 lakhs for the year but for the coal price increase in January '86 which contributed to an increase of production cost by Rs. 8.0 lakhs during the quarter January-March '86.

5.0 Expansion

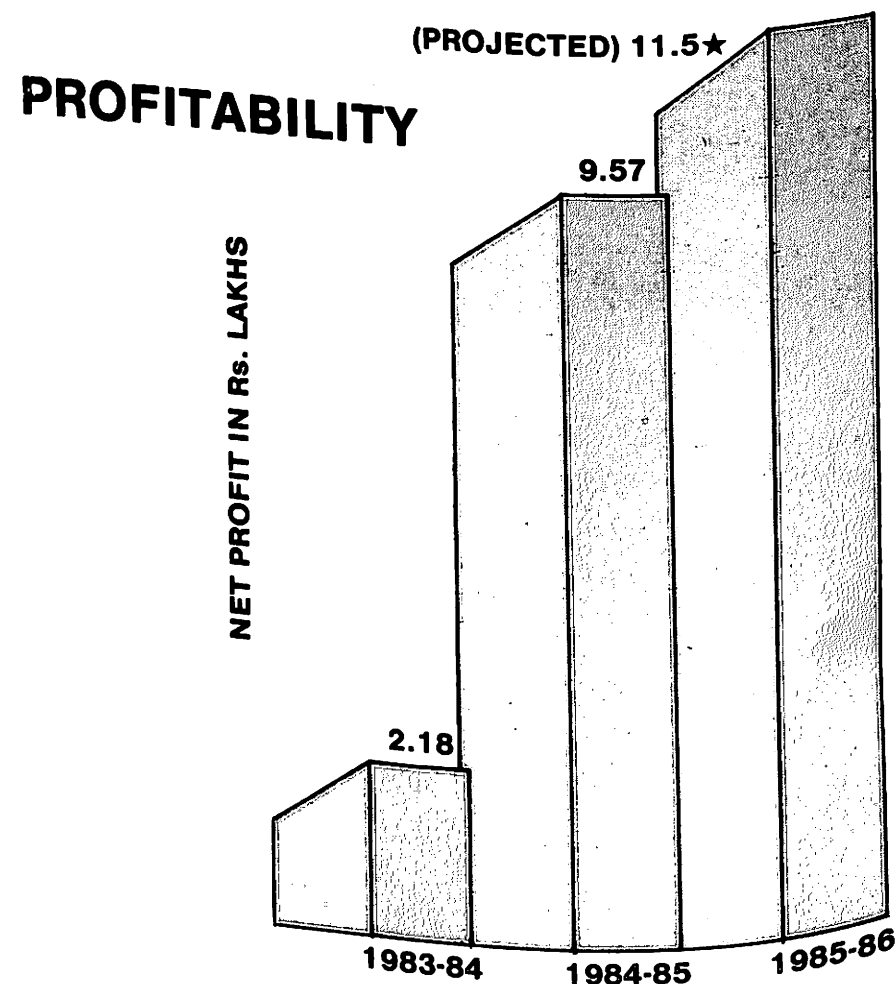
The physical implementation of the Expansion unit was completed on 24.3.1985. After completion of drying and heating cycles of the refractory lining, trial production commenced in July, 1985. Within a few days, stable operations were attained with the unit producing quality sponge iron suitable for steel making. The completed cost of Expansion unit is Rs. 8.95 crores as against the original sanction of Rs. 8.55 crores. The additional cost of Rs. 40.0 lakhs was mainly on account of statutory increases in cost of cement, steel and other additional levies imposed during the implementation of the project.

6.0 Efforts Made Towards Indigenisation

The Engineering & Projects Division of the Company has successfully completed the basic and detailed engineering of the Expansion unit. Adopting innovative design and modifications, it has been possible to reduce the foreign exchange component to Rs. 0.85 crores (including duty) as against the original estimate of Rs. 2.20 crores. Besides developing indigenous capabilities to manufacture major equipment required for commercial sponge iron plants, the Division has also developed indigenous sources for supply of spares and consumables required for regular operation of the plant.

7.0 Test Work

In the field of consultancy services, the Company has carried out an assignment of testing of iron ore and coal from Vietnam under a UNIDO project. Based on the results of Bench Scale Tests UNIDO, entrusted to the Company bulk scale test work on establishing the suitability of iron ore and coal from Vietnam for sponge iron production. In addition, the Company has also completed testing of iron ores from the Tiruvannamalai region of Tamil Nadu for establishing their suitability for production of sponge iron.



8.0 Research and Development

In the field of Research and Development, the company has carried out extensive studies on the use of high ash coal and the effect of the same on production and productivity. During the year, Research and Development works in the following areas have been taken up:

- Benefication of non-coking coals to lower the ash percentage.
- Production of iron ore sinters and production of sponge iron from sinters.
- Test work on use of Bailadila and Bellary-Hospet iron ores using Neyveli Lignite and Assam Coals.

9.0 Energy Conservation Measures

Through sustained Research and Development work, the Company has been able to adopt the process to utilise high ash coal thereby facilitating in the conservation of low ash coal. The company is also proposing to set up a facility for utilising the waste heat from the off-gases of the sponge iron plant for generation of electric power through a system of waste heat boilers and steam turbine. The power generated is proposed to be utilised in a specially designed sub-merged Arc Furnace for the production of pig iron using pre-reduced iron ore fines and char from the plant.

10.0 New Schemes

Sponge iron fines are generated in the manufacturing process mainly on account of abrasion and decapitation characteristics of the iron ore in the reducing atmosphere. The fines thus generated in the size of below 2mm are highly metallised with degree of metallisation over 92%. Even though of high quality, the fines cannot be used directly in Electric Arc Furnaces as they stick to the refractory lining and also get carried away in the slag. In order that the fines are utilised and thereby further improve the economics of the plant operations, it is considered necessary to agglomerate the fines into briquettes of required density and crushing strength so that they could be efficiently charged and melted in Electric Arc Furnaces. A scheme for briquetting the fines with the use of a suitable binder has since been developed. The basic and detailed engineering designs of the plant have been completed by the Engineering and projects divisions and action is on hand for importing critical equipment and for the procurement of innerfacing indigenous equipment. The briquetting plant is expected to be operational by 1986. When this facility goes into operation, it would be possible to utilise annually about 6,000 tonnes of highly metallised sponge iron fines which do not currently have a market. The scheme is estimated to cost Rs. 1.25 crores and would result in additional revenue of Rs. 75 lakhs annually.

11. Manpower

The total number of employees of the Company as on 28-2-1986 indicating separately persons belonging to Scheduled Castes, Scheduled Tribes, Ex-servicemen Physically Handicapped and Women is furnished below.

Groups	Total No. of Emp.	S.C.	S.T.	Ex-Ser- vice-	PHC	Women
Group (A)	57	4	—	—	—	—
Group (B)	19	1	—	—	—	—
Group (C)	231	27	14	5	1	15
Group (D)	114	29	18	1	3	2
Group (E)	5	2	—	—	—	2
	426	63	32	6	4	19

12.0 Best Productivity Award

For the third year in succession, the company received the productivity Award of the Govt. of Andhra Pradesh. The award was presented on May, 1, 1985 to the Company by Chief Minister of Andhra Pradesh.

13.0 Employees Participation in Management

Pursuant to the directives of Govt. of India, a scheme for employees' participation in Management has been implemented in the company, under the scheme, one plant level committee and 3 shop floor level committees have been constituted with representatives of the Management and the employees.

14.0 Hindi Implementation

During the year vigorous efforts were made for the progressive use of Hindi in the official work of the company. The Hindi Implementation Committee has been reconstituted with the Chairman-cum-Managing Director of the Company as the Chairman of the Committee assisted by the Deputy General Manager (Operations) as Vice-Chairman.

15.0 Anti-Pollution Measures

The plant has inbuilt anti-pollution equipment for controlling air and water pollution to international standards. The stack emissions and effluents are regularly analysed to ensure conformity to standards. The equipment is overhauled at the end of every operating campaign to ensure desired levels of efficiency.

Kudremukh Iron Ore Company Limited

The Kudremukh Iron Ore Company Limited (KIOCL) was established in April 1976 for the management and the implementation of the Kudremukh Iron Ore Project with a designed capacity of 7.5 million tonnes of iron ore concentrate. The Project was implemented on the basis of a Financial Agreement and a Sale & Purchase Contract with Iran concluded in November, 1975. The Sale & Purchase Contract envisaged the supply of 150 million tonnes of iron ore concentrate to Iran over a period of 21 years commencing from August, 1980. In term of the Financial Agreement, Iran had agreed to extend a loan not exceeding US \$ 630 million to meet the cost of the project including the related infrastructures. Iran, however, failed to fulfil their obligations under the Agreements. The project was completed on schedule with the funds provided by the Government of India and the Company started locating alternate buyers for the sale of iron ore concentrate.

Pellet Plant

2. In order to revitalise the project, in May 1981, the Govt. sanctioned the erection of a Pellet Plant of 3 million tonnes/year capacity located at Mangalore for the conversion of 3 million tonnes/year of Kudremukh iron ore concentrate into pellets. This was in the context of a forecast that the markets for pellets may be better than for the concentrate. The revised sanctioned cost of the project is Rs.103.50 crores. The construction work on the project has been completed and commissioning activities have also commenced. The commercial production at the plant is expected to commence from April, 1986.

Meanwhile KIOCL have obtained a Letter of Intent/Memorandum of Understanding from Malaysia and Indonesia for the sale of pellets. An understanding has also reached for the supply of pellets to the Mainland China.

Finance

3. The authorised capital of the Company is Rs.675 crores. The paid up capital as on 28th February, 1986 is Rs.634.51 crores.

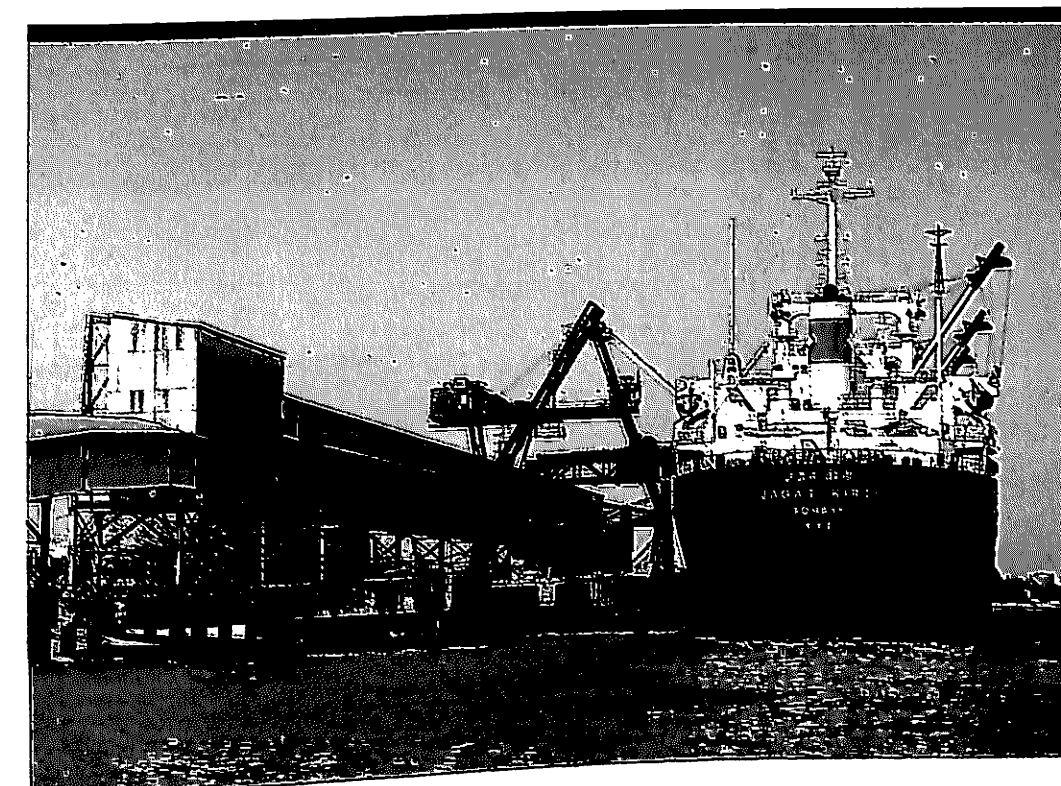
Production

4. Due to the failure of Iran to lift the iron ore concentrate the Company has had to plan its production to relate it to the demand of alternate buyers. The production of iron ore concentrate during 1984-85 was 1.61 million tonnes against the target of 1.65 million tonnes. The target for production of iron ore concentrate during 1985-86 is 2.00 million tonnes. Against this, the actual production in the period April 1985 to Feb. 1986 is 1.525 million tonnes. For 1986-87 the Company has planned a production of 3.0 million tones of iron ore concentrate for exports.

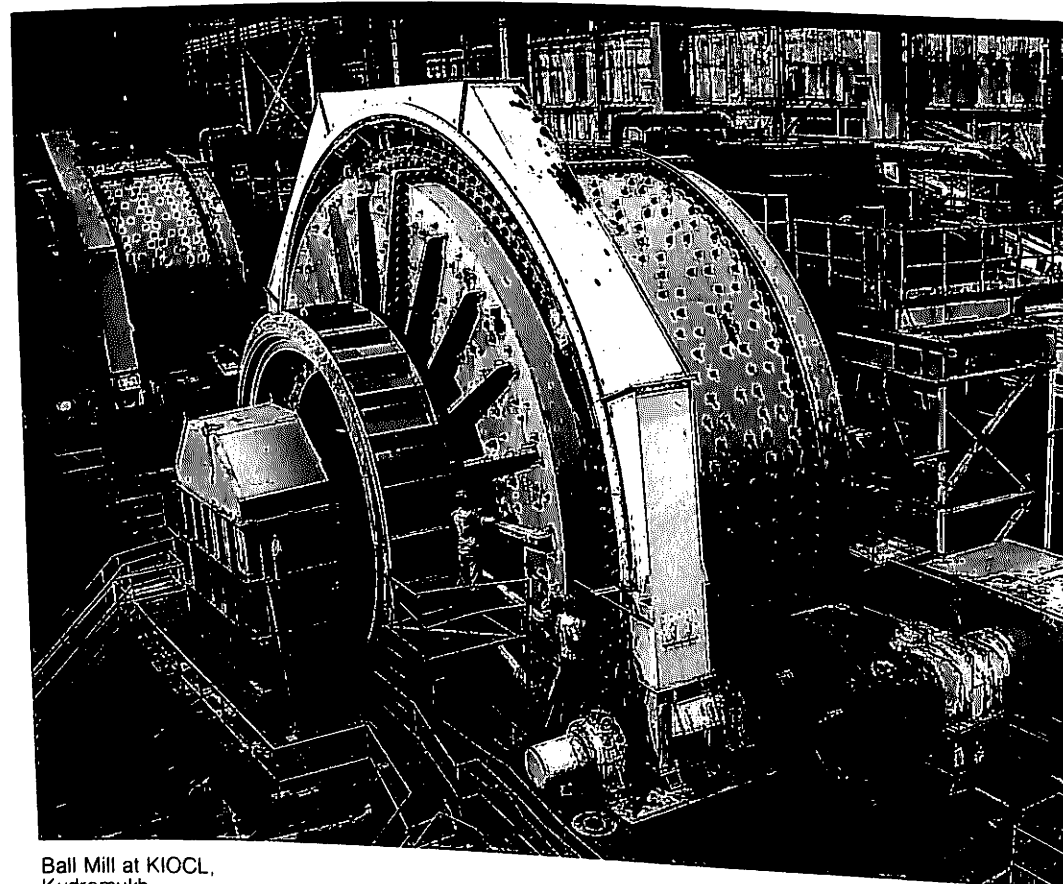
Exports

5. Initially the export of concentrate was confined mainly to Romania and Czechoslovakia. In 1984-85 the Company succeeded in entering a major market in West Asia by obtaining an order for supply of concentrate to Bahrain. As a result of intensive and persistent marketing efforts KIOCL have been able to extend their activity to new areas such as Japan and certain West European Countries like Holland and France. Export of concentrate to Yugoslavia and China is also in sight.

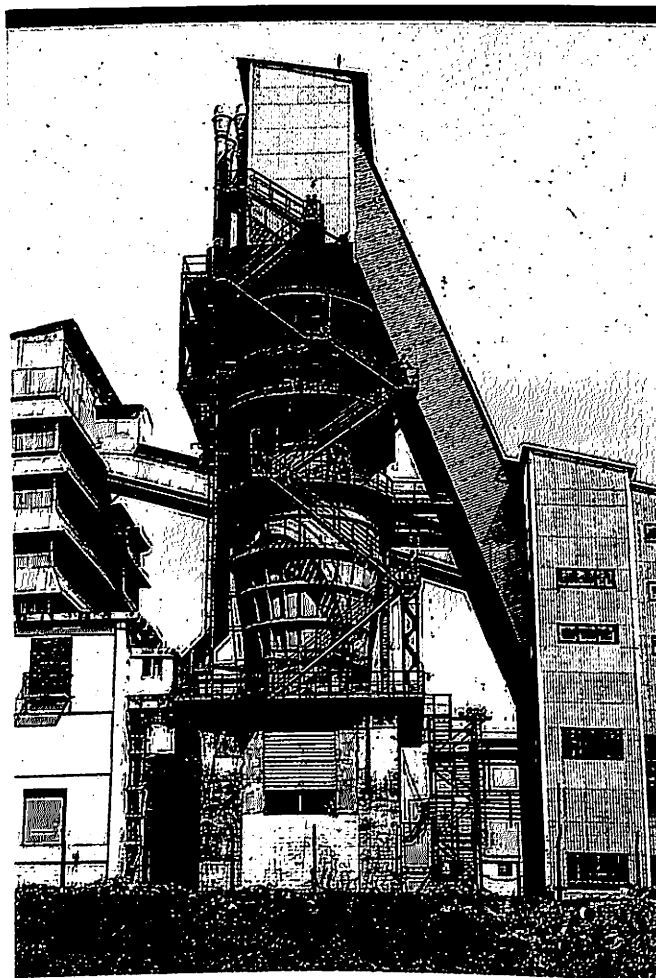
6. During 1984-85, 1.57 million tonnes of iron ore concentrate was exported against the target of 1.65 million tonnes. For 1985-86, a target of 2.00 million tonnes has been fixed for export of concentrate. Against this the Company has exported 1.812 million tonnes in the period April 1985-February 1986. For 1986-87 the Company has planned export of over 3.00 million tonnes of concentrate.



Loading of ship at Mangalore Port



Ball Mill at KIOCL, Kudremukh



Lime shaft kiln of pellet plant at Mangalore

Working Results

8. Due to the restricted production for reasons beyond the control of the Company, KIOCL suffered a net loss of Rs. 5.39 crores in 1984-85.

Personnel

B. The total number of employees on the rolls of the company as on 28th February 1986 is as follows:

Group	No. of employees (including trainees)		Scheduled Caste		Scheduled Tribe		Ex-Servicemen	
	Male	Female	Male	Female	Male	Female	Male	Female
'A'	386	15	21	—	—	—	—	—
'B'	29	2	1	—	2	1	7*	—
'C'	1188	86	104	—	—	—	—	—
'D'	212	13	45	2	11	—	63**	1
'D' (Sweepers)	30	7	25	3	30	1	6***	—
	1845	123	196	12	46	2	76	1

* One Ex-serviceman is also a physically handicapped employee.

