REPORT

1979-80

GOVERNMENT OF INDIA
MINISTRY OF STEEL AND MINES
NEW DELHI

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Sl. No.	Page	Para	Line	For	Read
1.	17	—	30	oen	oven
2.	21	7	5	(215 crores)	(Rs. 215 crores)
3.	26	10·5	4	with	which
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7.	46	3·1·1	8	31-3-1978	31-3-1979 stood as Rs. 2228·02 crores. The paid up capital as on 30-4-1978.
8.	48	Table	—	Tota	Total
9.	49	—	4	even	oven
10.	51	3·1·15	11	or	of
11.	51	3·1.15	16	and	any
12.	51	3·1·15	20	Rs. 4·45 crores	Rs. 4·65 crores.
13.	53	3·1·17	29	Rs. 97·07	Rs. 96·07
14.	55	after 3·1.23	—	3. .24	3.1.24
15.	55	3·1·24	2	prouction	production
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17.	55	3·1·26	3	rescarch	research
18.	56	3·1·27	4	Hitpur	Jitpur
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28.	86	3·15·6	16	Electrical	Electricals
29.	170	Top	—	CHAPTER-III	CHAPTER-VIII
30.	171	8·5	1	Pan	Plan
31.	174	—	6	9·3	9·2
32.	190	—	—	CHAPTER	CHAPTER-XII
33.	190	12·1	3	entrusted	continued

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PREFACE

This Report is divided into three parts.

Part I presents an overall picture of the Ministry of Steel and Mines highlighting, *inter alia*, the strategy adopted for the development of steel, mining and non-ferrous metal industries.

Part II covers the activities of the Department of Steel and the performance of the organisations/undertakings under it during the year.

Part III describes the activities of the Department of Mines and the performance of the organisations/undertakings under it during the year.

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PART I

PART II

DEPARTMENT OF STEEL

PART I

MINISTRY OF STEEL AND MINES

CHAPTER I

MINISTRY OF STEEL AND MINES—MAIN FUNCTIONS AND ORGANISATIONAL STRUCTURE

1. Main Functions

1·1 The Ministry of Steel and Mines comprises two Departments—Department of Steel and Department of Mines. The Department of Steel is responsible, *inter-alia* for the planning and development of iron and steel industry including electric arc furnace units, re-rolling mills, alloy and special steels and ferro-alloys, as also for the concurrent development of input industries, such as, iron ore, manganese, chromite, limestone and other minerals used in the steel industry. The implementation of Iron and Steel (Control) Order, 1956, as well as the formulation of policies relating to production, distribution, import and export of iron and steel also fall within the ambit of its functions. A detailed list of the subjects allocated to the Department of Steel is given in Appendix-I.A.

1·2 The Department of Mines is responsible for the survey and exploration of all minerals, other than natural gas, petroleum and atomic minerals, for mining and metallurgy of non-ferrous metals like aluminium, copper, zinc, lead, etc., and for administration of the Mines and Minerals (Regulation and Development) Act, 1957 and the rules framed thereunder for all mines and minerals, other than coal, natural gas, petroleum and atomic minerals. A detailed list of the subjects allocated to the Department of Mines is given in Appendix-I.B.

2. Organisational Structure

2·1 The Department of Mines, which was previously under the independent charge of an Additional Secretary, was integrated with effect from 14th May, 1977, under one common Secretary for both the Departments of Steel and Mines. This has subsequently been changed from May, 1980 when a Speal Secretary has been put incharge of the Department of Mines, consequent on the increased

responsibility put on that Department to plan and execute large projects to exploit the very extensive resources of bauxite in the country.

2·2 Apart from the Secretary, the Department of Steel has one, Special Secretary, 4 Joint Secretaries, 3 Directors and 4 Deputy Secretaries and 7 Under Secretaries. A Technical Development Wing consisting of three Development Officers and two Assistant Development Officers, forms an integral part of the Department. A Special Cell functions in the Department of Steel to provide close attention to and follow up on matters concerning public complaints and grievances in both the Departments of Steel and Mines.

2·3 The Department of Mines has a Special Secretary, Additional Secretary, three Joint Secretaries, three Directors, Seven Deputy Secretaries and three Under Secretaries. Both the Departments, namely, Steel and Mines, have a common Joint Secretary-cum-Integrated Financial Adviser.

2.4 The Department of Steel has one attached office, viz. the office of the Iron and Steel Controller, which is located at Calcutta. This office has six regional offices at New Delhi, Kanpur, Calcutta, Madras, Hyderabad and Bombay. It was set up initially to perform certain regulatory functions under the Iron and Steel (Control) Order, 1956. Over the years, however, the role and functions of the Iron and Steel Control Organisation have been extended to cover wider areas. It now plays also an important advisory role in matters relating to the iron and steel industry. The Iron and Steel Controller now also functions as the monitoring agency for supply of steel items from the main producers to State Small Scale Industries Corporation. This arrangement is expected to ensure regular supply of steel materials to Small Scale Industries Units. Since scarcities of various items of iron and steel continued to persist during the year, end use restrictions have been re-imposed on all categories of iron and steel and scrap which require that anybody acquiring these items shall not use them otherwise than in accordance with the conditions governing the supply of steel to them. Violation of this restriction would entail departmental action by the Iron and Steel Control Organisation without prejudice to the other punitive action that can be taken under the Essential Commodities Act, 1955. A statement showing the

number of inspections etc. carried out by the Iron & Steel Control Organisation during the period from April, 1978 till March, 1979 and from April, 1979 till March, 1980, to check misutilisation of iron and steel materials is given in Appendix-I.C.

The Iron and Steel Controller also closely monitors the working of the electric arc furnace industry.

The duties of the Regional Iron and Steel Controllers have also been enlarged to cover the developmental aspects. Details of their duties and functions are given in Appendix-I.D.

The Iron & Steel Control Organisation is presently engaged in a fresh study of the steel-re-rolling industry in order to assess the capacity, status and performance of the units and to recommend a plan of rationalisation of products from the integrated steel plants and the re-rollers, as well as other measures for the future growth and development of the re-rolling industry.

2.5 Consequent upon the nationalisation of the refractory plant of the Assam Sillimanite Limited in 1976, certain claims against M/s Assam Sillimanite Limited in relation to the Refractory Plant have to be received, processed and settled out of the amount of compensation payable under the Nationalisation Act. This being a statutory obligation, an office of Commissioner of Payments as envisaged in the Act has been set up at Ranchi.

2.6 A statement showing the total number of employees under the Department of Steel and its attached offices as on 31-12-1979 and the number of employees belong to S.C./S.T. amongst them is at Appendix-II.

2.7 The Iron Ore Board was registered in January, 1973, as a society under the Societies Registration Act. The Board was constituted mainly to act the central policy planning and development agency for iron ore deposits in the country. In October, 1978, Government decided to enlarge the scope of the Board to include minerals which are important inputs to the steel industry such as manganese, chromite, vanadium, titanium, nickel, molybdenum, tungsten, kyanite, sillimanite and magnesite and rename it as Mineral Development Board. The Board as an expert high level body will study on a systematic and scientific basis matters connected with the

responsibility put on that Department to plan and execute large projects to exploit the very extensive resources of bauxite in the country.

2·2 Apart from the Secretary, the Department of Steel has one, Special Secretary, 4 Joint Secretaries, 3 Directors and 4 Deputy Secretaries and 7 Under Secretaries. A Technical Development Wing consisting of three Development Officers and two Assistant Development Officers, forms an integral part of the Department. A Special Cell functions in the Department of Steel to provide close attention to and follow up on matters concerning public complaints and grievances in both the Departments of Steel and Mines.

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exploration, conservation, production, processing and utilisation of these minerals and advise Government on problems relating to these activities.

2.8 A list of Public Sector Undertakings under the administrative control of the Department of Steel is given at Appendix-III.

2.9 The Department of Mines has three subordinate offices, the Geological Survey of India (GSI), the Indian Bureau of Mines (IBM), and the Controller of Mining Leases. The first has its headquarters at Calcutta while the headquarters of the second and the third are located at Nagpur.

2.10 The GSI is a large multi-disciplinary scientific organisation with country wide coverage responsible primarily for geological mapping, geo-physical surveys, mineral investigation, geo-technical investigation, off-shore mineral exploration and study of marine geology, geo-thermal investigation, laboratory studies involving petrology, palaeontology, geochronology and isotope-geo-mineral physics, etc.

2.11 The Indian Bureau of Mines is concerned primarily with the conservation and development of mineral resources, and administration of Mineral Conservation and Development Rules, 1958. The Controller of Mining Leases deals with modification of pre-1949 mining leases in order to bring them in conformity with the existing law.

2.12 A statement showing the total number of employees under the Department of Mines and its Subordinate Offices as on 31-12-1979 and the number belonging to Scheduled Castes and Scheduled Tribes amongst them is at Appendix-IV.

2.13 A list of Public Sector Undertakings under the administrative control of Department of Mines is given in Appendix-V.

APPENDIX-I.A

List of subjects allocated to the Department of Steel

1. Steel Plants in the Public and Private Sectors, the Re-rolling industry and ferro-alloys including all future development.
2. Development of iron ore mines in the public sector including beneficiation upgrading of low grade iron ores.
3. Development of other ore mines and coal washeries and mineral processing for the steel plants.
4. Production, distribution, prices, imports and exports of iron and steel and ferro-alloys.
5. Planning, development and control of the assistance to all iron and steel industries.
6. Production, supply, pricing and distribution of iron ore, manganese ore, limestone, sillimanite, kyanite and other minerals and alloys used in the steel industry excluding grant of mining lease or matters connected therewith.
7. Steel Authority of India Limited.
8. Kudremukh Iron Ore Company Limited.
9. Manganese Ore (India) Limited.
10. National Mineral Development Corporation Limited.
11. Metallurgical and Engineering Consultants (I) Limited.
12. Hindustan Steel Works Construction Limited.
13. Bharat Refractories Limited.
14. Sponge Iron India Limited.
15. Indian Iron and Steel Co Ltd. (Subsidiary of SAIL).
16. Indian Iron and Steel Co. Stanton Pipe and Foundry Co. (Subsidiary of IISCO).
17. Metal Scrap Trade Corporation (Subsidiary of SAIL).
18. Ferro Scrap Nigam Ltd. (Subsidiary of MSTC).
19. India Fire Bricks & Insulation Co. Ltd. (Subsidiary of BRL).
20. Visvesvaraya Iron & Steel Ltd.
21. All attached or Subordinate Offices or other organisations concerned with any of the subjects specified in this list.
22. The Indian Iron and Steel Company (Acquisition of Shares) Act, 1976, dated 2-9-1976.
23. The Indian Iron and Steel Company (Acquisition of Shares) Amendment Act, 1977.
24. Bolani Ores Limited (Acquisition of Shares) and Miscellaneous Provisions Act, 1978 (42 of 1978).
25. The Public Sector Iron and Steel Companies (Re-structing) and Miscellaneous Provisions Act, 1978 (16 of 1978).
26. The Assam Sillimanite Limited (Acquisition and Transfer of Refractory Plant) Act, 1976 (22 of 1976).

APPENDIX-I.B

List of subjects allocated to the Department of Mines

1. All minerals other than Natural Gas, Petroleum, Coal and Atomic minerals and for the mining of metalurgy of non-ferrous metals like Aluminium, Copper, Zinc, Lead etc. Administration of Mines and Minerals (Regulation and Development) Act, 1957 and the Rules framed thereunder for all mines and minerals other than, Coal, Natural Gas, Petroleum and Atomic minerals.
2. Regulation of mines and minerals development under the Mines and Minerals (Regulation and Development) Act, 1957 and other Union Laws including questions concerning States and incidental business in respect of these.
3. All other metals and minerals not specifically allotted to any other Department, such as, aluminium, zinc, copper, gold, diamond, lead and nickel.
4. Planning, development and control of and assistance to all industries dealt with by the Department.
5. Geological Survey of India.
6. Indian Bureau of Mines.
7. All other attached or subordinate offices or other organisations concerned with any of the subjects specified in this list.
8. The Sikkim Mining Corporation Ltd.
9. Hindustan Zinc Limited.
10. Bharat Aluminium Company Limited.
11. Hindustan Copper Limited.
12. Bharat Gold Mines Limited.
13. Mineral Exploration Corporation Limited.
14. Public Sector Enterprises and Undertakings falling under the subjects included in the list except such as are specifically allotted to any other Department.

