Budget Section

REPORT 1970-71

GOVERNMENT OF INDIA

MINISTRY OF STEEL AND MINES

(DEPARTMENT OF STEEL)

NEW DELHI

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ORGANISATION

Consequent on the re-organisation of certain Ministries in May, 1971, Department of Steel—to which was allocated the work handled in the erstwhile Ministry of Steel and Heavy Engineering—has now become part of the Ministry of Steel and Mines. This Department deals with steel industry—both in public and in the private sectors—including re-rolling mills, alloy steel and ferro-alloys industry, setting up of new steel plants in the public sector, etc., with the Iron and Steel (Control) Order, 1956, policies in respect of imports/exports of iron and steel; and also deals with some of the Heavy Engineering units in the public sector.

The Department is headed by a Secretary; there are four posts of Joint Secretaries, two Directors, three Deputy Secretaries and seven Under Secretaries. There is a Technical Wing with one Senior Industrial Adviser, an Industrial Adviser, three Development Officers and three Assistant Development Officers. There is also an Economic Wing with an Economic Adviser and an Assistant Economic Adviser.

The Office of the Iron and Steel Controller at Calcutta functions under the administrative control of this Department. The Iron and Steel Controller implements the Iron and Steel (Control) Order, 1956, formulates proposals for import/export policies; he as Chairman of the Joint Plant Committee, supervises the receipt and planned distribution of indents for supply of steel to consumers, with the guidance of the Steel Priority Committee of which the Secretary of the Department is Chairman. The Iron and Steel Controller publishes a monthly bulletin, "The Iron and Steel Control Monthly Bulletin" which gives information regarding production of iron and steel items and other matters of interest to the traders and consumers of iron and steel. The Technical Wing of the Iron and Steel Controller's Office has one post of Industrial Adviser, two posts of Development Officers and two posts of Assistant Development Officers. The Technical Wing renders advice to the Iron & Steel Controller with regard to production and distribution of indigenous steel and issue of essentiality certificates for import of raw materials, equipment, components and spares for the operation and maintenance of secondary steel producing units etc.

Most of the work relating to departmental action against persons concerned, undertaken on the recommendations of the Committee of Inquiry (Steel Transactions), has been completed by the Inquiry Cell headed by a Special Secretary. The remaining work is expected to be completed shortly.

The following public sector undertakings function under the administrative control of this Department :—

(*i*) Hindustan Steel Limited, Ranchi (Bihar).

(*ii*) Bokaro Steel Ltd., Bokaro Steel City (Bihar).

(*iii*) Hindustan Steelworks Construction Ltd., Calcutta (West Bengal).

(*iv*) Heavy Engineering Corporation, Ranchi (Bihar).

(*v*) Mining and Allied Machinery Corporation, Durgapur (West Bengal).

(*vi*) Triveni Structurals Ltd., Allahabad (U.P.).

(*vii*) Tungabhadra Steel Products Ltd., Tungabhadra Dam (Mysore).

(*viii*) Bharat Heavy Plates and Vessels Ltd., Visakhapatnam (Andhra Pradesh).

(*ix*) Engineering Projects (India) Ltd., New Delhi.

DEVELOPMENT PLANNING FOR IRON & STEEL— FOURTH AND FIFTH PLANS

The Steering Group set up in March, 1968 by the then Department of Iron and Steel to project the demand for finished steel during the Fourth Plan Period had estimated that the demand would be about 8·42 million tonnes in 1973-74 and 12.77 million tonnes in 1978-79. Similarly, the demand for pig iron had been estimated at 2.95 million tonnes in 1973-74 and 4.12 million tonnes in 1978-79. After taking note of the existing capacity available in the country including the secondary units, the gap to be bridged was estimated at over 2 million tonnes of finished steel in 1973-74 and over 6 million tonnes in 1978-79.

However, as the above projection of demands was based on studies undertaken in 1968, when the country had just emerged from conditions of economic recession, it was considered necessary to make a fresh appraisal of the demand taking note of the rate of growth of the economy during the last three years. Accordingly, the National Council of Applied Economic Research were asked to undertake a study to update the demand projections for the years 1975 and 1980 primarily with a view to enabling Government to take up a phased programme of building up additional steel-making capacity. The results of the study are expected to be available shortly. Concurrently with this study, it has been decided that the Ministry should undertake review of the projections on a continuing basis from year to year, or oftener, so that any distinct signs of change in the pattern of consumption that may come to notice could be taken into account in planning the pattern of product-mix of the new steel plants or of expansion schemes of the existing plants. It has also been decided to carry out locational studies for establishing more new steel plants for which action would have to be initiated during the next 2 or 3 years so that additional steel-making capacities would become available during the Sixth Plan Period and beyond.

After the presentation of the Annual Report for 1969-70 the Fourth Five Year Plan was finalised and approved by

Government. The approved Fourth Plan outlay for the Steel Development Programme is as under :—

(Rs. in crores)

Sl. No.	Project	Fourth Plan Outlay
	Continuing Schemes	
1.	Bokaro Steel Plant	558.00
2.	Expansion of Rourkela Steel Plant from 1 to 1.8 million tonnes of ingots	51.00
3.	Expansion of Durgapur Steel Plant from 1 to 1.6 million tonnes of ingots	
4.	Expansion of Bhilai Steel Plant from 1 to 2.5 million tonnes of ingots	
5.	Mechanisation of Dalli Mines for Bhilai	18.92
6.	Mysore Iron and Steel Works	5.90
	Total (A)	633.82
	New Schemes	
1.	Expansion of Bhilai Steel Plant from 2.5 to 4 million tonnes including a Plate Mill and a second Sintering Plant	111. 00
2.	Expansion of capacity of Bokaro Steel Plant from 1.7 to 4 million tonnes of ingots	122.00
3.	Technological improvements, balancing equipment and finishing facilities in the existing steel plants of HSL	45.00
4.	Advance action on additional capacity for the 5th Plan (new steel plants)	110.00
5.	Cold rolled grain oriented sheets Plant	20.00
6.	Refractory Plant	
7.	Expansion of Durgapur Alloy Steel Plant	
8.	Mysore Iron and Steel Works (expansion)	
9.	Seamless Tube Plant	3.00
10.	Tenughat Dam (for water supply to Bokaro)	9.50
		8.50
	Total (B)	428.00
	Grand total of (A) & (B)	1,061.82

In so far as the continuing schemes are concerned, the First Blast Furnace Complex at Bokaro is expected to be commissioned during the current financial year. Shortfalls in supplies of equipment from indigenous sources are being made up to the extent necessary by importing equipment from the Soviet Union. All the major items of work relating to the schemes of expansion of Rourkela to 1.8 million tonnes, Durgapur to 1.6 million tonnes and Bhilai to 2.5 million tonnes have been completed. A few minor items remaining to be done would be completed shortly and the additional capacities would be realised progressively. For improving the availability of iron ore and to provide sufficient ore fines of requisite quality for increasing sintered ore burden to the blast furnaces at Bhilai, clearance has been given for the Dalli Mines Mechanisation Project in March, 1970 and the work is already in progress. A second Sintering Plant for Bhilai has also been sanctioned in February, 1971. The sixth blast furnace at Bhilai, the work on which is nearing completion, is expected to be commissioned in July, 1971.

In regard to the new schemes, action has been initiated on the work relating to the three new steel plants at Salem, Hospet and Visakhapatnam, following the announcement by the Prime Minister of Government's decision on the 17th of April, 1970. The details of the action taken on these new projects are given in the following chapter. Steps have also been taken to expand the capacity of Bokaro to 4 million tonnes. A 'crash programme' was launched in 1971 in order to achieve an intermediate stage of capacity for producing 2·5 million tonnes of steel ingots, a year after the commissioning of the 1.7 million tonne stage. The Detailed Project Report for the expansion, to the 4 million tonne stage, originally prepared by the Soviet Consultants, is being updated by the Central Engineering and Design Bureau, who have been appointed as the Principal Consultants for this Project. The determination of the product-mix for this expansion of Bokaro is currently under examination. In regard to the expansion of Bhilai Steel Plant from 2.5 million tonnes to about 4.2 million tonnes, the feasibility report received from Hindustan Steel Ltd., has been examined in consultation with the Planning Commission and a decision has been taken to go ahead with this expansion. A Detailed Project Report for this scheme will also be drawn up by Central Engineering & Design Bureau.

To meet the increasing demand for alloy steels, particularly cold rolled stainless steel sheets, the expansion of the Alloy Steels Plant, Durgapur, from the present capacity of

60,000 tonnes of finished steel to 180,000 tonnes was approved in March, 1971. The CEDB, who have been appointed as consultants, have been entrusted with the work of preparing a Detailed Project Report for this expansion programme.

The public sector steel plants have so far been dependent for their refractory requirements entirely on purchases from outside. Considering the serious difficulties, which have been experienced in the procurement of refractories in requisite quantities and of assured quality and keeping in view the proposed Steel Development Programme, which will throw up additional demands for refractories in the coming years, it has been decided, as a first step, to set up a refractory plant at Bhilai with an aggregate capacity of about 100,000 tonnes of different types of bricks. The feasibility report on this refractory project received from Hindustan Steel Limited has been examined and accepted. A Detailed Project Report is under preparation. A Committee has also been set up consisting of representatives of Government Departments concerned, the Steel Producers and the Indian Refractory Manufacturers' Association, to assess the demand for refractories of various qualities and specifications required by the Steel Industry in the next 10 years, and to suggest concrete steps to be taken to meet this demand taking note of the available production capacity in the country, the availability of raw materials and the capacity for indigenous manufacture of refractory plant and machinery. The Report of this Committee is expected to be ready soon.

A proposal to set up a Seamless Tube Plant with a capacity of 80,000 tonnes per annum is also under consideration.

NEW STEEL PLANTS

Government's decision on the setting up of a special steels plant at Salem in Tamil Nadu, and two integrated steel plants, one each at Hospet in Mysore and Visakhapatnam in Andhra Pradesh was announced by the Prime Minister in Lok Sabha on April 17, 1970. Following this decision, a number of Committees were constituted, for the selection of the project sites and for the identification of sources of raw materials for each of these projects. The Site Selection Committee, comprising representatives of the concerned Central Ministries and Departments of the State Governments, and the two Consultants to Government, visited all the three regions in June and July, 1970.

In the case of Salem Project, the Committee came to the conclusion that of the seven possible sites in the Salem-Neyveli region, a site about 14 kms. west of Salem town, in the northern flank of Kanjamalai iron ore deposit, on which this project is based, was most favourable because of lower assembly cost of raw materials, minimum displacement of population and other infrastructure facilities available in the vicinity. Government approval to the Committee's recommendation in regard to this site was announced on November 25, 1970

In the case of Hospet Project, the Site Selection Committee examined four sites, *viz.*, Vyasankere, at the foot-hills of the Ramandur iron ore deposits; Toranagalu, mid-way between Hospet and Bellary; Kanevahilli and Ubblagundi. The Toranagalu site was preferred as it could easily be served by the marshalling yard proposed at Kudatini, at a distance of about 15 km. whereas the other sites were beset with many technical problems. Government approval to the Committee's recommendation for location of the project at Toranagalu was also announced on November 25, 1970.

For the Visakhapatnam plant, the Committee considered three sites, *viz.*, Balacheruvu, about 25 km. south of Visakhapatnam town near the coast; Kanithi, a site parallel to National Highway No. 5 to Madras; and an area adjacent to the existing harbour and the aerodrome. Of these three sites, the Committee

recommended Balacheruvu, as sufficient land was available for the project, township and ancillary industries. Government approved this recommendation of the Committee on November 30, 1970.

On the joint recommendations of the Consultants to Government and Hindustan Steelworks Construction Limited, the sites for each of these projects have been tentatively demarcated. The Survey of India have been requested to carry out the topographical survey work at all the three sites on a priority basis. Government have also accepted the Report of the Committee on Coal for the two integrated projects at Hospet and Visakhapatnam. The Committee on Raw Materials other than Iron Ore and Coal has also completed its report whereas the work of the Committee on Iron Ore is in the final stages. However, the raw material sources including iron ore have been identified for each poject. The Central Engineering and Design Bureau of Hindustan Steel Limited have been entrusted with the work of preparation of the Techno-economic Feasibility Report for the Hospet Project, whereas for the projects at Salem and Visakhapatnam, M/s. M. N. Dastur & Company (P) Limited will prepare such reports. The report on the Salem Project is expected by August, 1971 and those on the other two projects by November, 1971. The economics of importing low ash coking coals and using them in blend with indigenous coals in the two integrated steel plants at Hospet and Visakhapatnam will also be brought out in the Feasibility Reports. Meanwhile, plans for the development of township, water and power supply etc. are being drawn up in consultation with the agencies concerned. The work on site surveys, soil investigations and testing of various raw materials has also been initiated. The Railways have been requested to take up survey work for provision of marshalling and exchange yards, railway sidings, etc.

In order to decide the product-mix for the plants, the National Council of Applied Economic Research were asked in July, 1970 to update their earlier study on Long-term projections for iron and steel prepared in 1968. A draft of the report received some time ago was discussed at some length in a meeting to which producers, consumers and the concerned Government Departments had been invited. Arising out of these discussions, further collection of data and amplification and modification of the draft were considered necessary. NCAER would be taking note of all these factors in drafting their final report. The final report which is expected to be received shortly would help in deciding product-mix for the new steel plants at Salem,

Hospet and Visakhapatnam. The capacities envisaged are 2 million tonnes of mild steel each for the Hospet and Visakhapatnam projects and 250,000 tonnes of special steels for Salem Project.

A significant feature of the Fourth Plan Steel Development Programme is that, unlike in the past, the three new steel projects will be completely engineered and designed by the expertise available in the country and will be based mostly on indigenously produced equipment.

A Steering Committee under the Chairmanship of the Secretary, Department of Steel, has been constituted to keep a close watch on the progress of work in respect of these three new projects.

PRODUCTION, PRICES AND DISTRIBUTION

Production of ingot steel in the country during 1970-71 has been of the order of 6.11 million tonnes, which is somewhat less than the production in 1969-70. Production of saleable pig iron and finished steel in 1970-71 amounted to 1.27 million tonnes and 4.73 million tonnes respectively as against 1.54 million tonnes and 5.05 million tonnes in 1969-70. Details of year-wise production of steel ingots, saleable pig iron and finished steel are shown in Appendices I to VI. TISCO and Bhilai showed slightly increased production in 1970-71 but the production in the other three integrated steel plants was lower than in the previous years.

(In million tonnes of ingot steel)

	Rated Capacity	1969-70		1970-71 (Provisional)	
		Production	% of full rated capacity	Production	% of full rated capacity
1. *Hindustan Steel Limited*					
Bhilai Steel Plant	2.500	1.875	75%	1.919	77%
Rourkela Steel Plant	1.800	1.103	61%	1.006	56%
Durgapur Steel Plant	1.600	0.818	51%	0.693	43%
Total	5.900	3.796		3.618	
2. Tata Iron & Steel Co.	2.000	1.708	85%	1.697	85%
3. Indian Iron & Steel Co.	1.000	0.699	70%	0.617	62%
4. Others including Mysore Iron & Steel Limited		0.228		0.180	
Grand Total	8.900	6.431		6.112	

In terms of ingot steel, Durgapur produced in 1970-71 at only 43% of its capacity whereas utilization of capacity in Rourkela and IISCO was 56% and 62% respectively. The total shortfall in production of the five integrated steel plants, below capacity, in 1970-71 was 2.97 million tonnes in terms of ingot steel and 2.186 million tonnes in terms of saleable steel. The accent in 1971-72 would, therefore, be on maximising production of steel from the existing capacity, though import policy for steel would remain liberalised with a view to ensuring that the requirements of priority consumers are met as far as possible.