** Includes two employees belonging to SC category.

*** Includes one employee belonging to SC category.

Employees Participation in the Management

9. In pursuance of the Government of India's scheme of Employees Participation in Management, the Company has set up nine shop level councils and a joint council at the apex level. The representatives of the workmen are nominated by the recognised Union of the Company. These councils meet periodically to discuss measures for improving the production and productivity.

Contract Labour

10. As a matter of policy, the company does not employ contract labour. Jobs of casual nature are got done through contractors. In all such cases provisions of Contract Labour (Regulation and Abolition) Act, 1970 and obligations under the Act, as principal employer are implemented.

Safety Measures

11. A Safety Department functions independently. Besides this, every Department has a Safety Committee which meets once every month. Safety campaign is observed for a week every year. Safety rules have been compiled for each work area considering all safety aspects. All employees have been provided with these booklets. The Company has received from the Mines Safety Association shields and medals for the best safety measures adopted in the company.

Manganese Ore (India) Limited

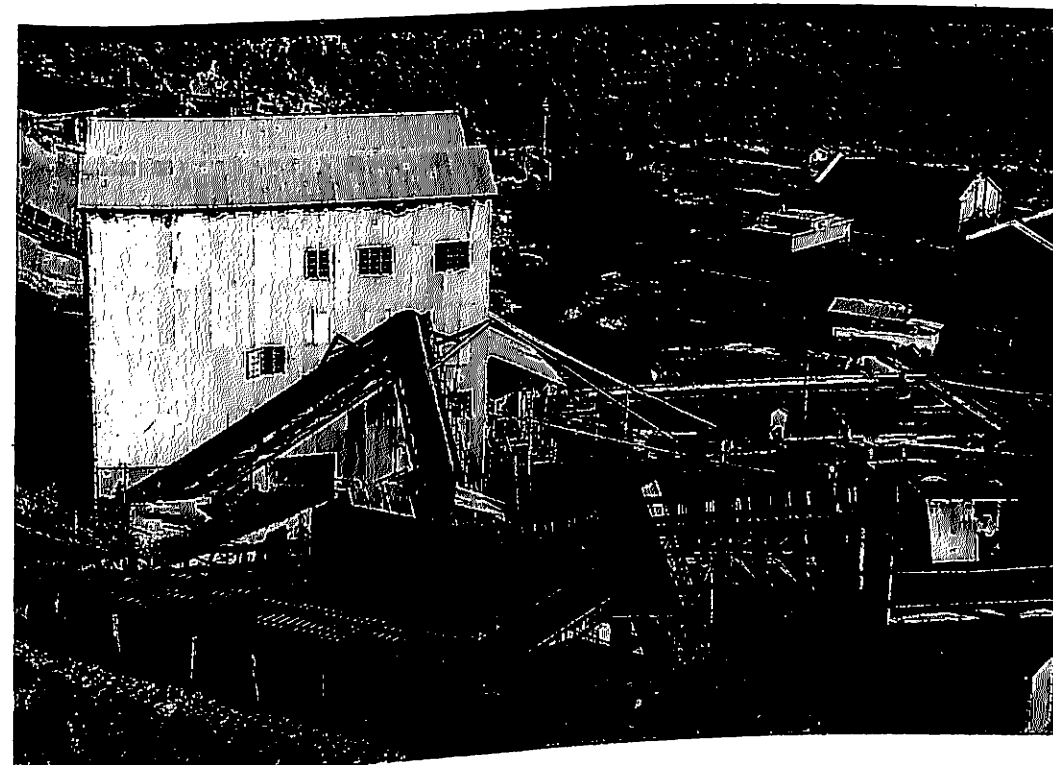
Manganese Ore (India) Limited is the largest producer of high grade manganese ore in the country. The Company originally started as the Central Provinces Prospecting Syndicate in early 1896. Later, it became the C.P. Manganese Ore Company Limited (registered in London). The Company was incorporated under the Indian Companies Act, 1956, in June 1962. It became a fully owned Government Company in October 1977. The shares of the Company are held by the Government of India, Govt. of Madhya Pradesh and Govt. of Maharashtra in the ratio of 57.53:20.08:22.39 respectively. The high grade manganese ore is used for producing ferro manganese, which is used in the manufacture of steel. Manganese being a strategic mineral with the limited proven reserves in the country, Government's policy has been against permitting the export of high quality ore and for restricting export of low grade ore to the minimum level consistent with the need for earning foreign exchange.

2. Finance

The authorised capital of the Company is Rs. 6 crores and the paid up capital as on 31st December, 1985 is Rs. 3.13 crores.

3. Production

In 1984-85, Manganese Ore (India) Limited produced from its various mines 4.37 lakh tonnes of manganese ore of various grades against the target of 4.325 lakh tonnes. From April 1985 to February 1986, the Company produced 4.12 lakh tonnes of magnasene ore. The anticipated production during March, 1986 is 0.39 lakh tonnes. The target for 1985-86 was 4.345 lakh tonnes. It has exported 1.35 lakh tonnes of manganese ore during the period April'85 to Feb.'86 and about 0.16 lakh tonnes of ore is likely to be exported during March 1986. The total sales (domestic and export) during the period April'85 to Feb.'86 were 4.74 lakh tonnes valued at Rs. 2315.11 lakhs. The sales during March'86 are expected to be 0.38 lakh tonnes valued at Rs. 181.46 lakhs. The target for total sales during 1985-86 was 4.97 lakh tonnes valued at Rs. 2312.13 lakhs. The Company has undertaken a number of measures towards cost reduction.



Heavy media separation plant Dongri Buzung Mine

4. Working Results

During the year 1984-85, the Company incurred a loss of Rs. 216.83 lakhs after providing for depreciation as against a loss of Rs. 27.31 lakhs in the previous year. The main factors contributing to the loss were increase in interest charges, provision against doubtful debts and prior period adjustments. Due to loss incurred by the Company, it was not in a position to distribute any dividend for the year 1984-85. The Company is likely to incur a loss of Rs. 91.57 lakhs in 1985-86.

5. Capital Schemes

Deepening of first Holmes Shaft at Balaghat mine of the Company has been completed. The Company intends to take up the following Capital Schemes. (A) Sinking of Vertical shaft at Chikla mine (B) Sinking of main hoisting shaft at Ukwa Mine. The Company has other programmes like installation of a crushing and screening plant at Balaghat Mine. It is also actively considering the establishment of an Electrolytic Manganese Dioxide Plant. The Company has applied for extension of the validity of the letter of Intent of this plant and it is under consideration of the Govt. of India.

6. Safety Measures

The main activity of the Company is underground mining. The Company has taken particular care to ensure safety of its workers. Apart from complying with the rules and regulations promulgated by the Government, Pit Safety Committees are functioning in all the mines. These Committees meet at least once every month to analyse causes of accidents and adopt measures for their prevention. Safety Campaigns are undertaken to prevent accidents. One of the Chief Mining Engineers of the Company functions as Chief Safety Officer and carries out inspections of the mines from time to time.

7. Workers Participation In Management

Various consultative forums are already functioning in different units of the Company for the effective participation of workers in the management functions. Workers Committee, Canteen Management etc., have been functioning satisfactorily at each unit. Joint Management Councils have also been constituted at different units. The problems which cannot be solved at the unit levels are referred to the Apex Body functioning at the Corporate levels.

8. Contract Labour Position

MOIL is not employing any casual and contract labour on jobs which are of permanent, regular and continuous nature. However, MOIL is employing a few casual workers in work of an intermittent nature and also at mines where because of limited ore reserves, scattered working and short span of life, employment of regular workers is not possible. The number of such casual/contract labour employees by the Company at present is 957 as on 1.12.85. Such workers are mainly employed at different mines for transportation/railing jobs which are not of regular nature.

9. Progressive use of Hindi

For the progressive use of Hindi in MOIL, the Company has formed a Hindi Cell at Head Office headed by a Hindi Officer, who is assisted by supporting staff. To keep a watch on the progress of implementation of Hindi, the Company has also formed implementation Committee at Head Office and at the Mines of the Company. These Committees inspect the implementation of Hindi as per the Official Languages Act at HO and Mines. As per the instructions received from the Ministry many schemes and check points have been made for the progressive use of Hindi and we are alert towards implementation of these schemes and check points. Periodical review meetings of the progress made are taken at the corporate office by the Chief Executive.

10. Personnel

The details of employees in the Company as on 1.3.86 are indicated below:

Group	S.C.	S.T.	Others	Total
A	5	3	151	159
B	10	12	133	155
C	233	222	967	1,422
D	1,574	3,027	4,417	9,078
Sweepers	106	—	—	106
Total	1,928	3,264	5,728	10,920

Bharat Refractories Limited

1.1 The Retractory Plant at Bhandaridah was acquired by the Government of India under the provisions of the Asian Refractories (Acquisition of Undertaking) Act, 1971, and was managed on behalf of the Government of India by the Bokaro Steel Limited upto 21-7-1974. On 22.7.1974 a separate Company in the name and style of "Bharat Refractories Limited" was incorporated as subsidiary to the Bokaro Steel Limited. Subsequently under the provisions of the Public Sector Iron and Steel Companies (Restructuring and Miscellaneous Provisions) Act, 1978, Bharat Refractories Limited ceased to be a subsidiary of Bokaro Steel Limited. Steel Authority of India Limited and the Company was placed under the direct administrative control of Department of Steel with effect from 1st May, 1978. The following undertaking were also transferred to and vested in Bharat Refractories Limited from the above date

Refractories Plant at Ranch Road which had earlier been taken over by M/s. Hindustan Steel Limited (Now known as Ranchi Road Refractories Plant) along with its captive sillimanite mines in Meghalaya, known as Nongstoin Sillimanite Mines. The Refractories Plant of Bhilai Steel Plant of SAIL located at Bhilai (now known as Bhilai Refractories Plant).

India Firebricks & Insulation Co. Ltd., formerly a subsidiary of Steel Authority of India Limited, was made a subsidiary of BRL.

All the units of the Company including the subsidiary company excepting Bhilai Refractories Plant were taken over as sick units from private sector.

Capital Structure

The authorised share capital of the company is Rs. 40 crores against which the paid up capital as on 31.12.1985 was Rs. 37.69 crores.

Production and Financial Results

A. Production Results

The production performance of various units of the company and its subsidiary, IFICO Limited, during the

years 1984-85 and 1985-86 is given below:

Name of Unit	1984-85		1985-86*		Anticipated in March 1986	
	Bricks incl. Mass	Mortar	Brick incl. Mass	Mortar	Bricks incl. Mass	Mortar
Bhandaridah Ref. Plant	9770	3055	11,779	1952	1455	300
Ranchi Road Ref. Plant	3,480	—	3,860	—	450	—
Bhilai Refractories Plant	28,925	—	31,233	—	3390	—
India Firebricks & Insulation Co., Ltd.	23,048	—	29,079	—	2914	—

*Based on actuals till February 1986 and estimates for March 1986.

B. Financial Results:

During the year 1984-85, the company incurred a net loss of Rs. 1391.22 lakhs; the plantwise break-up of the loss is as follows:

Name of the Unit	Loss incurred
Bhandaridah Refractories Plant	274.62
Ranchi Road Refractories Plant	138.22
Bhilai Refractories Plant	978.38
Total	1391.22

The subsidiary, India Firebricks & Insulation Company Limited, incurred a net loss of Rs. 289.31 lakhs after providing for depreciation amounting to Rs. 40.31 lakhs and interest on borrowed funds to the tune of Rs. 124.58 lakhs in 1984-85.

The Company is likely to incur a net loss of Rs. 974.92 lakhs in 1985-86; the plantwise break-up of the likely loss is as follows:

Name of the Unit	Loss likely to be incurred
Bhandaridah Refractories Plant	248.01
Ranchi Road Refractories Plant	127.48
Bhilai Refractories Plant	599.43
Total	974.92

The subsidiary, India Firebricks and Insulation Company Limited, is likely to incur a net loss of Rs. 221.88 lakhs in 1985-86.

The production in Bhandaridah Refractories Plant was adversely affected due to heavy power cuts which were to the tune of 874 hours in 585 trippings. The production in Ranchi Road Refractories Plant suffered for want of sillimanite which could not be moved from the captive mines at Sonapahar due to transport bottlenecks. Production in Bhilai Refractories Plant was affected in the earlier part of the year due to shortage of key raw materials like DB magnesite and chromite which could not be procured due to acute shortage of working capital as also due to problems in the mines of Orissa Mining Corporation Limited, the suppliers of chromite.

As a result of a number of corrective measures taken, production at Bhandaridah and Bhilai Refractories Plant has picked up and these two units have also started earning gross margin before interest on Govt. loan and depreciation.

The poor financial performance of the Company and its subsidiary is mainly due to unremunerative prices offered by the consumers under the constraint of the considerable idle capacity in the refractory industry. At the same time the cost of the inputs is increasing year after year adding to the losses of the company and its subsidiary. The incidence of interest and depreciation is also more than what it was during the last financial year.



Shaft kiln of Ranchi Road Plant

Pithoragarh Magnesite Project

Pithoragarh Magnesite Project with a calcination capacity of 25,000 tonnes per annum of dead burnt magnesite was approved by the Government in October, 1982 with a capital outlay of Rs. 14.00 crores. MECON is rendering consultancy services for the projects. The latest assessment with prices prevailing in the 1st quarter of 1985 shows that the capital cost would be about Rs. 26.03 crores. A decision on the revised estimates of the project will be taken after considering the viability of the project based on current costs and overall demand and availability position of magnesite.

Research and Development

The collaboration agreement between the subsidiary company, India Firebricks & Insulation Company Limited and the Research and Development Centre for Iron & Steel, Steel Authority of India Limited for development of teeming and a few other special types of refractory products for the purpose of improvement in quality, performance and import substitution is valid for three years since February, 1984. Research and Development facilities are being augmented at Bhilai Refractories Plant to register improvement in quality and to develop more sophisticated products.

Foreign Collaboration

In order to meet the emerging requirements of steel plants for refractories as a results of change in steel manufacturing process in particular, the company has entered into collaboration agreements with Kawasaki Refractories Company Limited, Japan, for the production of the following products.

1. Refractories for sliding gate systems
2. Magnesia-graphite bricks for LD converters & Electric Arc Furnaces (EAF)
3. Gunning Repair Materials for converters & EAF.
4. Casting Mixes for Steel Ladles;
5. Spinel and Magnesia Spinel bricks specially for high capacity cement Rotary Kiln.

The agreements have already been approved by the Government of India on September 30, 1985, and the collaborators have started sending the technical documents. Action to commercialise the products as per the requirements of the public sector steel plants is underway.

The Company also proposes to enter into a technical collaboration with Shinagawa Refractories Company Limited, Japan, for the production of Coke-oven silica bricks. A draft agreement has already been sent to SRC Limited, Japan, and the terms and conditions of the agreement are being examined by them.

Man Power

The man power position as on 28.2.1986 in different units of the company and its subsidiary is as below:

Name of the Unit	Total man power	S.C.	S.T.	Wo-men	Ex-Ser-vice-men capped	Physi-cally handi-capped
1	2	3	4	5	6	7
Bhandaridah Ref. Plant	896	109	62	90	5	01
Ranchi Road Ref. Plant	353	30	34	14	2	03
NS Mines	236	2	111	14	1	01
Bhilai ref. Plant	1574	181	269	12	57	11
Pithoragarh Magnesite Project	27	2	—	—	3	—
Head Office	119	7	5	—	1	—
IFICO	1138	41	155	28	8	12

Safety Measures

Safety measures are being provided in all the plants of the Company in according with the provisions of Factories Act, 1948. Safety committees have been constituted in all the units of the company and the subsidiary undertaking to review the precautionary safety measures.

Implementation of Official Language Act

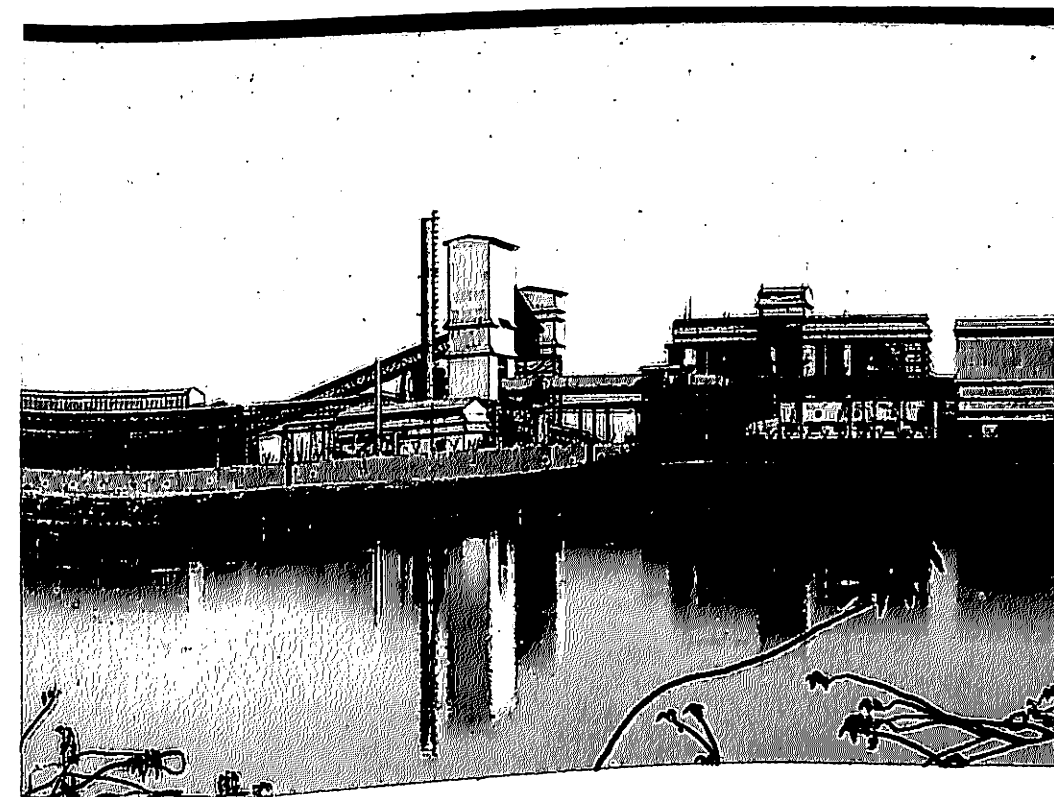
The company has been making concerted efforts towards progressive use of Hindi in accordance with the provisions of Official Language Act, 1963, and the official Language Rules, 1976. All the units, Head Office and subsidiary company, IFICO Limited have already been notified in the Gazette in terms of Rule 10(4) of the above rules. Official Language Committees have been constituted in all the units, subsidiary and Head Office and they are meeting regularly for speedy implementation of the instructions being received from the Govt. from time of time.

Engagement of Contract Labour

Contract labourers are engaged on non-perennial jobs only. However, contract labourers are given regular appointment against vacancies subject to their names being sponsored by the local employment exchange. Minimum statutory wages are being paid to contract labourers. In addition they are being allowed the benefits like Provident Fund, E.S.I Leave and Welfare facilities.

Industrial Relations

The industrial relations situation by and large remained peaceful in all the units and the subsidiary company of the undertaking.