APPENDIX-I.C

Statement showing the number of Inspections/Suspension/Debarment effected by the Regional Iron and Steel Controllers during the period April, 1978 to March, 1979

Regions	No. of Inspections	No. of Suspension Cases	No. of Debarment Cases
(1)	(2)	(3)	(4)
Calcutta . .	111	5	3
Delhi . . .	114	62	43
Bombay . .	296	17	5
Madras . . .	380	51	19
Hyderabad . .	598	99	90
Kanpur . .	208	19	11
Total .	1707	253	171

Statement showing the number of Inspections/Suspension/Debarment effected by the Regional Iron and Steel Controllers during the period April, 1979 to March, 1980

Regions	No. of Inspections	No. of Suspension Cases	No. of Debarment Cases
(1)	(2)	(3)	(4)
Calcutta . .	471	33	29
Delhi . . .	242	96	110
Bombay . .	853	100	32
Madras . . .	1261	200	152
Hyderabad . .	905	158	26
Kanpur . .	407	47	18
Total .	4139	634	367

APPENDIX-I. D

Duties and functions of the Regional Iron and Steel Controllers

(i) To collect factual information regarding the capacities of all iron and steel based units registered with the Iron and Steel Controller and, *inter-alia,* to monitor particulars of the various inputs, production and capacity utilisation of those units on a regular basis.

(ii) In all cases where import clearance is given by the Iron and Steel Controller, to ensure proper utilisation of imported materials and to report about the actual requirements of raw material, spare parts and other consumables. This, however, is subject to formal concurrence of the Ministry of Commerce.

(iii) To identify and encourage industrial units taking up programmes of import substitution and also suggest items which need not be imported because of indigenous availability.

(iv) To render assistance to core projects and priority sectors in obtaining their requirements of steel.

(v) To conduct monthly market survey, and report the overall availability and supply position of iron and steel materials in their regions with the particular reference to price trends of critical items.

(vi) To aid, assist and guide the iron and steel based units to increase production by ensuring adequate supply of raw materials and other inputs.

(vii) To inspect iron and steel based units registered with DGTD and also report progress of implementation of letters of Intent and licences issued by the Government of India so far as they pertain to the Iron and Steel Industry.

(viii) To conduct status survey of the iron and steel industry licensed by Iron and Steel Controller.

The Regional Controllers now also monitor supplies to SSICs by the main producers with a view to ensuring that the SSICs are helped to meet the requirements of small scale units:

During the current year the following received attention of the Regional Controllers :—

(a) To monitor supplies of steel from the Main Producer's Stockyards to the export fabricators to ensure that the supplies against the releases made to such fabricators mature effectively.

(b) In connection with checking of steel supplies reaching the small scale industrial Units through the Small Scale Industries Corporations of the State Governments, to function as coordinators in consultation with the State Directorate of Industries along with such Corporations and the Iron and Steel Controller.

(c) To oversee the functioning of the Stockyards of the Main Producers to ensure that their functioning conforms to the guidelines issued by Central Government from time to time. This includes, also, supplies of steel to the small house builders by such stockyards against the quota of their receipts earmarked by the Central Government for the purpose.

(d) To keep watch over the prevailing open market prices of iron and steel for facilitating required remedial action for removal of the regional imbalances that crop up from time to time.

(e) To inspect and collect data from different small, medium and large scale steel re-rolling mills required for the Technical Committee formed under the Chairmanship of the Iron & Steel Controller.

(f) Joint Teams consisting of the Regional Controllers and the representatives of D.C., SSI and State Directors of Industries are inspecting and collecting data on electric furnace units who have applied for permission to instal re-rolling mills for conversion of their own ingots/billets and for furnishing reports on such applicants required for formulation of policy by the Central Government in this regard.

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APPENDIX-II

DEPARTMENT OF STEEL
(Including its Attached Offices)

Statement showing the total number of Government Servants and the number of Scheduled Castes and Scheduled Tribes amongst them as on 31st *December* 1979.

Class	Total No. of employees	Scheduled Castes	Scheduled Tribes
Group A	50	4	1
Group B	103	6	—
Group C	379	51	5
Group D	178	38	8
Total	710	99	14

APPENDIX-III

List of Public Sector Undertakings under the Department of Steel

1. Steel Authority of India Limited.
2. Indian Iron & Steel Company Limited (Subsidiary of Steel Authority of India Ltd.).
3. Metallurgical & Engineering Consultants (India) Limited.
4. Hindustan Steelworks Construction Limited.
5. Kudremukh Iron Ore Company Limited.
6. National Mineral Development Corporation
7. Manganese Ore (India) Limited.
8. Bharat Refractories Limited.
9. India Firebricks & Insulation Company Limited (Subsidiary of Bharat Refractories Limited).
10. Metal Scrap Trade Corporation. (Subsidiary of Steel Authority of India Ltd.).
11. Ferro-Scrap Nigam Ltd. (Subsidiary of Metal Scrap Trade Corporation)
12. Sponge Iron India Limited.
13. IISCO Stanton Pipe & Foundry Company Limited (Subsidiary of Indian Iron & Steel Co. Ltd.).

APPENDIX-IV

DEPARTMENT OF MINES

(Including its Subordinate Offices)

Statement showing the total number of Government Servants and the number of Scheduled Castes and Scheduled Tribes amongst them as on 31st December, 1979

Class	Total No. of employees	Scheduled Castes	Scheduled Tribes
Group A . .	1821	65	8
Group B . . .	671	32	8
Group C . .	7647	1030	212
Group D (excluding Sweepers)	2545	541	109
Group D (Sweepers)	114	105	—

APPENDIX-V

List of Public Sector Undertakings under the Department of Mines

1. Hindustan Zinc Limited.
2. Bharat Aluminium Company Limited.
3. Hindustan Copper Limited.
4. Bharat Gold Mines Limited.
5. Mineral Exploration Corporation.
6. Sikkim Mining Corporation (in which Central Government has 49% equity participation).

CHAPTER II

SURVEY OF IMPORTANT DEVELOPMENTS DURING THE YEAR— PROBLEMS AND PROSPECTS

1979-80—AN OVERVIEW

STEEL IN THE ECONOMY

The year 1979-80 proved to be a particularly difficult one for steel characterised as it was by transport bottlenecks, acute shortage of power, which particularly affected the output of saleable steel, and substantial shortfall in the supply of coking coal. Despite these difficulties which were experienced in varying degrees of intensity throughout the year, the production of ingot steel in the main integrated steel plants was only marginally below that of the previous year. The sizeable shortfalls in the production of saleable steel and in the production of the mini steel plants were more than offset by a deliberate policy of reducing exports and of substantially stepping up imports so that the total availability of steel to the economy was higher than that of the previous year. Domestic production of saleable steel in the main integrated plants was less by 515,000 tonnes and of the electric arc furnaces by 158,000 tonnes respectively as compared to 1978-79. These shortfalls were more than compensated by a deliberate reduction in exports (466,000 tonnes) and increased imports (635,000 tonnes) as compared to 1978-79. Thus, the total availability of steel to the economy was 8.615 million tonnes as against 8.187 million tonnes in 1978-79 registering an increase of 428,000 tonnes or 5·2%. The year under report was characterised by serious difficulties in the economy such as shortage of power relative to demand and the inability of the transport system to cope with the demands placed on it, with the result that industries were forced to run much below capacity. In addition there was wide spread drought and consequent distress in the rural sector affecting both their demand for steel and the supply of power to the non-agricultural sector. The rate of industrial growth was, therefore, practically negligible during the year. Despite these factors there was some modest growth in the demand for steel as would be observed from the fact that despite the increased availability of steel to the economy, different varieties of steel continued to be in short supply and commanded premia of varying magnitude throughout the year in different parts of the country. The

rate of growth of demand, which was much higher in the earlier two years at 10% and 16%, slumped as a result of the collective action of factors mentioned earlier.

In the expectation that the economy will regain an appreciable momentum of growth and that the various constraints that were felt in maintaining production at high levels will cease to operate, it has been planned that the availability of steel in the economy will increase by 17·9% or 1·545 million tonnes over the availability of steel in the current year (80-81). Planning has proceeded on the basis of raising production of saleable steel of the integrated steel plants to 7·32 million tonnes as compared to 6·039 million tonnes in 1979-80, that export will be retained at the previous year's level, that imports will increase from 1·29 million tonnes to 1·4 million tonnes and that production of electric arc furnaces will go up from 1·34 million tonnes in 1979-80 to 1·5 million tonnes. The net effect, would, therefore, be to increase the total availability in the home market from 8·615 million tonnes in the year goneby to 10·16 million tonnes in the current year. The materialisation of these plans will put an end to shortages and open market premia and amply take care of a resurgence in industrial growth and in rural demand.

2. Production

2.1 1979-80 : The production of ingot steel in the integrated steel plants during the current year was 8·028 million tonnes as against 8·152 million tonnes in 1978-79 and 8·424 million tonnes in 1977-78. This represented an achievement of 85·9% of the target set for the year. The installed rated capacity was 11·4 million tonnes. It will thus be seen that there was a slight reduction of about 1·5% in the actual production during 1979-80 as compared to 1978-79.

Coming to saleable steel, however, the shortages compared to target as well as to performance of 1978-79, were more marked entirely because of want of power supply to the rolling mills of the integrated steel plants which led to a considerable stocking of ingot steel to over 606,000 tonnes on 1-4-80, that is a net accretion to stock of 455,000 tonnes during the year. Likewise, accretion to stocks of slabs was 93,000 tonnes by the end of the year. The production of saleable steel was 6·039 million tonnes in 1979-80 as compared to 6·591 million tonnes in 1978-79 thus showing a decline of 8·4%. The actual production represented 81·6% realisation of the target set for the year.

The production performance is admittedly substantially below the target and has not been satisfactory. The prime reason for this was the shortage of power supplied to both the coal and steel sectors.

Serious shortfall in supply of power affected the raising of coking coal which in turn led to shortfall in supply of coking coal to the steel industry below the planned figures required for attaining the target of production of steel. Apart from this fact, the steel plants were directly hit by shortfalls, interruptions and fluctuations in power supply which was particularly evident in the second half of the year. To transform raw steel into finished steel of different varieties a steady and full supply of power has to be ensured to the finishing mills in the plants. Inability of the power sector to do so has led to rapid piling up of stocks of slabs and ingots in the steel plants. It has been estimated that the loss of production of saleable steel and saleable pig iron attributable to the primary factors of shortage of power and coking coal was 1·3 million tonnes and 0·65 million tonnes respectively valued at Rs. 452 crores.

The number of oven pushings has a direct relationship with the supply of coking coal and, therefore, production of hot metal in the blast furnaces. In order to meet the target of 7·4 million tonnes of ingot steel the requirement of coking coal was placed at 16·42 million tonnes. The actual receipt from indigenous sources at the plants, however, was only 13 million tonnes representing 79% of the total requirement to attain the targeted production figure. As a consequence, the number of oven pushings which had been planned at 2187 per day worked out to an average of 1853 per day, thus representing 85% of the requirements for attaining the production target of ingot steel. That even this number of o en pushings could be attained is attributable to the receipt by he plants of 830,000 tonnes of imported coking coal. Even so, the steel plants had to operate throughout the year at levels of stocks which were dangerously low ranging at times to 1 or 1½ days consumption from an operational angle. As compared to stock of 662,000 tonnes on 1-4-77 and 449,000 tonnes on 1-4-78, the year 1979-80 opened with a stock of 137,000 tonnes of indigenous coal which was run down to 90,000 tonnes as on 1-1-80. The strenuous attempts made to build up stocks resulted in an slight increase to 145,000 tonnes on 1-4-80. Thus, the current year has opened with stocks which stand in the way of optimising the number of oven pushings. Considerable difficulties were experienced in obtaining sufficient number of wagons on a regular basis for

movement of coking coal. Difficulties were also experienced during part of the year in prompt unloading of ships carrying imported coal at the ports of arrival and considerable demurrage had to be paid.

The year 1979-80 opened with the stocks of 158,000 tonnes of ingot steel. Because of frequent interruptions and inadequacy in the supply of power to the steel plants, finishing mills had to be operated intermittently. Continuous runs for sustained periods was not possible. Even though coke oven pushings and hot metal production declined, there was an accumulation of ingot steel. Stocks of ingot steel and slabs rose during the year to 7·5 lakh tonnes. In fact it became difficult to find storage space for these mounting stocks in the steel plants. Apart from this phenomenon of accumulating semi-finished steel impinged significantly on the liquidity of SAIL.

2.2 Production plan for the current year is predicted upon certain vital assumptions. The first relates to coking coal. In order to meet the production target of 7·32 million tonnes of saleable steel, the requirement of coking coal has been placed at 17 million tonnes. It has been assumed that the availability of indigenous coking coal will increase from 13 million tonnes to 15·4 million tonnes and that this will be supplemeneted by 1·2 million tonnes of imported coal. Correspondingly, it has been assumed that the rate of oven pushings would also be stepped up sharply from the previous year's average of 1853 per day to an average of 2155 per day. The second assumption relates to enhanced supply of power which should be adequate to run the rolling mills at full capacity so that the mills can not only cope with the enhanced production of ingot steel but also liquidate partly the stocks of ingots and slabs which have mounted to alarmingly high levels. The production of mini steel plants in 1979-80 was less than the previous year (1978-79) mainly because of the cut in power supply and to some extent because of shortages of scrap. Steps have been and continue to be taken to augment the supply of scrap by import, and acquisition of and breaking up of ships. Efforts are also being made to procure sponge iron. The higher production of the mini steel plants hinges therefore upon their being relatively free from power cuts in the current year.