As mentioned in the report of the Ministry of Steel and Heavy Engineering for the year 1969-70, steel prices were revised with effect from 1st January, 1970. There has not been any revision of JPC prices during the year 1970-71. Of the total production of saleable steel from the five main producers, 95% of the quantity is sold at fixed prices—about 85% at JPC prices and 10% at stockyard prices. The balance of about 5% only is available to the trade for sale in the open market. The open market prices during the year, of most of the items of steel, continued to be higher than the JPC prices. While the open market prices of bars and rods, joists, channels, angles, plates and hot rolled sheets continued to be high as compared to the JPC prices, it is of interest to note that the open market prices of cold rolled sheets have recently come down substantially and in fact, in March, 1971 were lower than the stockyard prices in Bombay. Generally speaking, there has been a perceptible downward trend in the open market prices of plates, hot rolled sheets, cold rolled sheets, galvanised plain sheets, galvanised corrugated sheets and wire rods. For some of the structurals items also there has been some fall in the open market prices. The fall in prices in February/March, 1971 as compared to the prices in October/November, 1970 ranged between Rs. 100 and Rs. 700 per tonne for different categories of finished steel.

In view of the high open market prices for the rerollers products (bars, rods, etc.) Government have introduced a scheme of informal regulation of distribution of re-rolled products from this year. The prices of re-rolled products have been suitably fixed providing for payment of a reasonable conversion charge to the rerollers. For this purpose, the Government have also arranged for bulk import of billets. The price of imported and domestic billets will be pooled and these billets will be supplied to rerollers. The scheme will help augment the supply of billets to the billet rerolling industry and thus enable them to achieve higher utilisation of their capacities.

Towards the close of 1969 with the end of recession, shortages began to be felt in various categories of steel. During 1970-71 a regulatory policy had to be adopted in respect of exports, though, to the extent possible, an effort was made to ensure that export markets established with great effort were not lost. Distribution of steel produced in the integrated Steel Plants was more closely regulated. Imports of items in short supply were also liberalised. The impact of these measures aimed at increasing availability has already had a good effect on the prices of steel in the open market. With the actual materialisation of the import measures resulting in receipt of imported materials during 1971-72, the open market prices are expected to fall further. To ensure that the available steel reaches the actual consumers, the distribution policy has been revised, and streamlined; it has brought under the purview of the Steel Priority Committee practically all categories of steel produced by the main producers.

The new procedure has done away with all quotas or ceiling for booking of orders by actual users on the Steel Plants through the Joint Plant Committee. After the Sale/Works Order is issued by a producer, if priority in despatch is required, the party would have to apply to the Steel Priority Committee through the Joint Plant Committee giving the requisite details. The Steel Priority Committee would thereafter consider all effective demands and allocate the Steel every quarter.

Requirements in small quantities of industries and the needs of private citizens and public institutions, are generally met from Stockyards. Accordingly, the distribution policy for steel materials from the producers' stockyards has been amended with effect from 1st of March, 1971. After providing for distribution of small tonnages allocated to specific parties by the Steel Priority Committee, the amended scheme has earmarked 20% of the total arrivals of prime quality materials in the stockyards for allottees of the State Directors of Industries to ensure equitable distribution to the small scale industries. For compact industry groups, however, like the bright bar industry, wire drawing industry, tube mills and fabricators of electric lamination, the stockyards will prepare a list of consumers in consultation with the Directors of Industries and, wherever necessary, with other sponsoring authorities. Materials suitable for these industries may be given to them after meeting direct government demands and requirements of house building.

As for house builders, 30% of the allocations of bars, rods, light structurals and G. C. Sheets to the stockyards (instead of

the earlier 10%), are for private citizens and public institutions. After meeting a few other fixed dispensations, left over material may be issued by the Branch Managers of the main producers to the trade.

In order to ensure that the decisions of the Steel Priority Committee are effectively implemented, an Appraisal Cell has been set up in the Office of the Iron and Steel Controller. Regional Offices of Iron and Steel Controller are being set up to function at Bombay, Calcutta, Delhi and Madras to keep a watch on proper use of material allocated by the Steel Priority Committee and also to ensure that the main producers, stockyards adhere to the guidelines given for supply of goods from the stockyards.

The entire arisings of defectives of GP/GC/BP and CR sheets and cuttings, HR/CR coils, defective skelp and electrical sheets will be distributed through the producers' stockyards at stockyard prices. However, till such time as the outstanding sale orders are liquidated, 10% of the arisings will be directly despatched by the plants to the parties and no further orders will be booked for direct despatches. The rest of these materials, received by the stockyards will be allocated state-wise according to fixed percentages. 90% of the receipt of these materials in the stockyards will be offered to the State Small Industries Corporations or the State Directors of Industries. The stockyards will be free to sell the balance of 10% of the defectives to the parties of their choice.

The provisions regarding payment of earnest money while indenting for steel materials have also been liberalised with effect from 1-3-71. Under the new scheme, the ceiling for exemption from payment of earnest money has been raised substantially and certain categories of indentors have been completely exempted from payment of earnest money.

The system of processing of indents in the Joint Plant Committee has been simplified by minimising and rationalising the points of scrutiny and a time limit for scrutiny of indents has been prescribed. These changes have been generally welcomed by all sections of users.

As the new distribution procedure is aimed at meeting the needs of the actual users to the maximum extent possible, despatches to trade had necessarily to be small. However, a Committee has been set up to review the question of allocations to be made to trade and other allied matters.

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IMPORTS AND EXPORTS OF IRON AND STEEL

Imports

The year 1970-71 evidenced a steep increase in the demand for steel and its products due to post recession revival in industrial activity. To keep pace with the rising demand, and in view of shortfall in indigenous production, on 11-9-1970 Government announced a special import policy, through its Public Notice 140 of 11th Sept. 1970 allowing import by the actual users, seven broad categories of steel to the extent of 50% of their consumption during 1969-70, and full import of any item of mild steel against confirmed export orders. In addition, bulk imports were permitted through HSL for small scale industries, export oreinted engineering industries and for other actual users. Import of steel sheets, plates, drums, barrels and steel for furniture industries and tinplate for manufacture of open top sanitary cans were also canalised through HSL.

The imported materials have substantially assisted the industries to surmount the shortages of steel in the country. A close watch is being maintained on the indigenous availability to ensure that industrial activities do not suffer for want of this basic raw material. Whenever circumstances justify within the limitations of foreign exchange, imports were allowed even, on an *ad hoc* basis.

The Government's import policy for 1971-72 has since been announced. This year also the pattern of admissibility for import of steel items have been restricted to those items which are not produced in the country at all or the quantities and qualities produced are not adequate to meet the indigenous demand. In framing the policy, efforts have been made to ensure that whereas the industries do not suffer for want of essential raw materials like steel and ferro-alloys, the producers of steel including secondary producers and re-rollers do not suffer for want of adequate orders.

This year, additional items of steel and some items of ferro alloy have been added to the list of items, the import of which is canalised through Public Sector Agencies. The canalisation has been restricted to bulkable categories.

The canalisation covers :—

1. Ferro-molybdenum
2. Ferro-tungsten

3. Ferro-vanadium
4. Ferro-silicon
5. All mild steel high carbon and alloy steel (other than stainless steel) wire rods in coils.
6. All mild steel and high carbon steel semis including ingots, blooms, slabs and billets.
7. Stainless steel sheets, plates and strips in cut length or in coils.
8. Cold rolled grain oriented electrical steel sheets.
9. All mild steel sheets, strips and skelp in cut length or in coils both hot rolled and cold rolled.
10. Heavy melting scrap, sponge iron and metalised iron ore and pellets for electric arc furnances.
11. Tinplate for manufacture of open top sanitary cans.

A statement showing imports of various items of steel and ferro alloys from 1966-67 onwards is given below :—

Year	*Quantity* (in tonnes)	*Value* (Rs. in crores)
1966-67	495700	93.36
1967-68	538173	108.89
1968-69	465436	88.76
1969-70	423087	83.01
1970-71 (April-Sept. '70)	307007	64.33

Detailed category-wise break up of import data is given in Appendices VII and VIII.

Exports

The earnings from export of iron and steel in 1969-70 increased to Rs. 75.7 from Rs. 69.6 crores in the previous year. With the picking up of the economy and of industrial and building activities after the recession, the demand in the country for all categories of steel, particularly of bars and rods, structural sections, wire and flat products has gone up by a very substantial extent; but production has not been keeping pace with this increase in demand. This naturally led to constraints being imposed on

exports of steel during 1970-71. Exports were permitted mainly to meet the existing commitments and to some extent to maintain our position in markets which were developed during the period of recession. Consequently the export realisation in 1970-71 has been Rs. 66.91 crores only. The Hindustan Steel Limited's share in export earnings has increased from Rs. 30.5 crores in 1967-68 to Rs. 41.55 crores in 1968-69 and Rs. 45.56 crores in 1969-70. During 1970-71 its share is estimated to be about Rs. 53 crores.

In 1969-70 about 555,000 tonnes of pig iron and 796,000 tonnes of steel were exported. These exports went down to approximately 464,777 tonnes of pig iron and 533,262 tonnes of steel during 1970-71.

The principal items exported are basic grade pig iron, bars and rods, structurals and rails. During 1970-71 exports have been made to 57 countries in South East Asia, West Asia (including Iran) Africa, the USSR, Australia, New Zealand, Ceylon, Burma and the USA. A statement showing the total exports category-wise may be seen at Appendix IX. Another statement (Appendix X) shows countrywise and category-wise exports in 1969-70 and 1970-71 (April-December, 1970).

Scrap Exports

The export of ferrous scrap is canalised through the Metal Scrap Trade Corporation Limited, Calcutta. With increase in the home demand, Government have imposed greater restrictions on the export of those varieties which can be consumed by domestic industries. As a result, the export of ferrous scrap has been going down.

During the year 1969-70 and 1970-71 the following quantities of scrap were exported.

	Quantity (Tonnes)	*Value* (Rs. crores)
1969-70	4,17,201	8.82
1970-71	2,51,639	6.60

A statement showing the details of scrap exported during 1970-71 is given at Appendix XI.

HINDUSTAN STEEL LIMITED

Investment

The authorised capital of Hindustan Steel Limited is Rs. 600 crores and the paid-up capital entirely contributed by Government is Rs. 557 crores. In addition, loans have been advanced by Government from time to time. At the end of the year 1968-69, the loans amounted to Rs. 534.5 crores. Thus, the total investment based on Government funds as on 31-3-69 amounted to Rs. 1091.5 crores.

During the years 1969-70 and 1970-71, no Government funds were advanced and the entire capital expenditure during these two years was met by the Company from its internal resources. On the other hand, the Company repaid an amount of Rs. 32.35 crores during 1969-70 and an amount of Rs. 33.16 crores during the 1970-71 against Government loans, bringing down the amount of outstanding loan as on 31st March 71 to Rs. 468.98 crores. Accordingly, as on 31-3-71 the total investment was Rs. 1025.98 crores—equity Rs. 557 crores and loans Rs. 468.98 crores.

For the year 1971-72, it is proposed to sanction an amount of Rs. 9.09 crores as equity contribution to enable the Company to meet capital expenditure on new schemes and on townships expansion.

Production

The following table indicates the production at the various units of the Company during the years 1969-70 and 1970-71 :

Unit	(in '000 tonnes) Ingots	Pig iron for sale	Saleable steel
Bhilai			
1969-70	1859	649	1495
1970-71	1940	554	1549
Rourkela			
1969-70	1104	113	796
1970-71	1038	96	684
Durgapur			
1969-70	818	376	494
1970-71	634	330	413
Total			
1969-70	3781	1138	2785
1970-71	3612	980	2646

(In '000 tonnes)

	Saleable Ingots	Saleable Steel
Alloy Steels Plant, Durgapur		
1969-70	65.6	41.1
1970-71	50.6	38.6

	Calcium Ammonium Nitrate (25% N2)
Fertilizer Plant at Rourkela.	
1969-70	120,000 tonnes
1970-71	94,200 tonnes

Contrary to expectations, the production of iron and steel during 1970-71 from the three integrated steel plants was lower by 1,69,000 ingot tonnes and 1,39,000 tonnes of saleable steel as compared to 1969-70, though there was some improvement in production in the Bhilai Steel Plant. There was short production of steel ingots to the extent of 1,84,000 tonnes and of saleable steel to the extent of 81,000 tonnes at Durgapur while the shortage in saleable steel production at Rourkela was of the order of 1,12,000 tonnes. This shortfall in production is accounted for mainly because of disturbed industrial relations in the first half of the year at Rourkela and throughout the year at Durgapur. The production in Alloy Steels Plant, Durgapur suffered because of a major break-down of the transformer for one of the arc furnaces in July, 1970. After repairs, the transformer was re-commissioned in April, 1971. In the Fertilizer Plant, an explosion in the reformer furnace of the naphtha reforming unit had occurred in May, 1969. The furnace had to be rebuilt and although after repairs it had been commissioned in August 1970, the unit had to be shut down again in September, 1970 due to failure of the reformer outlet header pipes. The Unit was recommissioned towards the end of March, 1971.

The Company as well as the Government are greatly concerned about the shortfall in production as also the fact that the levels of production achieved are substantially lower than the installed capacity of the steel plants. In Bhilai, it was envisaged in the Detailed Project Report that 0.25 million ingot tonnes would be produced through oxygen lancing in the open hearth furnaces. Although oxygen lancing had been tried in two or three furnaces, it could not be introduced in all the furnaces mainly on account of the unsatisfactory supply position of refractories. To meet the shortage of refractory materials of the required quality and in requisite quantities, Hindustan Steel has been allowed to import refractories worth about Rs. 10 crores during 1970-71 and of the same order in 1971-72. Another handicap has been the inadequate availability of loco power. Although the immediate requirements have been met by borrowing a few locomotives from Bokaro Steel Plant, the Company has been allowed to import their requirements upto 1972. At Rourkela, one of the impediments in raising the production level has been lack of adequate quantities of lime. To overcome this, the conversion of one of the dolomite kilns into a lime kiln has recently been completed. An additional lime kiln has also been ordered and this is likely to be commissioned by September, 1971. In Durgapur, apart from the continued unsatisfactory industrial relations, the capacity of the plant is also limited by certain other factors. The coke oven batteries which had suffered some damage some years ago need to be rebuilt/renovated. The rebuilding of battery No. I is currently in progress and is expected to be completed by the beginning of 1972. Thereafter, the remaining two batteries will have to be rebuilt, one after the other. The Pande Committee which had examined the working of the Durgapur Steel Plant in 1967 had recommended the installation of four additional soaking pits to enable the plant to attain the rated capacity of 1.6 million ingot tonnes. Two of the four soaking pits are likely to be commissioned in September, 1972 and the remaining two by December, 1972. With the implementation of these programmes and greater emphasis on maintenance and capital repairs, timely import of requirements of spares, refractories, locomotives and other measures it is expected that the overall production in the current financial year would be significantly higher than in 1970-71.

Despatches

As a result of lower production, despatches have also suffered. The table below shows the despatches in 1970-71 as compared to the corresponding figures for the year 1969-70 :

(Quantity : '000 tonnes)

Plant	Rolled Steel		Pig Iron	
	Despatches 1970-71	Despatches 1969-70	Despatches 1970-71	Despatches 1969-70
1. Bhilai	1526.3	1509.0	545.2	670.4
2. Durgapur	500.9	572.4	323.1	363.8
3. Rourkela	677.7	812.4	92.4	109.5
Total	2704.9	2893.8	960.7	1143.7
Alloy Steels	33.5	35.2	—	—

Although despatches have been lower, the total sales value is likely to be marginally higher mainly due to price increase effective from 1st January, 1970 and higher realisations for exports. The stockyard operations of the Company were further strengthened and enlarged with a view to meeting the needs of small consumers and small-scale industries within the framework of the national distribution policy and to contain open market prices of steel to the extent possible. At the end of the year 1970-71, the Company were operating 15 stockyards, the last having been opened at Srinagar in February, 1971. Total deliveries from the stockyards amounted to 544,000 tonnes as against 457,000 tonnes last year, indicating an increase of about 20%. The Company proposes to open second stockyard in some of the larger States.