Bharat Refractories plant at Bhilai

National Mineral Development Corporation Limited

1.0 The National Mineral Development Corporation Limited (NMDC) was incorporated on November 15, 1958 as a Government Company for developing and exploiting the mineral resources of the country (other than coal, oil, natural gas and atomic minerals).

1.1 Presently, on the production side, the activities of NMDC are confined to iron ore and diamond. On the exploration, planning and development side, its investigation planning and consultancy wings are dealing with various materials such as iron ore, diamond, limestone, dolomite, gypsum, graphite, tungsten, tin, sapphire, etc. In respect of iron ore, the NMDC is a producer for exports only. The export of iron ore is canalised through the MMTC and Japanese Steel Mills are the major buyers of iron ore produced by the NMDC. The following units are under the control of NMDC.

A. Production projects	State in which located
Iron Ore	
Bailadila-14	Madhya Pradesh
Bailadila-5	
Donimalai	Karnataka
Diamonds	
Panna Diamond Mining Project (Majhgawan Mine)	Madhya Pradesh

B. Projects under Construction	
Iron Ore	
Bailadila-14 Expansion and Modification Scheme (Bailadila 11/C)	
Fine Ore Handling Scheme (Bailadila-5)	
Dolomite	
Dolomite Project	Madhya Pradesh

2.0 Finance

The authorised capital of the Corporation is Rs. 150 crores. The equity capital as on 31.3.1985 was Rs. 101.39 crores. Government loans outstanding as on 31.3.85 amounted to Rs. 39.71 crores.

3.0 Production

Production in the units of NMDC during 1984-85 and 1985-86 is given below:—

Name of the Project	1984-85 (Actuals)		1985-86 (Estimated)*	
	Lumps	Fines	Lumps	Fines
Bailadila-14	19.60	6.09	19.95	6.49
Bailadila-5	28.44	16.15	27.89	13.60
Donimalai	11.27	8.87	12.56	9.71
Panna Diamond Mining Project (in carats)		14918		15712

* On the basis of actuals for April'85-February 86 and estimates from March'86

3.1 Sales turnover during the year 1984-85 was Rs. 112.31 crores as compared to Rs. 100.03 crores during the previous year. During 1985-86 (upto Feb, 1986) the sales turnover has been 109.59 crores.

4.0 Working Results

During 1984-85 the NMDC earned a profit of Rs. 3.36 crores as compared to Rs. 0.78 crores during 1983-84. During the period April'85 to Feb. '86, the NMDC has incurred a loss of Rs. 11.62 crores.

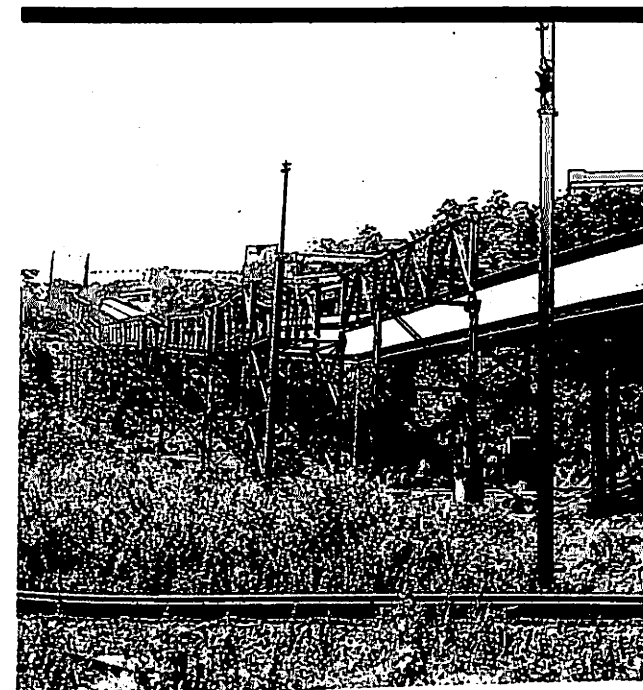
5.0 New Projects

(i) Bailadila 11/C

Bailadila 11/C deposit is being developed to supplement and replace the Bailadila-14 deposit, the production of which will be dwindling year by year. The revised production cost of Bailadila 11/C is Rs. 25.92 crores. An annual production of 2.8 million tonnes of lump and fines is expected from Bailadila 11/C. The major part of iron ore produced here is identified as a source of supply for Visakhapatnam Steel Plant. The project is expected to be completed by June, 1986.

(ii) Fine Ore Handling Scheme (Bailadila 5)

Government have sanctioned this project for handling fine ore at Bailadila-5 including reclamation and loading facilities at an estimated cost of Rs. 25.94 crores in September, 1982. The present estimated capital cost is Rs. 32.23 crores. The project which was scheduled to be completed in September, 1985 is likely to be delayed because of delay in the construction of the siding.



Fine ore handling conveyor Bailadila

(iii) Dolomite Project

National Mineral Development Corporation Ltd., has been assigned the task of developing dolomite deposits for the supply to Visakhapatnam Steel Plant in Bastar district of Madhya Pradesh. The State Government had rejected NMDC's mining lease application and NMDC has filed a revision application. Simultaneously NMDC have identified alternative deposits of dolomite in Bilaspur District. The State Government has been requested to reconsider their stand.

Mandovi Pellets Limited

1.1 National Mineral Development Corporation (NMDC) is participating on behalf of Government in Joint Sector Enterprise Mandovi Pellets Limited (MPL) which was approved in 1975 to produce 1.8 million tonnes of blast furnace grade iron ore pellets. The plant started production in 1979 as a 100% export oriented unit. NMDC and M/s Chowgule and Company Private Limited each contributed to the extent of 1/3rd of the equity capital of this Company. The remaining 1/3 was being contributed by the general public/financial institutions. MPL had entered into a long-term agreement with Japanese Steel Mills for the export of a total quantity of 18.32 million tonnes of pellets at a rate of 1.82 million tonnes per year over a period of 10/ years starting with financial year 1978-79. Due to delay in the commissioning of the plant, MPL could not ship any pellets in 1978-79. In the following two years 1979-80 and 1980-81 also, the Company could export only 0.66 million tonnes and 0.88 million tonnes respectively. The reason for shortfall in production was inadequate supply of power.

1.2 The MPL Plant had to be subsequently closed down in 1981 as the manufacture of pellets became economically unviable due to high furnace oil prices and shortage of power, combined with fall in pellet prices in the international market.

1.3 An agreement was executed whereby the Japanese Steel Mills agreed to take 2.3 million tonnes of iron ore fines instead of pellets for the year 1981-82. The Japanese Steel Mills also agreed to pay a premium of \$ 4.85 in 1981-82 per tonne approximately over and above the price of fines. Due to continued recession in the steel industry, this agreement was further extended for another 3 years i.e. 1982-83 to 1984-85 but the premium was reduced to \$ 4.5 per tonne of fines. The contract for supplying fines was assigned to M/s CCPL who also paid contribution to MPL for this deal.

1.4 In 1985-86, the pellet plant continues to be closed and, the Company has been allowed to continue to export of iron ore (both lumps and fines) in lieu of pellets. During 1985-86 Government of India has permitted export of a total quantity of 2.3 million tonnes (DMT) of iron ore by M/s. CCPL to Japan on behalf of M/s. MPL.

Metal Scrap Trade Corporation Limited

1.0 Metal Scrap Trade Corpn. Ltd. is the canalising agency for the following items of scrap:-

- Import of steel melting scrap including Alloy Steel Scrap.
- Import of Sponge Iron including Hot Brignetted Iron
- Import of Old ships for breaking.
- Import of Re-rollable scrap.
- Import of Pig Iron Chips.
- Export of Iron scrap
- Disposal of scrap arising from steel Plants, and selling agent for other public Sector Undertakings.

2.0 Organisational Structure

2.1 The Company was founded on 9th Sept., '64 under the Ministry of Commerce with 1/3rd participation each by the Govt. of India, Iron & Steel Scrap Association of India and Steel Furnace Association of India. In 1972, 80% of the share holdings were transferred to the President of India and share holdings of the above named two Scrap Associations were reduced to 10% each. The administrative control of the Corporation was transferred from the Ministry of Commerce to the Ministry of Steel & Mines.

In 1973, after the formation of the Steel Authority of India Ltd. the Govt. share holding was transferred to SAIL and MSTC became its subsidiary. In 1982, MSTC was delinked from SAIL and all the shares held by SAIL were transferred in favour of the President of India. Consequently, the Corporation became an independent Co. under the direct control of the Ministry of Steel & Mines.

The present share holding of the President of India in the Corporation is about 86% as against 14% held by other share holders in Private Sector.

2.2 The Corporation is headed by the Managing Director who is assisted by four General Manager in charge of Foreign Trade, Domestic Trade, Finance & Accounts, Market Research & Development.

3.0 Diversification Plans

3.1 The Company has plans to set-up Scrap Yards in different parts of the country and mechanised scrap processing yard at Calcutta to regulate distribution of scrap from major source of arisings.

4.0 Performance

4.1 The Performance of the Company has been

given in the Table below:

Name of the Items	(Value in Rs. Lakhs) (Quantity in Lakhs Tonnes/LDT)			
	1984-85		1985-86 (estimated)	
	Qty.	Value	Qty.	Value
Import				
Carbon Steel	7.68	12777	7.95	12910
Melting Scrap				
Sponge Iron (HBI)	0.42	674	0.13	221
Re-rollable Scrap	—	—	0.10	160
Stainless Steel Scrap	0.064	754	0.06	149
Old ships for breaking	3.23	2958	5.13	4912
Export	0.61	158	0.80	240
Domestic Sales				
Arising from				
Steel Plants	1.86	2839	2.00	3784
Other Public				
Sector Undertakings	—	1621	—	3000

4.2 In addition to its traditional activities, MSTC has since 1983-84, undertaken new activities by undertaking sale of scrap on agency basis on behalf of a number of Public Sector Organisations. The number of such organisations are now fourty. Agreement has also been executed with Govt. of India for disposal of scrap available from Defence.

Financial Results

4.3 The Company has been maintaining a steady rate of 20% dividend. An all time record profit of Rs. 46.10 million before tax has been achieved during the year 1984-85 as against Rs. 30.40 million in 1983-84.

4.4 Financial performance during 1984-85 and projections for 1985-86 are as under:

Item	(Rs. in Lakhs)	
	1984-85	1985-86 (Projections)
1. Sales and other income	15840	32005
2. Gross margin before interest & depreciation	475	762
3. Profit before tax	461	754
4. Net profit	141	260

5.0 Employment Statistics

5.1 As on 28th February '86 a total number of 219 persons are employed in the Company. Out of the total number of employees as aforesaid, 27 belong to SC 7 to ST.

Ferro Scrap Nigam Limited

1.0 Introduction

1.1 Ferro Scrap Nigam Limited (FSNL) was incorporated in March, 1979 as a subsidiary of Metal Scrap Trade Corporation Limited (MSTC), which holds 60% of equity shares with remaining 40% being held by Harsco Corporation Inc., U.S.A. The total paid up capital is Rs. 150 lakhs.

1.2 The Company's prime function is to reclaim & process scrap from slag and refuse dumps in the integrated Steel Plants in TISCO, Jamshedpur, RSP, Rourkela, IISCO, Burnpur, BSP, Bhilai. It has recently started scrap recovery in BSP, Bokaro.

2.0 Performance

2.1 Physical Performance

The Company had processed and despatched reclaimed scrap to the extent of about 4.5 lakhs M.T. during the year 1983-84 and 1984-85 against 3.75 lakh M.T. during 1982-83. The despatch target of 5.1 lakh M.T. has been fixed for the year 1985-86 out of which 3.62 lakh M.T. has been achieved in 8 months, i.e. upto November, 1985. It is expected that the Company may exceed the said despatch target of 5.1 lakh M.T. during the year 1985-86.

The production performance of FSNL against target for the years 1982-83 to 1985-86 is given as under:-
(Value Rs. in lakh/lakh tonnes)

Major Products	1982-83	1983-84	1984-85	1985-86
Recovery of T	3.75	4.48	4.51	5.10
Scrap from A	3.75	4.48	4.52	4.97
dumps (M.T.)			841	1103
Value of T	—		855	1063
Production A	473	846		

2.2 Financial Performance

FSNL gets service charges from the Steel Plants for reclaiming & processing Iron & Steel Scrap from the dumps in the integrated Steel Plants. The total gross income in terms of service charges realised during the year 1984-85 was Rs. 855.37 lakhs as compared to Rs. 846 lakhs during the year 1983-84. The Company's operation during the year 1984-85 yielded net profit after tax of Rs. 169.03 lakhs. It is targetted to achieve the gross turnover for the year 1985-86 to Rs. 1103 lakhs. The gross profit target for the year 1985-86 has been fixed at Rs. 211 lakhs against

which the Company has achieved the target turnover of Rs. 772 lakhs and gross profit of Rs. 3.11 lakhs for the first eight months.

(Fig. in Rs. lakhs)

		1982-83	1983-84	1984-85	1985-86
Service T		473		841	1103
Charge A		473	846	855	1063
Gross T				273	407
Profit A		117	465	331	372

3.0 Future Prospect

3.1 Keeping in view the availability of scrap arising in the various steel Plants, and huge quantity of iron and steel scrap lying buried in the dumps of IISCO, Burnpur and RSP, Rourkela, the Company has drawn up a programme for replacement of old equipment with the financial assistance from Rourkela Steel Plant, loan from MSTC, the holding Company and from the Company's own generation to a tune of about Rs. 12 crores in the year 1985-86.

3.2 The Company has taken up slag processing activities at Bokaro Steel Plant. It has already approached Vizag Steel Plant so as to take up scrap processing in the plant from the commencement of the production itself. The Company is looking for an opportunity to start scrap recovery and processing in developing countries also.

4.0 General Activities

4.1 Safety Measures

The Company gives utmost importance to safety measures. All employees working in the field have been provided with helmets, safety goggles, handgloves etc. First-Aid Boxes and Fire Extinguishers are placed at prominent places. Safety posters and pamphlets are displayed from time to time to create safety consciousness among the employees. The safety department is exclusively under the Supervision of qualified Jr. Manager (Safety).

4.2 Contract Labour Position

Company carries its activities by permanent employees of the Company. Contract labourers are hardly engaged. Hence Company does not face any problem on account of contract labourers.

4.3 Workers participation in Management

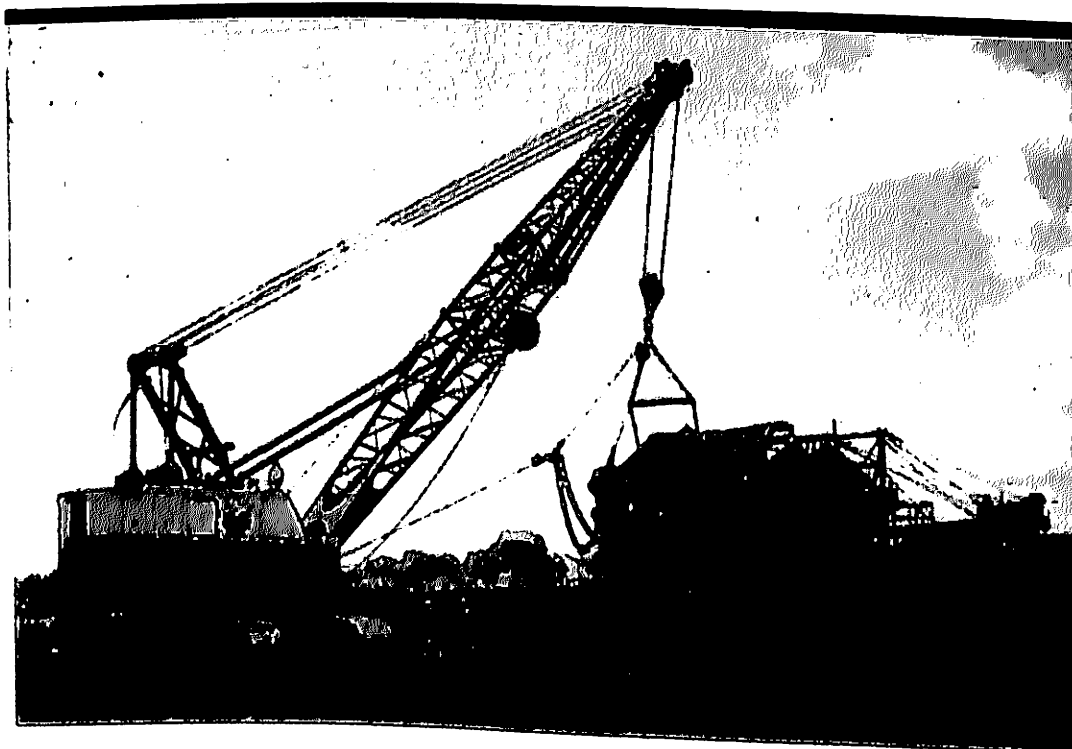
Workers are given due participation in productive disciplines. Their suggestions are vetted and generally implemented. There are several Committees such as Workers Committee, Joint Consultative Committee, Welfare Committee etc. Not even a single day has been lost on account of labour problem.

4.4 Capacity Utilization

Capacity utilization of the Company from 1983-84 has been more than 100%. The growth rate is around 10% in the year 1985-86. In comparison to the installed capacity of 4.5 lakhs M.T., the company expects to achieve the planned target of 5.1 lakh M.T. in this year. In 1986-87, a production target of 6.0 lakh M.T. has been planned.

4.5 Efforts Made Towards Cost Reduction

The Company gives top most importance to the cost reduction in various areas of activities. The cost expenditure towards travelling, telephone bills, overtime payment etc., have been controlled to a great extent. On the other hand, production is on the increase; hence per ton cost of production has gone down. The overall control on the cost is regularly monitored through budgetary controls. The inventory has been kept low to about 10% less than the previous year.



4.6 Efforts Made Towards Indigenisation

In the year 1985-86, more stress has been laid on the use of Indian equipment. The imported cranes are being substituted by the indigenous shovels and backhoes. Similarly, efforts are being made to use indigenous magnet and drop balls. In the year 1985-86 about Rs. 73 lakhs have been saved on account of reduction in import by import substitution.

5.0 Efforts for Development

5.1 The Company is continuously following up with the customers to renew contract in time, enhance the service charges for meeting the cost of escalation and new investment & to provide sufficient quantity of Oxygen. In case of non-availability of Oxygen, Steel Plants are being persuaded to make up the additional cost on account of installing evapourisation oxygen plant from local companies such as Indian Oxygen Ltd. & Asiatic Oxygen Ltd. etc.

5.2 The Company is making efforts to seek assistance from the Steel Plants, holding company MSTC through Ferrous Scrap Committee for new investment and replacement of old equipment etc.

6.0 Man Power

Out of the total strength of 727 of the Company, the number of S.C./ST & Ex-Serviceman is 34, 58 and 16 respectively.

Metallurgical & Engineering Consultants (India) Limited

1. (MECON) was set up in 1959 as Central Engineering and Design Bureau of SAIL and later incorporated as a Company on 31st March, 1973. It has emerged as a premier consultancy and design organisation in the Public Sector for metallurgical industry. Its business includes the following:- rendering technical consultancy, design and engineering and other technical project management services for setting up plant and machinery in ferrous and non-ferrous metallurgical industries; design and supply of equipment for coke oven batteries (including 7 metre high coke ovens) dry coke cooling plants; and rolling mills; design and engineering of processing lines for ferrous and non-ferrous metals, etc.