The production of pig iron from integrated plants is expected to be increased from 976,000 tonnes in 1979-80 to 1·4 million tonnes in 1980-81.

Considerable difficulties were experienced not only in the movement of finished production from the steel plants to the stockyards but also in the movement of imported steel from the

port stockyards. Substantial part of the demand for wagons could not be met by railways.

3. Distribution

While domestic supplies were augmented by imports to build up general buffer stocks as also against specific demands of consumers reflected in "back to back" contracts, the distribution policy was kept under constant review with a view to ensuring that the requirements of the priority sectors such as defence, railways, power projects, etc. were fully met. Requirements of socially important sectors such, as small house builders, farm buildings, colleges, schools, hospitals, received adequate attention. Increased allocations were made to small scale industries corporations, despite the fall in production of saleable steel, the total of which increased from 2·9 lakh tonnes in 1978-79 to 4·1 lakh tonnes in 1979-80, in order to enable them to meet the requirements of small scale units. A scheme was also formulated for rural development in certain selected blocks. These blocks were chosen from lists of districts selected by Government for intensified fertilizer farming campaign. 68 centres were opened during the year. The opening of more centres will be done after proper evaluation of the utility of these centres. Special steps were also taken to move steel material by road to the North Eastern States to overcome the restrictions imposed by the railways on movement.

Because of the shortage of steel and the prevalence of open market premia, vigorous measures were taken to inspect steel users' premises and books, with the results that a large number of cases of misuse were detected leading to their being debarred from further allotment and for launching of prosecutions by the organinsation of the Iron & Steel Controller. 4139 inspections were carried out during the year as a result of which supplies to 634 units were suspended and 367 units debarred from further supplies.

4. Steel Development Fund

There is at present no statutory control on iron and steel prices, but there is an informal control through the Joint Plant Committee. However, in view of the importance of steel prices in the economy, price variations are announced by the J.P.C. after getting the approval of Government.

Two of these price increase, viz., one of Rs. 100 per tonne of J.P.C. categories of steel in June, 1978 and the other (April 1979) or 15% of the base prices of JPC steel categories (except

railway materials) and of Rs. 100 per tonne of pig iron, were introduced in the form of specific additions, the proceeds of which were to be contributed by the steel plants to a fund entitled the Steel Development Fund. This is a J.P.C. fund set up in 1978. A managing committee consisting of Secretary (Steel & Mines) as Chairman and Secretary (Expenditure) and Secretary (Planning Commission) as members regulates the operations of the SDF. Initially the intention was to use the SDF only for the limited purpose of financing R & D schemes and modernisation schemes; subsequently, with the revision of prices in April, 1979, it was decided to cover development outlays of all kinds, as also reimbursements of uncovered costs and cost increases. The scope of the Fund was accordingly widened.

Shortfall in the production of steel in 1979-80 seriously affected the flow of funds to the Steel Development Fund. During the financial year 1979-80, a sum of Rs. 160 crores was given as loans to SAIL from SDF to meet part of the expenditure on approved capital schemes. Pending a decision on the amount of cost escalation compensation payable on the basis of BICP's examination ad hoc payments of Rs. 25 crores to SAIL and Rs. 4·49 crores to TISCO have been sanctioned from SDF to be adjusted out of the amount that would be ultimately payable.

5. PLAN OUTLAYS

The outlay approved for Capital Schemes of the Steel Department for the year 1979-80 was Rs. 600 crores. Though there was no significant increase compared to the previous year in the outlay of Rs. 600 crores for 1979-80, there was substantial reduction in the budgetary support due to change in the method of financing capital schemes of the steel sector. For an outlay of Rs. 600 crores, the budgetary support provided in the Steel Department budget was Rs. 365·53 crores only. Out of Rs. 600 crores, the outlay for various schemes of SAIL worked out to Rs. 444·97 crores, for which budgetary support provided was Rs. 214·97 crores, anticipating Rs. 230 crores from "Steel Development Fund (Rs. 200 crores) and "Internal Resources of SAIL" (Rs. 30 crores) However, the generation of internal resources in SAIL and accretions to the Steel Development Fund were seriously affected by shortfall in the production of saleable steel, leading to additional budgetary support of Rs. 42 crores.

6. The major schemes under implementation are :—

(i) The expansion of Bokaro Steel Plant to 4 million tonnes scheduled for completion by December, 1981 except the Cold Rolling Mill which will be ready by March, 1983.

(ii) Expansion of Bhilai to 4 million tonnes scheduled for completion by June, 1983.

(iii) Production of cold rolled grain oriented and non-oriented sheets at Rourkela scheduled to commence in the first quarter of 1982.

(iv) Cold rolling facilities at Salem using imported hot bands of stainless steel scheduled for completion by September, 1981.

(v) Modernisation of the Hot Strip Mill at Rourkela to be completed during the second quarter of 1980-81.

(vi) Installation of additional generating capacity at Bokaro and Durgapur (5 × 60 MW), expected to be completed by 1982-83.

(vii) Refractory Project at Bhilai expected to be completed in the current year.

(viii) Construction of the Kudremukh Iron Ore Project has been completed and commissioning trials are expected to commence in the current year.

7. PLAN OUTLAY FOR 1980-81

A total plan provision of Rs. 710 crores for the Department of Steel has been made in the interim Budget 1980-81 of which Rs. 612 crores will be accounted for by the SAIL group. The major outlay will be on Bokaro (Rs. 183 crores), Rourkela Steel Plant (Rs. 85 crores), Bhilai (215 crores), Salem Steel Plant (Rs. 52 crores). Pending receipt of the revised detailed Project Report, expected early in the current year (1980-81), site preparation work already commenced on a large scale at Visakhapatnam. A provision of Rs. 30 crores has been made for this project during the current year. The other major outlay is only on Kudremukh placed at Rs. 70 crores, representing mainly balance payments to suppliers, consultants, start up expenses, etc. Of the total plan outlay of Rs. 710 crores which represents a step up over the Rs. 600 crores in the previous year, the internal resources generated have been placed at Rs. 310 crores. These internal resources will consist partly of surplus generated by the plants and for the rest by contributions from the Steel Development Fund. Budgetary support for the current year's plan outlay has been placed at Rs. 400 crores. It is the Ministry's view however

that the provisions made are inadequate and if not enhanced, would lead to serious slippages in project implementation, consequential increases in project costs and shifts in future production projections. The minimum outlay required would be Rs. 804 crores for the Department's projects, the greater part being required by SAIL (Rs. 704 crores as against Rs. 612 crores in the interim budget).

SAIL has faced considerable cash management difficulties in the year under report mainly for the following reasons:—

(i) Sharp increase in the stockpile of blooms and ingots for want of power to the finishing mills.

(ii) The need to finance large imports and sale of the imported material at equalised prices, the difference between the import price and the equalised price being recovered however only over a period of time.

(iii) Uncompensated cost escalations.

(iv) Larger allotments to the small industries corporations whose distribution costs are met by SAIL.

The same factors have also affected the profitability of SAIL. The most important factor affecting its profitability is loss of production of over 1 million tonnes for want of power and coking coal. It is, however, expected that the year (1979-80) will show a moderate profit.

8. Investment Proposals

Apart from the projects mentioned earlier, a number of important schemes are at different stages of formulation/consideration relating to the creation of fresh capacity and modernisation of existing capacity. Detailed proposals have been received from a West German Consortium as also from a Consortium led by the British firm for putting up steel plants at coastal locations initially with a capacity of 1·2 million tonnes to be expanded ultimately to 3 million tonnes. These proposals envisage the Consortia assuming total responsibility for engineering and time bound execution with maximum use of Indian resources of skills and equipment to be financed fully by offshore funds in the form of Government credits on soft terms, export credits, bank financing etc. The proposals are in an advanced stage of examination and decisions are expected to be taken shortly.

The Durgapur Steel Plant has been functioning at relatively low levels of capacity and incurring losses in the past. The British Steel Corporation has been assigned the task of preparing a comprehensive development plan for modernising the existing plant adding balancing facilities, minimising costs of production etc. with a view to restoring viability to the plant. Studies are also in hand with the cooperation of the USSR for delineating programme of technology improvement and innovation in Bhilai in order to increase production to a possible 5·5 million tonnes by making the minimum additions to the existing facilities. As part of the continuous expansion programme of the Bokaro Steel Plant, a proposal for further expansion of the Bokaro Steel Plant to 4·75 million tonnes at an estimated cost of Rs. 143 crores is under consideration of Government.

9. Kudremukh Iron Ore Project

A significant achievement during the year has been the completion of the Kudremukh Iron Ore Project well within its estimated cost. Commissioning trials will soon commence. The scheduled date of commencement of supplies to Iran is September, 1980. According to the Agreement entered into with the then Government of Iran, the project was to supply 7·5 million tonnes of concentrates from the 3rd year onwards. It has now become apparent that the present Government of Iran will not be in a position to lift this. It has been indicated by the Iranian Government that they will be in a position to lift only a maximum of 5·5 million tonnes in the 3rd year. The Government of Iran has also asked for a review of the two contracts, namely financial as well as the sale and purchase. Discussions are in progress with the National Iranian Steel Corporation on these aspects. The Kudremukh Iron Ore Project will thus be faced with substantial idle capacity. Ways and means of securing off-take of the balance of iron ore concentrates not required by Iran are under consideration of the company, one such being the installation of a plant for making iron ore pellets suitable for use in direct reduction furnaces, for which a pre-feasibility report has been prepared.

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NON FERROS METALS

10. ALUMINIUM

10.1 Licenced capacity target and production :

(Figures in tonnes)

Name of the Company	Location	Installed capacity	Production in 1978-79	Target for 1979-80	Estimated production in 1979-80	Capacity utilisation %
BALCO	Korba	100,000	33,451	50,000	29,060	29%
INDAL	Alwaye	15,850	88,207	88,000	63,323	65%
	Hirakud	20,320				
	Belgaum	60,000				
		96,170				
HINDALCO	Renukoot	100,000	69,166	79,000	76,174	76%
MALCO	Mettur	25,000	22,905	23,000	22,349	88%
Total .		321,170	213,729	240,000	190,906	60%

The installed capacity, if fully utilised, would be sufficient to meet the demand for aluminium in the country with marginal imports. However, owing to inadequate supply of power to the smelters, there has been considerable under-utilisation of the capacity. In order to meet the shortfall in the supply of aluminium, the country has been importing the metal since September, 1977. 33,000 tonnes of aluminium were imported in 1977-78 and about 75,000 tonnes in 1979-80.

The under-utilisation of capacity in the aluminium industry has resulted in correspondingly higher retention prices for the producers and higher sale price to the consumers, loss of excise revenue etc.

10.2 Among the producers, BALCO has been the most hard hit by insufficient power supply. It will be seen from the following table that owing to delay in supply of requisite power by the Madhya Pradesh Electricity Board, the successive potlines of the smelter which have been got ready on MPEB's assurances of power supply, could not be commissioned and a large capacity has been idling.

Potline	Annual installe (capacity	Date of completion	Date of commission
	(Tonnes)		
1st potline . . .	25,000	March' 1975	May, 75
2nd potline . . .	25,000	March' 1976	Sept., 77 (Partial)
3rd potline . . .	25,000	Dec., 1977	Yet to be commissioned.
4th potline . . .	25,000	August, 1978	Do.

BALCO has not been able to run even two potlines up to their full capacity because of cuts on power ranging from 25% to 40% on a demand of 120 MW in respect of two potlines. The erratic supply of power has resulted in loss of production, impurities in metal produced, damage to capital equipment and increased cost of production. The extra expenditure on account of higher consumption of power and other inputs is estimated at Rs. 435 and Rs. 324 respectively per tonne of aluminium.

10·3 The international price of aluminium has been showing a rising trend and is at present 75% higher than the ex-factory cost of production of indigenous metal. The country had to spend about Rs. 100 crores, by way of foreign exchange for import of 75,000 tonnes of aluminium, during 1979-80. It is planned to import 135,000 tonnes of aluminium during the year 1980-81.

10.4 Power Supply : The main constraint in the production of aluminium is inadequate supply of power. Aluminium smelters, being bulk consumers of power, are subjected by the State Electricity Boards to severe power cuts whenever availability of power declines.