The Company's export earnings on f.o.b. basis amounted to Rs. 45.56 crores in 1969-70 as against 41.55 crores in 1968-69. During 1970-71, it has not been possible for the Company to maintain a steady increase in exports because of domestic requirements and there has been some drop in terms of quantities of iron and steel materials exported, but the value of exports is, however, higher. The following statement indicates iron and steel exports in 1970-71 as compared to exports in the preceding year :

(Quantity '000 tonnes)
Value : f.o.b. Rs. in Crores

Item	1970-71 (Provisional)		1969-70	
	Quantity	Value	Quantity	Value
1. Pig Iron	427	19.0	500	20.1
2. Steel Ingots	40	1.8	10	.5
3. Billets	22	1.2	35	1.6
4. Rounds/Flats/Wire Rods	25	1.8	45	2.9
5. Structurals	245	24.8	212	13.5
6. Rails	63	4.3	92	6.9
Total	822	52.9	894	45.5

To supplement indigenous supplies, the Company has been entrusted by Government with the import of certain items like C.R. sheet, coils, plates, structurals, Open Top Sanitary Can quality tin plates HR coils, billets etc.

Working Results

The gross surplus secured by the Company after meeting all expenditure but exclusive of the provision for depreciation and interest amounted to Rs. 82.8 crores in 1969-70 as against 47 crores in 1968-69. However, after making provision of about Rs. 29.5 crores for interest and 64.7 crores for depreciation and taking into account adujstments for earlier periods, the Company sustained a net loss of Rs. 10.47 crores as against a loss of Rs. 39.9 crores in the preceding year. The working results of the various units during 1968-69 and 1969-70 were as under :—

(Rs. in million)

	1968-69	1969-70
Rourkela Steel Plant	(—) 39.7	(+) 78.30
Bhilai Steel Plant	(—) 113.5	(+) 36.46
Durgapur Steel Plant	(—) 173.7	(—) 155.05
Fertiliser Plant at Rourkela	(—) 11.1	(—) 16.80
Alloy Steels Plant	(—) 68.2	(—) 57.76
Coal Washeries	(+) 6.0	(+) 3.74
Adjustments	(+) 1.1	(+) 6.38
Total	(—) 399.1	(—) 104.73

The cumulative loss of the Company from its inception upto 31st March, 1970 comes to Rs. 127.83 crores.

In view of lower production and a number of escalatory factors, particularly the impact of wage revision, the Company which was expected to break-even during 1970-71, is again likely to incur a loss during that year, though Bhilai and Rourkela Steel Plants would be making a profit as in the preceding year

Wage Revision

The wages in the Steel Industry including the public and private sector steel plants were revised on the basis of the recom-

mendations of the Central Wage Board for Iron and Steel Industry from 1st April, 1965. On the expiry of the agreements reached by the Managements of the steel plants with their unions a bipartite body, namely, the Joint Wage Negotiating Committee, consisting of representatives of employers of the major steel producing Companies and representatives from each of the major trade union federations and the recognised unions of the steel plants, was formed on the 16th October, 1969. The Committee started its work in December, 1969 and declared an interim relief of Rs. 33 per month per worker by an agreement signed on the 19th December, 1969 retrospectively from 1st November, 1969. By an unanimous agreement reached on the 27th October, 1970, the Committee has revised upward the minimum wage of an unskilled worker in the Industry, whether working inside the works or outside the works, male or female, to Rs. 240 per month consisting of a basic wage of Rs. 200 and dearness allowance of Rs. 40 per month. Dearness allowance has been linked with the All India Consumer Price Index and is to be revised every quarter, the rate of increase or decrease being Rs. 1.30 for each point of rise or fall in the Index. Besides wages the agreement also covers certain other matters like acting/officiating allowance, housing and house rent, retirement gratuity, educational facilities etc. The Committee has set up a Standardisation sub Committee with a view to standardising scales of pay and job nomenclatures and bringing about uniformity in the matter of amenities like leave, holidays, medical benefits and retirement age. The Committee will also supervise and ensure implementation of the agreement which will be in operation for a period of four years from 1st September, 1970. It has been estimated that the financial impact of this agreement for the full four year period in the case of Hindustan Steel Limited would be of the order of Rs. 56 crores, the impact during 1970-71 being of the order of Rs. 11.6 crores.

One of the terms of the agreement is that industrial peace and harmony would be maintained and every effort would be made to increase productivity and that the terms of the agreement will be implemented faithfully and in a spirit of goodwill by the employers, central trade union organisations and the Unions in all the plants. It has also been agreed that during the operation of the agreement no demand will be made or dispute raised in regard to matters included in this agreement. Government hope that the faithful implementation of this Agreement in a spirit of goodwill on both sides would lead to enhanced productivity and harmonious industrial relations.

New Incentive Schemes

A production incentive scheme had been introduced in the three steel plants at Rourkela, Bhilai and Durgapur in December, 1961 with a view to raising the level of production, particularly in the key units. During the years 1965 to 1967 incentive schemes were also introduced in the other production units of the Company, such as the Fertiliser Plant at Rourkela, Mines, Coal Washeries and the Alloy Steels Plant. In pursuance of the Company's decision to make the existing incentive schemes more scientific and based on performance of the smallest group possible, incentive revision studies had been taken up in collaboration with the Consultancy and Applied Research Division of the Administrative Staff College, Hyderabad. A new scheme which seeks to encourage labour productivity and effective production and discourage absenteeism and overtime working has been evolved. The new scheme has been introduced in two mining units under the Rourkela Steel Plant and two units in the Durgapur Steel Plant. The question of introduction of the scheme in other plants/units is at present at various stages of negotiations with the unions.

Detailed work measurement studies conducted in connection with the revision of the incentive schemes have also helped in identification of surpluses wherever they exist. The question of redeployment of such surpluses is under the consideration of the Company.

Industrial Relations

While the industrial relations situation in the Bhilai Steel Plant was satisfactory throughout the year 1970-71, there were serious difficulties on the labour front during the period April to September, 1970 in the Rourkela Steel Plant and throughout the year in the Durgapur Steel Plant. The labour situation in Alloy Steels Plant, Durgapur, was also subjected to the same factors operating in the Durgapur Industrial Belt as affected the Durgapur Steel Plant. It has been estimated that in Rourkela, about 2,92,000 man-hours were lost in 1970-71 due to labour troubles and the value of loss of production was of the order of Rs. 12.0 crores. The situation in the Durgapur Steel Plant has been continuously unsatisfactory since the beginning of 1967. During the year 1970-71, about 17,63,000 man-hours were lost and there were, during this period, 269 stoppages of work including sectional strike, 9 Gheraos, 116 demonstrations, 1 lock-out, 719 slowdowns, 2,559 instances of refusal to work, 5 Bandhs/Hartals, 3 assaults, on supervisory staff and 2 general strikes. The value of loss of production on account of

labour troubles is estimated at about Rs. 11.16 crores during the same period. This had had a crippling effect on the production capabilities of the plant; the production of 0.63 million ingot tonnes in 1970-71 was the lowest since 1962-63. The plant which had produced at capacity level at the million tonne stage during 1964-65 and 1965-66, has not been able to touch this level of production during the last 5 years in spite of the fact that the installed capacity of the plant has been expanded from 1.0 to 1.6 million ingot tonnes.

New Schemes

On the basis of a Feasibility Report prepared by the Central Engineering and Design Bureau, Government have recently decided to expand the capacity of the Bhilai Steel Plant from 2.5 to about 4.0 million ingot tonnes. The preparation of the Detailed Project Report has been taken up. The work connected with the 6th blast furance complex at Bhilai is under progress. This blast furance is likely to be commissioned by July, 1971 and the 7th Coke Oven Battery in January, 1972. A number of other new schemes included in the Fourth Five Year Plan have been approved. The mechanisation of Dalli Mines has been taken up at an estimated cost of Rs. 17.1 crores to meet the increased requirement of iron ore for the Bhilai Steel Plant. The project is expected to be commissioned in 1974-75. A second sintering Plant at Bhilai is being set up to utilise the surplus fines which would be available from the mechanised mines. The capital cost of the project is estimated at Rs. 14.7 crores and the plant is expected to be commissioned in 1974-75. Government have also approved in principle the installation of a Refractories Plant at Bhilai with an annual capacity of one lakh tonnes to meet the growing demand of refractories of the public sector steel plants. The capital cost is estimated at Rs. 13.1 crores. Central Engineering and Design Bureau has taken up the preparation of the Detailed Project Report which is likely to become available by about September, 1971. The Plant is likely to be commissioned in 1974-75. A proposal to set up a plant for the manufacure of cold-rolled grain oriented sheets (CRGO sheets) at Rourkela is presently under consideration. The Central Engineering and Design Bureau has also been asked to proceed with the preparation of the Detailed Project Report for increasing the capacity of the Alloy Steels Plant from one lakh to three lakh ingots tonnes.

Central Engineering and Design Bureau

The Central Engineering and Design Bureau of the Company continues to function as technical advisers to the Department of Steel on matters connected with the steel industry. The Bureau has also been appointed as principal consultants for the expansion of the Bokaro Steel Plant from the first stage of 1.7 million tonnes to 4 million ingot tonnes. Recently, the Bureau had been entrusted with the preparation of the Techno-economic Feasibility Report for the establishment of an integrated Steel Plant near Hospet.

MYSORE IRON AND STEEL LIMITED, BHADRAVATI

Mysore Iron and Steel Limited, Bhadravati, is an Undertaking of the Government of Mysore. It was formed into a Company on 1st April 1962. Its paid up equity capital at present is Rs. 19.55 crores, out of which the Government of India's share is Rs. 1.97 crores.

Even before its conversion into Company, it had a scheme for expansion of its mild steel capacity to 100,000 tonnes ingots. While this scheme was being implemented, it was decided with the approval of the Government of India to convert the mild steel expansion scheme into an 'alloy and special steels' expansion scheme. The scheme envisaged production of 77,000 tonnes of finished alloy and special steels per annum. It was also decided to set up two pig iron electric furnaces with a capacity of 120,000 tonnes per annum. The aggregate cost of these two schemes is now estimated at Rs. 38.65 crores. Towards the cost of these two schemes, the Government of India have so far given Rs. 11.36 crores by way of direct loans to the Company and Rs. 10 86 crores as loan through the State Government.

During the year 1970-71, all the units of the Alloy and Special Steels Plant of MISL had been commissioned except the furnaces in the heat treatment shop. The erection of the two electric pig iron furnaces under the pig iron scheme was also completed during the year.

Production of pig iron, mild steel and special steels during the last three year period has been as under :—

	(in '000 tonnes)		
	1968-69	1969-70	1970-71
Saleable pig iron	5.69	94.38	77.48
Mild Steel (ingots)	82.91	73.20	43.42
Mild Steel (finished steel)	64.45	64.00	34.54
Alloy Steel (ingots)	31.85	59.00	66.75
Alloy Steel (finished steel)	14.16	43.00	35.60

The plant since inception has incurred a cumulative loss of Rs. 7.14 crores upto 31st March 1970. The loss estimated in 1970-71 is Rs. 1.54 crores.

MISL propose to take up two new schemes for execution in 1971-72 *i.e.*, (i) a forge plant estimated to cost Rs. 2.58 crores and (ii) a ferro silicon plant estimated to cost Rs. 4.2 crores.

STEEL INDUSTRY IN THE PRIVATE SECTOR

Tata Iron and Steel Company

Tata Iron and Steel Company is the oldest integrated steel works in the country. It commenced production in 1911 and its present installed capacity is two million tonnes steel ingots per annum. This capacity has been reached by it after its modernisation and expansion programmes which have been assisted by the Government of India and the World Bank through loans. The Plant produces a variety of semi-finished and finished steel items, like blooms, billets, tin bars, skelp, rails, structurals, plates, sheets, etc.

Against the installed capacity of two million tonnes steel ingots, production in 1969-70 was 1.708 million tonnes ingots. Production in 1970-71 aggregated 1.718 million tonnes ingots. Saleable steel production however fell from 1.44 million tonnes to 1.374 million tonnes in 1970-71. The reduction in the output of saleable steel during 1970-71 as compared to 1969-70, is reported to be primarily due to reduced tonnage of ingots available and purchased from other plants.

The Company has on hand schemes of replacement and modernisation, such as rebuilding the old Coke Oven Batteries, replacement of boilers, renovation of blast furnace, colliery expansion, etc., all of which are estimated to cost about Rs. 106 crores in the five year period 1970-71 to 1974-75.

During 1969-70, the Company exported steel valued at Rs. 8.53 crores. Exports in 1970-71 amounted to Rs. 5.98 crores. The shortfall is largely because of the increase in domestic demand and the consequent restrictions on exports.

Indian Iron and Steel Company

The Indian Iron and Steel Company has, at present, a rated capacity of one million tonnes steel ingots. This capacity has been reached by it, after two expansions undertaken in 1953 and 1955. For these expansions, the Company obtained assistance from the Government of India and the World Bank, by way of loans. The various items manufactured are billets, bars, rods rails, structurals and sheets. IISCO has been permitted by Government to effect further expansion of its steel ingot capacity by 0.3 million tonnes.

In addition to the expansion of the steel making capacity, the Plant has also on hand a colliery expansion scheme and the installation of a ropeway system for coal transportation. This project is expected to be substantially completed by 1972.

Against the installed capacity of one million tonnes of steel ingots, production in 1969-70 aggregated 699,768 tonnes ingots and in 1970-71 about 629,000 tonnes. Saleable steel production fell from 567,784 tonnes to about 523,000 tonnes in 1970-71. The shortfall in production has been attributed by the Company to labour indiscipline.

During the year 1969-70, IISCO exported pig iron and steel valued at Rs. 3.7 crores and in 1970-71 exports amounted to Rs. 2.92 crores. The shortfall in exports, as in the case of TISCO, is because of the restrictions imposed on exports due to shortages within the country.

Re-Rolling Industry

The steel re-rolling mills, which are a complement to the main steel works, roll steel into bars, re-inforcement rods, wire rods, flats, hoops and strips, light structurals, window bars, railway equipment etc. The re-rollers in the country have been broadly classified as 'billet based' and 'scrap based'. The Technical Committee appointed by Government in its report in 1966 had assessed the annual capacity of billet re-rollers at 2.78 million tonnes, scrap re-rollers 0.73 million tonnes and other mills 1.20 million tonnes. Taking the overall capacity in the country, the Committee recommended that there was no scope for creation of new re-rolling capacity. Government had accepted this recommendation.

The capacity utilisation of re-rollers depends upon the demand (domestic as well as exports), and the availability of billets and re-rollable scrap. With improvement in the economic situation, and increased demand for bars and rods in the domestic market as well as for export, the re-rolling industry faced shortage of billets during the year. The average monthly despatches of billets to the re-rollers was around 45,000 tonnes as against their one shift capacity of about 1,25,000 tonnes. The shortages are to some extent being met by import of billets, and through the production of billet size ingots from electric furnaces.

The development programme for the re-rolling industry is envisaged mainly through modernisation, rehabilitation, and diversification by way of developing products, such as high tensile ribbed bars, difficult and special sections, light structurals, special sections for transmission towers for export, window sections wire rods etc. Production of additional quantities of billets by the main producers is being encouraged. However, it is an inherent feature of the main steel plants that billets for sale can be made available only to the extent they are not utilised for further processing in the plants themselves. Encouragement is therefore being given to the setting up of scrap based electric furnaces and continuous casting plants for augmenting the production of billets. Production of ingot/billets from scrap by using electric furnaces with or without continuous casting units had been delicensed in May, 1966. This together with the shortages, which had developed, had resulted in encouraging response from entrepreneurs for setting up additional capacities. Under the new Licensing Policy announced in February, 1970, however, if the fixed assets of units exceeded Rs. one crore or import of capital equipment exceeded 10% of its investment or Rs. 10 lakhs whichever is less, such units had to be licensed under the Industries (Development and Regulation) Act. Government have recently issued Letters of Intent for creation of new capacity, and for expansion of existing capacities manufacture of billets totalling around 700,000 tonnes per annum. A good part of this capacity is likely to materialise during 1972, and the rest progressively thereafter. Further additions to capacity are likely to be maintained at around 250,000 tonnes per annum in subsequent years also.