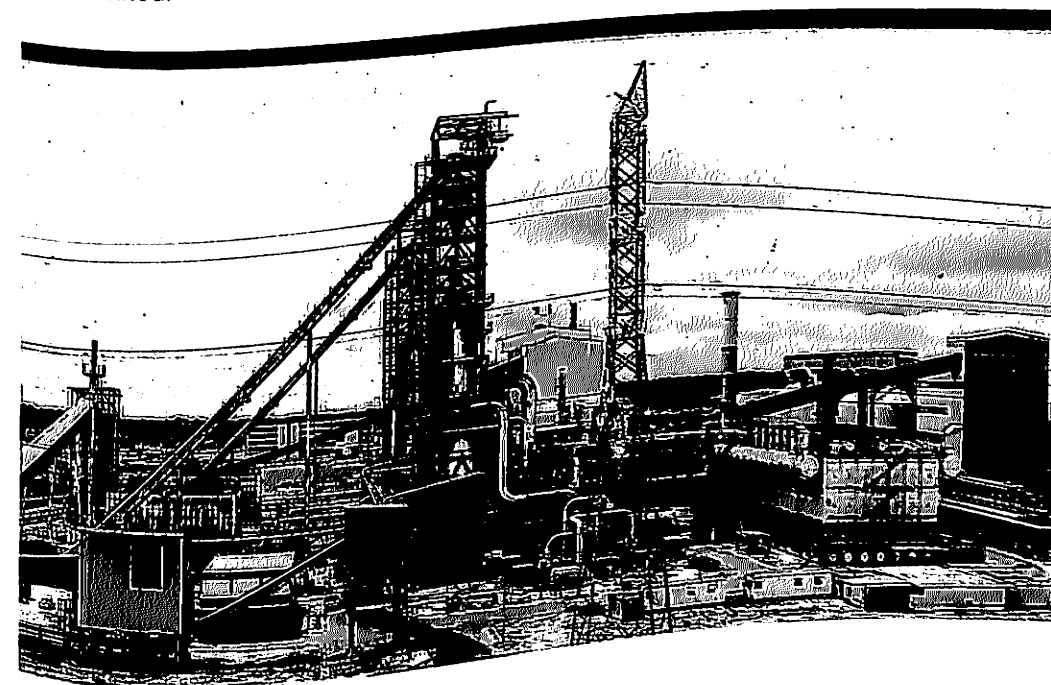
2. MECON'S present major contracts

- Design of plant and equipment and systems including supply, erection and commissioning work in the area of Coke Oven Battery (without supply), Rolling Mills, Gas Cleaning Plant for Vizag Steel Plant. Work on these assignments are continuing.
- Consultancy services for modernisation proposals for Durgapur Steel Plant, Rourkela Steel Plant and Indian Iron & Steel Company Limited.

- Design, engineering and consultancy services for various Defence establishments in the country.
- Pelletisation Plant of 3.0 Mt capacity of KIOCL at Mangalore involving comprehensive engineering services including project management. (Design & Engineering work completed. Plant is presently under erection).
- Design, engineering, manufacture, supply, supervision of erection and commissioning of Mini Galvanising Lines for M/s. Century Tubes Limited, New Delhi and also for M/s. Munak Gelva Sheets Ltd., New Delhi.
- Design and supply of Cold Rolling Mills for M/s. Penner Steels Ltd., Hyderabad.
- Detailed engineering and consultancy for High speed Steel Plant for M/s. Powmex Steel Ltd., Hyderabad.
- Design, engineering, supervision of erection and commissioning of Coke Oven Batteries at Durgapur & Rourkela Steel Plant.

3. Assignments abroad

MECON is now rendering consultancy, Project Management and Technical Services for construction of a 1.3 Mt per annum capacity Blast Furnace based integrated Steel Plant at Ajaokuta, Nigeria and at present 58 MECON engineers are deputed in Nigeria for this job. The two rolling mills of priority commissioning units under Stage-I have already been commissioned.



Direct Reduction Plant of Delta Steel Company, Warri, Nigeria

4. Finance

The authorised and the paid up Capital as on 31.3.1985 was Rs. 4 crores and Rs. 2.02 crores respectively.

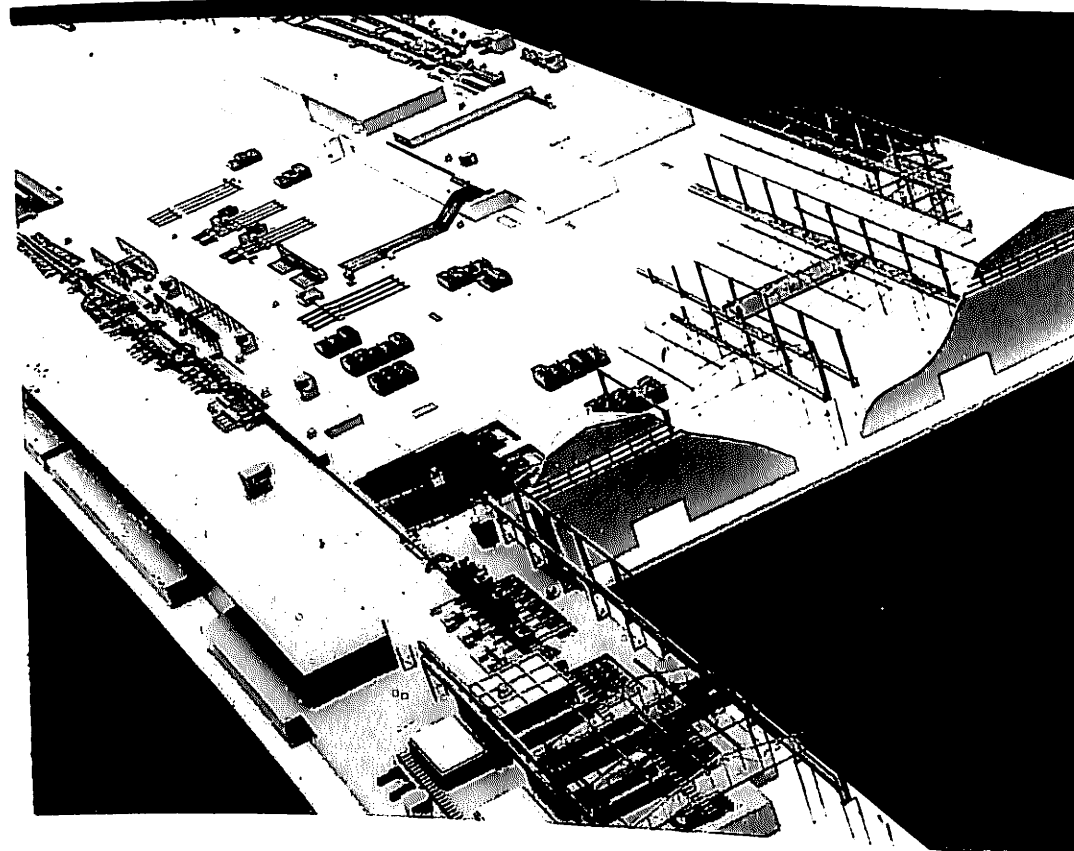
5. Working results

The company's turnover during the year 1984-85 was Rs. 112.59 crores against Rs. 105.51 during 1983-84. The budgeted turnover during 1985-86 is Rs. 110 crores. The company earned a net profit before tax of Rs. 12.02 crores during 1984-85 as against Rs. 7.71 crores during the last year. The targetted profit during 1985-86 is Rs. 11 crores.

6. Expertise beyond normal consultancy and engineering services and MECON'S major contribution towards bridging technical know-how gap.

Over the last 27 years, MECON has developed expertise far beyond what is normally understood as consultancy and engineering services. MECON has contributed in a major way in bridging the technological gap in the country in the "HIGH TECHNOLOGY" areas for Metallurgical Industries. In this connection besides its own development, the company has entered into basic know-how licence agreements with various foreign companies as follows:

- (i) know-how licence agreement with M/s. Wean United of USA for Rolling Mills and Auxiliary Equipment in 1969;
- (ii) know-how licence agreement with V/o Tiajpromexport of Moscow, USSR, for Detailed Engineering for Metallurgical Industries in 1970;
- (iii) know-how licence agreement with M/s. Creusot-Loire of France for Converter Gas Cleaning Plant (Basic agreement with SAIL and operated by MECON) in 1978;
- (iv) know-how licence agreement with V/o Tiajpromexport of USSR for Tall Coke Oven Batteries in 1980;
- (v) know-how licence agreement with V/o Tiajpromexport of Moscow USSR for Dry Coke cooling Plants in 1980;
- (vi) know-how licence agreement with M/s. SMS Schloemann-Siemag of West Germany for Long Product Rolling Mills in 1981;
- (vii) Cooperation agreement with M/s. Gilbert/Commonwealth International Inc., USA in the field of utility power plants.
- (viii) Cooperation agreement with M/s. Mannesman Demag Huttentechnik (MDH), West Germany for transfer of basic know-how for equipment and systems design of Blast furnace Plant.
- (ix) Cooperation agreement on Environmental Protection with TUV Rheinland, West Germany.
- (x) Cooperation agreement with M/s Maerz Offerban AG, Switzerland in the field of Mini Cement Plants.



Model of high capacity (710,000t/yr) multi-line Merchant Bar Mill for Vizag Steel Plant

7. Contract Labour Position

MECON does not normally appoint contract labour for its activities.

8. Industrial Relations and Workers Participation

The Industrial Relations situation in MECON, ever since its inception in 1973 has been generally good. This has been possible because of healthy co-operation existing between MECON Management and the MECON Employees' Union, a non-political union which has been recognised by the Management on the recommendation of the State Government. The executive staff of the organisation are represented by the MECON Executives' Association, registered under the Societies' Registration Act. This Association has also been recognised by the Management. The major issues relating to the employees, like wages, incentive and promotion policy etc. are periodically discussed with the Union and settlements for specified period are arrived at. For settlement of these issues, Committees consisting of representatives of both the Management and Union are constituted. In case of any difficulty in arriving at a bi-partite settlement, the assistance of Conciliation Officer is sought.

A three tier Grievance Handling system exists as far as the individual grievances are concerned. These matters are also sometimes taken up by the Union, on behalf of these individuals and the issues are discussed.

A system of participation in management by the employees both at the departmental level as well as at the corporate level exists in the Company. Zonal Committees at departmental level discuss the subjects related to job organisation, target, quality of work etc. and send their suggestions to the higher management wherever necessary. Besides, there are other Committees to cover the issues relating to welfare, housing, medical, schools, sports, provident fund and gratuity etc. In addition to the above, Management also keeps in constant touch with the Employees' Union at the corporate level in order to brief them about the work situation and prospects relating to the growth of the organisation and other problems.

9. Capacity Utilization, etc.

MECON is an engineering organisation and not a manufacturing unit. Its main assets are a team of competent and qualified engineers and technical staff. The Company has at its disposal about 2.2 million engineering manhours and 1 million drafting manhours per annum. In terms of preparation of working drawings MECON has the capacity to prepare about 25000 working drawings per annum, which means the Company can prepare working drawings for three integrated steel plants simultaneously. Capacity utilisation of engineering manhours during the year 1985-86 (upto November) has been around 78% on chargeable jobs of which detailed engineering jobs represent about 40%.

10. Manpower position

The growth of the technical manpower of MECON, over the last decade, has been phenomenal. In 1970, MECON'S technical strength was only 600 comprising of 400 engineers and 200 drafting personnel. Presently MECON'S technical manpower strength is over 2100 comprising of 1500 qualified engineers and about 600 drafting personnel. Besides this, the supporting technical/non-technical manpower of the Company is 1600 making a total manpower strength of MECON about 3700. The total number of employees in the Company as on 28.2.86 was 3696 out of which 231 are scheduled castes and 452 are scheduled tribes. Further, the Company has also a provision for providing employment to ex-servicemen.

Hindustan Steel Works Construction Limited

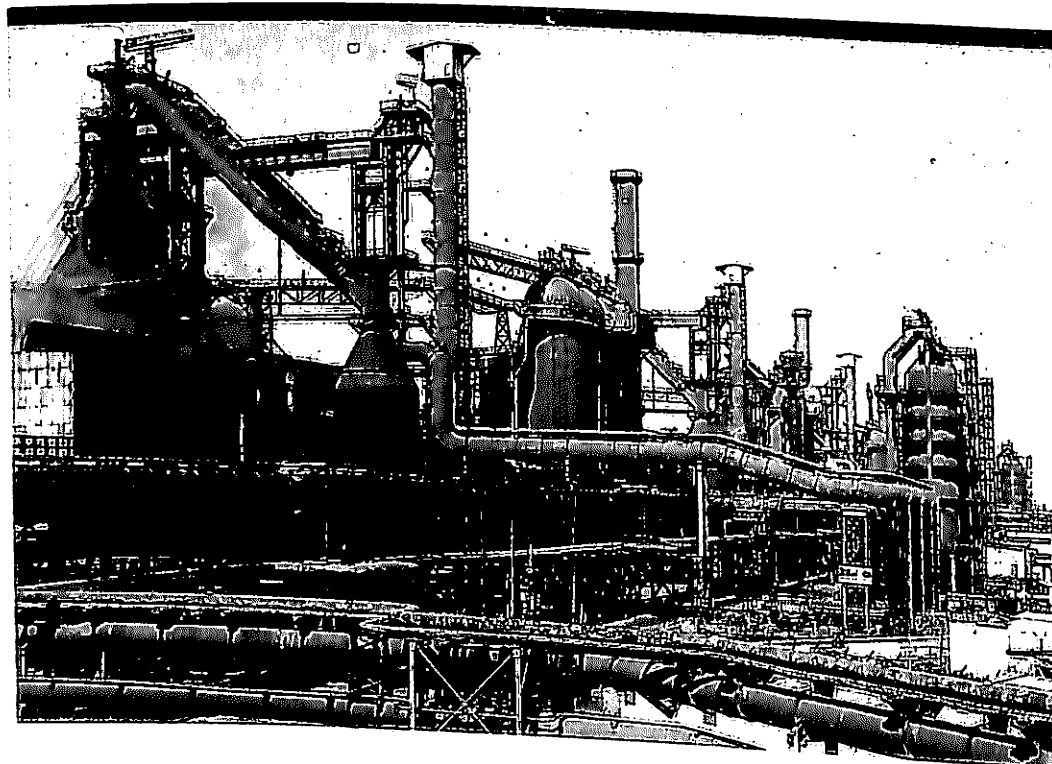
Hindustan Steelworks Construction Limited (HSCL) was incorporated in June, 1964, to mobilise indigenous capability for undertaking construction work of the integrated steel plants in the country. Subsequently, HSCL diversified its activities and is now handling works relating to construction of dams, bridges, silos, power plants, industrial plants, mining complexes, metro railway, township ancillary buildings etc. The company has a fullfledged design wing and also has a large fleet of heavy construction equipment.

Finance

The authorised capital as also the paid up capital as on 28.2.86 was Rs.20.00 crores. The Government loan outstanding as on 28.2.86 amounted to Rs.54.93 crores (Plan loan Rs.25.09 crores and non-plan loan Rs.29.84 crores).

Working Results

The Company's turnover during the year 1985-86 was Rs.185.55 crores as against Rs.160.10 crores during the year 1984-85. The turnover for the year 1985-86 is estimated at Rs.165.42 crores.



Blast Furnace Bokaro Steel Plant

The net loss for the year 1985-86 works out to Rs.15.50 crores as against the net loss of Rs.2.94 crores in the year 1984-85. The increase in loss was mainly due to rise in cost of surplus labour, increase in interest burden and drop in the turnover of foreign works which was due to non-availability of funds with the clients on account of acute financial crisis in Libya for quite some time.

Personnel

Manpower position as on 28.2.1986 of the entire company with statistics of SC/ST employees, ex-servicemen and physically handicapped is given in the statement as below:—

Manpower position as on 28.2.1986

Group	Total Strength	S.C.	S.T.	Female employees	Ex-Servicemen	Physically Handicapped
A	1860	47	12	5	19	2
B	665	40	3	6	3	1
C	15055	1665	790	120	191	29
D	5530	1458	2165	1313	4	10
Total:	23110	3210	2970	1444	217	42

Surplus Labour

For want of sufficient workload in the steel sector, some idle workforce is expected to remain. The reduction of the workload in steel sector is gradually off-set by additional works in other sectors like power, coal, cement etc. The departmental workforce is mainly capable of working on the following jobs:—

- Structural Erection;
- Mechanical Equipment Erection;
- Electrical Equipment Erection;
- Refractory work;

Attempts are being made to engage as many departmental workers as possible on the above jobs that are available with the company. Efforts to minimise the surpluses are also being made by way of deployment in other projects employment in steel plants, coal and other Public Sector Agencies, etc.

Contract Labour Position

The total number of workers engaged by contractors/PRW's is around 18246. The jobs for which these agencies are employed are mostly in civil engineering, structural fabrication and structural erection, equipment erection etc. Besides these, to some extent they are also employed in mechanical and electrical erection works to supplement the works being done by the departmental workers in these areas.

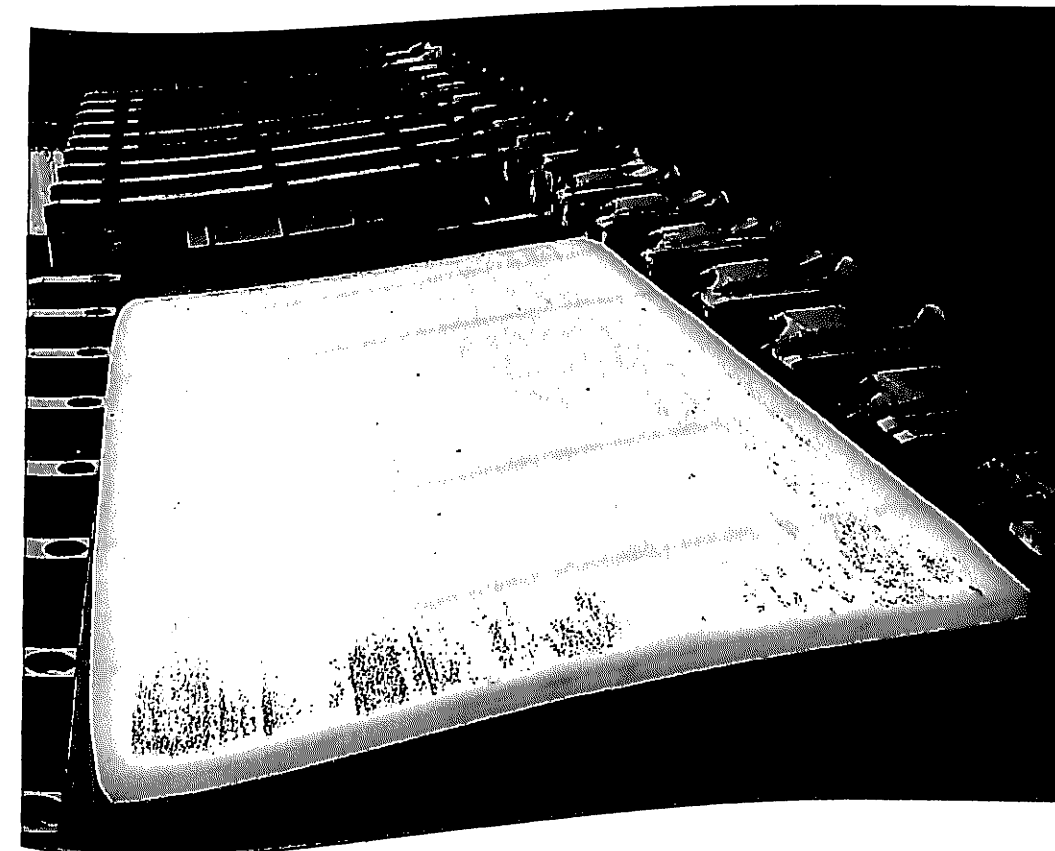
Safety Measures

HSCL has formulated its own safety code and for its implementation, the following steps are taken:

- Safety Organisations are functioning in all the major units with independent safety engineers reporting to respective General Managers/Project Managers. In smaller units the Resident Engineer is incharge of safety organisation.
- Contractors/PRW engaged at various HSCL sites are apprised of the safety measures and implementation of safety measures are constantly monitored. Employees are educated, advised and instructed to use safety appliances which are invariably made available by the company for execution of hazardous jobs. Periodic seminars are also conducted to acquaint the personnel with latest safety measures and also to review the safety requirements of various work sites in HSCL.