HINDALCO has a captive power generation plant at Renukoot which meets more than 50% of its requirements. It has been permitted to instal 2×65 MW sets which would be commissioned by 1981. The company will then be able to meet its requirement almost wholly from its own generation.

The retention price of aluminium to the producers was increased in October, 1979 but limited to the escalations in the power tariff in the interest of containing the price of this input which is vital to the power industry and to production of certain mass consumption goods and services. As there have been sharp increases in the price of other input materials, the BICP has been commissioned to update their earlier cost study. As international prices of aluminium are much higher than the indigenous prices inclusive of duty, in order to have a practical system of distribution and to minimise the impact of international prices, the imported metal was exempted from import duties and a system of pooling the prices of imported and indigenous metal brought into effect so that the consumer has to pay only a single uniform price.

10.5 Future Planning : It is quite clear that in the coming years shortage of aluminium will be increasingly felt and that we cannot continue to rely on meeting a substantial part of country's requirements through imports with are both uncertain as well as entail heavy outgo on foreign exchange. The feasibility report for setting up alumina/ aluminium complex based on bauxite deposits in Orissa envisaging 800,000 tonnes alumina plant, 218,000 tonnes smelter and a captive power plant is in advanced stage of consideration of Government. During the recent visit of the President of France, a Protocol was signed between the two countries envisaging French financing of the total investment on the project including the infrastructure facilities such as captive power plant, coalmine, railway link etc. by a combination of French Government credits and bank loans. The detailed financing proposals are awaited. The matter was further pursued by the Minister for Commerce and Steel & Mines during his visit to Paris in April, 1980, in discussion with the French Government. Preliminary discussions on technical collaboration have also been held with Aluminium Pechiney.

The feasibility report for a 600,000 tonnes alumina plant based on the bauxite deposits in Andhra Pradesh in two variants, one assuming the maximum supply of Soviet services and equipment and the other assuming maximum utilisation of Indian services and equipment has been received from the USSR and discussed with their specialists in April-May of this year. The Soviet Union have proposed that the plant could be built on a production compensation basis i.e. the supplies and services rendered by the Soviet Union would be paid off in the form of alumina supply over a suitable period. They have also indicated their readiness to contract for off-take of the entire production of alumina for a long period. Discussions are proposed to be held with the USSR regarding off-take of alumina, terms of off-take, financing of the project etc.

11. Copper

11.1 The production performance of Hindustan Copper Ltd., the only producer of copper, during 1979-80 was as below:—

(Unit : Tonnes)

	Blister Copper	Refined Copper (Cathodes)
Installed capacity . . .	47,500	39,400
Target	30,000	27,000
Production	22,471	18,791
Shortfall	7,529	8,209

The shortfall in production, compared to target, of 25% in respect of blister copper and 30% in respect of refined copper has been mainly due to the following reasons :—

(i) Unsatisfactory performance of the Khetri smelter in the first half of the year. The major recommendations of the Japanese consultants M/s. Furukawa were implemented during the shut down period of the overhaul of the smelter during August to October, 1979. As a result, the performance of the smelter has shown appreciable improvement from December, 1979 onwards, the avergage capacity utilisation during December, 1979 to March, 1980 being 70%.

(ii) Shortage of concentrates at Indian Copper Complex due to strike at Mosaboni mines in April, 1979 and acute power problems during 1979-80.

11.2 The operations of the mines and concentrators at Ghatsila were seriously affected by the unsatisfactory power supply position throughout the year. Besides, a very large number of power interruptions there were also load restrictions of 40 to 50% of the requirements during most of the year which increased to about 80% in February and March, 1980. At Khetri, the power supply position deteriorated since December, 1979 starting with a power cut of 25% which was subsequently raised to 50% and in the last week of January, 1980 to 80%. The power cut was further increased to about 90% at the end of February, 1980 and the cut continued at 85% to 90% during March, 1980 also. Short supply of power has had a very serious impact on mine development, ore production and concentrate production during the year, resulting in the liquidation of the concentrate stocks at Indian Copper Complex. The concentrate stock at Khetri has also been depleted appreciably. This will seriously affect the production of copper during 1980-81 until power supply position become normal. HCL have made arrangements for import of copper concentrates to tide over the problem to the extent possible. Concentrates are not readily available in the international market.

11.3 The loss of poduction in 1979-80 on account of power problems is estimated to be about 6·5 lakh tonnes of ore, which in terms of recoverable metal would be about 7,000 tonnes of copper, which at current level of copper prices, would have a value of about Rs. 23·7 crores (net of excise). This would mean import of additional 7,000 tonnes of metal, costing Rs. 13·7 crores at current c.i.f. prices.

11.4. *On going and planned investment* : The mines at Khetri Copper Complex, even at their optimum production level will be able to meet only about 70% of the concentrate requirements of the smelter. HCL have taken up the development of the Malanjkhand Copper Project in Madhya Pradesh. The concentrates to be produced at Malanjkhand will be smelted at Khetri, thus enabling full capacity utilisation of the Khetri smelter. The first stage of the Malanjkhand Copper Project is scheduled to go into commercial production in July, 1982 and will produce concentrates equivalent to 15,000 tonnes metal. The ultimate stage of 23,000 tonnes of equivalent metal is scheduled to be commissioned by July, 1984.

11.5 With a view to matching the smelter and refinery capacities with the mine capacities, HCL have taken up feasibility studies for expansion of the smelters and refineries at Khetri and Ghatsila for an ultimate capacity of 65,000 tonnes of copper.

11.6 The Singhbhum Copper Belt in Bihar where the Indian Copper Complex of HCL is located has a very large potential for future development. A programme has been drawn up for detailed exploration in a phased manner of the promising copper deposits in this belt so as to improve the confidence level of ore reserves, before feasibility reports for exploitation are prepared.

12. Zinc and Lead

The production of zinc was only 52,650 tonnes compared to 64,400 tonnes in 1978-79. The public sector HZL produced only 44,500 tonnes compared to 51,180 tonnes in the previous year i.e. 1978-79. The capacity utilisation for the industry as a whole was only 57%.

HZL's production of lead was somewhat higher than the production in the previous year, the figures being 11,300 tonnes in 1979-80 and 10,475 tonnes in 1978-79. The capacity utilisation was 63%.

The principal reasons for the shortfall in production were severe power shortage and interruptions, non-availability of imported zinc concentrates and certain teething troubles in the plants. Shortage of power was experienced at the lead smelter at Tundoo.

13. New Prospects

A very promising lead-zinc deposit has been located at Agucha a place near Udaipur. Action has been taken to implement a comprehensive programme of exploration within the shortest

possible time mobilising the resources of HZL, State Departmen of Geology, the GSI etc. It has also been decided that a pre feasibility study for treating the concentrates available from thi and other polymetallic deposits should be commissioned. T this particular deposit fulfils the promise that it now holds, i would be possible for the country to become self-sufficient in zinc and lead by the end of this decade as compared to its dependenc on imports to meet currently 50% of its demand.

14. Government had set up a Committee under the Chair manship of Additional Secretary (Mines) to review the organisa tional structure of the IBM in October, 1978. The Committee submitted its report in December, 1979 in which a number of im portant recommendations were made for strengthening the orga nisation so as to make it more effective in achieving the objectives of conservation and systematic development of the mineral re sources. The main recommendations include review of the charter of the IBM to include the areas of environmental protection and pollution control in regard to the mining and mineral beneficiation operations, enlarging the scope of technical consultancy services strengthening the mines control and conservation of minerals division, training of personnel of IBM as well as mineral industry, market surveys of all important minerals in a cycle of 5 years, updating of inventory of mineral resources of important minerals every year and intensifying the activities of mining research and publication of bulletins and monographs. The Committee has also suggested constitution of an Advisory Board for the IBM for reviewing and advising on the annual programme of the service activities and annual and five year plan proposals, to appraise the work done in different areas, to advise on systems of manage ment information and management accounting and to advise on ways and means of making IBM's functioning more effective. The recommendations are under consideration of the Government.

PART II

DEPARTMENT OF STEEL

CHAPTER I

PLANNING AND DEVELOPMENT IN THE STEEL SECTOR

1.1 The progressive increase over the years in the installed capacity for steel making in terms of ingot steel in the integrated steel plants is shown in the table below:—

(In million tonnes)

Five Year Plan	Year ended	Installed capacity at the end of the Plan
First	31 March, 1956	1·5
Second	31 March, 1961	6·0
Third	31 March, 1966	8·9
Fourth	31 March, 1974	8·9
Fifth	31 March, 1978	10. 6

The increase in capacity in the Fifth Plan period resulted from the completion of the 1.7 million tonne stage of Bokaro Steel Plant. The capacity of the plant has since risen to 2·5 million ingot tonnes.

1.2 The following important capital investment schemes are either in progress or are in advanced stages of consideration and are scheduled for completion in the coming years:

(i) Completion of current expansion programmes of Bhilai and Bokaro Steel Plants to 4·0 million ingot tonnes each.

(ii) Further expansion of Bokaro Steel Plant to 4·75 million ingot tonnes.

(iii) Salem Steel Plant with an annual capacity of 32,000 tonnes of cold rolled stainless steel sheets.

(iv) A plant at Rourkela to produce 37,5 00 tonnes of cold rolled grain oriented electrical steel sheets and 36,000 tonnes of cold rolled non-grain-oriented sheets per annum to meet the requirements of the electrical industry.

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1.2 The following important capital investment schemes are either in progress or are in advanced stages of consideration and are scheduled for completion in the coming years:

(i) Completion of current expansion programmes of Bhilai and Bokaro Steel Plants to 4·0 million ingot tonnes each.

(ii) Further expansion of Bokaro Steel Plant to 4·75 million ingot tonnes.

(iii) Salem Steel Plant with an annual capacity of 32,000 tonnes of cold rolled stainless steel sheets.

(iv) A plant at Rourkela to produce 37,500 tonnes of cold rolled grain oriented electrical steel sheets and 36,000 tonnes of cold rolled non-grain-oriented sheets per annum to meet the requirements of the electrical industry.

(v) Provision of additional melting facilities at Alloy Steels Plant, Durgapur, to increase the existing capacity from 1,00,000 ingot tonnes of alloy steels to 1,60,000 tonnes.

(vi) Modernisation and replacement of equipment in the existing steel plants.

(vii) Schemes for updating of technology and replacement of obsolescent processes.

(viii) Research and Development schemes for achieving higher productivity, product diversification etc. in steel plants.

(ix) Installation of an experimental plant for producing sponge iron using a solid reductant, viz., non-coking coal.

(x) Installation of 3 × 60 MW Coal-based thermal generating units at Bokaro Steel Plant and 2 × 60 MW Thermal generating units at Durgapur (for Durgapur Steel Plant and Alloy Steels Plant) to augment captive power generating capacity.

(xi) Establishment of shore-based steel plant at Visakhapatnam with an installed capacity of about 3·4 million tonnes of liquid steel to be implemented in two over lapping stages within a period of 6 years from the start of work at site.

1.3 Certain proposals for the setting up of a shore-based steel plant of about 3 million tonnes capacity to be achieved in two stages with financial and technical collaboration with certain developed countries are presently under consideration.