Wire Drawing Industry

The different types of wires normally required for industrial and other uses are :—

(*i*) mild steel black ;

(*ii*) mild steel galvanised or tin or copper coated ;

(*iii*) high carbon steel, plain or coated such as galvanised, tinned, copper coated etc.;

(*iv*) spring steel plain or coated ;

(*v*) alloy steel other than high carbon and spring steel;

There are at present 15 comparatively large units licensed under the Industries (Development and Regulation) Act, 1951, engaged in the manufacture of different types of wires including stainless steel wires. Against the annual indigenous production of this industry of 182,190 tonnes in 1968-69, production during 1969-70 was 182,823 tonnes. Further, some medium size wire drawing units which do not attract the provisions of the Industries (Development and Regulation) Act, 1951 have also been sanctioned under the Iron and Steel Control Order. These units account for a total capacity of about 86,740 tonnes. Small scale units, more than 90 in number with an aggregate capacity of about 150,000 tonnes have also come up in different States. These units, by and large, manufacture mild steel wires. Letters of Intent have recently been issued to a number of firms for the manufacture of wires thinner than 18 G, and other special wires to suit the needs of engineering industries. The availability of high carbon wire rods despite substantial production by Bhilai, and increase in the production by another unit in the private sector is still short of requirements. To the extent necessary, imports of special categories of wire rods, and to a small extent of wires are being permitted to industry. Recently M/s. Mukand Iron and Steel Works has commissioned their second electric furnace, which, in due course, would enable them to almost double their present production from about 40,000 tonnes to 80,000 tonnes of wire rods. M/s. Electro Steel Casting also hold a Letter of Intent to produce 40,000 tonnes of wire rods per annum. In addition, encouragement is being given to setting up of new units for the production of wire rods particularly of high carbon and other special categories.

Pig Iron/Sponge Iron

The present licensed capacity in the private sector/state sector is 796,000 tonnes per annum, comprising of 100,000 tonnes for sponge iron, and the remaining for pig iron. In view of the excess availability of pig iron from the main plants not much progress has been made, except for one unit, in setting up capacity for pig iron. Under the new Industrial Licensing Policy, the Ministry have sponsored some cases for the grant of Letters of Intent for the manufacture of sponge iron based on direct reduction process with iron content ranging between 85—95%. Sponge iron can substitute scrap, and can serve as a raw material for the electric furnaces industry for increasing their production. Possibilities of exports either in the form of sponge iron, or pre-reduced pellets also exist.

Tinplate

The present installed capacity in the private sector is 135,000 tonnes per annum. In the public sector, the capacity of Rourkela Steel Plant is 200,000 tonnes, out of which 50,000 tonnes is from the hot dip line and 150,000 tonnes in the electrolytic line. Actual production of tinplate has increased during 1970-71 by about 40,000 tonnes. It has, however, remained substantially below capacity mainly because of the renovation of the first pickling line at Rourkela. Production of tinplate at Rourkela Plant is expected to pick up further during 1971-72. The demand in the country for prime quality tinplate is being now met except for about 25,000 tonnes of open top sanitary quality can, and about 25,000 tonnes of tinplate waste which is being covered by imports.

The Tinplate Company of India has been issued an industrial licence for expanding their capacity by 90,000 tonnes of electrolytic plates per annum. This scheme is likely to materialise during 1974-75.

Alloy Steels

The present installed capacity in the private sector is about 100,000 tonnes per annum. Some of the units also hold either industrial licence or Letters of Intent for installation of new/additional capacity for the manufacture of alloy steels.

Ferro-Alloys

A rapid expansion of steel industry in India requires a well developed ferro-alloys industry *viz.* ferro-manganese, ferro-silicon, ferro-chrome, ferro-tungsten and ferro-titanium etc. The production of ferro-silicon and ferro-manganese in the country is 32,000 tonnes and 173,000 tonnes respectively. Recently Letters of Intent have been issued to some parties for an additional capacity of 30,000 tonnes of ferro-silicon. Both these alloys, apart from meeting the internal demand, have an attractive export potential. Substantial quantities of ferro-manganese, roughly of the order of 100,000 tonnes per annum are being exported. To be able to meet increasing domestic demand and retain the level of exports, more capacity is being encouraged to come up. With the commissioning of the ferro-chrome unit of the Orissa Industrial Development Corporation the

installed capacity would be about 20,000 tonnes. There is a surplus of ferro-chrome, which is currently being exported to Japan. During 1969-70, a quantity of 522 tonnes of ferro-chrome valued at Rs. 2.02 lakhs was exported from India. During April to September, 1970, a quantity of 6,000 tonnes valued at Rs. 1.61 crores was exported. Letters of Intent for the production of ferro-vanadium have also been issued to two parties including the OIDC.

Cold Rolled Strips

Against an anticipated demand of 100,000 tonnes in 1973-74 of cold rolled strips and alloy steels and stainless steel strips from the engineering industry, the capacity at present installed in the country is only about 50,000 tonnes. A number of Letters of Intent have been issued by the Government for additional/ new capacity for these in the private sector.

BOKARO STEEL LIMITED

Bokaro Steel Limited was formed in January, 1964 for the construction and operation of the fourth steel plant in the public sector. An agreement was signed between the Governments of India and the U.S.S.R. on the 25th of January, 1965 for financial aid and technical collaboration. The Government of USSR have extended a credit upto 200 million roubles for the purpose of meeting the foreign exchange cost of this plant. Keeping in view the modern trend in steel technology and the economics of large scale production, a Detailed Project Report was prepared in 1966 by the Soviet Consultants for a 4 million tonnes plant, to be set up in two stages—the first being a stage with an annual capacity of 1.7 million tonnes of ingot steel to be rolled into 1.364 million tonnes of finished products consisting of hot rolled light plates, sheets and coils and 880,000 tonnes of foundry grade iron.

Since the capacity of the Plant is to be expanded from 1.7 million tonnes to 4 million tonnes, a significant portion of the work of the 4 million tonnes Plant is being incorporated in the construction of the first stage itself. Approximately 84%of earth work, 74% of concreting, 84% of underground communications, 73% of structural steel work and 64% of equipment erection for the 4 million tonnes stage would be completed during the first stage itself. The magnitude of work involved in 1.7 million tonnes itself is the largest so far undertaken on any development project in the country. Concreting work of the first stage would be 1 1/2 times the total concreting done on the first stage of Durgapur and Bhilai put together. The underground communication inside the plant would be equivalent to the length of a pipeline from Bokaro to Calcutta. The total length of the Railway track within the plant per meter would be more than that needed to link Bokaro to Ranchi. The equipment erection in the first stage of Bokaro would also be larger than the first stage of Bhilai and Durgapur taken together.

Project Cost

The Project estimate amounting to Rs. 670 crores for the first stage was sanctioned in November, 1966. This includes a provision of Rs. 50.32 crores for off site facilities such as township, water supply, etc. The rising cost of materi als and

wages since 1966 have inevitably added to the cost of the project by as much as Rs. 20 crores so far. Similarly, the cost of indigenous equipment is also considerably higher than what was originally estimated and is likely to account for as much as an additional Rs. 60 crores. The increase in the price of steel between 1966 and now would account for a further increase of about Rs. 10 crores in the cost of structures and equipment. Taking all these factors into account, the revised project estimate of 1.7 millions tonnes stage of Bokaro, awaiting the approval of the Government, would amount to Rs. 760 crores.

Investment

The authorised capital of the Company which was Rs. 385 crores has now been raised to Rs. 500 crores. The amount actually subscribed by Government upto 31st of March, 1971, is Rs. 410 crores. The Government have also given loans totalling to Rs. 89·46 crores during 1970-71. Thus the total investment of Bokaro at the end of March, 1971 is Rs. 499·46 crores. Provision of Rs. 160 crores for Stage I and Rs. 10 crores for Stage II has been made in the Budget estimates for this Project for 1971-72.

Indigenous Effort

For the first time in the country, the construction of a project of this magnitude with a large built-in capacity for subsequent expansion is being attempted with a high percentage of indigenous equipment and materials. As much as 67% of the equipment required for this Plant is being manufactured indigenously for the first time in the country. This has created many problems. The position has been further complicated by acute shortage of steel, considerable default of indigenous refractory manufacturers in meeting their contractual obligations both in respect of specifications and scheduled deliveries, default in supply by principal indigenous manufacturers and vast problems of coordination and follow up with construction agencies and suppliers.

The shortages of steel have been partly overcome by giving a high priority for allocation of steel from indigenous production. Imports, particularly of steel plates and sheets have been arranged from USSR to meet shortages in critical areas. Stock of steel is being built up by Bokaro Steel Limited for issue to contractors and suppliers of structures and equipment.

The critical position created by the default of indigenous refractory manufacturers has been met by importing refractories from USSR and Poland on much larger scale than was originally envisaged and also by providing suitable technical assistance to such of the indigenous manufacturers as are earnest about fulfilling their obligations.

Closer watch on the progress of supplies from indigenous manufacturers of equipment is being exercised both at the plant level and at the Ministry level. Periodical review meetings are being held with Heavy Engineering Corporation, Mining and Allied Machinery Corporation and Garden Reach Workshop. An extensive Inspection and Progress Organisation has been established with cells at Ranchi, Durgapur, Calcutta and Bombay to ensure close follow up of supplies from HEC, MAMC and various other agencies. This has yielded handsome results which are reflected in improved deliveries from indigenous sources as a whole.

Departmental erection of structures and equipment has been resorted to where the contractors have either abandoned the work or failed to keep to the schedules. Other public sector agencies like the Hindustan Steelworks Construction Ltd., and the Garden Reach Workshop have been pressed into service and entrusted with the erection of technological structures and equipment.

Computerised network analysis has been adopted to control construction work and to progress supplies from indigenous sources.

Progress of Construction

With all these measures, the pace of construction work has been accelerated from the second half of last year. In terms of percentage of total civil work involved 88% of the earthwork excavation, 100% of the controlled earthfill and 78% of concreting and 59% of underground communications have been completed. The civil work for the first blast furnace complex is nearly complete. Similarly, as much as 152,000 tonnes of structures representing about 63% of the total have been received. Nearly 50% of the equipment has already been received. Out of this, 37,000 tonnes have been erected. The tempo of erection work in respect of technological structurals and the mechanical equipment has also picked up very substantially during the period under review. The supply position of refractories, which caused a great deal of anxiety till last year, has considerably

improved. So far, 82,000 tonnes of refractories have been received at site and the lining of the first Blast Furnace and Coke-Oven Battery No. 4 are in progress.

One of the significant achievements during the period under review is the completion of the first cooling pond. This cooling pond is a large artificial reservoir of about 3·52 sq. kms. of surface area designed to enable the cooling by natural means of the large quantity of processed water used in the plant; it also provides an emergency reserve for operation of the whole plant, should external arrangements for replenishment of losses be interrupted for any reasons for a period upto one month. It can hold about 33 million cubic meters of water. This pond has been formed by the construction of about 9·4 kilometres of earthen dyke built to the same technical standards as an earth dam. It involved 1·57 million cubic metres of excavation, 4 million cubic metres of controlled fill for the dyke and 210,000 cubic metres of stone revetment. The water in the cooling pond is received from the Tenughat Dam through a 35 kilometre long canal. This has cost Rs. 6 crores to construct; the canal linking the cooling pond with Tenughat Dam has cost another Rs. 4 crores.

Based on the confidence gained in recent times, it has been decided to step up the capacity of the plant from 1·7 million to 2·5 million tonnes in the current plan period itself by the installation of an additional L.D. Convertor and the connected equipment. Preliminary work on the expansion of Bokaro to 4 million tonnes stage is also under way.

Civil Works

The progress of civil work of Stage I till March, 1971 was as follows :—

	Unit	Total work involved	Progress till March, 1971
Earthwork excavation	cbm	12,637,350	11,364,100
Controlled earth fill	cbm	5,020,600*	5,226,300
RCC and concrete	cbm	1,719,112	1,293,895
Underground communications	metres	285,708	180,319
Permanent railway tracks	metres	131,301	38,411

*Total quantity is under revision.

Steel Structures

Of a total of 239,065 tonnes of steel structures required for Stage I of Bokaro upto end of March, 1971, 151,835 tonnes or 63% have been received as would be seen from the statement below :—

(figures in tonnes)

Sources	Total Qty.	Supplies
H.S.C.L.	149,884	83,958
H.E.C.	28,624	25,949
U.S.S.R.	17,708	16,006
B.S.L.	12,849	25,922
	239,065	151,835

Shortage of steel plates and matching sections has been impeding the progress of structural fabrication work. Realising that such a large magnitude of structural work could not be accomplished without adequate stocks of steel being built up by the project itself for timely supplies to contractors/suppliers, about 65,500 tonnes of steel have already been ordered on USSR. Nearly 80,000 tonnes of structurals have been erected till the end of March, 1971.

Equipment Supply and Erection

Against 275,605 tonnes of equipment required for Stage I allocation of orders and supplies received till March, 1971 were as follows :—

(in tonnes)

Sources	Quantity ordered	Quantity received	Percentage to total
U.S.S.R.	102,470	90,716	89
Czechoslovakia	1,400	1,400	100
HEC (including GRW)	72,234	14,052	33
M.A.M.C.	10,493	4,227	40
Other public sector supplies	9,072	5,382	50
Private sector suppliers	79,936	19,465	24
	275,605	145,242	52

A large percentage of the imported equipment from the USSR has been received. The balance of the supplies from the Soviet Union consists mostly of items of which the deliveries have been deferred for a short while to avoid receipt of materials, particularly electrical items, much in advance of the requirements to storage problems at the site.

The pace of indigenous supplies has improved lately, as a result of the close follow-up measures taken. A determined drive has been launched in H.E.C. and M.A.M.C. and one or two other undertakings to improve and maintain the rate of progress at the desired levels.

Though the supplies from private sector were only 24% of the target till March 1971, the rate of supplies is improving every month as a result of constant chasing and due to the assistance being extended to them in the procurement of steel and imported components. Steel from the Undertaking's own stocks is being issued to them to meet their critical requirements.

The complexity and magnitude of erection work of sophisticated equipment has led to failure on the part of some of the erection contractors. Such work has, therefore been either awarded to other public sector undertakings like Hindustan Steelworks Construction Limited and Garden Reach Workshop or has been organised departmentally.

Refractories

According to the original planning, out of 212,086 tonnes of refractories required for Stage I, only 4,130 tonnes were to be imported. However, due to the failure on the part of indigenous refractory manufacturers to meet their commitments, orders had to be placed abroad for the import of 47,600 tonnes of refractories. Further imports during the current year may be necessary to ensure adherence to the present targets of commissioning the plant.

With a view to examining certain suggestions for modifying specifications and inspection procedures, a Committee under the Chairmanship of the Director-General, Central Glass & Ceramic Research Institute was appointed. The refractory manufacturers were also represented on this Committee. As a result of the implementation of the recommendations of this Committee and the technical assistance extended by Bokaro Steel to the indigenous manufacturers the supplies from indigenous sources over the last one year have improved significantly.

The present position is that 54,600 tonnes of refractories have been received out of 151,000 tonnes to be procured indigenously. Similarly 27,566 tonnes out of a total of 47,600 tonnes ordered so far from abroad have been received.

Based on the experience gained with the procurement of refractories for Stage I, advance orders for critical refractories required for coke ovens and blast furnaces for Stage II have already been placed.

Network Planning.