Representation of SC/ST

Out of a total number of 23110 employees, 6180 belong to Scheduled Castes/Scheduled Tribes. This constitutes 26.7% of the total strength. The short-fall in the representation of SC/ST employees in Groups 'A', 'B' and 'C' posts continues, as there has not been any fresh recruitment.



3600 mm Plate mill Bhilai Steel Plant

Visakhapatnam Steel Project

1.0 Visakhapatnam Steel Project of Rashtriya Ispat Nigam Ltd. is the first shore-based integrated Steel Plant being set up at Visakhapatnam in Andhra Pradesh. This plant is designed to adopt some of the most modern technologies in coke and iron and steel production like 7 metre tall coke oven batteries with dry quenching facilities; big blast furnaces of 3200 cubic meter each with bell-less top charging facilities; continuous casting of steel; and most modern rolling mills. The project will have facilities for extensive treatment of effluents for ensuring proper environmental protection.

1.2 A re-assessment of capital cost of the project in 1985 indicated that as a result of the escalation in prices, cost over-run etc, the updated cost of the project would be about Rs. 7500 crores as against the approved cost estimate of Rs. 3900 crores. It was considered that such high capital cost would affect the economic viability of the project. The project authorities have, therefore formulated a revised rationalised concept for implementation of this project at a lower cost of Rs. 6000 crores. This is proposed to be achieved mainly by deletion of Universal Beam Mill and construction of one Steel Melt Shop of 3x150 tonnes LD converters, instead of two Steel Melt Shops of total 5x130 tonnes LD converters. The hot metal production will remain unchanged at 3.4 million

tonnes per annum. But the, saleable steel production will come down from 2.983 million tonnes to 2.656 million tonnes. The pig iron availability will go up from 0.215 million tonnes to 0.570 million tonnes. Thus the total production of iron and steel from the project would be 3.23 million tonnes compared to earlier anticipated level of 3.20 million tonnes per annum.

The product-mix under the rationalised concept is compared with that under the approved concept in the Table given below:

	Approved Concept	Rationalised concept
Rounds & squares of 5.5 mm to 75 mm dia in terms of rounds	1060,200	1415,200
Flats	119,800	164,800
T bars	24,700	24,700
Equal & unequal angles	554,100	554,100
Channels	163,200	163,200
Beams	888,000	88,000
Billets	173,000	246,000
Total finished steel	2983,000	2656,000
Pig iron for sale	215,000	570,000

1.3 Commission schedule

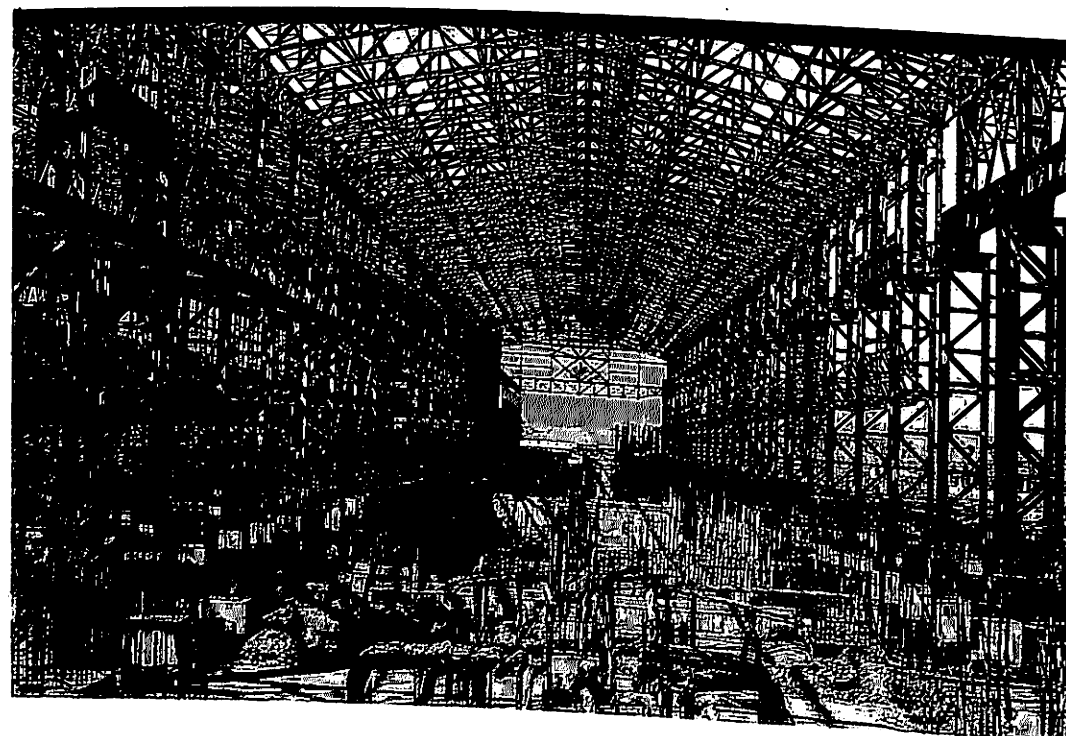
Originally the project was proposed to be completed in two phases—the first phase of 1.2 million tonnes molten steel per annum capacity in four years and the entire capacity of 3.4 million tonnes in six years i.e. in 1986 and 1988 respectively. According to the schedule of construction projected under the rationalised concept the first stage units will be commissioned by December, 1988 and the entire plant would be completed by June, 1990.

1.4 Progress of construction

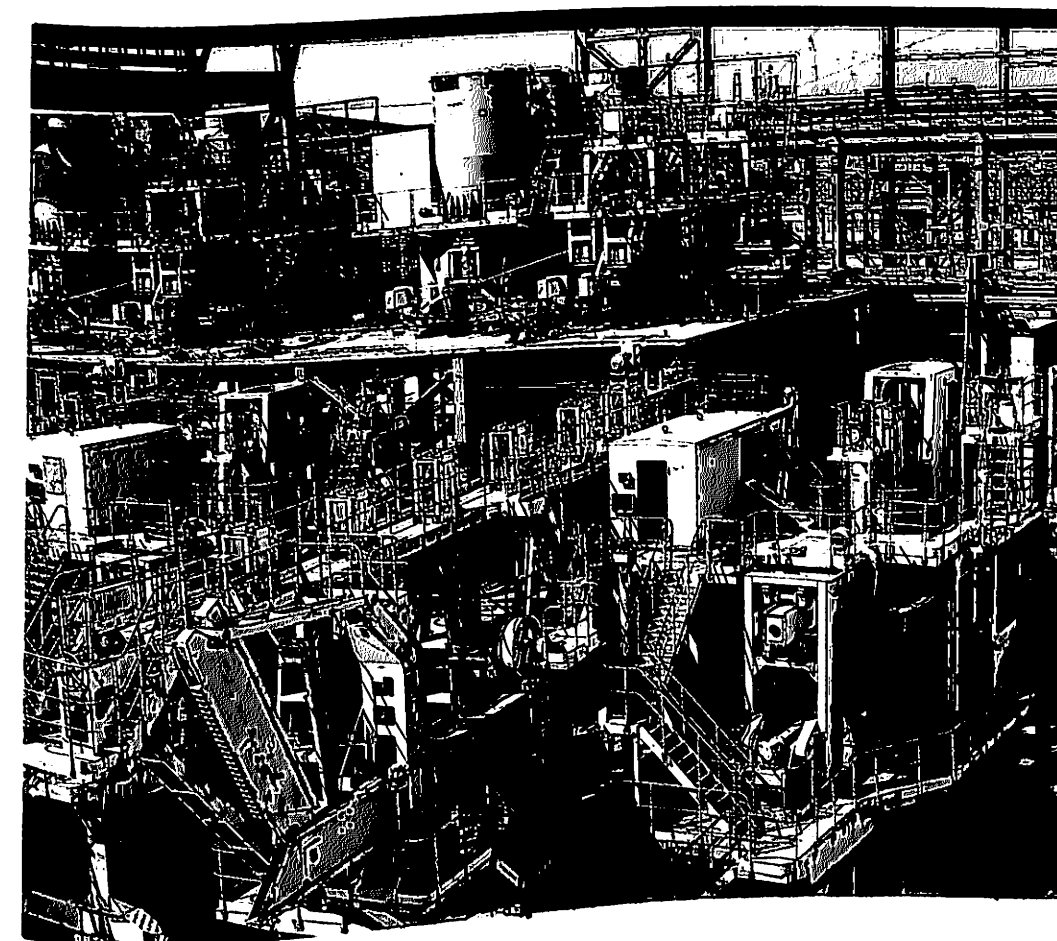
The progress of work with reference to the revised schedule has so far been satisfactory. From inception, upto February, 1986, 18,30,055 cu.m of concreting work, 2,40,410 tonnes of structural fabrication, 1,26,437 tonnes of structural erection, 31,766 tonnes of equipment erection and 42,956 tonnes of refractory erection have been completed. The establishment of external infrastructural facilities like water supply, power supply, rail links, port facilities, iron ore and coal supply etc. for the operational requirements of the plant, are in progress.

2.0 Finance

Expenditure on the project upto February, 1986 was Rs. 2,128.57 crores. For the year 1985-86, the provision of Rs. 215 crores was made in the Budget Estimates 1985-86. But this was increased to Rs. 700 crores. It is now estimated that a total amount of Rs. 799.71 crores would be required during 1985-86. Necessary proposals have been submitted for obtaining additional amount through Supplementary Demands for Grants in March, 1986.



Light Merchant Mill under Construction at Vizag



Coke Oven Construction Vizag Steel Plant

Neelachal Ispat Nigam Limited

1. Neelachal Ispat Nigam Limited was formed by Government of India on 27.3.1982 to set up the second steel plant in Orissa. The site for the proposed plant has been selected in Daitari Region.
2. In view of the huge investment requirements and the recurring losses of the steel plants based on blast furnace route of iron making as also the limited resources of coking coal, Government had been exploring the possibility of using alternative technologies which can utilise non-coking coal. After a careful consideration of new technologies, a cost effective proven technology of Direct Reduction/Electric Arc Furnace (sponge iron route) which uses non-coking coal was identified for the project. Consequently MECON (the Consultants) were engaged to prepare a feasibility report for the plant based on the new technology with a capacity of 1.5 lakh tonnes of sponge iron and 2.10 lakh tonnes of finished steel in the first phase. MECON has submitted the complete report on 22nd July, 1985.
3. In the Seventh Five Year Plan, the outlays for which have been finalised, there is a provision of only Rs. 10 crores for the establishment of new steel plants. With such a provision, no substantial steps can be taken to implement the Daitari project during this period.

Vijayanagar Steel Limited

1. A new Company viz. Vijayanagar Steel Limited was formed to implement the Government's decision to set up a steel plant in Vijayanagar at Karnataka.
2. Earlier the idea was to set up an integrated steel plant based on the conventional blast furnace technology. However, later on, taking into account the huge investment required and the recurring heavy losses of steel plants based on the blast furnace route of iron making, as also the limited resources of coking coal and the long lead of coking coal mines to the proposed plant in Karnataka, Government felt it expedient to consider alternative technologies such as Direct Reduction/Electric Arc Furnace route of steel making which can utilise non-coking coal. In June 1982 it was, therefore, decided that a DPR be got prepared for a plant based on the Direct Reduction technology. MECON were assigned the preparation for a plant of 0.5 million tonnes to 0.6 million tonnes capacity capable of further expansion to a capacity of 1 million tonnes based on the Direct Reduction—Electric Arc Furnace route using lump iron ore and non-coking coal. The DPR was prepared and submitted by MECON in August, 1983.
3. Other emerging technologies of Direct Reduction which utilise non-coking coal for preparation of liquid hot metal like KR process and INRED process were also evaluated. As these technologies are still in a developmental stage, it was decided that the Vijayanagar Steel Plant be set up in a phased manner on the sponge iron electric steel making route as recommended by MECON in the DPR. MECON who were assigned the preparation of a Report for implementation of the First Phase of the project had submitted it in October, 1984.
4. This report envisaged production of 150,000 tonnes of sponge iron and 210,000 tonnes of finished products in the shape of light structurals and bars. The capital cost of the first phase (including captive power generation) has been estimated at Rs. 4.22 crores.
5. the Seventh Five Year Plan has been finalised by the National Development Council. The total plan provision for new steel plants, which include the Vijayanagar Steel Plant, in the Seventh Plan is Rs. 10 crores. With this allocation, it would not be possible to take substantive steps for the setting up of the Plant during the Seventh Five Year Plan.

Companies of the Bird Group

The erstwhile Bird and Company Limited was taken over by Government with effect from 25th October, 1980. Under Section 4(1) of the Bird and Company Limited (Acquisition and Transfer of Undertakings and other Properties) Act, 1980, shares held by the Bird and Company Limited in certain other Companies specified in Schedule I to the Act stood transferred to the Central Government. Such Companies included six Investment Companies of the Bird Group. These were amalgamated in September 1984, into one company known as Eastern Investment Ltd., under a notification issued by the Department of Company Affairs.

The Department of Steel looks after the affairs of the following companies of the Bird Group as a share holder on behalf of the President; the percentage of share capital of each Company held by the President of India is specified below:

1. The Orissa Minerals Development Company Ltd.	14.20
2. The Karanpura Development Company Ltd.	31.25
3. The Kumardhubi Fireclay and Silica Works Ltd.	8.00
4. The Bisra Stone Lime Company Limited	One out of 5,00,000 shares
5. Eastern Investment Limited	34.77

Scott & Saxby Limited is a fully owned subsidiary of the Karanpura Development Company Limited.

The Orissa Minerals Development Company Limited

The Orissa Minerals Development Company Limited is engaged in the mining of iron ore and manganese ore. The Company is operating in the Barbil area in district Keonjhar in Orissa. The Iron Ore and manganese ore are supplied to Steel Plants, mainly Durgapur Steel Plant, IISCO and Bokaro Steel Plant.

High grade managanese ore produced by the Company is also supplied to ferro manganese producers. Some quantity of the ores is exported through MMTC. The Company produced 7,86,000 tonnes of iron ore and 77,000 tonnes of manganese ore during 1984-85 (July 1984 to June 1985). It made a net profit of Rs. 15.61 lakhs during 1984-85 (July 1984 to June 1985) including depreciation. The Company's operating results can improve provided it gets assured orders for iron ore. With the development of SAIL's captive iron ore mines, SAIL's dependence on outside suppliers such as OMDC is declining, and hence there is a need to develop other markets.

The Karanpura Development Company Limited

The Company has two distinct lines of activity, namely, mining of limestone and clay and manufacture of refractories. The manufacture of refractories is a highly losing proposition, because the equipment is old, the technology is outdated, products are of poor quality and the market is highly competitive and restrictive. For all these reasons the refractory unit of the Company is closed. The limestone produced by this Company is mainly supplied to cement plants. The Company produced 32,000 tonnes of minerals during the year 1985. It incurred a net loss of Rs. 27.46 lakhs during 1985.

Scott and Saxby Limited

It is a fully owned subsidiary of Karanpura Development Company Limited. Its activities are sinking of deep tubewells, soil testing, construction of tubular structures, supply of pumps and spares, repairing and maintenance of pumps and tubewells, laying of pipelines for supply of water in plantations for drinking and industrial use in factories and for irrigation purpose and trading in pumps, motors and spares and their installation. The turnover of the Company was of the order of Rs. 93.68 lakhs during 1985 (upto November, 1985). It incurred a net loss of Rs. 22.73 lakhs during this period.

The Kumardhubi Fireclay and Silica Works Limited

It is one of the major producers of refractories in the country. It has an installed capacity of 1,35,000 tonnes for refractories, mainly firebricks, high alumina bricks, silica bricks, and castables. The Company produced 45,500 tonnes of refractories valued at Rs. 875/- lakhs during the year 1985. The production was lower due to depressed market demand coupled with non-availability of suitable raw materials. The Company incurred net loss of Rs. 111.82 lakhs during 1985. The main difficulty faced by the Company is that there is excess installed capacity in refractory industry taken as a whole; demand is about half the installed capacity.

The Bisra Stone Lime Company Limited

It is engaged in the mining of limestone and dolomite. The company has mining leases covering an area of 7.98 sq. kms. in Birmitrapur in Sundergarh district of Orissa. It supplies limestone and dolomite to steel plants at Jamshedpur (TISCO), Durgapur, Burnpur (IISCO) and Rourkela. The Company produced 7,85,000 tonnes of limestone and 4,57,000 tonnes of dolomite in 1984-85. The Company has drawn up plans to attain viability.