CHAPTER II

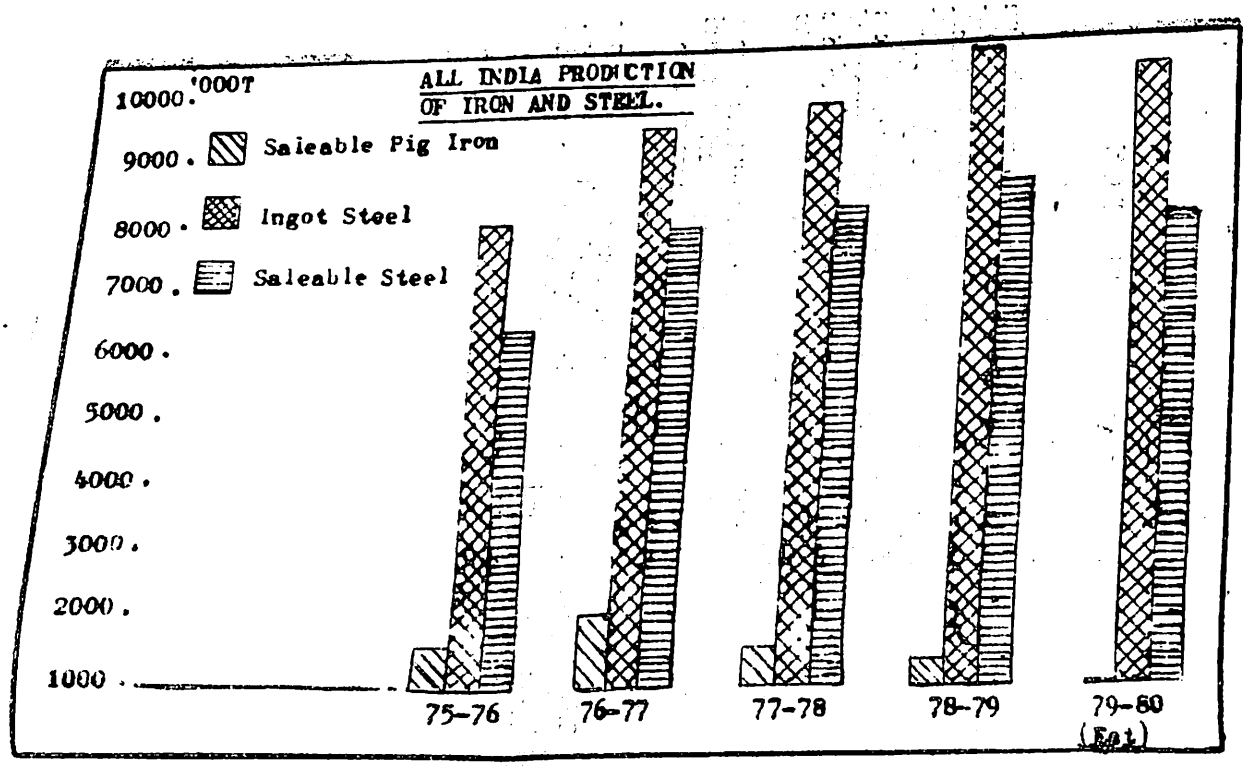
PRODUCTION AND DISTRIBUTION

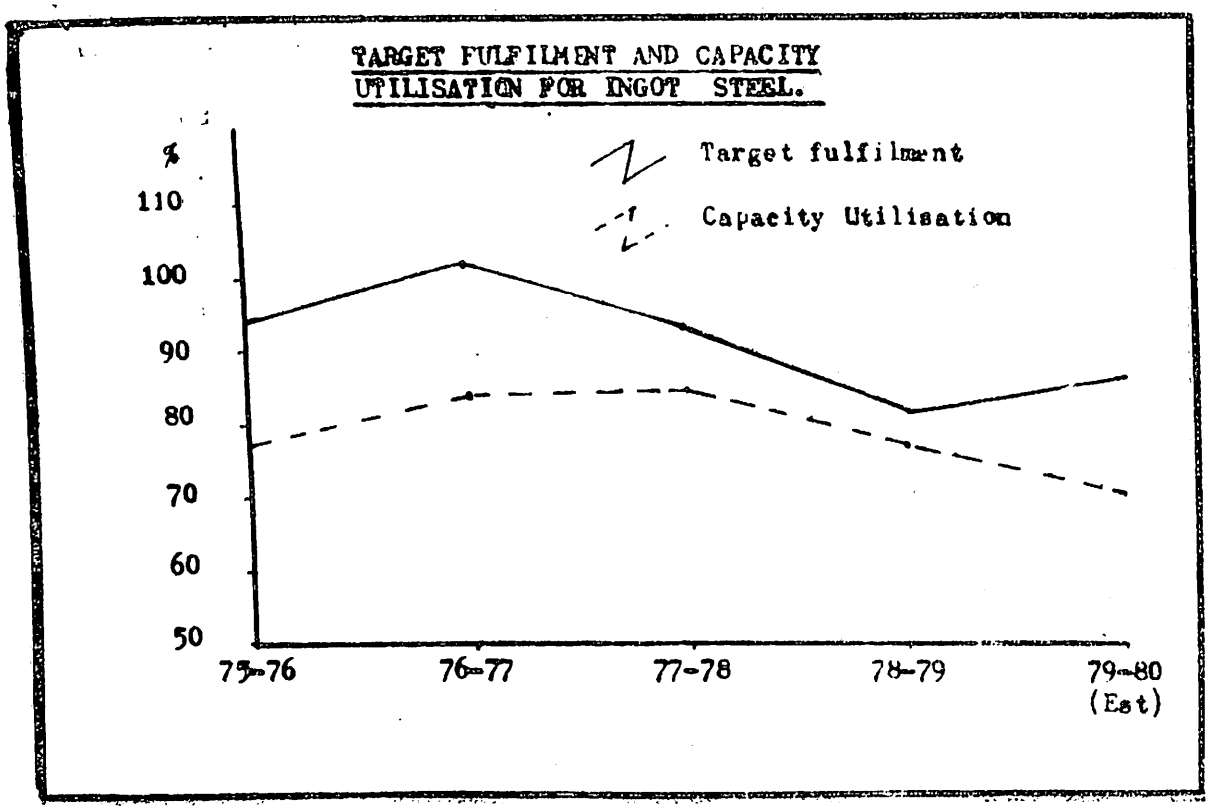
2.1 Overall Production of Steel in 1979-80

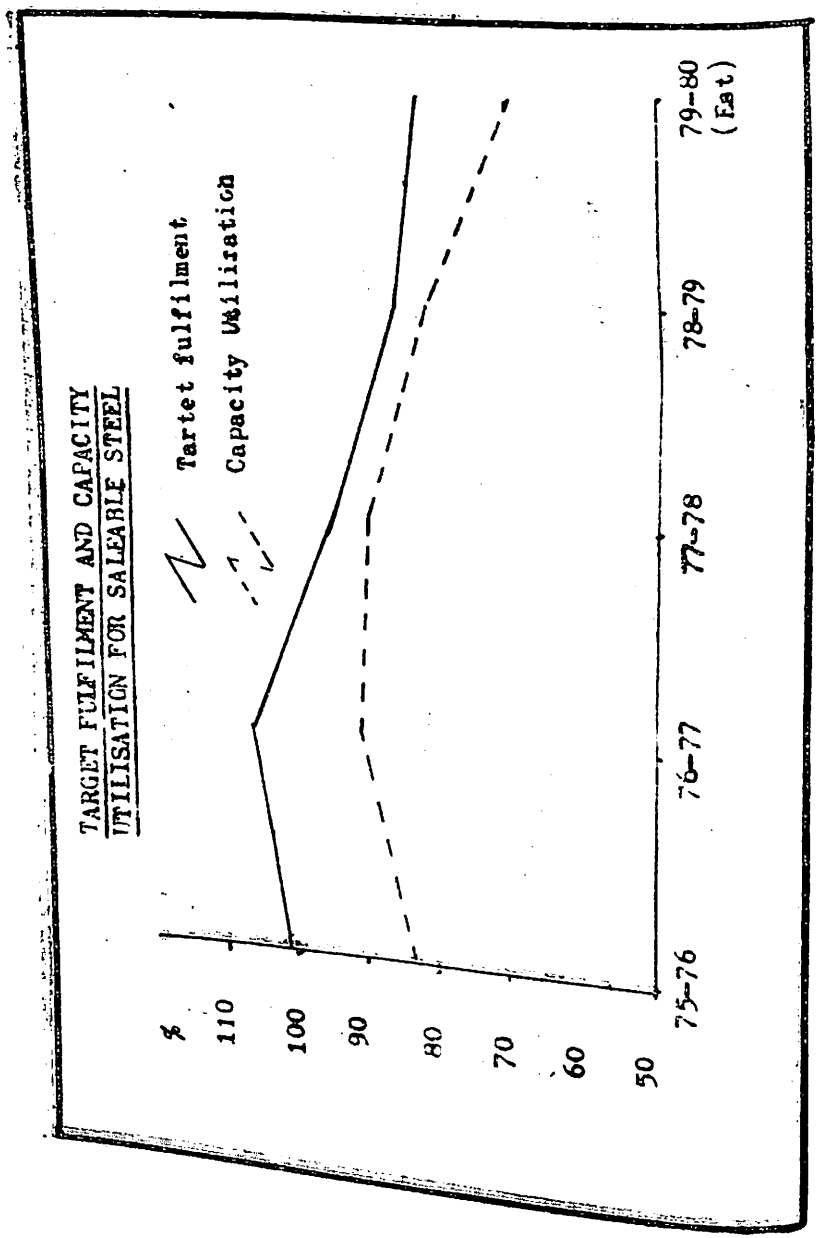
2.1.1 Notwithstanding the severe constraints on production due to power and coal shortage coupled with transport bottlenecks throughout the year, the integrated steel plants produced, in 1979-80, 8·028 million tonnes of ingot steel which was marginally lower (—1.5%) than the production in 1978-79. Their output of saleable steel at 6·039 million tonnes was 8·4 % less than in 1978-79 primarily because of inadequate supply of power leading to the idling of the rolling mills, which led to rise in stocks of ingot steel from 158,000 tonnes on 1-4-79 to 608,000 tonnes on 1-4-80.

2.1.2 Including the estimated production of mild steel from the electric arc furnace units and of alloy and tool steels, the total production of saleable steel was 7·784 million tonnes in 1979-80 as compared to 8·428 million tonnes in 1978-79.

2.1.3 Category-wise details of production of saleable pig iron and steel during the last five years are given in Appendix-I. Charts showing production, target fulfilment and capacity utilisation are also given at pages 36—38


ALL INDIA PRODUCTION OF IRON AND STEEL.
'000T
10000.
9000.
8000.
7000.
6000.
5000.
4000.
3000.
2000.
1000.
Saleable Pig Iron
Ingot Steel
Saleable Steel
75-76
76-77
77-78
78-79
79-80 (Est)


TARGET FULFILMENT AND CAPACITY UTILISATION FOR INGOT STEEL.
%
110
100
90
80
70
60
50
Target fulfilment
Capacity Utilisation
75-76
76-77
77-78
78-79
79-80 (Est)



2.2 Demand and Availability of Steel

2.2.1 The demand for steel registered further increase during 1979-80. In the previous year net indigenous availability (i.e. indigenous production plus imports minus exports) showed an increase of 16% over that in 1977-78. Buoyancy in demand continued during the current year also. There was an all round boom in construction activity and the heavy plan outlays were reflected by increased demands for steel from Government Departments and Undertakings particularly from Electricity Boards and Power Projects.

2.2.2 In the wake of rising demand for steel and shortfalls in planned indigenous production, arrangements were made for large scale imports. Steel Authority of India Limited, as a canalising agency imported 1·3 million tonnes of steel during 1979-80. The total availability of steel in the home market during the year was 8·615 million tonnes as against 8·191 million tonnes in 1978-79, i.e. higher by 424,000 tonnes (5·0%).

2.3 Distribution

2.3.1 The year under review witnessed further changes in the distribution policy mainly by way of refinement and adjustments as a result of experience. The basic objective of the distribution policy followed during the year was to ensure equitable supply to different groups of customers giving priority to important sectors like Defence, Railways, Power Projects and engineering goods exports. Comprehensive distribution procedures were introduced in respect of different products. Export of semis, bars and rods was banned, thus contributing to increasd availability of these items for the domestic market. Similarly, with a view to augmenting the supply of hot rolled strips, supply of indigenous produced hot rolled strips for export of tubes was stopped.

2.3.2 As the open market prices of bars and rods increased, special measures were taken to safeguard the interests of the common man and some sensitive sectors. Quantities were earmarked in all stockyards for supply of rounds and torsteel to small house builders, farm houses, schools, colleges and hospitals and also, to cooperative housing societies.

2.3.3 In line with Government policy, to encourage the small scale sector, increased allocations were made to the States

Small Industries Corporations during the current year. A quantity of 405,000 tonnes was supplied to them during the year against actual supplies of about 292,000 tonnes made in 19[illegible]79. The scheme of supplying steel at a concessional price to [illegible] Corporations so that they could in turn sell the materials to [illegible] Small Scale Units at Rs. 40/- per tonne less than the correspon[illegible]ing stockyard prices was continued. This was intended to im[illegible]prove the competitiveness of the small scale units vis-a-vis the large scale sector.

2.3.4 Keeping in view the important role assigned to the rural sector in the growth of the economy and in keeping with Governments policy to accelerate the pace of economic activity in rural areas, a scheme was formulated for Rural Distribution Centres (RDC) in selected blocks. These blocks were chosen from districts identified by Government for the intensive fertilizer promotion campaign. The scheme involves supplies of about 50 tonnes per month of certain categories of steel to each RDC for sale at stockyard prices. The expenditure on transporting steel to the RDC is borne by Steel Authority of India Limited (SAIL) subject to a ceiling fixed for each centre. 68 such RDCs were opened in 1979-80 and commencing from July/August, 1979 approximately 2,800 tonnes of various categories of steel were distributed through these centres. Opening of further centres will be decided after an evaluation of the performance of these centres in relation to the objectives for which they have been set up. The frequent restrictions imposed by the Railways on movement via Farakka adversely affected despatches of steel materials to the North Eastern States. Despite SAIL arranging movement of substantial quantity of steel by road, despatches to North Eastern States could reach a level of only 54% of their total estimated requirement of 10,000 tonnes per month. With increased developmental activities in the region the demand for steel materials in the area particularly of rounds and structurals has been growing. To cope up with this demand it has been decided to augment despatches by transporting material by road from Calcutta and New Bongaigaon to Gauhati and other State capitals in the North Eastern Region.