With a view to provide the Management an adequate support in regard to flow of controlled information and develop result oriented exception reporting techniques, Electronic Data Processing Centre has been organised. Facilities have been specially developed for the implementation of computerised Project Control System, using network planning. A broad based and comprehensive system has been evolved for effective monitoring of construction work at site and also to progress the delivery of equipment in time. Review reports are being compiled fortnightly to highlight the critical items of construction activities for immediate remedial steps. Highlight reports on equipment delivery are also being compiled by integrating the network status and equipment delivery status and bringing out unmatched or delayed deliveries for special attention.

Commissioning

The present schedule for Stage I envisages completion of the erection of the first Blast Furnace Complex by December, 1971 and the entire Stage I by March, 1973. The commissioning of various units after completion of erection work would thereafter take two or three months. Different units of the plant are being commissioned as they are completed. The structural shop of Bokaro has been in production since December, 1969. This structural fabrication facility is proving extremely useful in construction work of the plant. Besides undertaking complicated structural work for construction of the plant, this shop is meeting critical requirements of fabricated materials, which hold up erection due to failure of the fabricating contractors. The central machine shop and the sheet metal section of the pattern shop were also commissioned in September, 1970. Cooling Pond No. 1 alongwith Tenu-Bokaro Canal required for plant water supply has already been commissioned.

It is expected to achieve an intermediate stage of capacity for producing 2·5 million tonnes of steel ingots, one year after the commissioning of the 1·7 million tonnes stage.

Recruitment and Training of Operational Personnel

A nucleus of the organisation for commissioning and operating the plant has already been set up. Advance preparatory action to recruit and train personnel for operations and also to place the minimum number of experienced Soviet Specialists in position has been initiated. Efforts to get the services of experienced Indian personnel from the other Steel Plants in the country to man the supervisory positions are being made. However, since the total requirements in this respect cannot be met, entirely from this source, a training programme for the recruitment and training of engineers and workers at different levels has been in existence for some time now. Over 200 graduate engineers have already been trained in the steel plants of Hindustan Steel Limited. The recruitment and training of 300 senior operative trainees and 300 junior operators trainees has also been undertaken. To provide suitable training to the Indian personnel in operation and maintenance of similar operating plants, it is planned to train a total of 244 persons in USSR. The first batch of 50 engineers has already returned from the USSR after completion of their training; out of the second batch of 68 engineers 15 have returned after satisfactory completion of their training programme.

Raw Materials

The actual requirement of 4.17 million tonnes of iron ore, comprising 1.24 million tonnes of lump ore and 2.93 million tonnes of ore fines is ultimately to be met from the Kiriburu mines, which is being developed by National Minerals Development Corporation. Till the expansion of Kiriburu mines is completed, some quantity of fines will have to be obtained from the Barajamda area. The movement of these fines to Bokaro from the Barajamda area is likely to present some difficulties due to the limitations of the rail capacity in that area. The matter is under discussion with the Railways.

The annual requirements of 3.4 million tonnes of coal are to be met from coal washeries of Dugda, Kargali, Kathara and Swang. The question of allocation of a suitable coking blend for Bokaro Stage I will be finalised as soon as the trials at present being conducted by the CFRI, are completed in July, 1971.

The annual requirement of 1.145 million tonnes of limestone for the blast furnace will be met from the captive mine being developed at Bhavanathpur. The crushing plant will

be commissioned in time for the commissioning of the first stage. A 32 Km rail link to Bhavanathpur has already been completed and commissioned. Limestone is presently being supplied from the mine to the Durgapur Steel Plant. The annual requirements of 443,000 tonnes of SMS grade limestone would be met from the semi-mechanised captive mine being developed at Kuteshwar.

The requirements of dolomite would be met from quarries being developed at Tulsidamar near Bhavanathpur and of quartzite from quarries at Satanpur near Bokaro. Manganese ore will be obtained mostly by purchase from the open market or through Minerals & Metals Trading Corporation.

Bokaro Stage II

The expansion of Bokaro from 1.7 to 4 million tonnes, is to be phased in a manner so as to achieve a capacity of 2.5 million tonnes of ingot steel by the end of the current Plan Period. The Government of USSR would be providing the necessary assistance and foreign exchange to the tune of 85 million Roubles, equivalent to Rs. 70.8 crores from the unutilised balance of past Soviet credits. The Central Engineering and Design Bureau have been appointed principal consultants for this expansion programme; M/s. M.N. Dastur & Co. have been allotted similar consultancy functions as during the first stage.

The Central Engineering and Design Bureau have already taken the work of updating the Project Report for the 4 million tonnes stage, originally prepared by the Soviet Consultants. Concurrently, soil and other investigation work in certain areas of the Plant have been completed. Similarly, the civil work on the fifth coke oven battery, fourth blast furnace and the second cooling pond has been started. Steps are under way to place orders for plant and equipment to be procured from indigenous sources as well as from abroad. Letters of intent for the procurement of 32,460 tonnes of equipment and 16,758 tonnes of structurals have already been given to H.E.C. Similar advance action for the procurement of refractories has also been taken on hand.

Labour situation

Labour unrest from time to time has been one of the serious impediments in the construction of the project. The Project management has taken active interest to safeguard the legitimate

interest of the workers employed by the contractors and to ensure the application of the Wage Board's Awards of the engineering industries to these workers, though they are strictly not covered by this. An Advisory Committee consisting of the representatives of the various labour unions, fabricators, contractors, HSCL and BSL has been formed so that all demands of the workers can be discussed and settled before the situation takes a serious turn. These measures have led to an overall improvement in the labour situation, although it cannot be regarded as being entirely satisfactory; wild cat strikes still take place leading to serious disruption of work, though proportionately the number of man-days lost as a result of strikes, lock-outs and closures has considerably decreased compared to the previous years.

HINDUSTAN STEELWORKS CONSTRUCTION LIMITED

Hindustan Steelworks Construction Limited was incorporated in June, 1964, with the object of taking up the construction of steelworks in the first instance and other construction work later. Major part of the Company's work is at present connected with the Bokaro Steel Plant.

The authorised capital of the Company is Rs. one crore, of which Rs. 23 lakhs has been paid up as share capital. The Company has also been given a loan of Rs. 50 lakhs during 1970-71. The budget for 1971-72 includes a provision of Rs. 27 lakhs towards "equity". The company has been earning profits since its very inception. The net profits earned by the Company year-wise are as given below:—

1965-66	Rs. 56,40,770
1966-67	Rs. 17,49,905
1967-68	Rs. 2,93,021
1968-69	Rs. 13,03,000
1969-70	Rs. 10,59,000

Contracts for Bokaro

The following civil engineering and structural works have been/are being executed for Bokaro :

(*i*) Site levelling work involving 13·4 million cu. m. of earthwork at an estimated cost of Rs. 9·36 crores. The work was awarded on the 1st October, 1965, and has been completed.

(*ii*) Setting up of a construction yard for the structural fabrication shop at Bokaro at an estimated cost of Rs. 70 lakhs.

(*iii*) Provision of temporary rail facilities at Bokaro at an estimated cost of Rs. 47 lakhs.

(*iv*) Civil engineering construction work at a cost of Rs. 96·77 crores and fabrication, erection and painting of structural steelworks at a cost of Rs. 36·30 crores.

In addition to the above works, the following equipment erection contracts in Bokaro Steel Plant construction have also been entrusted during the year:—

Erection of Equipment, Technological Structures and Laying of Electrical cables etc.

(*i*) Steel Melting Shop complex	Rs. 156 lakhs
(*ii*) Blast furnace	Rs. 41 lakhs
(*iii*) Outdoor Pipelines erection in Power Plant zone.	Rs. 28 lakhs
(*iv*) Electrical erection and construction works for inter plant outdoor cable network.	Rs. 41 lakhs

Contracts have also been concluded for approximately 15,000 tonnes of Equipment Erection works of Technological Structures and Outdoor Pipe lines jointly with Heavy Engineering Corporation Limited who would do part of fabrication works of structural supports. The total cost of the work is Rs. 240 lakhs.

The work of investigation and collection of data for stage II work of the Bokaro Steel Plant has also been entrusted to the Company.

Upto the end of March, 1971, the Company has completed the excavation of 11.14 million cu. m. which is 86·76% of the total work involved, and concreting of 12.94 lakhs cu. m. which is 69·26% of the total work. In the underground communication work, the Company has completed 180,011 metres of work, which is 63·12% of the total work. The total structural fabrication work done till the end of March, 1971, is 83,958 tonnes, which is 56% of the total work. The Company has also completed 60,997 tonnes of structural erection, which is 36% of the total work. The progress of civil engineering as well as structural fabrication and erection suffered some set back due to industrial unrest in October-November, 1970. The labour situation is, however, peaceful now.

The pace of fabrication of structurals and erection suffered some set-back due to shortages of steel plates particularly of killed quality and matching sections. Import of steel plates has already taken place and arrangements are also being made for arranging imports of matching sections, etc. This will

accelerate the pace of construction of the Bokaro Steel Plant. Work has also been started on equipment erection and laying of electrical cables.

Contracts for works other than in Bokaro

The Company has secured the contracts for undernoted works :—

(*i*) Zircaloy Fabrication Plant for the Atomic Energy Commission valued at Rs. 70 lakhs.

(*ii*) Bharat Pumps & Compressor Plant including Gas Cylinder Plant at Naini, Allahabad valuing Rs. 125 lakhs.

(*iii*) Indian Telephone Industries Plant at Naini, Allahabad, for a value of Rs. 63 lakhs.

(*iv*) Dry Dock for Garden Reach Workshop Limited costing Rs. 200 lakhs.

(*v*) Construction of industrial sheds for Central Inland Water Transport Corporation for a value of Rs. 20 lakhs.

With the decision of the Government of India to set up three new Steel Plants at Salem, Hospet and Visakhapatnam, this Company has been associated with the site selection and other preparatory works, and with the experience which it has already gained, it is well equipped to take on a major role in the construction of the New Steel Plants.

HEAVY ENGINEERING UNDERTAKINGS

The Heavy Engineering Undertakings of the Ministry *viz.* Heavy Engineering Corporation Limited, Ranchi, Mining and Allied Machinery Corporation Limited, Durgapur, Triveni Structurals Limited, Naini, Allahabad, Bharat Heavy Plates and Vessels Limited, Visakhapatnam, and Tungabhadra Steel Products Limited, Tungabhadra Dam were initially a part of the Ministry of Industrial Development and Company Affairs. These undertakings were transferred to the Ministry of Steel and Heavy Engineering in February, 1969. After the recent reorganisation these continue to be part of the Department of Steel. Heavy Engineering Corporation Limited was registered in December, 1958, Mining and Allied Machinery Corporation Limited in April, 1965, Triveni Structurals Ltd., in July, 1965, Bharat Heavy Plates & Vessels Limited in June, 1966. Tungabhadra Steel Products Ltd. was registered in April 1960 as a joint venture of the Governments of Andhra Pradesh and Mysore. Government of India acquired controlling interest in the Company in February, 1967. From April, 1970, a new undertaking called Engineering Projects (India) Limited has been constituted. This is a consortium of selected public undertakings to deal with supply of steel plant and mining equipment in India and abroad.

The total investment by Government in these companies as on 31-3-1971 is Rs. 129·04 crores in the form of equity and Rs. 200·65 crores in the form of loans. Production of all these companies during 1970-71 was valued at Rs. 34·50 crores.

Heavy Engineering Corporation Limited and Mining and Allied Machinery Corporation are capital intensive undertakings with a long gestation period. On account of low production these two units have been incurring losses in the past. Triveni Structurals Limited and Bharat Heavy Plates and Vessels Limited started commercial production only recently and are incurring losses. Steps have already been taken to improve production in the Heavy Engineering Undertakings and it is expected that in the next few years they will start making profits. Tungabhadra Steel Products Ltd. have been making profit from the beginning even though the profit margin has been falling over the years.

HEAVY ENGINEERING CORPORATION LIMITED

Heavy Engineering Corporation Limited, Ranchi was incorporated on the 31st December, 1958. The company comprises of three engineering plants, namely (i) Heavy Machine Building Plant with ultimate capacity of 105,000 tonnes of heavy machinery and structurals items per year and includes a Steel Structural Shop with a capacity for manufacture of 25,000 tonnes of fabricated structurals per year; (ii) Foundry Forge Plant with a total capacity of 180,000 tonnes per year and (iii) Heavy Machine Tools Plant with a capacity of 10,000 tonnes a year. Of these, the Heavy Machine Building Plant has been established with Soviet assistance and the Foundry Forge Plant and the Heavy Machine Tools Plant have been set up with Czech. assistance.

The total investment in the company as on the 31st March, 1971 is Rs. 246·85 crores of which Rs. 100 crores is in the form of equity investment and the balance of Rs. 146·85 crores was in the form of loans. The growth of investment from time to time has been as under :

Period	*Equity*	*Loans*
	(All figures in Rs. crores)	
As on 31-3-61 (Second Plan period)	6·64	Nil
As on 31-3-66 (end of Third Plan period)	88·95	44·77
As on 31-3-71	100·00	146·85

During 1969-70, the company incurred a loss of Rs. 18·18 crores. As on 31st March, 1970, the cumulative losses amounted to Rs. 58·90 crores. In 1970-71 the company is expected to incur a loss of Rs. 15·50 crores.

These losses have been incurred in the initial years when there has been an overlap of constructional activity with the operational phase. The losses are also due largely to the long gestation years needed to build up production. During this period manufacture of a number of sophisticated and tailor-made items have been developed and established involving considerable experimentation and developmental expenditure. Manufacture of a number of highly complicated components as a part of import substitution has also been developed for production in limited quantities.

The production in the three plants of the company during the last three years has been as under :

Year	*Quantity (tonnes)*	*Value* (Rs. lakhs)
(I) *Heavy Machine Building Plant*		
1967-68	14,611	556·93
1968-69	23,853	1,066·79
1969-70	24,462	1,418·48
1970-71	22,966	1,992·29
(II) *Foundry Forge Plant*		
1967-68	9,003·13	179·60
1968-69	16,641·82	314·07
1969-70	28,151·64	699·20
1970-71	39,002	Not available.
(III) *Heavy Machine Tools Plant*		
1967-68	15 units	36·60
1968-69	8 ,,	21·97
1969-70	27 ,,	78·64
1970-71	28 ,,	105·43

Heavy Machine Building Plant

Initial production in the plant commenced in November, 1963 on the basis of partly installed machinery. The plant is now complete and production has commenced in all the shops.

In the Steel Structural Shop, production commenced in October, 1966 while the erection of equipment was still in progress. Production of this shop has been indicated in the figures shown for the Heavy Machine Building Plant.

Some of the items of equipment produced for the first time in the country in the plant during the period under reference are as under :—

(*i*) Single Roll Crusher for Bhilai Steel Plant with output capacity of 80 tonnes per hour.

(*ii*) Coke Pusher for Bhilai Steel Plant.

(*iii*) Twin type 7 Roller Crizzly.

(*iv*) Ball Mill of capacity of 16 tonnes per hour for pulverising coal for Bokaro.

(*v*) Reduction Gear Boxes weighing 27.5 tonnes for Ichapur Bar Mill.

(*vi*) Charge Distributor for Bokaro Steel Plant.

Foundry Forge Plant

Except for the 6,000 tonnes press, the construction is more or less complete. The work relating to the 6,000 tonnes press is in progress. Fabrication and erection of structurals has been substantially complete. The press is expected to be commissioned by the end of 1971.

Production in the plant commenced in different units progressively with the progress of completion of production facilities commencing with the Grey Iron Foundry in May, 1964. During 1970-71 the plant manufactured 11 tonne roller table frames for the Rolling Mills of the Metal and Steel Factory, Ichapore apart from forging axles for the Diesel Locomotive Works, Varanasi.

Heavy Machine Tools Plant

Construction of this plant is complete. Manufacture of traction gear sets for the Chitranjan Locomotive Works has been established and supplies are now being made to them. During 1970-71 the plant manufactured and supplied an edge planing machine weighing 26 tonnes to Bharat Heavy Plate & Vessels, Visakhapatnam.