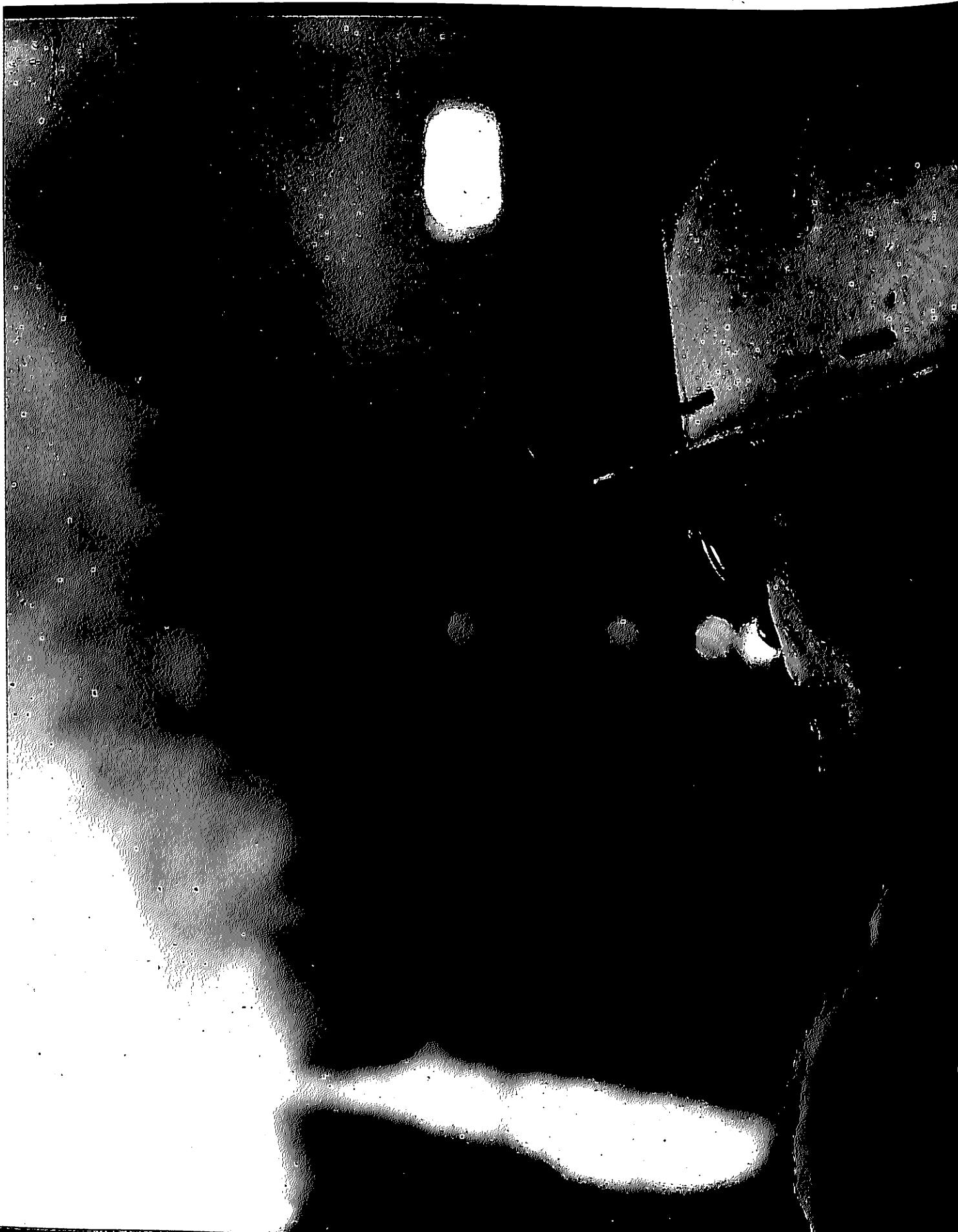
Eastern Investments Limited

It is an investment Company with income from dividend and interest on its investemts. The Company as it exists at present has been formed by amalgamation of six other investment companies of the Bird Group. The Company incurred a loss of Rs. 2.31 lakhs in 1985.

Outlay for central industrial and mineral projects in the Seventh Five Year Plan

		(Rs. in crores)
S. No.	Name of the Undertaking	7th Plan (1985-90) Outlay
1.	2.	3
	DEPARTMENT OF STEEL	6420.13
A.	IRON & STEEL	
1.1	Bhilai Steel Plant	
1.1.1	Continuing Schemes	906.33
1.1.2	Replacement & Renewals	621.33
1.1.3	Modernisation & New Schemes	100.00
1.1.4	Township and other programmes	180.00
1.2	Bokaro Steel Plant	5.00
1.2.1	Continuing Schemes	774.01
1.2.2	Replacement & Renewals	554.01
1.2.3	Modernisation & New Schemes	55.00
1.2.4	Township and other programmes	160.00
1.3	Durgapur Steel Plant	5.00
1.3.1	Continuing Schemes	688.03
1.3.2	Replacement & Renewals	28.03
1.3.3	Modernisation & New Schemes	190.00
1.3.4	Township and other programmes	460.00
1.4	Rourkela Steel Plant	10.00
1.4.1	Continuing Schemes	674.20
1.4.2	Replacement & Renewals	166.20
1.4.3	Modernisation & New Schemes	143.00
1.4.4	Township and other programmes	360.00
1.5	Alloy Steels Plant	5.00
1.5.1	Continuing Schemes	94.23
1.5.2	Replacement & Renewals	66.23
1.5.3	Township & other programmes	23.00
1.6	Salem Steel Plant	5.00
1.6.1	Continuing Schemes	16.06
1.6.2	Replacement & Renewals	10.06
1.6.3	Township and other programmes	5.00
1.7	Indian Iron & Steel Company & IISCO Ujjain	1.00
1.7.1	Continuing Schemes	215.14
1.7.2	Modernisation & New Schemes	73.14
1.7.3	Replacement & Renewals	52.00
1.7.4	Township and other programmes	83.00
1.8	Research & Development Centre	7.00
1.8.1	Continuing Schemes	90.44
1.8.2	Modernisation & New Schemes	38.44
1.8.3	Township and other programmes	50.00
1.9	Central Marketing Organisation	2.00
1.9.1	Continuing Schemes	48.00
1.9.2	Replacement & Renewals	12.00
1.9.3	Modernisation & New Schemes	8.00
1.9.4	Township and other programmes	26.00
1.10	Corporate Office, CET & MTI	2.00
1.10.1	Continuing Schemes	18.00
1.10.2	Modernisation & New Schemes	5.00
1.10.3	Township and other programmes	5.00
1.11	Visvesvaraya Iron & Steel Company Limited	8.00
1.11.1	Continuing Schemes	51.24
1.11.2	Modernisation and New Schemes	1.24
1 A	Steel Authority of India Ltd.	50.00
1.A.1	Continuing Schemes	
1.A.2	Replacement & Renewals	
1.A.3	Modernisation & New Schemes	
1.A.4	Township and other programmes	
	Total	3575.68
		1575.68
		607.00
		1343.00
		50.00

		(Rs. in crores)
S. No.	Name of the Undertaking	7th Plan (1985-90) Outlay
1.	2.	3
1.12	RASHTRIYA ISPAT NIGAM LIMITED	2500.00
1.12.1	Continuing Schemes	2500.00
1.13	SPONGE IRON INDIA LIMITED	31.30
1.13.1	Continuing Schemes	1.80
1.13.2	Replacement & Renewals	5.00
1.13.3	Modernisation and New Schemes	25.00
1.14	METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED	8.00
1.14.1	Continuing Schemes	3.00
1.14.2	New Schemes	5.00
1.15	HINDUSTAN STEELWORKS CONSTRUCTION LIMITED	24.66
1.15.1	Continuing Schemes	14.66
1.15.2	Replacement & Renewals	10.00
1.16	BHARAT REFRACTORIES LIMITED	45.99
1.16.1	Continuing Schemes	5.99
1.16.2	Replacement & Renewals	25.00
1.16.3	Modernisation & New Schemes	15.00
1.17	METAL SCRAP TRADING CORPORATION (Modernisation and New Schemes)	10.00
1.18	New Steel Plants	10.00
1.19	Loan to State Governments for Tenughat & Mahanadi	14.00
B.	FERROUS MINERALS	
1.20	NATIONAL MINERAL DEVELOPMENT CORPN.	145.30
1.20.1	Continuing Schemes	39.80
1.20.2	Replacement & Renewals	45.00
1.20.3	Modernisation & New Schemes	54.00
1.20.4	Township and other programmes	6.50
1.21	KUDREMUKH IRON ORE CO. LTD.	18.45
1.21.1	Continuing Schemes	16.45
1.21.2	Replacement & Renewals	2.00
1.22	MANGANESE ORE (INDIA) LIMITED	18.80
1.22.1	Continuing Schemes	0.30
1.22.2	Replacement & Renewals	8.00
1.22.3	Modernisation & New Schemes	8.00
1.22.4	Township and other programmes	2.50
1.23	MINERAL DEVELOPMENT BOARD	5.00
1.23.1	Modernisation & New Schemes	5.00
1.24	Loans to Karnataka for Water Supplies	12.45
1.B.	TOTAL-FERROUS MINERALS	200.00
	GRAND TOTAL-DEPARTMENT OF STEEL	6420.13



VI

The Private Sector

Tata Iron and Steel Company

1.1 Tata Iron and Steel Company Limited (TISCO), the only integrated steel plant in the private sector, is the oldest plant in the country and consists of an integrated steel plant at Jamshedpur, captive collieries at Sijua, Jamadoba and West Bokaro and an iron ore mine at Noamundi in Bihar. M/s. TISCO embarked on a modernisation programme in 1980 and in the first phase of modernisation, the major units (L.D. plant, Oxygen plant and Lime Calcinating plant) were commissioned, during March, 1983. With the commissioning of these units, the annual installed capacity has increased to 2.16 million tonnes of ingot steel and 1.74 million tonnes of saleable steel.

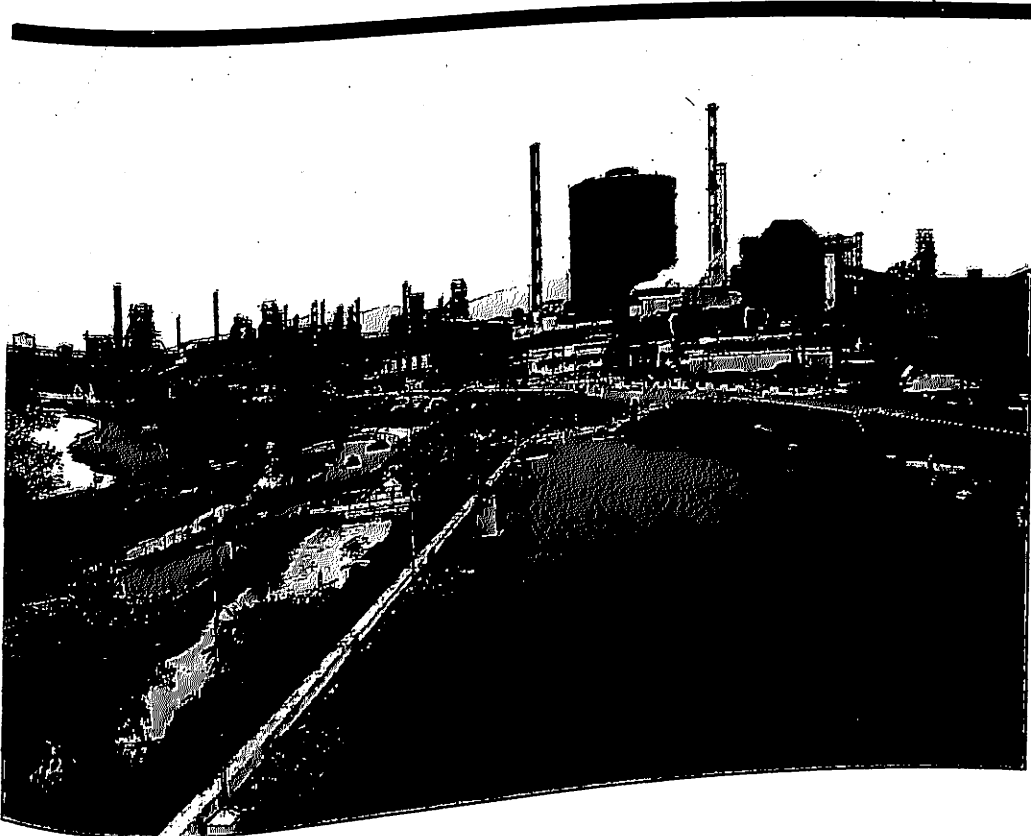
Production

1.2 Output from units installed under Phase 1 of Modernisation programme—LD, Continuous Caster and Bar Forge Plant has stabilised. VADR Unit operation has been constrained due to power shortage. Use of low ash imported coal of 1,81,000 tonnes up to end January, has helped in sustaining

the production. Production performance for the first nine months and ten months are as under:

	Hot Metal	Crude Steel	Saleable Steel
April-December	12,62,490	15,13,524	12,64,966
April-January	14,35,220	17,17,856	14,35,438

It is expected that total Crude Steel production for the year will be 2.08 million tonnes and Gross Saleable Steel 1.77 million tonnes. The production plan, subject to assured supply of inputs for 1986-87 envisages 20,00,000 tonnes Hot Metal, 21,60,000 tonnes crude steel and 17,40,000 tonnes Gross Saleable steel. Import of 350,000 tonnes of low ash coking Coal are being planned for attaining above targets. Despite sustained production tempo, overall work costs have gone up by 11%, compared to previous year and substantial part of this is due to escalation in input costs. A part of these increases has been compensated by vigorous cost control measures—particularly in the areas of energy consumption, inventories, process fields, and waste utilisation.



Pan view of TISCO

Financial performance

1.3 TISCO has reported a profit of Rs. 68.50 crores (before tax) for April to September 1985 as against a profit of Rs. 19.12 crores (before tax) for the corresponding period of 1984. The figures of profit before tax for the half year ended 30.9.1985 and 30.9.1984 are not comparable because the first price increase was sanctioned by the Joint Plant Committee in June 1984 and the second only in February 1985. These price increases are partly offset by cost escalations during the first half year of the current year. With the completion of all the legal formalities as on 1st October, 1985 the Indian Tube Company has merged with the Company and become the Tube Division of the company. The working of the Division will be reflected in the final accounts for the year ending 31st March, 1986.

Modernisation

1.4 Effective steps have been taken for implementation of Phase II of modernisation programme, which has been approved by Government. A major feature of this programme is the 1.37 mtpa capacity Sinter Plant. Civil Engineering work at site has commenced with soil investigation.

Considerable progress has been made on the 300,000 tpa bar and rod Mill which is scheduled for commissioning early March 1987. For waste recycling plant, Technical collaboration agreement for know how/engineering has been approved, import licence obtained and order placed. All civil and structural work have been essentially completed. The project is scheduled for commissioning by June 1986.

The above highlights the progress on major projects under modernisation phase II.



L.D. Converter at TISCO

Workers Participation/Industrial Relations

1.5 Harmonious industrial relations have been a tradition with TISCO. Such an atmosphere has been considerably aided by workers' participation through 41 joint departmental councils established in almost all areas.

1.6 Safety Measures

Safety measures receive priority attention at TISCO. Notable features are special safety campaigns, recognition/awards for good 'safety performances', propagation by safety dramas, striking hoardings etc. Expenditure on safety appliances every year exceeds Rs. 1.5 crores.

1.7 Energy Management

Scarce energy resources and their spiralling costs dictate rigid conservation measures by Major Industries imperative, and particularly for Indian Integrated Steel Plants, where energy costs account for nearly 30% of total steel costs. At Tata Steel, Energy conservation by optimal management has always received priority. An intensified programme during the last decade has resulted in significant reduction of specific overall fuel rate (consumption) by as much as 15% from 13.17 m.k. cal/tonne in 1975-76 to 11.15 m.k. cal/tonne in 1984-85. This has been possible due to a well drawn out systematic energy plan. Substantial investments, about Rs. 33 crores, have been planned in the next five years on priority projects aimed at Energy Conservation. The target aimed is to maintain an annual rate of reduction of 2% and bring the specific energy consumption below 10 m.k cal/tonne of saleable steel.

Electric Arc Furnace Units

2.1 The electric arc furnace units or mini steel plants continued to play an important role in the production of steel in the country. While the integrated steel plants produced mild steel in bulk quantities, electric arc furnace units also produced alloy, special and stainless steels in addition to mild steel in tailor-made qualities.

2.2 At present 164 units have been issued industrial/COB licences with a total capacity of 4.73 million tonnes. Of these 159 units have already been commissioned and are in commercial production with a total capacity of 4.7 million tonnes. In addition 33 more units with a capacity of 1.26 million tonnes have been given letters of intent. Besides there are about 50 electric arc furnace units under the Directorate General of Technical Development having industrial/COB licences for manufacturing steel castings. These units also produce some quantity of steel ingots by way of diversification. The production of working units who are reporting their production to the Iron & Steel Controller is shown below for the last 3 years.

Production of Steel Items during 1982-83 to 1985-86 (April-Jan. 86)

Year	(in '000 tonnes)			
	Mild Steel	Medium/High Carbon	Alloy Steel	Total
1982-83	1590	276	368	2234
1983-84	1674	368	382	2424
1984-85	1620	321	389	2330
1985-86 (April-Jan.)	1641	226	286	2153
1985-86 (Estimated).	2092	311	397	2800

2.3 Due to inadequate availability of power and other constraints the average capacity utilisation of the working electric arc furnace units varied between 65 to 100%. Efforts were made to make available raw material in adequate quantities to enable these units to produce more during the current year. Further, in order to improve the economic viability of these units Government have taken the following measures:

- Electric Arc Furnace Units which have achieved consistently 80% production of their licensed capacity during any of the previous 2 years are being considered for substantial expansion upto a maximum 100% of their existing licensed capacity and those who have achieved 100% production they are considered for substantial expansion upto 150%.

- The existing Electric Furnace Units are permitted to freely diversify into production of all grades of carbon and alloy steel including stainless steel/heat resisting steel upto their licensed capacity.
- The existing Electric Arc Furnace Units are being permitted to instal captive rolling mills with a view to encourage formation of composite units and to improve economic viability provided the interest of small scale units in that region are not affected.
- These Electric Arc Furnace Units are also allowed to instal balancing facilities like continuous casting machine and other conditioning facilities.

2.4 It is expected that the capacity utilisation of electric arc furnace units will improve further and they will be able to achieve a production of about 3.6 million tonnes during the year 1986-87 subject to availability of power in adequate quantities.

Re-Rolling Industry

3.1 A large capacity for rolling of finished steel, mainly bars and rods, exists in the private sector in the country. A technical committee set up by the Department of Steel assessed in 1980 the capacities of 1061 re-rolling mills as 20.68 million tonnes per year. Most of these units were in small scale sector. In order to regulate further growth of steel re-rolling industry, it was decided to bring it under licensing policy. As per Government of India Notification dated 18.8.81 all steel re-rolling mills in small, medium and large scale sector must obtain an industrial/COB licence. About 1358 applications have been received against this notification and 795 units have already been issued COB licences. Actual production of working units who are reporting their production to Iron & Steel Controller is shown below for the last three years.

Production of Steel Items during 1982-83 to 1985-86 (April-Dec. 85).

Year	(in '000 tonnes)	
	Rolled Products	
1982-83	1630	
1983-84	1852	
1984-85	2136	
1985-86 (April-Dec. 85)	1704	

It would be seen that though the installed capacity of this sector is very high, capacity utilisation is only about 20%.

Steel Wire Drawing Industry

4.1 There are 72 Steel Wire Drawing Units in the medium and large scale sector with a licensed capacity of 0.87 million tonnes per year. In addition to this, about 600 units are reported to be in existence in the small scale sector having an estimated installed capacity of about 0.8 million tonnes. The production of steel wire drawing units in the organised sector who are reporting production to the Iron & Steel Controller is shown below.

Production of Wire Drawing Units during 1982-83 to 1985-86 (April to Dec. 85).

in '000 tonnes

Year	Mild Steel	Medium/High Carbon Steel	Alloy Steel	Stainless Steel	Total
1982-83	202.4	79.4	34.9	0.9	317.6
1983-84	153.3	111.2	8.1	1.3	273.9
1984-85	163.1	120.3	7.2	1.5	292.1
1985-86 (April-Dec. 85)	95.6	72.0	3.8	0.9	172.3



4.2 In order to develop this industry Government have taken the following measures:

- Import of carbon, alloy and stainless steel wires of all sizes have been restricted to encourage indigenous production.
- Diversification in production of all grades of carbon, alloy and stainless steel wires except for mild steel wires of sizes thicker than 12 SWG has been allowed to the existing units.