2.3.5 With scarcities developing for iron and steel items, Government have revived the operation of clause 7 of Iron and Steel (Control) Order and made it applicable to all items of iron and steel. During the period 1979-80, 4139 inspections were carried out by the Regional Iron & Steel Controllers and these resulted in debarment of supplies, for varying periods, in 367 cases and temporary suspension in [illegible] investigation.

2.4 PRICING

2.4.1 With effect from 7-4-79, in order [illegible]pment Fund, the price of all saleable [illegible]items) was raised by imposing (i) a [illegible]te base price which ruled prior to 7[illegible] of development and import cont[illegible] by another Rs. 100/- per tonne [illegible]rices of indigenous and in[illegible]s also raised by Rs. 100/[illegible] This was done to ens[illegible] increased realisation [illegible]public and private [illegible]ng development [illegible]ons to the [illegible] will be utili[illegible] the basis of h[illegible] and Prices.

2.5 IMPORTS

2.5.1 1979-80 witnesse[illegible] dure and contents of import po[illegible] year. The number of items placed under O[illegible] subject to actual user condition was increased. The [illegible] lised items was limited mainly to the bulkable items and it[illegible] which are mainly produced within the country. The procedure for direct allotment of the canalised items to the actual users by the canalising agencies continued. The canalising agencies were allowed to import such items under Open General Licences for them. The policy provided for import of even banned items on the basis of clearance by the Committee under the Chairmanship of CCI & E.

2.5.2 SAIL continued to be the canalising agency for canalised prime steel items other than stainless steel, for which MMTC is the canalising agency. The Metal Scrap Trade Corporation Limited continued to be the canalising agency for import of ferrous scrap including old ships for breaking.

2.5.3 The scheme for import of certain critical categories of steel items as "Buffer Stocks" continued during 1979-80. These imports are exempted from payment of import duties and

Small Industries Corporations during the current year. A quantity of 405,000 tonnes was supplied to them during the year as against actual supplies of about 292,000 tonnes made in 1978-79. The scheme of supplying steel at a concessional price to SSI Corporations so that they could in turn sell the materials to the Small Scale Units at Rs. 40/- per tonne less than the corresponding stockyard prices was continued. This was intended to improve the competitiveness of the small scale units vis-a-vis the large scale sector.

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cases and temporary suspension in 634 cases pending further investigation.

2.4 Pricing

2.4.1 With effect from 7-4-79, in order to augment the Steel Development Fund, the price of all saleable steel items (except railway items) was raised by imposing (i) a specific addition of 15% on the base price which ruled prior to 7-4-79 (exclusive of the elements of development and import contributions already added) and (ii) by another Rs. 100/- per tonne on all these items, to equalise the prices of indigenous and imported materials. Price of pig iron was also raised by Rs. 100/- per tonnes as a development surcharge. This was done to ensure that increases in prices do not result in increased realisations in the hands of the producers both in the public and private sectors and were instead available for financing development outlays on new facilities. A part of the accretions to the Development Fund will be utilised for meeting cost escalations of the producers on the basis of half-yearly studies by the Bureau of Industrial Costs and Prices.

2.5 Imports

2.5.1 1979-80 witnessed further liberalisation in the procedure and contents of import policy compared to the previous year. The number of items placed under Open General Licence subject to actual user condition was increased. The list of canalised items was limited mainly to the bulkable items and items which are mainly produced within the country. The procedure for direct allotment of the canalised items to the actual users by the canalising agencies continued. The canalising agencies were allowed to import such items under Open General Licences for them. The policy provided for import of even banned items on the basis of clearance by the Committee under the Chairmanship of CCI & E.

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2.5.3 The scheme for import of certain critical categories of steel items as "Buffer Stocks" continued during 1979-80. These imports are exempted from payment of import duties and

the imported materials are supplied to the consumers at prices of indigenous materials are supplied. The difference between the imported price and the sale price is reimbursed to the importing agency, namely, SAIL from a fund generated through a levy of Rs. 100/- per MT on indigenous production of steel. Total quantity cleared for import under the Buffer Scheme for 1979-80 was 9,50,000 tonnes. This quantity comprises the following carbon steel categories :—

Carbon Steel ingots/slabs

Carbon Steel billets/structurals, plates, hot rolled and cold rolled coils, Tinmill Black Plate and GP/GC sheets.

2.5.4 The import plan of SAIL for 1979-80 provided for import of about 1.64 million tonnes of steel including import under the 'Buffer Stock' scheme. The actual import (Shipments from abroad) during the year was 1,334,887 tonnes (including 838,655 tonnes under the buffer scheme) against 782,201 tonnes during 1978-79. Category-wise details are given in Appendix-II.

2.5.5 While planning for imports, the need to utilise indigenous capacity to the extent possible was kept in mind. Thus import of billets was preferred to that of bars and similarly import of HR coils/Tin Mill Black plate preferred to import of Tinplate.

2.5.6 Imports of stainless steel by MMTC during the years 1978-79 and 1979-80 were as follows :—

Year	Quantity	Value
1978-79	22,979 MT	Rs. 46·63 crores
1979-80	34,400 MT*	Rs. 62·00 crores*

*Figures are provisional.

2.6 Export

2.6.1 In view of the increased domestic demand, exports of iron and steel items were restricted mainly to the extent of past commitments and certain trade plan provisions. Considering the demand in the domestic market and the availability, export of H.R. Coils, bars and rods and semis was banned.

2.6.2 Exports of iron and steel and ferro alloys for 1978-79 and 1979-80 are given below :—

Qty. Tonnes
(Value : Rs. lakhs

	1978-79		1979-80	
	Qty.	Value	Qty.	Value
Pig iron	266,496	2,014	44,197	431·25
Steel	523,919	10,736	60,659	1409·19
Ferro Alloys	153,014	2,826	72,888	1770·38

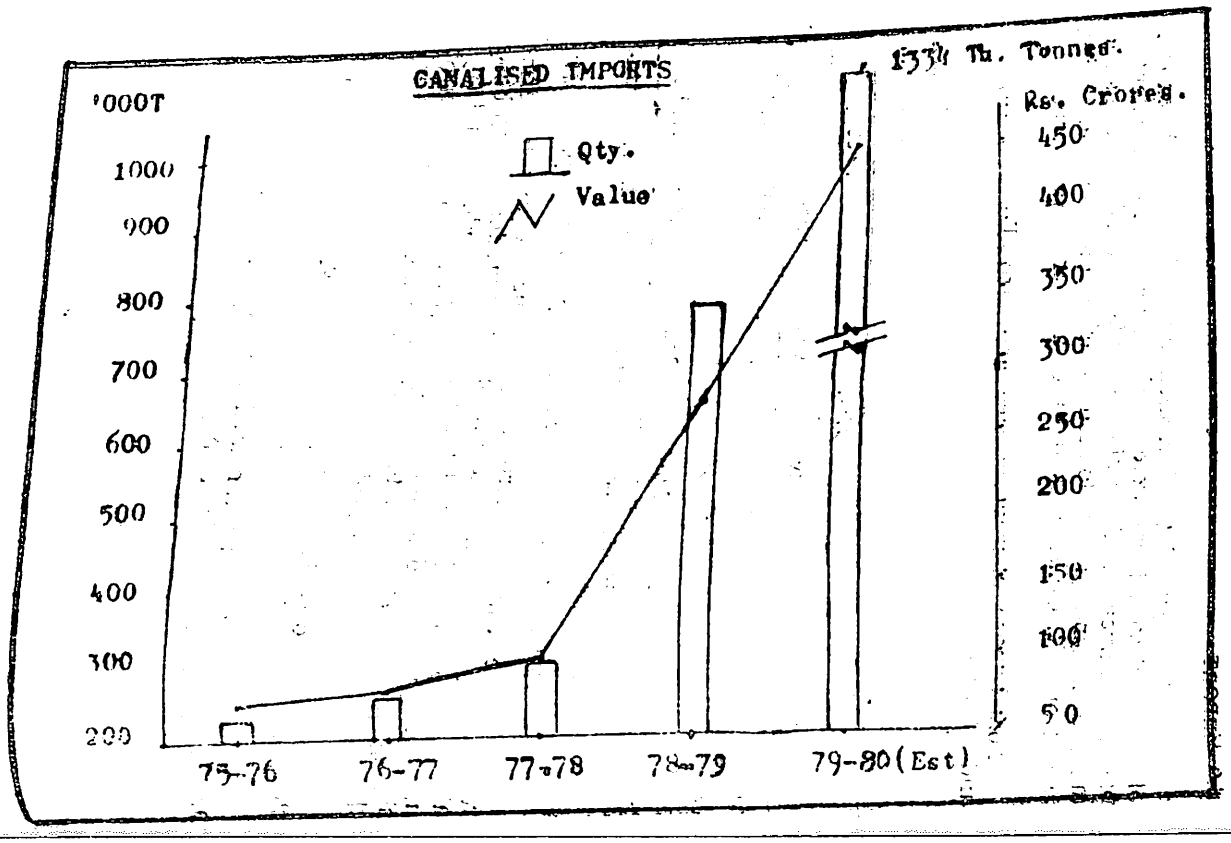
(The figures for 1979-80 are based on actuals for 11 months and provisional for March, 80).

Category-wise break-up for exports is given in Appendix-III

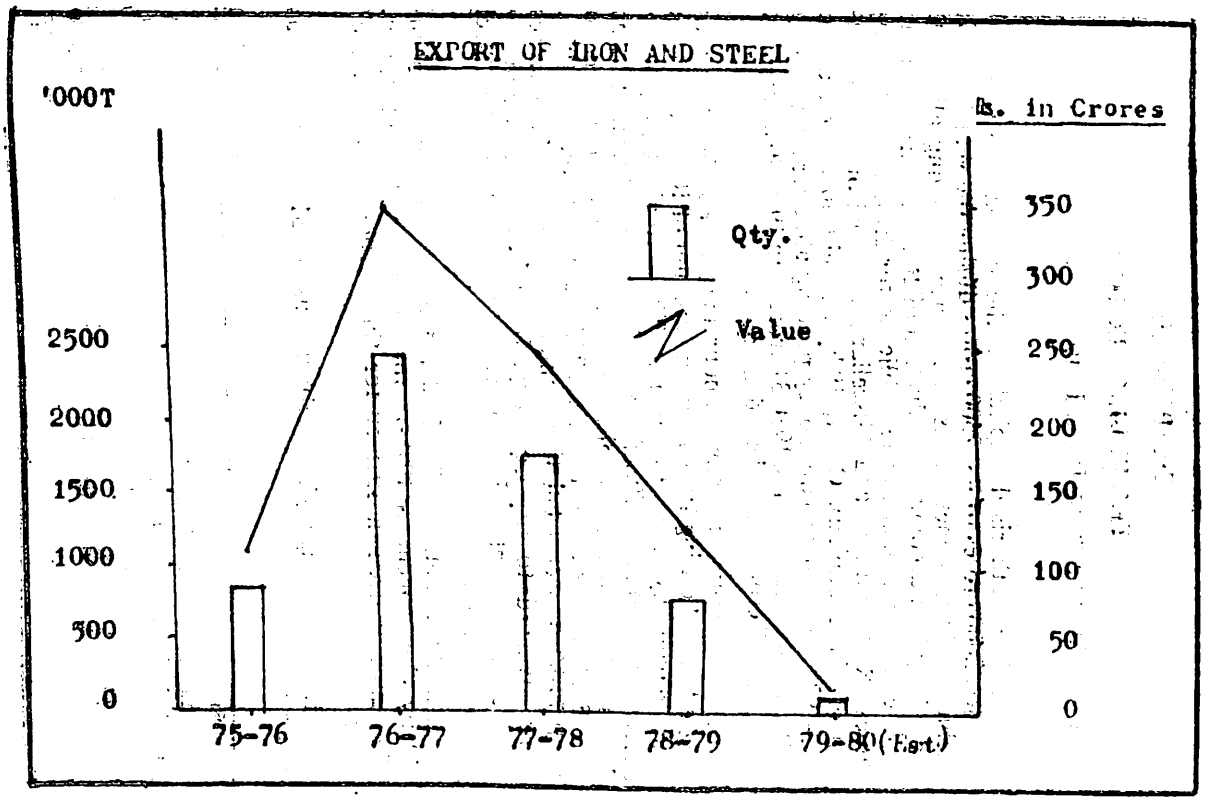
2.6.3 The export of ferro alloys during the year has also registered a decline mainly due to (a) lower production attributable to power cuts imposed on ferro alloys producers and (b) increased domestic demand. In view of the shortage of ferro silicon, it was decided not to permit any export of this item in the second half of the year.