Supplies to Bokaro

The main workload with the company at present is supplies for the first stage of the Bokaro Steel Plant. The volume of the order is as under :—

Mechanical equipment . . .	71,894 tonnes
Steel structurals	27,339 tonnes
Machine Tools	346 tonnes
Total	99,579 tonnes

To meet the delivery requirements, 14,889 tonnes of mechanical equipment have been sub-contracted to other parties. Of the remaining 57,006 tonnes of mechanical equipment to be

manufactured in the plant, 21,541 tonnes have been despatched to Bokaro by the end of March, 1971. Similarly, against 27,399 tonnes of structurals, 27,498 tonnes have been despatched to Bokaro by the end of March, 1971. There have, however, been shortfalls in supply against the agreed schedules. These are mainly due to inadequate availability in time of materials and bought-out items and technological problems encountered while establishing the manufacture of some of the sophisticated items. In order to supplement supplies of castings and forgings from the Foundry Forge Plant, orders had been placed on outside parties for certain quantities. The supplies from the trade had not been of satisfactory quality and were also responsible for shortfalls in supply to Bokaro. A detailed monthly plan for the supply of equipment required for the commissioning of the first Blast Furnace Complex at Bokaro as well as the rest of stage I of Bokaro has now been drawn out and is reviewed every month so that the commissioning schedule of Bokaro is not delayed.

During the period from April 1970 to December 1970, orders for a total value of about Rs. 900 lakhs were received. Letter of Intent has been received for supply of equipment and structurals for the second stage of Bokaro. The prospects of further orders are good in the light of the steel development programme decided upon by Government. Some of the new items which the company proposes to take up and which would be of repetitive nature are crankshafts for diesel locomotives and machine tools for Railways, container cranes and reducers for export to the Soviet Union.

Ancilliary industries have been developed in collaboration with the Government of Bihar and 13 units are at present in production and supplying the requirements of the Company.

Steps for Improvement

Production Plan for 1971-72 is being prepared with a view to bring about sizeable increase in production in two years. All semi-finished and unfinished items are being identified and listed and taken up for completion with minimum delay. All collaboration agreements are being examined with a view to exploiting them fully. Cost accounting system is being introduced in the plants to ensure that each order is properly costed. The Finance Section in the plants is being reorganised to make it more effective and efficient. Steps are being taken to reorganise the capital structure of the company to reduce the interest liability.

The top management of the company is being reorganised and streamlined to make it production-oriented. Positive steps are being taken to improve industrial relations by a review of all pending personnel problems and policies and incentive schemes.

MINING AND ALLIED MACHINERY CORPORATION LIMITED

Mining and Allied Machinery Corporation Ltd., Durgapur was incorporated on the 1st April, 1965, to take over the Coal Mining Machinery Project which till then formed part of Heavy Engineering Corporation Ltd., Ranchi. The project has been set up with assistance from the Government of USSR. Construction commenced in 1960 and is now complete.

Investment

As on 31-3-1971 the investment in the company amounted to Rs. 60.45 crores, out of which Rs. 20 crores is in the form of equity and Rs. 40.45 crores is in the form of loans. The growth of investment from time to time has been as under :—

Period	Equity	Loans
	(All figures in Rs. lakhs)	
As on 31-3-1966	112	488
During 1966-67	1768	1950·47
During 1967-68	25·50	537·10
During 1968-69	Nil	393·76
During 1969-70	94·50	230·34
During 1970-71	Nil	444·91

Financial Results

During 1969-70, the company incurred a loss of Rs. 6.40 crores. The loss before charging depreciation, interest and social over-heads was Rs. 272·97 lakhs. It is expected that in 1970-71 the company would incur a loss of Rs. 570·65 lakhs. The total cumulative loss upto the 31st March, 1971 would be Rs. 32.18 crores. The losses incurred by the company during the last four years have been as under :—

1967-68		Rs. 685·50 lakhs
1968-69		Rs. 638·69 lakhs
1969-70		Rs. 640·16 lakhs
1970-71	(estimated)	Rs. 570·65 lakhs

Production

Production during the past years has been as under :—

Year	Production tonnes	Value Rs. in lakhs
1967-68	5,076	226
1968-69	4,099	158
1969-70	5,765	284
1970-71	7,742	488

The plant has been designed to manufacture various items of underground coal mining equipment like conveyors, coal cutters, loaders, pumps, fans, mine locomotives etc. upto a total of 45,000 tonnes a year.

While some production in the plant was undertaken in 1964-65 serious production commenced only in 1965-66. During 1969-70, the total production of saleable goods was 5764.4 tonnes valued at Rs. 2.84 crores. In 1970-71 the production of saleable goods has been 7732 tonnes at an estimated value of Rs. 4.88 crores. The total orders in hand at the end of December, 1970 was valued at Rs. 23.55 crores including turn-key jobs like Haldia Port Mechanisation valued at Rs. 12 crores and Bokaro raw materials handling plant valued at Rs. 10 crores for delivery spread over the next three years.

During the year, the company produced a large axial flow fan for the National Coal Development Corporation for installation at their Sudamdih Colliery. This complicated fan with a power drive of 2200 HP and discharge capacity of 240 cubic metres per second was also designed and developed by engineers and technicians of MAMC.

The production capabilities of this plant were based on the coal targets, originally envisaged for the third and fourth Five Year Plans at 100 million and 200 million tonnes respectively. These targets have not been realised and in consequence, the plant has been facing immense difficulties for want of orders for the type of equipment it was meant to manufacture and supply on the basis of batch production. This has been a significant factor against the efficient functioning of the company which has had also to diversify production. This attempt towards diversification has resulted in imbalance in the utilisation of installed plant and equipment. Besides, this has necessitated increased work in fields like know-how, designs, process, preparation and tooling resulting in a longer time cycle. The diversified

items have been, by and large, tailor-made and non-repetitive with the result that the cost towards tooling, patterns and other preparatory work in design and technology becomes substantial while output in tonnes also goes down. Partly because of the nature of the orders for items other than mining equipment and partly due to labour unrest the production build up in this company has been slow. An Experts Committee was set up in 1969 with members drawn from both the public and private sector industries as also from Government to consider the feasibility and economics of the manufacture of items of equipment which could be progressively taken up under the programme of diversification. The Committee recommended in April 1970 that MAMC should take up manufacture of the following broad groups of machinery and components :

(*i*) Mining equipment.

(*ii*) Bulk handling equipment for ports.

(*iii*) Material handling equipment for steel plants, power plants and fertiliser projects, etc.

(*iv*) Components for agricultural tractors and earthmovers.

(*v*) Gear boxes and excavators for export to USSR.

(*vi*) Miscellaneous equipment such as washing plant, ash handling plant etc.

(*vii*) Casting and forgings of spare parts and components for various industries.

According to the diversification programme, orders for 61,000 tonnes of machinery and components valued at Rs. 55 crores are expected to be received by MAMC during the period 1970-74.

The company are taking up manufacture of excavators and reduction gear boxes for exports to the Soviet Union. The immediate proposal is for the export of 615 excavators and 1355 reduction gear boxes to the Soviet Union over a period of four years.

The company has taken a number of steps to improve its internal working. An incentive scheme based on work measurement was introduced from March, 1970. After resolving some of the initial difficulties and disputes most of the shops have started responding to the scheme. The overall productivity during the last quarter of 1970-71 was double that of the same quarter one year earlier. The skills of workmen are also being improved through schemes of on-the-job training with the help of Indian and Soviet Instructors.

During the year, the Public Undertakings Committee of Parliament submitted its report on the Company. The main recommendation of the Committee was that the company should be wound up in view of the huge losses incurred. This recommendation is under consideration. In arriving at a decision various other factors have to be considered, not the least of which are the repercussion of such a step on the employment situation in the area, the hardships which such a decision would entail and also the set back which the decision would involve to certain sectors of the economy.

Steps are being taken to improve the production substantially in the next two years. The partially completed items are being identified with a view to get them completed on high priority. All collaboration agreements are being listed and a programme is being prepared for exploiting them fully. The Programme for diversification of production is being taken up for implementation. A scheme of cost accounting has already been introduced in the company with a view to improve profitability. Steps are being taken to improve discipline on the shop floor in stages and to give training to the officers at middle and lower levels in management techniques. The top management of the company is being reorganised. Proposals for restructuring the capital of the company with a view to reduce the burden of interest are under consideration.

TRIVENI STRUCTURALS LIMITED, NAINI

In June, 1965, an agreement was entered into between the Government of India and Voest of Austria for the establishment of a Structural Shop with assistance from Voest, and Triveni Structurals Ltd. was registered in July, 1965. According to the agreement, Voest have invested 49 per cent in the shares of the company and the remaining 51 per cent of the shares are held by the Government of India. The project is for the manufacture of hydraulic gates, penstocks, storage tanks, transmission towers, steel bridges, LD convertors, cranes, hoists and heavy steel structurals for industrial buildings. The installed capacity is 25,000 tonnes a year.

Investment

The present issued and subscribed capital is Rs. 3 crores. As on 31-3-1971, Government had invested in the company an amount of Rs. 565 crores of which Rs. 1.53 crores is in the

form of equity capital and balance of Rs. 4.12 crores in the form of loans. The investment made from year to year has been as under :—

Year	Equity	Loan
	(all figures in Rs. lakhs)	
1965-66	5.10	Nil
1966-67	76.50	Nil
1967-68	20.40	146.60
1968-69	51.00	95.00
1969-70	Nil	28.40
1970-71	Nil	142.40

Production

Initial production in the factory started in August, 1968. The production during 1968-69 and 1969-70 and 1970-71 has been as under :—

1968-69	2,146.91 tonnes
1969-70	5,560.32 „
1970-71	8,908.00 „

Financial Performance

The first Profit and Loss Account of the company was prepared during the year 1968-69. The company have incurred losses during 1968-69 as well as in 1969-70 as under :—

1968-69	16.23 lakhs
1969-70	61.50 „
1970-71 (estimated)	65.00 „

The total cumulative loss as on the 31st March, 1971, taking into account the losses during the previous years as also deferred revenue expenses written off, amounts to Rs. 146·52 lakhs. It is estimated that the break even point would be reached when a total production of 18,000 tonnes per annum is achieved.

The factory of the company is substantially complete. During 1970-71, the revised target of production was 9,000 tonnes against which a production of 8,900 tonnes valued at Rs. 109 lakhs was achieved. For 1971-72, a production of 12,000 tonnes valued at Rs. 155 lakhs has been planned. However, efforts would be made to step up production to 16,000 tonnes.

During the year 1970-71, the company has been able to procure a large number of orders from various customers including orders for designs, fabrication and supply of hydraulic structures for various power projects. The company has also procured from All India Radio an order for design fabrication and erection of a 300 metre high television tower to be erected in Bombay. This will be the first of its type being built in the country.

BHARAT HEAVY PLATE AND VESSELS LIMITED, VISAKHAPATNAM

Bharat Heavy Plate and Vessels Ltd., Visakhapatnam, a wholly Government of India owned company was set up in June, 1966 for the establishment of a plant near Visakhapatnam, in Andhra Pradesh for the manufacture of equipment required by the Fertiliser, Petroleum, Petro-chemical and other heavy chemical and allied industries. The plant has been set up with Czech assistance. The capacity of the plant is about 23,000 tonnes a year, when in full production. During full production the factory is expected to produce equipment valued at about Rs. 14 crores.

Investment

As on the 31st March, 1971, Government have invested Rs. 16.23 crores in the company. Of this Rs. 7 crores is in the form of equity capital and the balance of Rs. 9.23 crores is in the form of loans. The investment was made year-wise as shown under :

Year	Equity	Loan
	(All figures in Rs. lakhs)	
1966-67	24	nil
1967-68	150	nil
1968-69	526	39.90
1969-70	nil	402.00
1970-71	nil	480.94

The first profit and loss account of the company was drawn up during 1969-70 when the company incurred a loss of Rs. 27.47 lakhs. In 1970-71 the company would incur a loss of Rs. 91.36 lakhs.

Construction of the plant has made substantial progress. Originally, the plant was scheduled for completion by the end of 1969 but delay in the procurement of steel plates and sections postponed this. It is now expected that all the civil work will be completed and the entire machinery erected and commissioned by August, 1971.

The estimated capital cost of the plant is Rs. 16.60 crores. The cost of the township is estimated at Rs. 2.78 crores. Against the total cost of Rs. 19.38 crores, the actual expenditure upto November, 1970 has been Rs. 13.25 crores inclusive of Rs. 0.434 crores on township.

Production commenced in a small way in July, 1969 with the available facilities. During 1969-70, 240 tonnes of equipment valued at about Rs. 6.50 lakhs was manufactured. In 1970-71, 548 tonnes of equipment valued at about Rs. 17.00 lakhs was manufactured by the company. During 1971-72, the target of production is 2,300 tonnes valued at Rs. 3.10 crores.

Construction of the first phase of the township consisting of 712 houses of various types is progressing and it is expected that about 400 houses would be ready for occupation by July/August 1971.

The total value of orders received upto 31st March, 1971 is Rs. 492 lakhs.

The company is now in the process of implementing two schemes for the manufacture of new items of equipment in the plant. These are manufacture of air and gas separation plants and multi-layer high pressure vessels. Suitable foreign collaboration agreements have been concluded for these schemes.

TUNGABHADRA STEEL PRODUCTS LIMITED, TUNGABHADRA DAM

Tungabhadra Steel Products Ltd. was established in April, 1960 as a joint venture of the Governments of Mysore and Andhra Pradesh, each holding a share capital of Rs. 25 lakhs for the manufacture of hydraulic gates, hoists and penstocks for river valley projects. In February, 1967, the Government of India acquired a controlling interest in the company by investing Rs. 51 lakhs as share capital while the investment by the Governments of Andhra Pradesh and Mysore remains unchanged. There has been no further investment in the company either in the form of equity or loans.

Financial Results

Apart from 1963-64, the company has been making profit every year. The net profit before tax during the last four years has been as under :

1967-68	Rs.	15.28 lakhs
1968-69	Rs.	9.64 ,,
1969-70	Rs.	4.49 ,,
1970-71	Rs.	0.95 ,,

The profit showed a decline during 1969-70 mainly because of the substantial increase in the emoluments of the employees consequent on the implementation of the recommendations of the Wage Board for Engineering Industries. During 1967-68, the company had declared a dividend of 8 per cent and during 1968-69 4 per cent. During 1969-70 the company could not declare dividend. However, it was possible for the company to transfer an amount of Rs. 2.37 lakhs to the general reserve in addition to a development rebate reserve of Rs. 1.68 lakhs. In 1970-71 the company is expected to make a profit of Rs. 0.95 lakhs.

Production

The principal items of production in addition to gates, hoists and penstocks for river valley projects are transmission towers, building structurals and pressure vessels. The production during the last four years has been as under :

Year	Production	
	Quantity (Tonnes)	Value (Rs. in lakhs)
1967-68	1050	64.01
1968-69	2305	72.50
1969-70	3892	106.00
1970-71	4395	110.00

During 1970-71, the target of production was 4,000 tonnes. The actual production during the year was 4,300 tonnes.

With a view to expand its activities, the company has acquired 87 acres of land at a distance of about a mile from the existing plant site. The workshop of the company is likely to be transferred to the new site in a phased manner without disrupting production. A galvanising plant has been commissioned at

this new site for galvanising high tension transmission towers. A light structural shop for the manufacture of towers, sub-station structures and light structurals has been set up near the galvanising plant. The company is also considering various measures of diversification.

With the commencement of the Fourth Five Year Plan, new irrigation and power projects have begun to take concrete shape and it is expected that substantial orders for the traditional items of production like gates, hoists and penstocks will be received. The total orders in hand at the end of March, '71 was Rs. 3 crores for supply and erection of various categories of steel structures.

A scheme for construction of 200 tenements under the subsidised industrial housing scheme in the state sector by the Mysore Housing Board has now been finalised and the work is shortly to be taken up. These quarters are expected to be ready for occupation by November, 1971.