Narrow Cold Rolled Steel Strip Manufacturing Industry

5.1 There are 59 Narrow Cold Rolled Steel Strip Manufacturing Units in organised sector with a licensed capacity of around 1 million tonnes per year. Due to some scarcity in availability of HR coils production of some of the units have suffered. However, arrangements have been made for import

of HR coils to improve the availability of raw material. In order to give more flexibility in production and also for improving economic viability Government have allowed the existing units to diversify freely into production of all grades of carbon and alloy steel including stainless steel strip with indigenous raw material. Production of Cold Rolled Steel Strip Units in the organised sector reporting production to Iron & Steel Controller during the last 3 years is shown below:

Production of Cold Rolling Units during 1982-83 to 1985-86 (April-Dec. 85)

(in tonnes)

Year	Mild Steel	Medium Carbon Steel	High Carbon Steel	Alloy Steel	Stainless Steel	Total
1982-83	113,809	9,781	5,025	275	7,183	136,073
1983-84	130,319	9,739	5,257	741	8,494	154,550
1984-85	152,504	10,348	7,382	472	17,124	187,830
1985-86 (April-Dec. 85)	114,513	5,959	5,427	255	7,166	133,320

Hot Rolled Strips Units

5.2 There are 3 units with a licensed capacity of 0.11 million tonnes in the organised sector. besides, 23 more units have been issued letters of intent with a total capacity of 1.12 million tonnes.

7.3 Production of electrolytic tinplates of the 2 units in the private sector during the last 3 years is shown below.

Production of Tinplate during 1982-83 to 1985-86 (April-Dec. 85).

(in '000 tonnes)

Year	Oil Can Size	Non Oil Can Size	Total
1982-83	30.8	23.5	54.3
1983-84	41.8	28.6	70.4
1984-85	42.6	23.5	66.1
1985-86 (April-Dec. 85)	26.6	21.8	48.4

GP/GC/Zinc-Aluminium Coated Sheets

6.1 16 units have been granted industrial licenses/letters of intent with a total capacity of 5.65 lakhs for the production of GP/GC sheets. Out of these, one unit has already started commercial production. 3 others are expected to go in for the commercial production shortly. Rest are at various stages of implementation.

6.2 3 units with a total capacity of 2,00,000 tonnes have been issued letters of intent for the manufacture of Galvalume.

Sponge Iron Industry

8.1 In order to supplement availability of steel melting scrap sponge iron is being encouraged to be used in Electric Arc Furnace as main input raw material. In granting new industrial licenses for mini steel plants it has been enjoined on them to have facilities to be able to use sponge iron upto 70% of their feed stock. At present, 50 units have been issued industrial licence/letter of intent/registration with a total capacity of 6.98 million tonnes. Most of these units are based on non-coking coal. Out of these, 2 units including Sponge Iron India Ltd. having a licensed capacity of 0.36 million tonnes have already started commercial production. Another unit with a capacity of 0.09 million tonnes is likely to start production very

Tinplate Industry

7.1 Besides Rourkela Steel Plant, there are 2 more units in the private sector for production of tinplates. Total capacity of these 3 units is 0.3 million tonnes of electrolytic tinplates per year. All these units use imported Tin Mill Black Plate as the raw material.

7.2 To help the indigenous industry to become commercially viable TMBP are allowed to be imported under concessional rate of import duty of 50%. As this concession is given on a piecemeal basis production of the industry as a whole is suffering badly.

soon. Actual production of these 2 units during the last 3 years is shown below.

Production of Sponge Iron during 1983-84 to 1985-86 (April 85-Jan. 86)
(in '000 tonnes)

Year	Production
1983-84	50.3
1984-85	76.2
1985-86 (April-Jan. 86)	59.8

Pig Iron

9.1 In addition to integrated steel plants, 3 units have been given industrial licences with a capacity of 0.21 million tonnes. In addition one more unit has been given a letter of intent with a capacity of 0.15 million tonnes.

Production of Ferro-Alloys during 1982-83 to 1985-86 (April-Dec. 85).

Year	Ferro Manganese	Silico Manganese	Ferro Silicon	Ferro Chrome	Charge Chrome	Silico Chrome	Others	Total
1982-83	167,080	3,522	40,805	39,800	—	—	—	255,463
1983-84	153,556	2,763	47,267	33,155	25,536	3,831	425	265,050
1984-85	121,829	31,897	50,892	23,876	31,702	2,464	309	264,282
1985-86 (April-Dec. 85)	122,234	931	19,987	18,178	25,560	3,802	284	190,548

9.2 Production of pig iron in the private sector during the last 3 years is shown below.

Production of Pig Iron During 1982-83 to 1985-86 (April-Sept. 85).
(in '000 tonnes).

Year	Production
1982-83	81.7
1983-84	74.9
1984-85	64.2
1985-86 (April-Sept. 85)	38.2

Ferro Alloys

10.1 At present there are 24 units with a total capacity of 0.6 million tonnes per year. Besides these units in the organised sector, there are many units in small scale sector who produce low carbon ferro alloy such as ferro molybdenum, ferro vanadium, ferro columbidum ferro titanium etc. through aluminio thermic Process. Production of different ferro alloys working units who are submitting production returns to Iron and Steel Controller for last 3 years is shown below:

VII Research and Development in the Indian Steel Industry

1.0 Research and development is essential for industrial development of a particular technology involving basic and applied industrial research and subsequent commercialisation of technology. This is called the R&D cycle.

To meet the basic R&D objectives of the steel sector for technology upgradation, Research and Development Centre for Iron and Steel, Ranchi, Steel Authority of India Ltd. has been created as a nucleus for giving thrust both on concerted R&D efforts following conventional R&D cycle, as well as on selective importation of technologies for fast modernisation of steel plants and updating of technology.

For supporting and monitoring research and development projects of R&D centre namely programming of R&D activities, monitoring of projects, financing and administration of R&D centres, Programming Committee has been constituted with Chairman SAIL as the ex-officio Chairman of the Committee along with representatives from different SAIL plants, Planning Commission, Department of Steel and Department of Science & Technology.

In order to foster closer ties and cooperative understanding between various units of C.S.I.R. and SAIL in the field of research and development in steel and allied sectors, a joint working group in the form of a SAIL-C.S.I.R. Committee has been set up with Chairman, SAIL as the Chairman of the committee along with representatives from C.S.I.R., SAIL, Department of Mines, MECON, Mineral Development Board and Planning Commission.

A Science Advisory Committee has also been constituted in the Department of Steel with Scientific Advisor to the Defence Minister as the Chairman along with members from Department of Steel, C.S.I.R., SAIL, Research and Development Centre for Iron and Steel, MECON, Planning Commission as well as from different research institutes/laboratories. The Science Advisory Committee advises the Ministry in evolving its short and long term strategies for research and development.

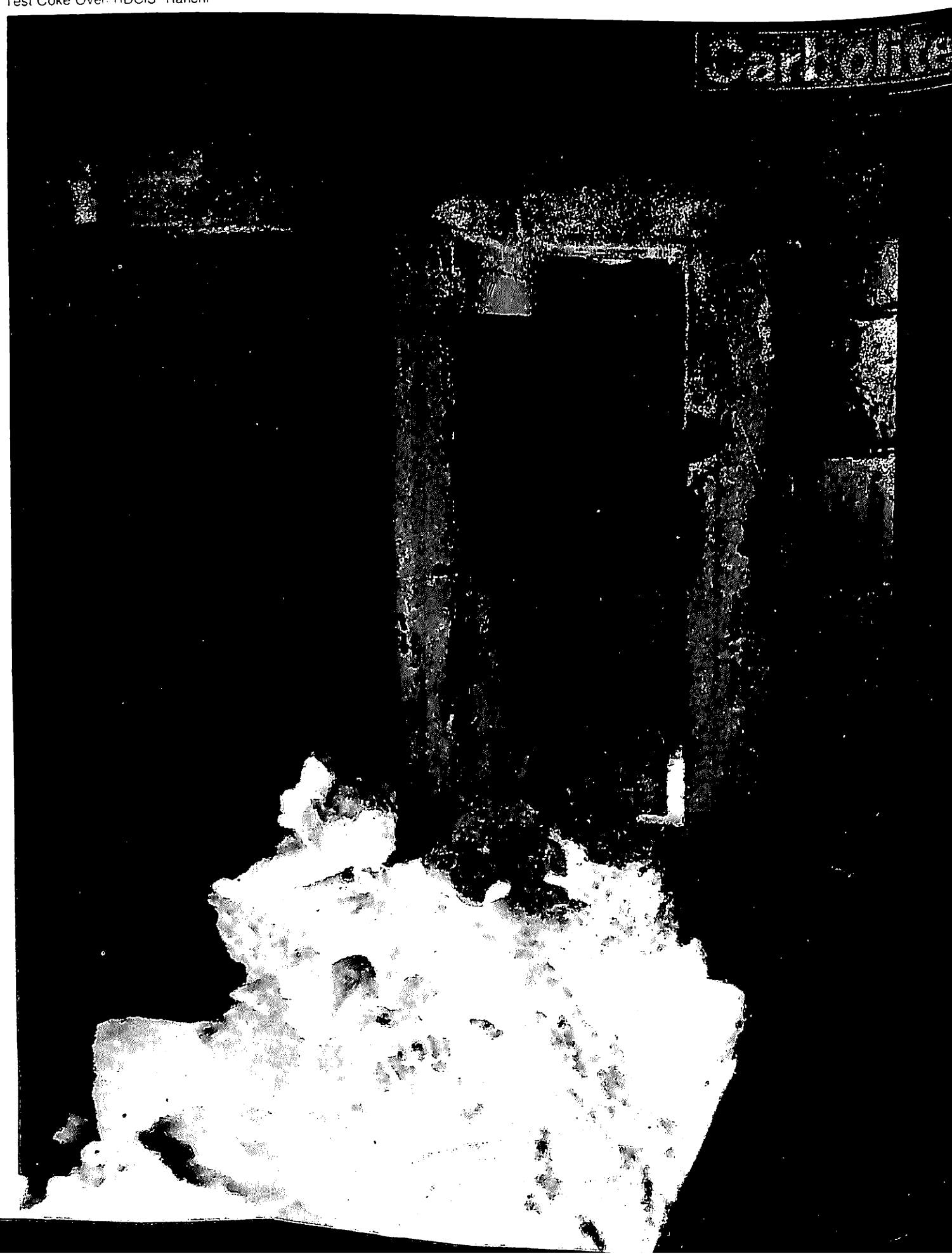
2.0 In pursuance of R&D plan and national priorities for various sectors including iron and steel, Research & Development Centre of SAIL, at Ranchi has made rapid strides. It has been able to develop expertise for optimisation of technological and economic parameters for improved performance of steel plants. It has a large number of highly qualified and motivated research scientists and engineers to pursue, complete and assist in implementing various research and development programmes.

Total no. of projects taken up vis-a-vis completed during the last three years are as under:

Items	1982-83	1983-84	1984-85	1985-86 (up to Dec., '85)
Projects taken up	62	56	56	82
Projects completed	20	18	23	20

As on 10.12.85, R&D Centre had been pursuing 339 projects/assignments, category-wise break-up of such projects in hand as well as total no. of projects completed and implemented are as follows:

As on 10.12.85	
(A) Running Projects	
i) In-house projects	299
ii) Indo-Soviet Collaboration projects	15
iii) SAIL-CSIR Interaction Projects	22
iv) UNDP assisted projects	3
Total	339
(B) Completed projects	106
(C) Implemented projects	22
(D) Projects under implementation	32
(E) Projects to be taken for implementation	18



Expected economic benefits of R&D projects are indicated as under:

Implemented projects	Rs. 10.5 crore/year
Projects under implementation	Rs. 19.7 crore/year
Projects to be implemented	Rs. 10.7 crore/year

3.0 Building & Laboratory Complex for R&D Centre at Ranchi has started functioning and is expected to become fully operational by middle of 1986. The Laboratory Complex comprises 18 sectional laboratories having modern and sophisticated equipment.

4.0 In order to have easy access to timely, reliable and precise information, a modern Information & Documentation Centre has been set up followed by a large data base computer which is being installed in the first half of January, 1986. The main application of the computer system would be towards computerised information and documentation system for the steel industry, and will also cater to the increased complexity of engineering and scientific computation which are critical for effective research & development activities.

5.0 Some of the important projects taken up by R&D Centre and implemented in the steel plants of SAIL are: development of optimum thermal and oxygen lancing regime for open hearth furnace at BSP, development of SAIL-MA sections at Durgapur Steel Plant and Bhilai Steel Plant, improvement of soaking pit productivity using ceramic fibre sealing system at BSL, improvement in Blooming Mill yield at DSP, modified checker system of open hearth furnaces at RSP, improvement in the yield of coke oven gas at RSP etc. Similarly, in the area of projects already under implementation, mention may be made of the projects on lime dust injection through tuyeres of blast furnace at DSP, improvement in dephosphorisation in Electric Arc Furnace (EAF) at ASP, extraction of IC resin including commercial scale extraction trials at BSP, development of steel making technology with increased proportion of hot metal at IISCO, development of non-ageing aluminium killed EDO steel by special deoxidation technique at BSL, development of basic refractories for LD converters at BSL, roll lubrication in Hot Strip Mill at BSL, reduction in secondary scaling at Wire Rod Mill of BSP, controller for close laying of coils at BSP, improving fuel consumption efficiency for soaking pits and reheating furnaces by oxygen enrichment at DSP, yield improvement in SAIL-MA steel plates at RSP, development of weld-wire for spirally welded pipes at RSP, development of argon purging technique for inclusion control at ASP, etc. Similarly, a number of projects are to be taken-up for implementation, such as, investigation and improvement of rail production technology out of semi-killed steel at BSP, oxygen assisted melting in EAF at ASP, improving burning rate of coal in M.T. Boilers at RSP, etc.

6.0 Status of certain capital intensive and other running projects taken-up by the Centre is furnished below:

The coal dust injection unit was inaugurated by the Minister of Steel on 13.1.1985 at Bhilai Steel Plant. More than 458 tonnes of coal dust has been injected with a maximum injection rate of 20 kg/t. Efforts are being made to increase the coal dust injection in stages so that the plant can be operated at higher capacity. Work is in progress for the installation of lime dust injection plant at DSP. For setting up of experimental furnace at RSP, the contract was awarded for construction of the furnace. Receipt of equipment at the site is in progress. A 10t/shift pilot plant for production of cold bonded pellets having a pelletisation disc, Muller Mixer with necessary electric and water supply systems have been installed and the unit was commissioned on 27.2.1985. Regular production has commenced from March, 1985. Initial phase of the trial with partial substitution of ore by pellets has indicated improvement in hot metal production alongwith decrease in coke and flux rates. R&D Centre has also been successful in the development of rail production technology through LD concast route at BSP. Test results obtained so far satisfy the requirements as per Railway's specification. Similarly, development of high alumina porous plug as an import substitution item has been taken up by R&D Centre at Rourkela Steel Plant. As an outcome of this successful development, BHEL has agreed to place a trial order with M/s IFICO where such plugs have been developed by R&D.

7.0 The Direct Reduction Sponge Iron Pilot Plant (DRPD) has conducted series of production campaigns. The 20th campaign ended on 24th September, 1985 after completing 60 days of continuous operation. About 270 tonnes of sponge iron produced in the pilot plant have been despatched to BSL for establishing the extent of scrap substitution in the LD converter under a SAIL-CSIR programme.

8.0 Under SAIL-CSIR interaction programme, projects on reclassification of coking coal and column flotation technique have been completed. A number of new projects have been identified under the SAIL-CSIR interaction programme.

9.0 With the receipt of approval of Govt. of India, a new agreement between R&D Centre, SAIL and V/O Tiajpromexport, USSR for next five years has come into force. A salient feature of this new agreement is that collaborative research activities have been extended to all the public sector plants in India. The collaboration provides for training of R&D engineers in USSR and deputation of Soviet experts in India to pursue various research projects. A licence agreement for obtaining know-how and supply of equipment from USSR for Flame gunning technology has been approved by Govt. of India. Introduction of this technology at BSL is envisaged in the first

instance to improve the LD lining life. Apart from this collaboration, a protocol for rated capacity production of Bokaro Steel Plant and Bhilai Steel Plant has been signed and accordingly action plans involving R&D interaction have been prepared.

10.0 With the major aim of enhancing the productivity and reducing fuel consumption in the open hearth furnaces, M/s KORTEC, Switzerland have agreed to licence their technology to SAIL. This technology will be introduced in the open hearth furnaces at RSP, IISCO and TISCO.

11.0 SAIL has entered into a collaboration agreement with NKK, Japan for technology upgradation on steel plants at Durgapur, Rourkela and Burnpur through participative research. R&D Centre has been identified as the main coordinating agency from the Indian side.

12.0 R&D Centre has undertaken collaborative research under five themes in the domain of sponge iron making and product development with National Science Foundation, USA.

13.0 Among the new technologies for iron-making, taking into consideration the present state of development, KR and INRED processes appear to be attractive in the Indian context. Indian raw-materials have already been despatched at KR plant site at Kehl, West Germany to conduct tests for the suitability of Indian raw-materials. Necessary agreement with M/s Voest Alpine is to be concluded for technology transfer and grant of exclusive licence on KR process at a cost of 180 million ATS. Similarly, budgetary offer for an 8 tph INRED pilot plant has been received from M/s Boliden, Sweden.

14.0 M/s Sumitomo Metals Ltd, Japan and M/s KHD, West Germany have jointly developed a new technology of coal gasification using molten iron bath as the medium for gasification. This process is called Molten Iron Pure Gas (MIP) process which is capable of producing coal gas having high reduction potential as well as fairly high calorific value using non-coking coal of high ash content. R&D Centre alongwith M/s Sumitomo, Japan and KHD, West Germany are presently conducting a joint-techno-economic feasibility study on introduction of this new technology in India.

15.0 In compliance with a request from M/s Mandovi Pellets Ltd., Goa, R&D Centre undertook a study on techno-economic feasibility of use of pellets in B.F. of SAIL steel plants. The study report shows that the use of pellets in blast furnaces provides an opportunity to improve the techno-economic performance of blast furnaces. Trials are envisaged in a smaller blast furnace of BSP to confirm the findings of the study. This will help to take a decision about the shifting of the pellet plant in Goa to a suitable site near to the steel plants.

16.0 In order to facilitate a concerted effort in the development of science & technology in the iron & steel industry and to advise on the initiatives that should be taken, as Science Advisory Committee was formed in September, 1984. The terms of reference of the Committee are as follows:

- i) To examine all aspects of science and technology in the iron and steel manufacturing industry (including the preparation of raw materials).
- ii) To advise the Minister of Steel on the:
 - a) policies and programmes that should be pursued in developing domestic capabilities in scientific and technological research;
 - b) the development of design engineering to achieve scientific excellence;
 - c) research in the iron and steel processes and products, and
- iii) To review the progress of science and technology programmes of National importance in the iron and steel industry.

The Committee has already met four times since its constitution. The Committee has so far deliberated on various issues related to the technology upgradation of steel industry. It has also identified some top priority technology inputs for import, assimilation as well as indigenous development in the area of coal and coke, beneficiation of coal, raw materials and agglomeration, blast furnace, steel making and casting, rolling mill, emerging technologies for iron making and thermal engineering.

17.0 At the instance of Government of Maharashtra through Department of Steel, it has been agreed to take over Maharashtra Elektrosmet Limited. This will be under the overall control of R&D Centre, Ranchi, for effective utilization of MEL facilities for R&D activities.