2.6.4 Category-wise break-up of ferro alloys exports during the year is given in Appendix-IV.

2.6.5 Charts showing canalised imports and exports of iron and steel are also provided at pages—44-45


CANALISED IMPORTS
1334 Th. Tonnes.
'000T
Rs. Crores.
Qty.
Value
1000
900
800
700
600
500
400
300
200
450
400
350
300
250
200
150
100
50
75-76
76-77
77-78
78-79
79-80(Est)

44


EXPORT OF IRON AND STEEL
'000T
Rs. in Crores
Qty.
Value
2500
2000
1500
1000
500
0
350
300
250
200
150
100
50
0
75-76
76-77
77-78
78-79
79-80(Est.)

45

CHAPTER III

THE PUBLIC SECTOR

3.1 Steel Authority of India Limited

Finance

3.1.1 The authorised capital of the company was raised from Rs. 2000 crores to Rs. 2500 crores during the year 1978-79. Excluding share money of Rs. 29.85 crores pending allotment and taking into account the reduction of Rs. 77.77 crores in the share capital pursuant to the Public Sector Iron & Steel Companies (Restructuring) and Miscellaneous Provisons (Modification of Share Capital), Order, 1979, its paid-up capital as on 31-3-1978 (excluding share money pending allotment amounting to Rs. 94.24 crores) was Rs. 1980.31 crores. In 1979-80 an amount of Rs. 220.87 crores was released as equity.

3.1.2 Government loans amounting to Rs. 74.35 crores were advanced during 1978-79 and an amount of Rs. 98.84 crores was repaid by the Company. The total Government borrowings as on 31-3-79, after transfer and adjustment of loans drawn by merged companies/transferred units, amounted to Rs. 730.96 crores as against Rs. 372.38 crores as on 30-4-1978. In 1979-80, Government loans amounting to Rs. 42.15 crores were advanced to the Company. In addition, the Company received an amount of Rs. 160 crores as loan from the Steel Development Fund.

3.1.3 An amount of Rs. 2.32 crores was given as grant-in-aid by Government in 1978-79 for research and development. The amount given in 1979-80 for this purpose was Rs. 5.67 crores.

3.1.4 The Company's investments as on 31-3-1979 were as under :

	(Rs. in lakhs)
Subsidiaries	
(i) Indian Iron & Steel Co. Ltd.	5427·83
(ii) Bolani Ores Limited	50·50
(iii) Metal Scrap Trade Corpn. Ltd.	106·00
Other Companies	
Visvesvaraya Iron & Steel Ltd.	1578·00
Total	7162·33

3.1.5 The gross turn-over of the Company during the year 1978-79 (11 months, May, 1978, to March, 1979) was Rs. 1498.14 crores including sale of imported stocks valued at Rs. 214.24 crores. The F. O. B. value of exports of steel, and pig iron amounted to Rs. 127.50 crores as against the FOB value of exports of Rs. 129.03 crores in 1977-78. The Company earned a net profit of Rs. 43.94 crores after providing for depreciation of Rs. 93.60 crores and interest of Rs. 65.23 crores on loans and after making a provision of Rs. 21.90 crores towards Investment Allowance Reserve. The working results of the various units of the Company are indicated below :—

Rs./Crores

Bhilai Steel Plant	(+)49·96
Durgapur Steel Plant	(+)4·37
Rourkela Steel Plant (including fertiliser plant)	(+)47·24
Bokaro Steel Plant	(—)31·42
Alloy Steels Plant	(+)2·01
Central Coal Washeries Orgn.	(+)0·49
Provision for contingencies, Investment Allowance Reserve etc.	(—)28·71
Total	(+)43·94

3.1.6 Consequent on its restructuring from 1-5-78, the Company took over accumulated losses amounting to Rs. 97.98 crores in respect of dissolved companies/transferred units.

Production Performance

3.1.7 The following table indicates the annual capacity of the various plants under the Company (Including IISCO), their production in 1978-79 and targets and actual production in 1979-80 :—

Plant	Annual capacity	1978-79 Production	1979-80 Target	1979-80 Actual
1	2	3	4	5
				(000' tonnes)
	Ingot Steel			
Bhilai Steel Plant	2500	2200	2300	2108
Durgapur Steel Plant	1600	945	1250	882
Rourkela Steel Plant	1800	1319	1420	1268
Bokaro Steel Plant**	1700/2500	1195	1730	1426
Total	7600/8400	5659	6700	5684

1	2	3	4	5
Indian Iron & Steel Co.	1000	628	700	565
Tota	8600/9400	6287	7400	6249
Alloy Steels Plant	100	97·33	97·00	76·72
	Saleable Steel			
Bhilai Steel Plant	1965	1846	1900	1706
Durgapur Steel Plant	1239	776	1000	604
Rourkela Steel Plant	1225	1042	1172	1045
Bokaro Steel Plant**	1355/2000	931	1377	849
Total	5784/6429	4595	5305**	4162**
Indian Iron & Steel Co.	800	481	550	430
Total	6584/7229	5076	5855**	4592**
Alloy Steels Plant	60	48·84	50·62	45·68
	Calcium Ammonium Nitrate			
Rourkela Fertilizer Plant	459·2	276	325	210

**Bokaro's annual capacity was 1·7 M.T. for 1978-79 and 2·5 M.T. for 1979-80 in respect of ingot steel and correspondingly for saleable steel 1·355 M.T. and 2·0 M. T. respectively for the two years.

**Excluding transfer of HR coils from Bokaro to Rourkela.

3.1.8 The total production of 6.249 million tonnes of ingot steel and 4.592 million tonnes of saleable steel from the integrated steel plants under the Company in 1979-80, fell short of the production in the preceding year only slightly by 0.6% in the case of ingots but 9.5% in the case of saleable steel. However, as compared to the targets, the shortfall was much higher—15.6% in ingot steel and 21.6% in saleable steel production. The overall capacity utilisation in terms of ingot steel was 66.5% and in terms of saleable steel, 63.5%, though saleable steel capacity utilisation in the case of Bhilai and Rourkela Steel plants was much higher at 86.8% and 85.3% respectively.

3.1.9 The production in 1979-80 was adversely affected on account of two major factors viz. inadequate supplies of coking coal, both in terms of quantity and quality, and frequent restrictions/fluctuations in power supply. Coking coal stocks at thes plants had come down drastically towards the end of March,

1979. In view of the critically low level of stocks and the dangerous implications of running steel plants with such meagre stocks, it became necessary to effect a substantial reduction in the rate of coke even pushings from 1-4-1979. Power availability from DVC system to steel plants at Bokaro, Durgapur and Burnpur was very critical from April, 1979 onwards. There were also difficulties in regard to satisfactory power supply to Bhilai and Rourkela Steel plants from the State Electricity Boards. This resulted in very substantial loss of production of saleable steel. Apart from loss of production, this has also resulted in a very heavy build-up of ingots (608,000 tonnes) and blooms (144,000 tonnes at Bokaro and Rourkela) in stock at the close of the year leading to physical limitations of storage and blocking of large amounts of money in inventories, thus affecting financial liquidity.

3.1.10 Close and constant liaison continues to be maintained with the Ministry of Energy, DVC, State Electricity Boards, Coal supplying agencies and the Railways so as to secure maximum supplies of power and good coking coal. Orders had been placed for the import of one million tonnes of low-ash coking coal in 1978 and supplies of imported coal commenced from January, 1979. Actual arrivals during the year were 830,000 tonnes. These have been of considerable help in maintaining production and improving the stock position at Bhilai and Rourkela Steel Plants. But for these imports, one or two of the plants would have run out of stocks and have had to shut down (the stock position of all plants as on 1-1-80 being only 103,000 tonnes). In order to tackle the power situation, schemes have been sanctioned for augmentation of captive power generation capacity at Durgapur and Bokaro Steel Plants to the extent of 300 MW.

Industrial Relations

3.1.11 The industrial relations situation was generally satisfactory. However, 8,69,288 manhours were lost in 1979-80 on account of labour troubles in Bhilai, Durgapur, Rourkela and Bokaro Steel Plants, Alloy Steels Plant, Durgapur and the Burnpur Plant of IISCO, as compared to the loss of 559,360 manhours in 1978-79. The loss of production of saleable steel on this account in 1979-80 came to 76,945 tonnes.

New Wage Agreement

3.1.12 The last wage agreement having expired on 31-8-78, the National Joint Committee for Steel Industry, a bipartite

Committee, signed a fresh agreement on 19-6-79 for a period of 4 years effective from 1-9-78. Under the agreement the minimum wage for Steel workers has been raised from Rs. 437·40 as on 31-8-1978 to Rs. 505 per month as on 1-9-78 consisting of a basic wage of Rs. 400 and dearness allowance of Rs. 105 with Rs. 67·60 per month as the minimum guaranteed benefit. Besides, a number of other fringe benefits have accrued to the workers. This has cost the public sector steel plants over Rs. 45 crores per year.

3.1.13 The total number of employees of the company as on 31-12-79 indicating separately, Scheduled Castes, Scheduled Tribes and Women are given below :—

Group	Total No. of employees on 31-12-79	Scheduled Castes	Scheduled Tribes	Total No. of Women employees
Group—A . .	13413	211	81	175
Group—B . .	12697	428	166	305
Group—C (excluding Sweepers) . .	153142	16371	14414	7064
Group—C (Sweepers) . .	4048	3100	235	790

CAPITAL SCHEMES

Bhilai Steel Plant

3.1.14 The tempo of work on expansion of Bhilai from 2·5 to 4·0 million tonnes has been build up considerably, especially in the converter shop and the plate mill areas which are major components of this programme. The likely date of commissioning of the major units except the 7th blast furnace complex is now June, 1982. The blast furnace complex from which the production would be required only during the latter period of gestation of 4 million tonne stage, is planned to be commissioned by June, 1983. The revised cost of the expansion programme is presently estimated at about Rs. 1255 crores against which the total expenditure amounted to Rs. 444.7 crores as on March 31, 1979.

The Dalli mechanised mines have been commissioned.

The construction works of the second sintering plant are practically complete and one machine has been put on trial production. The second machine is likely to be commissioned in June-July, 1980.

The 8th Coke Oven Battery has also been completed and the battery has been put on heating. The battery will be put on regular operation as soon as the position of coal supplies improves.

Bhilai Steel Plant incurred a total expenditure of Rs. 155·08 crores during he financial year 1978-79 on capital schemes including Rs. 136·43 crores on 4 million tonne expansion.

Certain proposals for the incorporation of technological improvements/innovations so as to increase the productivity of the existing units are presently under consideration.

Rourkela Steel Plant

3.1.15 The construction of the silicon electrical sheet plant estimated to cost Rs. 109·73 crores is in progress. The approved commissioning schedule for the project is January 1981 but there is likely to be some delay because of late placement of orders for processing and finishing lines, consequential on the time taken in obtaining DGTD clearance and foreign exchange release.

The modernisation of the hot strip mill entrusted to MECON as a turn key job at a cost of Rs. 29·95 crores was to be orginally completed in September, 1979, but due to late placement or orders and problems in taking shut down of reheating furnaces, this is likely to be completed now during the second quarter of the current year.

The approved schedule for the second naphtha reforming unit of 180 tonnes capacity per day at the fertilizer plant, sanctioned at and estimated cost of Rs. 18·60 crores, was April, 1979 but is now expected to be commissioned in middle 1980 due to delays in equipment supplies.

Installation of facilities for external desulphurisation of hot metal at an estimated cost of Rs. 4·45 crores has been approved. This will help in producing low sulphur steel to meet stringent specifications of special grade steels.

The feasibility of taking up modernisation of the Rourkela Steel Project is also being considered. Preliminary discussions on this have been held with the West German Government and M/s Voest Alpine. The feasibility study for modernisation of the pipe plant has also been undertaken.

Rourkela Steel Plant incurred a total expenditure of Rs. 36·68 crores on capital schemes during the financial year 1978-79.

Durgapur Steel Plant

3.1.16 In order to improve and diversify production at Durgapur a number of schemes involving additions/modifications/balancing facilities/replacements etc. have been taken up. Of these, half Coke Oven Battery No. 5A has been completed.

The provision of certain balancing facilities in the Wheel and Axle Plant at an estimated cost of Rs. 4·06 crores to increase its production capacity from 40,000 to 50,000 sets per year has also been sanctioned.

Installation of coke cutting facilities at Coke Ovens at a cost of Rs. 4·89 crores for charging sized coke in blast furnaces as a technical necessity to synchronise with commencement of sized ore supply from Bolani mines, has been approved. SAIL has also approved the replacement of the two hammer mills for coke ovens at an estimated cost of Rs. 4·80 crores.