ENGINEERING PROJECTS (INDIA) LTD.

In April, 1970 a Consortium of selected public sector undertakings was constituted to deal with the supply of steel plant and mining equipment in India and abroad with the following functions :—

(*i*) To carry on all business connected with the supply of equipment for steel plants, mines, fertiliser factories and other industrial projects and their ancillary operations.

(*ii*) To take contracts for design, manufacture, inspection, supply, erection and commissioning of all kinds of equipment for the above purpose on a turn-key basis or otherwise by utilising the facilities available with the member companies and obtaining where necessary the rest from other sources.

(*iii*) To issue tenders and be responsible for the scrutiny etc. on behalf of the customers.

(*iv*) To take up inspection and quality control of all the equipment supplies to the customers.

(*v*) To undertake any other work with a view to commission and to put into operation industrial projects and their ancillary services.

The new company was called 'The Indian Consortium for Industrial Projects Limited'. The name has since been changed to Engineering Projects (India) Limited.

The public undertakings which are participating in the share capital of the Consortium and the percentage of their share holding are as under :

(*i*)	Heavy Engineering Corporation Ltd., Ranchi .	51%
(*ii*)	Mining and Allied Machinery Corpn. Ltd., Durgapur	7%
(*iii*)	Bharat Heavy Plates and Vessels Ltd., Visakhapatnam	7%
(*iv*)	Hindustan Steel-works Construction Ltd., Calcutta .	3%
(*v*)	Triveni Structurals Ltd., Naini, Allahabad. . .	7%
(*vi*)	Bharat Heavy Electricals Ltd., New Delhi . .	10%
(*vii*)	Heavy Electricals (India) Ltd., Bhopal . . .	10%
(*viii*)	Instrumentation Limited, Kota	5%

The initial authorised capital of the company is Rs. 30 lakhs and the initial subscribed capital is Rs. 10 lakhs.

The company started work from 25th May, 1970, when the Managing Director was appointed. It has been decided that to facilitate contacts with prospective customers, the company should begin its operation with a regional office at New Delhi, where most of the important Indian companies which would need assistance for turn key jobs and also the foreign embassies are located. For the same reason the Managing Director of the company is also stationed at New Delhi.

The company has created a nucleus organisation and is now in the process of negotiations for securing contracts both at home and abroad.

APPENDIX I

PRODUCTION OF STEEL INGOTS

(In '000 tonnes)

Year	Bhilai	Durgapur	Rourkela	TISCO	IISCO	MISL	Others	Total
1961-62	789.0	462.0	354.0	1643.0	934.0	49.0	54.0	4285.0
1962-63	1060.0	731.0	700.0	1799.0	1002.0	46.0	57.0	5395.0
1963-64	1142.7	972.4	800.1	1891.5	1026.7	47.8	63.4	5944.6
1964-65	1130.6	1006.2	979.4	1955.6	949.8	46.5	69.3	6137.4
1965-66	1371.3	1000.7	1064.5	1978.6	970.0	69.2	71.8	6526.2
1966-67	1851.9	754.2	942.8	2001.0	896.9	75.4	74.7	6596.9
1967-68	1785.0	738.0	924.1	1932.7	790.7	91.3	69.6	6331.4
1968-69	1735.0	823.1	1161.7	1815.6	776.6	119.7	73.4	6505.1
1969-70	1875.7	818.3	1103.6	1708.1	699.6	136.3	91.6	6433.2
1970-71	1939.8	633.9	1038.1	1701.4	621.8	78.0	*97.8	6110.8

*Provisional.

APPENDIX II

PRODUCTION OF SALEABLE PIG IRON

(In '000 tonnes)

Year	Bhilai	Durgapur	Rourkela	TISCO	IISCO	MISL	Others	Total
1963-64	406.7	418.4	98.4	6.2	203.1	..	31.1	1163.9
1964-65	349.1	385.4	78.7	23.2	207.4	..	42.0	1085.8
1965-66	508.6	336.2	68.3	17.6	218.5	..	26.4	1175.6
1966-67	550.4	201.1	58.7	2.7	172.2	..	28.4	1013.5
1967-68	655.8	277.8	63.7	1.2	196.5	..	21.6	1216.6
1968-69	591.2	375.1	146.6	1.7	345.5	12.6	31.2	1503.9
1969-70	648.6	375.8	113.1	0.5	322.0	4.4	74.2	1538.6
1970-71	541.1	325.8	88.1	1.3	242.3	18.1	*55.9	1272.0

*Provisional.

APPENDIX III

PRODUCTION OF FINISHED STEEL—PRODUCERWISE

(In '000 tonnes)

Year	Bhilai	Durgapur	Rourkela	TISCO	IISCO	MISL	Others	Total
1961-62	354.0	81.0	178.0	886.0	557.0	39.0	844.0	2939.0
1962-63	355.0	234.0	427.0	977.0	632.0	39.0	1000.0	3864.0
1963-64	657.8	374.2	526.6	1035.3	651.9	41.1	1009.2	4296.1
1964-65	653.7	493.4	625.9	1108.1	636.7	39.1	876.1	4433.0
1965-66	725.6	510.5	717.3	1084.2	622.9	48.9	799.9	4509.3
1966-67	721.8	390.5	637.5	1061.7	575.9	59.9	1041.7	4489.0
1967-68	689.7	342.1	602.2	1001.8	451.1	69.7	895.6	4052.2
1968-69	902.7	383.0	737.6	1048.3	512.4	76.6	1241.1	4901.7
1969-70	1133.7	395.2	757.6	1001.7	459.7	40.3	1259.3	5047.5
1970-71	1278.2	367.3	593.9	971.1	465.7	18.1	*1030.7	4725.0

*Provisional.

APPENDIX IV

PRODUCTION OF FINISHED STEEL—CATEGORYWISE

(Figures in thousand tonnes)

Category	1968-69	1969-70	1970-71*
Lt. & Med. Structurals	673.4	612.9	909.6
Heavy Structurals	284.9	243.0	
Heavy Rails	262.3	247.7	384.4
Light Rails (i) 1st Class (ii) 2nd Class	144.0	170.4	
Black Sheet (Corr.)	5.0	7.0	
B.P. Sheets (i) Hot Rolled	1.3	..	227.2
(ii) Cold Rolled	214.1	205.7	
G.P. Sheets	96.6	83.5	79.3
G.C. Sheets	43.8	74.9	168.4
Plates	148.0	119.7	
Bars	364.5	321.3	272.9
Rods	1033.2	1151.6	1586.0
Wires (i) Black	522.4	575.6	
(ii) Galvd.	72.4	72.5	55.0
(iii) Others	48.8	46.7	35.0
Hoops	61.1	63.6	50.0
Strips (i) Hot Rolled	5.3	2.3	5.9
(ii) Cold Rolled	206.2	244.8	104.0
Box Strappings	84.2	81.2	94.1
Steel Sleepers	4.4	6.8	7.0
Tinplates	64.3	49.7	54.2
Skelp	92.8	94.5	121.7
Slit Coils	211.4	240.6	246.7
Wheels, Tyres & Axles	0.7	..	..
Special Sections	41.1	33.9	37.9
Tool, Alloy and Special Steels	15.2	36.5	50.4
TOTAL	4901.7	5047.5	4726.0

*Provisional as data on the production of certain units has not been received.

APPENDIX V

PRODUCTION OF INGOTS BY OTHER THAN MAIN PRODUCERS

(In '000 tonnes)

	1968-69	1969-70	1970-71 (up to Sept. '70)
Bhartia Electric Steel Co. Ltd.	1.8	4.3	1.6
National Iron & Steel Co. Ltd.	..	9.9	5.4
Guest Keen Williams Limited	41.7	35.5	23.8
Mukand Iron & Steel Works Limited	6.0	5.3	0.8
Singh Engineering Works (P) Ltd.	13.4	11.8	5.3
J.K. Iron & Steel Co. Limited	9.3	10.8	3.9
Hindustan Iron and Steel Company	..	8.6	4.9
Steel Rolling Mills of Hindustan Limited	0.6	1.7	1.5
Andhra Steel Corporation Limited	0.6	3.7	1.7
TOTAL	73.4	91.6	48.9

APPENDIX VI

PRODUCTION OF FINISHED STEEL BY OTHER THAN MAIN PRODUCERS

(In '000 tonnes)

	1968-69	1969-70	1970-71 (up to Sept. '70)
Secondary Producers	168.6	143.8	58.9
Wire Drawing Units	182.3	182.8	52.6
Billet Re-rollers	562.9	554.1	174.1
Scrap Re-rollers	127.0	117.6	..
Manufacturers of T.A.S. (Tool, Alloy & Special Steel)	200.3	261.1	113.1
TOTAL	1241.1	1259.4	398.7

APPENDIX VII

IMPORTS—PRODUCTWISE—1966-67 TO 1969-70

(Quantity in tonnes & value in '000 Rupees)

	1966-67		1967-68		1968-69		1969-70	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(A) Pig Iron & Ferroy Alloys :								
(1) Pig Iron; Sponge Iron, Steel Powders & Shot ;								
Spiegeleisen	..	..	..	..	..	..	..	..
Pig Iron including Cast	1,606	780	..	..	..	..	3	9
Shot, Angular Grit & Wire Pellets.	1	3	12	98	2	13	10	26
Iron & Steel Powders	121	237	287	576	293	570	326	580
Sponge Iron & Steel	141	227	21	41	30	59	91	176
SUB-TOTAL	1,869	1,247	320	715	325	642	430	791
(2) Ferro-Alloys :								
Ferro - Manganese—below 3% carbon	542	1,195	289	800	116	366	35	79
Ferro - Manganese—above 3% carbon	6	16	33	100	..	..	..	..
Ferro-Chrome.	527	1,306	1,204	3,926	466	1,443	1,434	4,967
Ferro-Molybdenum	98	2,610	415	12,045	153	2,590	49	1,648

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ferro-Phosphorus	247	178	430	342	178	140	180	158
Ferro-Silicon	58	99	90	266	52	211	24	149
Ferro-Tungsten	35	912	26	1,158	38	1,610	57	2,582
Others	307	1,810	489	3,371	530	6,562	190	1,883
SUB-TOTAL	1,820	8,126	2,976	22,008	1,533	12,922	1,969	11,466
TOTAL (A)	3,689	9,373	3,296	22,723	1,858	13,564	2,399	12,257
(B) Cast Iron :								
(1) Tubes & Pipes :								
Rain Water Pipe	7	89	53	512	..	..	..	..
Soil Pipe	36	232	2	8	..	..	3	22
Others	6,524	13,620	2,365	11,765	2,789	12,106	726	2,693
SUB-TOTAL	6,567	13,941	2,420	12,285	2,789	12,106	729	2,715
(2) Tube & Pipe Fittings	804	9,518	491	7,388	151	2,061	165	1,945
(3) Castings, rough	73	463	248	1,297	366	1,983	560	3,321
TOTAL (B)	7,444	23,922	3,159	20,970	3,306	16,150	1,454	7,981

(C) Mild Steel (Other than High Carbon and Alloy Steel) :								
(1) Ingots & other primary forms :								
Puddled Bars etc.	1,949	2,259	58	317	366	1,366	529	1,900
Ingots	..	..	283	412	101	234	96	194
SUB-TOTAL	1,949	2,259	341	729	467	1,600	625	2,094
(2) Blooms, Billets etc. of :								
Electrode quality	294	257	226	354	556	62	1,091	1,510
Others	10,921	13,534	17,127	20,256	16,368	19,467	8,668	12,118
SUB-TOTAL	11,215	13,791	17,353	20,610	16,924	20,089	9,759	13,628
(3) Coils for re-rolling	14	85	—	—	543	600	87	124
(4) Blanks for Tubes and Pipes	213	990	24	160	28	99	67	202
(5) Wire Rods :								
Electrode quality	301	346	717	790	1,925	2,404	292	343
Others	8,305	10,429	16,473	17,621	17,916	19,885	9,053	11,872
SUB-TOTAL	8,606	10,776	17,190	18,411	19,841	22,289	9,345	12,215
(6) Bars & Rods except wire rods	42,274	52,433	59,734	83,110	34,471	47,671	24,624	35,959
(7) Angles, Shapes & Sections :								
80 mm or more & sheet piling	10,931	12,092	2,666	3,038	1,816	2,153	2,651	3,258
Below 80 mm.	2,435	2,518	857	1,181	1,013	1,163	3,986	4,294
SUB-TOTAL	13,366	14,610	3,523	4,219	2,829	3,316	6,637	7,552

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(8) Universals, Plates & Sheets above 4·75 mm thick :								
Heavy Plates & Sheets Lloyds quality	1,147	1,179	1,548	2,479	2,013	2,323	1,374	1,817
Heavy Plates & Sheets Others	31,467	34,282	34,139	41,812	30,219	35,027	43,394	59,167
Heavy Plates etc.—Boiler quality	1,762	2,554	2,290	2,650	6,772	7,260	6,733	8,510
Heavy Plates etc. of High Tensile quality	5	85	104	332	66	96	3,269	4,364
Universals	71	110	371	446	1,360	1,673	347	1,481
SUB-TOTAL	34,452	38,210	38,452	47,719	40,430	46,379	55,117	75,339
(9) Medium Plates & Sheets—3 mm to 4·75 mm thick	4,804	5,305	19,902	23,375	11,551	15,129	15,508	18,349
(10) Plates, Sheets below 3 mm thick (uncoated) :								
Elec. Quality Steel Sheets	23,081	48,544	18,439	40,213	4,671	10,894	13,191	33,166
Deep Drawn Quality	5,605	5,206	5,820	7,987	2,602	3,763	2,373	4,105
Others	64,849	77,225	49,867	73,077	72,225	96,092	82,724	128,330
SUB-TOTAL	93,535	130,975	74,126	121,277	79,498	110,749	98,288	165,601
(11) Tinned Plates/Sheets	40,035	55,603	66,242	84,454	63,062	80,210	42,661	57,129
(12) Plates, Sheets below 3 mm thickness (coated) :								
Galvanised Sheets, Plain	15,823	18,922	17,685	23,593	15,118	20,399	10,730	14,441
Galvanised Sheets, Corrugated	1,461	1,694	350	496	226	316	4	5
Others	18,806	23,950	31,899	39,116	20,473	26,278	32,957	44,101
SUB-TOTAL	36,090	44,566	49,934	63,205	35,817	46,993	43,691	58,547

(13) Hoops & Strips :								
Skelp	381	749	761	1,787	758	838	219	341
Others	16,300	25,719	19,862	36,100	13,920	22,646	9,064	16,481
SUB-TOTAL	16,681	26,468	20,623	37,887	14,678	23,484	9,283	16,822
(14) Rails & Rly. Track Construction Material :								
Rails :								
Rly. Rails	12	21	..	..	..	..	..	..
Tramway Rails	..	..	..	..	..	..	141	188
Sleepers & other Rly. Track Construction material :								
Sleepers	..	..	..	..	..	..	..	..
Ties	..	..	..	..	..	..	..	..
Others	611	430	518	1,125	308	1,262	526	1,088
SUB-TOTAL	623	451	518	1,125	308	1,262	667	1,276
(15) Wire excluding Wire Rods :								
Electrode Quality	130	400	29	110	43	163	20	60
Galv. Wire 1.5 mm and thicker					3,958	7,294	1,496	3,060
Galv. wire 0.46 mm to below 1.5 mm thickness	9,727	14,514	8,752	14,008	414	904	426	988
Galv. wire below 0.46 mm thickness					64	176	72	162
Wire NES 1.5 mm & thicker					1,596	3,637	1,471	3,046
Wire NES 0.46 mm thick & above	5,186	8,473	6,452	10,201	131	266	11	28
Wire below 0.46 mm thick					697	1,511	302	597
Of High Tensile Quality	1,044	2,786	576	1,693	223	832	156	897
SUB-TOTAL	16,087	26,173	15,800	26,012	7,126	14,783	3,954	8,838