18.0 R&D Centre has identified different priority schemes to be taken up during the Seventh Five-Year Plan.

VIII

Organisational structure of the Department of Steel

1.1 The Department of Steel has a Secretary, four Joint Secretaries, five Directors, three Deputy Secretaries, seven Under Secretaries. One Senior Analyst and one Deputy Controller of Accounts. The Department of Steel also shares with the Department of Mines A Financial Adviser of the status of Additional Secretary and a Controller of Accounts of the rank of Director. A technical wing consisting of an Industrial Adviser, four Development Officers and three Assistant Development Officers assists and advises the Department on technical matters. The total strength of the secretariat of the Department is 316. A list of items of work allocated to the Department of steel is given at page 76

1.2 One of the Joint Secretaries in the Department of steel also functions as the Chief Vigilance Officer of the Department. Vigilance cases of employees of

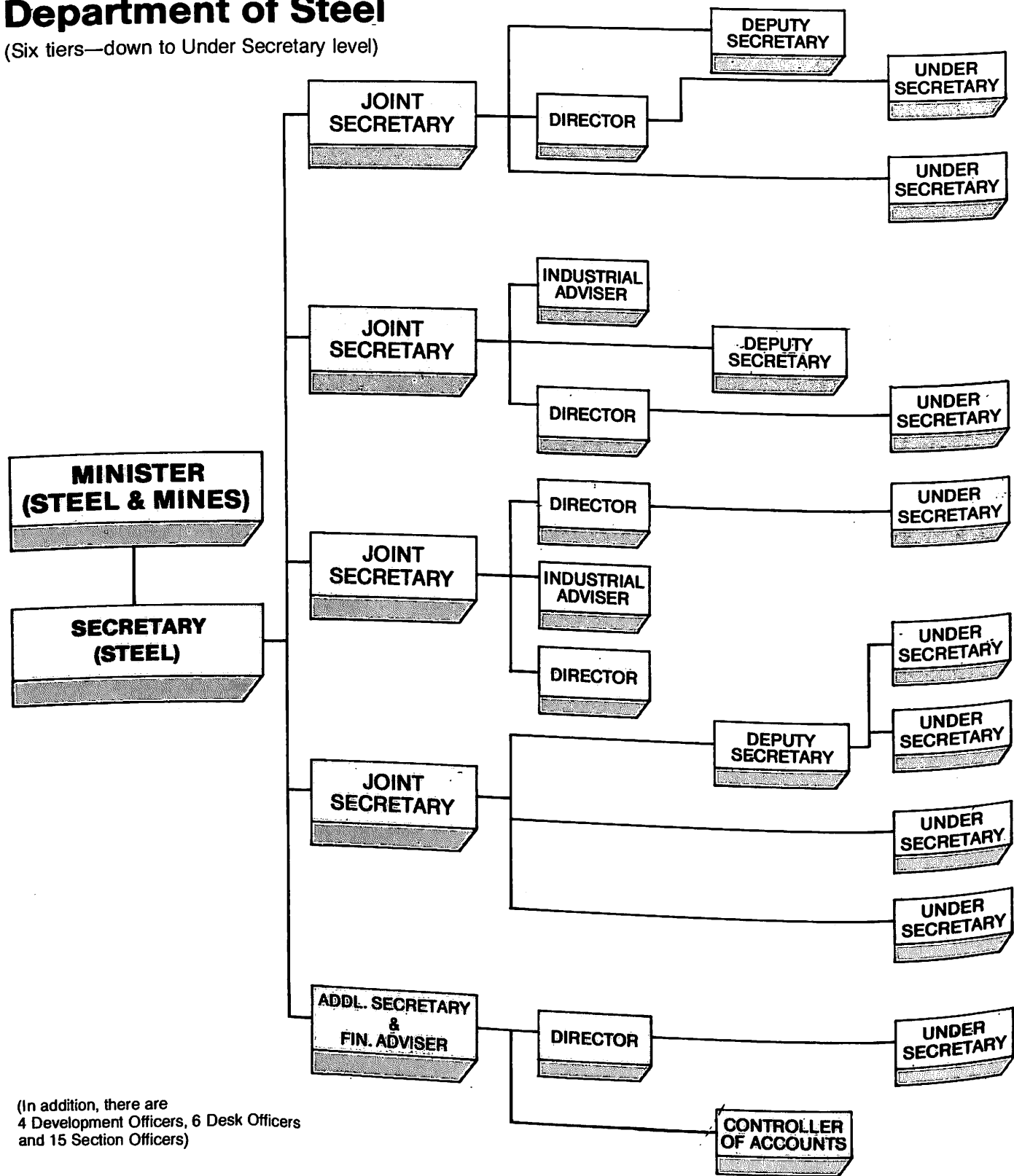
the Department of Steel are handled in Vigilance Unit. Vigilance cases of the Public Sector Undertakings under the Department are handled by the undertaking themselves. Vigilance inspections of the offices of the Iron and Steel Controller and Regional Iron and Steel Controllers are conducted by the Department from time to time. One of the Deputy Secretaries in the Department acts as the Liaison Officers for watching the interest of Scheduled Caste and Scheduled Tribe employees in service matters. One of the Under Secretaries functions as the Welfare Officer of the Department. There is a Complaint Cell set up in the Department which functions as the nodal point for receipt and redressal of all complaints/grievances received from public. An officer of the rank of Under Secretary has been nominated as the Complaint Officer.

List of Public Sector Undertakings under the Department of Steel

1. **Steel Authority of India Limited,**
Ispat Bhavan, Lodi Road,
New Delhi-110003.
2. **Metallurgical & Engineering Consultants (India) Limited,**
MECON Building
Ranchi-834002
Bihar.
3. **National Mineral Development Corporation Limited,**
Pioneer House, Somajiguda,
Post Box No. 25 & 53,
Hyderabad-500004.
4. **Bharat Refractories Limited,**
Sector IV-3-Quarter No. 56,
Bokaro Steel City-827001
Bihar.
5. **Kudremukh Iron Ore Co. Ltd.**
11 Block Koramangala
Bangalore-560034.
6. **Manganese Ore (India) Ltd.,**
3, Mount Road Extension,
Nagpur-440001.
7. **Hindustan Steel Works Construction Ltd.,**
No. 1 Shakespeare Sarani, (8th Floor)
Calcutta-700071.
8. **Sponge Iron India Limited,**
NMDC Complex, 'KHANIJ BHAWAN'
10-3-311/A Castle Hills
Hyderabad-500028.
9. **Rashtriya Ispat Nigam Limited**
Project Office 'A' Block
Visakhapatnam-530031 (AP)
10. **Neelachal Ispat Nigam Limited**
IPICOL HOUSE (4th Floor)
Bhubaneswar-751007.
11. **Metal Scrap Trade Corporation**
225 F, Acharya Jagdish Bose Road,
Calcutta-700020.
12. **Vijayanagar Steel Limited**
Sankaranarayana Building, 2nd Floor,
25 Mahatma Gandhi Marg,
Bangalore-560001.
13. **Ferro Scrap Nigam Limited,**
Post Box No. 73,
Jamshedpur 831001.
14. **India Fire Bricks and Insulation Company Limited,**
Rly. Station Ranchi Road
P.O. Marar-820177
District Hazaribagh (Bihar)
15. **Indian Iron and Steel Co. Limited**
Burnpur-713325.
16. **IISCO Stanton Pipe and Foundry Co. Ltd.,**
IISCO House, 50 Chowranghee
Calcutta-700071.

Organisational chart of the Department of Steel

(Six tiers—down to Under Secretary level)



(In addition, there are 4 Development Officers, 6 Desk Officers and 15 Section Officers)

1.3 In keeping with the special emphasis being laid by the Prime Minister on the launching of an ideological battle against communalism, the Minister for Steel and Mines held a meeting of all Officers of the Department of Steel in celebration of the "Quami Ekta Week." In this meeting held on 21.11.1985, all the employees took the pledge to work towards the strengthening of the freedom and integrity of the nation.

1.4 The Department of Steel has sixteen Public Sector Undertakings under its administrative control, as listed on the previous page. There is also a Mineral Development Board which is a registered society with a responsibility for formulating plans for the development of strategic minerals.

1.5 The Department of Steel has one attached office, viz., the office of the Iron and Steel Controller at Calcutta. The Iron and Steel Controller, who is of the status of a Joint Secretary, is assisted by two Joint controllers, four Deputy Controllers, Seven Assistant Controllers, One Industrial Adviser, two Development Officers and one Assistant Development Officer in the Head Office. Besides, there is a Hindi Officer to implement the provisions of the official language Act. There are six regional offices with Regional Iron and Steel Controllers at Bombay, Calcutta, Hyderabad, Madras and New Delhi.

1.6 The Organisation is vigilant about the effective implementation of the Official Language, Hindi. 5 days' Hindi workshop was organised from 11th March, 1985, to 15th March, 1985 for imparting practical training in noting and drafting to the Employees having working knowledge of Hindi to enable them to overcome their hesitation to work in Hindi. Similarly, Hindi Day on 25th September, 1985 was also celebrated for creating awareness regarding progressive use of Hindi among the staff.

Moving toward a more efficient administration

The Prime Minister in his broadcast to the Nation on 5th January, 1985 emphasised the need for improvements in the administrative functioning of Government Departments. In pursuance of these directives, the Department of Steel has taken various steps towards this direction. Some of the major steps are:

Statement showing the number of employees, number of SC/ST, physically handicapped, Ex-servicemen, men & women as on 28.2.1986 in respect of the Secretariat of the Department of Steel.

Groups of Posts.	No. of employees	Men	Women	SC	ST	Physically handicapped	Ex-servicemen
Group 'A'	33	30	3	2	—	—	—
Group 'B'	82	76	6	9	3	—	—
Group 'C'	133	102	31	17	5	1	2
Group 'D'	68	66	2	28	9	1	2
Total	316	274	42	56	17	2	4

An exercise was undertaken by the Department to identify areas where the decision making level could be lowered and where level jumping could be introduced. This was carried out with a view to minimise delays as also to entrust responsibility of decision making to officers at the lower level. As a consequence of this exercise, standing orders for the Department of Steel have been issued which clearly defines the level of decision making, and the channel of submission.

A special drive was initiated from April, 1985 onwards for recording, reviewing, and weeding of files. Upto December, 1985, 8572 files have been recorded as against 4205 for the entire calendar year in 1984. Similarly, 7452 files have been reviewed as against 1692 files during 1984. The number of files weeded out during this period has been 12088 as against 4251 of the previous year. The updating of record management which constitutes an integral part of office management has resulted in the working of the Department becoming more orderly and proper.

For monitoring important cases, a Computer Terminal has been installed in the Department. Under this system all important references are being regularly monitored through the computer. As a result of the introduction of this system, there has been considerable improvement in the disposal of such cases. In addition, an Action Plan for 1984-85 was prepared. This plan covered the—priority issues of the Department of Steel, and laid down a well defined timetable for taking action on these issues. These new systems introduced in the Department have facilitated timely action in major areas.

An exercise was undertaken to review the role and functions of the Iron and Steel Organisation. This was done with the view of formulating a system for liberalising the existing controls and regulations. This review has been completed and the changes are being gradually introduced into the system.

All Recruitment Rules notified by the Department in or prior to 1975 have been reviewed. Necessary amendments are being notified in line with the latest guidelines issued by the Government.

List of items of work allocated to the Department of Steel

1. Steel Plants in the public and private sectors, the rerolling industry and ferro-alloys, including all future developments.
2. Development of iron ore mines in the public sector.
3. Development of other ore mines and mineral processing for the steel plants.
4. Production, distribution, prices, imports and exports of iron and steel and ferro-alloys.
5. Planning, development and control of and assistance to all iron and steel industries.
6. Production, supply, pricing and distribution of iron ore, manganese ore, limestone, sillimanite, kyanite and other minerals and alloys used in steel industry, excluding grant of mining leases or matters connected there with.
7. The Steel Authority of India Limited and its subsidiaries.
8. Matters relating to the following undertakings namely:-
 - i) The Visvesvaraya Iron and Steel Company Limited.
 - ii) The Bolani Ores (India) Limited.
 - iii) The Manganese Ore (India) Limited.
 - iv) The Metals Scrap Trading Corporation.
9. Other Public Sector Enterprises or undertakings falling under the subjects included in this list except such as are specifically allotted to any other Department.
10. All attached or subordinate offices or other organisations concerned with any of the subjects specified in this list.

Staff position statement as on 28.2.1986 of Iron and Steel control organisation.

Category	Total	Male	Female	SC	ST	PH	Ex-serviceman
Gazetted							
Group 'A'	23	23	—	—	—	—	—
Group 'B'	11	11	—	2	—	—	—
Non Gazetted							
Group 'B'	19	19	—	—	—	—	—
Group 'C'	176	144	32	10	—	—	—
Group 'D'	89	83	6	28	7	4	7
Total	318	280	38	23	4	1	2
				67	11	5	9

318
316
634

Progressive use of Hindi

During the year under report, efforts were continued to be made towards the implementation of various provisions of Official Language Act, 1967, Official Language Rules, 1976 and the Annual Programme for the progressive use of Hindi for the year 1985-86.

The work relating to the progressive use of Hindi in the Department of Steel is under the administrative control of a Joint Secretary and Director. A Hindi Section consisting of an Assistant Director (Hindi), a Senior Translator, three Junior Translators, one Hindi Stenographer and two typists assist in this work. 14 Devnagari Typewriters, Help literature, Hindi reading material etc. are available in the Department.

A number of measures are being taken for the promotion of progressive use of Hindi in the Department, its attached offices and the public sector Undertakings under the administrative control of the Department of Steel. These measures are:—

(i) Implementation of Section 3(3)

In pursuance of the language policy of the Govt. both Hindi and English are being used for agreements, contracts etc. Most of the standard forms in use in the Department have already been translated into Hindi. As far as possible, all general orders are issued both in Hindi and English.

(ii) Noting and Drafting in Hindi

Noting and Drafting in the Hindi Section is done in Hindi. All section of the department have started Hindi. All section of the department have started writing short/routine notes in Hindi. Some officers have also started writing short notes in Hindi; others have been requested to use Hindi to the extent possible so that it may serve as an encouragement to the staff working under them. Efforts are being made to ensure that all communications received in Hindi are replied to in Hindi. As far as possible, originating correspondence with Hindi speaking State is done in Hindi.

(iii) Training of Staff in Hindi/Hindi Typewriting/Hindi Stenography

A time bound programme has been drawn up for imparting training in Hindi/Hindi Typewriting/Hindi Stenography to all the employees for whom in-service training is obligatory.

The position regarding training of Government servants in Hindi/Hindi Typewriting/Hindi Stenography in this Department is as under:—

Hindi Training

Total number of employees (Group A, B & C)	224
Total number of employees possessing requisite Hindi qualification	203
Total number of employees who have passed Prabodh, Praveen and Pragya/intensive Course/Special Departmental Examinations etc.	20
Total number of employees under training	5
Total number of employees yet to be trained	21

II. Hindi typewriting/Hindi Stenography

	Trained	Under training	Yet to be trained
Hindi Typewriting	6	3	31
Hindi Stenography	6	3	36

The officers and staff of the attached offices and Public Sector Undertakings are given training under Hindi Teaching Scheme of the Ministry of Home Affairs, wherever such facilities exist. In other places, employees are encouraged to learn Hindi through correspondence courses conducted by the Central Hindi Directorate and the expenditure incurred on it is borne by the concerned offices. About 2100 employees of Steel Authority of India Ltd. alone have benefitted from this scheme.

(iv) House Journals

All the Public Sector Undertaking under the Administrative control of this Department are publishing their house journals in Hindi also. In addition, Hindi magazines and books are kept in the library.

SAIL have purchased the film 'LEARN DEVNAGARI' which is screened regularly. Lingue Cassettes have also been purchased by SAIL and are made available to the employees on demand.

(v) Inspections

During the year under report, inspections are carried out to assess the implementation of the policy about the progressive use of Hindi. The Hindi Officers of the Public Sector Undertakings also carry out inspections of their various units. In accordance with the orders of the Deptt. of Official Language, an

Inspection Team has also been constituted to see the position of implementation of the provisions of the Official Language Act/Rules in attached offices and the Public Sector Undertakings under the administrative control of the Department. The deficiencies found during the inspection are brought to the notice of the administrative Heads of the concerned offices/under taking and their co-operation is sought to improve the position.

(vi) Committees relating to official language

(a) Official Language Implementation Committee

An Official Language Implementation Committee is functioning in the Department. The committee periodically reviews the progress made in the use of Hindi for official purpose in the Department, its attached and subordinate offices and undertakings and decides on the measures to be taken to accelerate its use. So far 47 meetings of this committee have been held. Similar Committees are also functioning in all offices/undertakings of the Deptt.

(b) Liasion Committee

A small committee consisting of one representative each of the Ministry of Home Affairs (Deptt. of Official Language), the Central Translation Bureau, Legislative Department (Official Language Wing) and this Department has also been set up. This Committee maintains liasion between these translation agencies and help in expeditious disposal of translation work.

(c) Hindi Salahkar Samiti

The Hindi Salahkar Samiti for the Ministry of Steel and Mines was re-constituted on 18th November, 1985. One meeting of this Samiti has been held and the second meeting is likely to be held in the month of May, 1986.

(vii) Competitions

With a view to encourage learning of Hindi by non-Hindi knowing employees, elocution contests/dramas/essay competitions are held every year in Public Sector Undertakings. The number of employees participating in these compettions is increasing every year.

(viii) Rajbhasha Shield/Trophies

In order to encourage the use of Hindi in the working of the Offices/Undertakings under the Deptt. of Steel, it has been decided to award Rajbhasha Shield/Trophies every year to the Undertakings/Offices which are adjudged 1st, 2nd and 3rd. Similarly, the attached offices and the Public Sector Undertakings have their own official Language Implementation Committee to review and monitor the progress of Hindi.

(ix) Notification of the Department and its Offices in the Gazette of India.

The Department has been notified in the Gazette of India on 5.1.78 in terms of Rule 10(4) of the Official Language (Use for Official purpose of the Union)

Rules, 1976. The following offices were notified in the Gazette of India during the current year:—

- 1. National Mineral Development Corporation, New Delhi Branch Office.
- 2. SAIL's (Central Marketing Office) Branch Offices at Bokaro and Patna.

The number of officies notified so far comes to 40.

(x) Glossary of Technical Terms

A glossary of technical terms used in the Steel Industry has been prepared and about 5,000 entries have been finalised so far.

The work regarding the use of Hindi for the quarters ending 31.3.85, 30.6.85, 30.9.85 and 31.12.85 can be seen from the following:—

- (a) Total number of Hindi communication received from anywhere in this dept. 2744
- (b) Total number of communications replied to in Hindi 1498
- (c) Total number of communications replied to in English Nil

Efforts are being made to increase the position regarding originating correspondence in Hindi.

Documents issued both in Hindi & English

	Total in Hindi & English	Number in Hindi	Issued in English
(i) General Orders	249	249	—
(ii) Resolution and Notification	134	134	—
(iii) Administrative & other Reports	1	1	—
(iv) Papers laid before the House of Parliament	—	—	—
(v) Budget Performance of the Deptt. of Steel for the year 1985-86	1	1	—
(vi) Government reviews on the Annual Reports:	15	15	—
(vii) Agenda Notices and Minutes of the meeting of the staff council and Consultative committee.			All Agenda papers and the Minutes of Staff Council and Consulative Committee Meeting were normally issued bilingually.



P.C. Laha, CMD MECON receiving an award from Prime Minister Rajiv Gandhi at Akhil Bharatiya Rajbhasha Sammelan, New Delhi on September 19, 1985.