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(16) Tubes, Pipes & Fittings :								
Tubes & Pipes :								
Seamless Tubes . .	23,736	65,731	23,364	92,561	29,338	104,600	22,589	80,896
Galvanised Tubes & Pipes, welded, clinched etc. .	484	3,168	361	2,451	516	2,512	524	1,533
Not Galvanised Tubes & Pipes welded, clinched etc.	4,985	22,480	3,393	15,807	1,136	6,699	1,076	4,785
High Pressure Hydro-electric Conduits . .	2	37	2	74	37	400	4	48
Tube & Pipe Fittings :								
Galvanised . . .	146	1,496	150	1,053	75	1,049	73	620
Non-Galvanised . .	2,243	31,514	2,856	27,287	1 027	18,786	703	9,828
SUB-TOTAL .	31,596	124,426	30,126	139,233	32,129	134,046	24,969	97,710
(17) Wheels, Tyre Axles etc :								
For Rly. Locomotives .	7,291	13,382	2,447	5,778	4,330	7,635	..	5,192
For Rly. Wagons & Carriages . . .	5,639	8,288	2,518	4,790	2,460	6,205	..	4,376
SUB-TOTAL .	12,930	21,670	4,965	10,568	6,790	13,840	..	9,568
TOTAL (C) .	364,470	568,791	418,853	682,095	366,492	582,539	345,282	580,953
(D) High Carbon Steels :								
(1) Ingots & other Primary forms	22	71	36	135	..	..	5	16
(2) Blooms, Billets etc. . .	5,326	7,525	2,070	2,815	1,939	2,583	521	930
(3) Coils for re-rolling . .	..	..	30	783	109	275	..	..
(4) Wire Rods . . .	13,466	13,803	8,252	11,937	4,213	5,191	1,630	1,739
(5) Bars & Rods except wire rods	10,269	23,549	13,926	25,078	8,152	16,074	6,571	13,070
(6) Angles, Shapes & Sections :								
80 mm or more & Sheet Piling	177	179	23	209	8	16	275	438
Below 80 mm . . .	16	29	4	17	19	36	234	273
(7) Universals, Plates & Sheets above 4.75 mm thick .	3,688	4,447	2,504	4,774	13,434	17,197	16,594	22,946
(8) Medium Plates & Sheets 3 mm to 4.75 mm thick .	571	1,133	404	1,042	1,491	2,080	1,974	2,537
(9) Plates & Sheets below 3 mm thick :								
Uncoated . . .	195	782	415	1,825	426	1,247	229	542
Coated . . .	684	806	387	900	22	76	64	68
(10) Hoops & Strips : . .								
Skelp	147	549	135	657	129	566	149	552
Others	2,485	10,322	3,920	16,624	4,602	16,016	2,728	11,422
(11) Wire excluding wire rods .	3,145	9,193	1,903	6,736	1,544	4,452	862	4,252
TOTAL (D) .	40,191	72,388	34,009	73,532	36,088	65,809	31,836	58,785
(E) Alloy Steel :								
(1) Ingots & other primary forms	19	66	2	12	92	317	13	107
(2) Blooms, Billets etc :								
Of Spring Steel . .	1,977	2,178	374	410	381	259	11	105
Of Alloy Steel . .	3,805	5,383	916	2,427	1,257	2,691	249	1,068
(3) Coils for re-rolling . .	..	6	..	1	120	838	..	..
(4) Wire Rods . . .	805	2,533	445	3,080	619	2,235	373	1,999

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(5) Bars & Rods except Wire Rods	29,295	76,855	22,232	78,821	15,435	53,179	11,486	37,707
(6) Angles, Shapes and Sections :								
80 mm or more & sheet pilling	369	1,100	559	1,375	374	816	194	1,333
Below 80 mm.	216	441	357	727	142	470	27	227
(7) Universals, Plates and Sheets above 4.75 mm thick	5,748	16,480	5,281	13,675	1,314	11,005	1,088	5,848
(8) Medium Plates and Sheets 3 mm to 4.75 mm thick	2,806	12,269	7,588	34,791	4,258	22,368	1,831	8,272
(9) Plates & Sheets below 3 mm thick (Uncoated) :								
Stainless Steel Sheets :								
1.26 mm & above					3,774	23,790	2,431	10,481
0.9 mm to 0.56 mm thick	6,694	40,573	6,806	37,569	350	2,142	89	606
Others					2,423	14,313	6,765	33,541
Alloy Steels excluding Stainless					511	1,518	57	222
(10) Plates & Sheets below 3 mm thick (coated)	452	1,561	186	1,123	482	760	228	844
(11) Hoops & Strips :								
Skelp	77	342	5	48	89	666	73	247
Others	3,659	13,500	4,191	18,689	3,452	14,644	2,679	14,543
(12) Wire excluding Wire Rods.	933	5,464	1,290	9,673	801	6,949	692	4,499
TOTAL (E)	56,855	178,751	50,232	202,421	35,874	158,960	28,286	121,649

(F) Steel Castings and Forgings Unworked NES :								
(1) Castings, rough	3,922	21,568	2,542	12,573	2,535	12,589	2,378	13,631
(2) Forgings, rough	11,238	52,422	12,395	57,848	5,814	25,753	4,853	25,677
TOTAL (F)	15,160	73,990	14,937	70,421	8,349	38,342	7,231	39,308
(G) Iron & Steel Scrap :								
(1) For re-melting and reforging :								
Fillings etc.	..	1	..	..	..	..	..	..
Tin Plate Scrap	7,025	5,764	10,612	13,986	11,306	10,555	4,928	7,636
Worn out & broken articles	..	..	..	..	..	..	..	..
Others	95	62	273	324	250	199	802	674
SUB-TOTAL	7,120	5,827	10,885	14,310	11,556	10,754	5,730	8,310
(2) Used as prime varieties :								
Bars ends etc.	10	6	..	..	..	..	..	..
Plate cuttings—uncoated	..	..	15	2	193	131	4	12
Sheet cuttings—uncoated	121	76	269	221	169	130	309	296
Plates cuttings—coated	..	..	145	103	..	..	..	..
Sheet cuttings—coated	111	76	1,265	1,117	850	710	354	278
Wire Shorts	493	424	1,045	713	668	493	101	143
Others	36	11	63	24	33	5	101	108
SUB-TOTAL	771	593	2,802	2,180	1,913	1,469	869	837
TOTAL (G)	7,891	6,420	13,687	16,490	13,469	12,223	6,599	9,147
GRAND TOTAL (A) to (G)	495,700	933,636	538,173	1,088,655	465,436	887,592	423,087	830,082

APPENDIX VIII

IMPORTS OF IRON AND STEEL—1970-71 (APRIL—SEPT.)

(Quantity in tonnes & Value in '000 Rs.)

	Quantity	Value
(1) Pig Iron, Sponge iron, etc.	173	296
(2) Ferro-Alloys	352	4894
(3) Cast-Iron	1,202	3774
(4) Mild Steel (other than High Carbon Steel)	230,488	433845
(5) High Carbon Steel	37,314	71486
(6) Alloy Steel	30,153	101971
(7) Steel Casting & Forgings	4,488	24556
(8) Iron & Steel Scrap	2,837	2537
Total	307,007	643359

APPENDIX IX

CATEGORYWISE EXPORTS OF IRON AND STEEL DURING 1970-71

(Quantity in '000 tonnes)
(Value in Rs. lakhs)

Category	Tonnage	Value
Pig Iron	464·8	2,102·4
Ingots	40·1	183·3
Billets	22·9	115·0
Rails	87·6	603·6
Structurals	281·2	2823·3
Bars & Rods including Light Structurals rolled by re-rollers	101·4	864.0
Total	998·0	6,691·6

APPENDIX X

STATEMENT SHOWING COUNTRY-WISE EXPORTS OF IRON AND STEEL DURING THE YEARS 1969-70 AND 1970-71 (UPTO 31-12-70)

Country	Rounds/flats		Structurals		Sheets		Billets/Ingots		Pig Iron		Rails	
	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
U.S.A.	35,424	22,950	10,280	13,819	..	..	..	..	..	..	4,751	..
Australia	..	..	1,247	426	..	..	..	..	..	..	..	..
U.K.	2,576	1,749	902	..	..	..	..	..	..	..	..	..
New Zealand	..	..	..	864	..	..	..	..	..	..	2,321	..
Luxembourg	60	..	..	..	..	..	..	..	..	..	..	..
Belgium	798	10	..	..	..	..	..	..	..	..	..	..
West Germany	994	..	..	..	..	..	..	..	..	..	..	..
Italy	1,890	..	..	..	..	..	..	..	..	..	..	..
Denmark	249	..	..	..	..	..	..	..	..	..	..	..
Spain	..	..	..	..	..	..	8,273	..	..	..	..	..
Netherlands	373	..	..	..	..	..	..	..	..	..	..	..
West Asian & Persian Gulf Countries :												
Iraq	18,788	4,794	3,843	3,891	298	..	..	..	..	..	..	..
Iran	39,010	4,704	45,253	26,719	1,446	..	10,006	..	..	..	42,817	47,224
Bahrain	1,708	56	87	..	..	..	..	..	..	..	..	..
Dubai	11,347	3,392	236	25	..	..	..	..	..	..	..	..
Jordan	12,707	1,608	..	..	..	..	..	..	..	..	..	..
Kuwait	39,997	6,632	223	447	..	..	..	..	..	..	..	..
Saudi Arabia	76,567	18,168	1,333	48	..	..	..	..	..	..	..	..
Abu Dhabi	6,574	..	..	..	..	..	..	..	..	..	..	..
Doha/Qatar	3,803	6,229	..	..	..	..	..	..	..	..	..	..
Muscat	254	302	..	..	..	..	..	..	..	..	..	..
U.A.R.	15,392*	9,892**	..	..	..	..	..	..	..	..	..	..
Aden	1,464	329	..	..	..	..	..	..	..	..	..	..
Syria	292	2,091	..	..	..	..	..	..	..	..	..	..
African Countries :												
Kenya	9,579†	1,556††	5,293	1,976	..	..	..	..	..	..	..	..
Ghana	544	540	..	..	..	..	..	..	..	..	..	..
Zambia	59	..	..	..	..	..	..	..	..	..	..	..
Sudan	4,171	1,730	1,155	220	..	..	..	..	..	..	..	..
Seychelles	46	..	..	..	..	..	..	..	..	..	..	..

*Includes 75 tonnes of wires.
**Includes 78 tonnes of wires.
†Includes 89 tonnes of wire.
††Includes 39 tonnes of wire.

APPENDIX

Country	Rounds/Flats		Structurals		Sheets
	1969-70	1970-71	1969-70	1970-71	1969-70
Ethopia	275	..	..	..	..
Uganda	20	..	..	..	..
Nigeria	250	..	..	..	..
Morocco	700	..	..	..	..
Algeria	2,302	1,635	..	..	..
Somaliland	45	..	..	..	..
Tanzania	202	..	..	..	..
Ceylon	2,000	3,087	119	38	..
Burma	78	49	..	..	..
Japan	..	..	..	..	..
Korea	..	..	..	..	..
Formosa	..	..	..	..	..
Thailand	22,667	1,840	7,163	2,219	..
Malayasia	216†	..	503	..	..
Singapore	43	380	2,344	84	..
Hong Kong	500	53	2,253	625	..
Brunei	2,572	..	..	..	..
Cambodia	3,012	..	..	..	..
Indonesia	15,872	801	..	..	..
Mauritius	563	25	1,517	20	..
East European Countries :			5	..	..
Turkey	1,501	..			
Yugoslavia	8,871	604	..	..	..
Bulgaria	468	..	..	..	..
U.S.S.R.	..	..	609	..	..
TOTAL	3,46,823	95,206	1,79,226	1,68,822	..
			2,63,591	2,20,243	1,744

†Includes 19 tonnes of wire.
‡Indicates ingots.

X—*contd.*

Sheets	Billets/Ingots		Pig Iron		Rails	
1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	23,432	7,904	..	..	24,447	17,750
..	..	..	..	..	..	..
..	10,160	28,597†	5,54,699	2,93,908	44,688	37,077
..	..	..	..	..	717	..
..	..	..	..	..	5,934	..
..	2,019	1,042	..	..	1,642	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	499	743	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	54,389*	37,244**	5,54,699	2,93,908	127,317	64,974

*Includes 18,433 tonnes of Ingots.
†Includes 28,597 tonnes of Ingots.

APPENDIX XI

STATEMENT SHOWING EXPORT OF VARIOUS CATEGORIES OF FERROUS SCRAP DURING THE YEAR 1970-71

Provisional

(Quantity in tonnes)
(Value in Rs. lakhs)

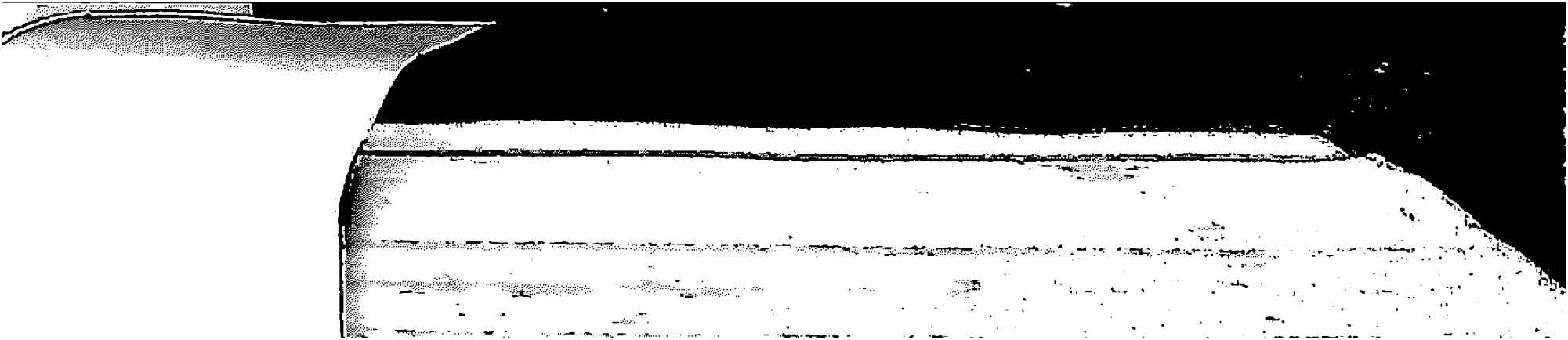
Category	Tonnage	Value
1. Sheet Cuttings & Punchings	63,160	212.767
2. M.S. Turnings & Borings	37,165	104.967
3. Cast Iron Borings	44,326	110.524
4. C.I. Skull	7,539	25.577
5. Steel Skull	60,261	171.376
6. Mill Scale	38,753	20.625
7. Tool & Alloy Steel	310	14.203
8. Broken/discarded chilled rolls	125	0.304
Total	251,639	660.343

MGIPRRND—Sect. I—1 M of SM/71—17-6-71—2,700

Corrigenda

to the Annual Report 1[illegible]-71 (English) of the Ministry of Steel and [illegible]es (Department of Steel).

Page	Line	For	Read
4	11 (from bottom)	facilities tho exist-ing steel plan[illegible]s of HSL	facilities in the existing steel plants of HSL
18	19	distributd	disturbed
18	17 (from bottom)	Unit	The Unit
38	6	... to storag[illegible]	to avoid storage
41	7 (from bottom)	16,758 structurals	16,758 tonnes of structurals
41	last line	ctive	active
50	last line	structute	structure



to the Annual Report 1[illegible]-71 (English) of the Ministry of Steel and [illegible]es (Department of Steel).

Page	Line	For	Read
4	11 (from bottom)	facilities the existing steel plants of HSL	facilities in the existing steel plants of HSL
18	19	distributd	disturbed
18	17 (from bottom)	Unit	The Unit
38	6	... to storag	to avoid storage
41	7 (from bottom)	16,758 structurals	16,758 tonnes of structurals
41	last line	ctive	active
50	last line	structute	structure