Government have sanctioned a proposal for installation of 2×60 MW captive power plant for Durgapur Steel Plant and Alloy Steels Plant at an estimated cost of Rs. 54·91 crores. The first unit is likely to be commissioned in three years and the second unit 6 months thereafter.

As the million tonne plant of Durgapur is more than two decades' old, SAIL has entrusted the preparation of a Development Plan for modernisation of this plant to the British Steel Corporation (Overseas Services) Limited. The Plan will be available towards the latter part of 80-81.

Bokaro Steel Plant

3.1.17 Work relating to the expansion of this plant to 4 million tonne stage is proceeding apace. Certain delays have

however, taken place due to a variety of reasons slippages in civil works, in equipment supplies and rectification involved at site of defective structures. This programme is now expected to be completed by December, 1981, and the second cold rolling mill complex is likely to be commissioned by March, 1983. The sanctioned estimated cost for expansion of the plant to 4 M.T. (Rs. 947·24 crores) is in process of revision.

With a view to obtaining maximum output from facilities being installed at 4 million tonnes stage, SAIL approved in November, 1978, further expansion of this plant to a capacity of 4·75 million ingot tonnes at an estimated cost of Rs. 141·09 crores. This is now under consideration of Government.

The slag granulation plant with an annual capacity of 1·3 million tonnes was commissioned in July, 1979. The comissioning of the aerial ropeway for transportation of coal from Dugda to Bokaro is expected early in 1980.

A scheme to augment the in-plant generating capacity by 3×60MW estimted to cost Rs. 75·94 crores has been approved by Government. Orders for supplies of plant and equipment have been placed.

The Meghahaturburu Iron Ore Project designed to produce 1·3 million tonnes of lump ore and 2·66 million tonnes of fines to meet the requirement of the second stage of Bokaro is now likely to be completed by the middle of 1981 as against the earlier target of December, 1979. The estimated cost of this project is Rs. 60·73 crores.

Bokaro Steel Plant incurred a total expenditure of Rs. 125·11 crores during the financial year 1978-79 including Rs. 97·07 crores on expansion to 4 million tonne stage.

As in Bhillai, certain proposals for incorporation of technological innovations/improvements so as to increase the productivity of the plant by about one million tonnes are also under consideration.

Alloy Steels Plant, Durgapur

3.1.18 A scheme is being implemented for increasing the capacity of the plant from its existing level of 100,000 tonnes

of ingots a year to 160,000 tonnes by the installation of a 50 tonne electric arc furnace with associated conditioning facilities. This scheme will result in the utilisation of the Blooming and Billet Mill in two shifts as against one Shift as at present. The revised cost of the scheme is estimated at Rs. 9·30 crores. The scheme which was initially scheduled to be completed in March, 1979 is now likely to be completed by September, 1980, largely because of delay in the supply of imported equipment and in the fabrication and erection of structurals.

3.1.19 A scheme for further expansion of the capacity of the plant to 260,000 tonnes per year of liquid steel at and estimated cost of about Rs. 47 crores has been approved by SAIL and is presently under the consideration of Government. This envisages that stainless steel slabs produced by Alloy Steels Plant will be supplied to Bokaro Plant for rolling into hot rolled coils which would be transferred to Salem Steel Project for cold rolling and finishing.

Salem Steel Project

3.1,20 The work relating to the execution of Stage I is progressing satisfactorily. The project is scheduled for completion by September, 1981. With a view to making intensive and economic use of the in-built facilities at Stage-I, a scheme to set up another Sendzimir Mill to cold roll a further quantity of 33,000 tonnes of stainless steel sheets/strips per year at an estimated cost of Rs. 25·50 crores has been approved by SAIL. The scheme is presently under consideration.

Research and Development

3.1.21 The Research and Development Centre of Steel Authority of India Ltd. continued its work on a number of projects.

3.1.22 Major R & D projects have been identified As the country is deficient in coking coal, processes for partial introduction of briquetting of coal charge, for substitution of coking coal by non-coking coal and preheating of coal for improving quality of coke or introduction of inferior coal in blend, are being considered. Steps are also being taken for the setting up of briquette blend coking process facilities to initially meet the requirements of one or two coke

oven batteries at Bhilai. A project for iron ore beneficiation envisaging use of special polymer additives for selective removal of alumina from iron ore fines has been taken up.

3.1.23 Some of the other important projects being pursued are indicated below :—

(i) Production of super basic sinter for improving lining life of LD converters at Bokaro.

(ii) Development of technology for cold bonded pellets.

(iii) Lime dust injection system.

(iv) Programme for development of HSLA structurals at Durgapur.

(v) Trials for flue practice in LD steel making at Bokaro.

(vi) Development of non-silicon electrical steel sheets.

(vii) Computerisation of LD operations at Rourkela.

(viii) Improvement in heating technology of soaking pits.

3. .24 The Centre will be closely associated with the implementation of the proposal for augmentation of prouction from existing facilities at Bhialai Steel Plant through the introduction of technological improvements. For this purpose, SAIL has entered into a 5 year agreement with the Central Ferrous Metallurgical Research Institute, USSR. A perspective item-wise plan has been drawn up and 46 R&D Projects have been identified for research before commercial implementation.

3.1.25 R & D Centre is setting up a pilot plant and laboratory facilities at Ranchi for the development and adoption of rotary kiln direct reduction process technology by using non-coking coal for production of sponge iron at an estimated cost of Rs. 4·78 crores. Orders have been placed for the supply of the rotary kiln.

3.1.26 A proposal for the establishment of a laboratory complex at Ranchi at an estimated cost of Rs. 15.1 crores, to enable R&D Centre to undertake diagnostic analysis of research programmes before these are introduced in the steel plants on a commercial scale, has been approved by the Public Investment Board.

An information and Documentation Centre will also be set up alongwith the laboratory complex for latest scientific

and technological literature and dissemination of technical information to all concerned.

Indian Iron and Steel Company Limited

3.1.27 The Indian Iron and Steel Company Limited comprises an integrated iron and steel plant at Burnpur, ferrous and non-ferrous foundries and two spun pipe plants at Kulti, Collieries at Chasnala, Noondih-Hitpur and Ramnagore, Iron ore mines at Gua and (Chiria) Manoharpur and a Phosphate rock mine at Pathergorah. The Company also has a subsidiary viz., IISCO Stanton Pipe and Foundry Company Limited at Ujjain (MP), which makes cast iron spun pipes. This is a joint venture of IISCO and Stanton and Staveley (UK), a subsidiary of the British Steel Corporation (International) Limited. IISCO holds two thirds of the shares in a capital investment of Rs. 3 crores.

Take Over of Management by Government

3.1.28 In view of the progressive decline in the production of steel, the deterioration in the condition of the plant and equipment and its financial difficulties, the management of the Company was taken over by the Government of India with effect from 14th July, 1972, for a period of 2 years which was extended by three years.

Acquisition of Privately Held Shares of the Company by Government in 1976

3.1.29 Immediately after the take over of management, a Plant Rehabilitation Scheme (PRS) was launched to restore the technical health of the Plant. A ten year programme of capital reconstruction was also initiated in order to sustain production at the rated level. However, it soon became clear that massive investment by Government would be needed to implement these schemes and to make the steel plant a viable unit. It was accordingly decided to acquire the shares of the company held by parties other than the State Governments and public sector institutions (including the public financial institutions) on payment of compensation. The 57·33 percent of the equity capital and 57·37 percent of the preference capital of the company was thus acquired by the Central Government by promulgating the Indian Iron and Steel Co. (Acquisition of Shares) Ordinance, 1976 later replaced by the Indian Iron and Steel Co. (Acquisition of Shares) Act, 1976 (89 of 1976).

Transfer of IISCO to SAIL

3.1.30 In order to ensure co-ordinated development and to make for better management of its technological, production and financial problems, the shares held by the Central Government were transferred to Steel Authority of India Limited (SAIL) with effect from the 1st May, 1978. From this date, the Company became a subsidiary of SAIL. Subsequently, Government decided to purchase the remaining shares in IISCO held by the public financial institutions, nationalised banks, national insurance companies and State Governments and to transfer them also to SAIL so that IISCO could be merged with SAIL and become one of its divisions like the other public sector steel plants. These shares were a equired on payment of compensation at the rates prescribed in the Indian Iron and Steel Company (Acquisition of Shares) Act, 1976, and transferred to SAIL with effect from 30th March, 1979. Action to amalgamate IISCO with SAIL under Section 396 of the Companies Act is in hand.

Finance

3.1.31 The authorised capital of the company as on 31-3-79 was Rs. 100 crores and the paid-up capital Rs. 54·32 crores. The outstanding Government loans to the company as on 31-12-79 amounted to Rs. 66·64 crores.

Production Performance

3.1.32 After take over of mangement by the Government, the performance of IISCO had shown a steady upward trend up to 1976-77 but thereafter, there has been a decline in the performance. The poduction of ingots and saleable steel has been as under :—

Year	Ingot steel (in '000 tonnes) (Rated capacity 10,00,000 tonnes)	Saleable Steel (in '000 tonnes) (Rated capacity 8,00,000 tonnes)
1972-73	431	347
1973-74	439	358
1974-75	532	415
1975-76	630	500
1976-77	667	542
1977-78	651	506
1978-79	628	481
1979-80	565	430

3.1.33 The decline in output from 1977-78 onwards has been mainly due to factors over which the Company has no direct control, such as inadequate availability and poor quality of coking coal, power shortages, industrial relations problems, etc.

Working Resu'ts

3.1.34 The working results of the Company since 1972-73 have been as under :—

Year	Profit/loss (Rs. in crores)
1972-73	(—) 5·76
1973-74	(—) 3·68
1974-75	(+) 1·05
1975-76	(—) 5·60
1976-77	(—)16·25
1977-78	(—)39·13
1978-79	(—)27·19*

*The accounts have not yet been audited.

3.1.35 The main reasons for the heavy losses incurred by the company are low capacity utilisation, excessive manning, heavy interest burden out-moded technology in certain/areas and high operating costs.

Capita' Schemes

3.1.36 The Plant Rehabilitation Scheme (PRS), launched in June, 1973 and estimated to cost Rs. 58 crores has been substantially completed. Important schemes still under implementation are the construction of a new Coke Oven Battery at an estimated cost of Rs. 25 crores, reconditioning of 20 Rolling Mill Cranes and installation of Tippler for Box Wagons.

IISCO also has some major projects in view which will improve the operation of the company and its financial results. One such is the rehabilitation of the flooded Chasnala Deep Mine and reconstruction of the Jitpur mine. The feasibility of installing a Sintering Plant to make use of the large availability of fines at Gua is being examined.

Personne'

3.1.37 The total number of employees of the Company and its subsidiary as on 31st December 1979, and the number belonging to Scheduled Castes and the Scheduled Tribes and Women among them, are shown in the Table below:—

Group of posts	Total no. of employees	No. of SCs	No. of STs	No. of Women
IISCO				
Group-A	1374	8	5	2 3
Group-B	2257	19?	7	11
Grou-C (excluding Sweepers)	37464	5431	2212	985
Group-C (Sweepers)	914	910	—	240
IISCO STANTON				
Group-A	17	—	—	—
Grou -B	17	—	—	—
Group-C (excluding Sweepers)	419	84	4	—
Group-C (Sweepers)	3	3	—	—

3·2 Visvesvaraya Iron and Steel Limited, Bhadravati

3.2.1 The Mysore Iron and Steel Works, Bhadravati, was started in 1923 as a Departmental undertaking of the State Government with a small blast furnace to produce about 24,500 tonnes of pig iron annually. It was converted into a Company on the 30th June, 1961 under the name of Mysore Iron and Steel Limited. In February, 1976 its name was changed to Visvesvaraya Iron and Steel Limited. It is now Jointly owned by the Government of Karnataka and the Government of India (through Steel Authority of India Limited). It is one of the main producers of alloy and special steels in the country. Other products of the company are mild steel, ferro silicon, cement, castings, spun pipes and ferro alloys.

3.2.2 The authorised capital of the company is Rs. 50 crores and the subscribed and paid-up capital as on 31-3-79 was Rs. 39·45 crores of which Rs. 23·67 crores (60 per cent) was held by the Government of Karnataka and the balance of Rs. 15·78 crores by SAIL.

3.2.3 The present installed capacity of the several units is as under :—

	Tonnes
1. Mild Steel	48,000
2. Special Steel	72,000
3. Steel Ingots	1,80,000
4 Ferro Silicon	20,000
5. Cement	96,000
6. Ferro Alloys	3,800
7. Pig Iron	1,80,000
8. Steel Castings	2,500
9. Gray Iron Castings	15,600
10. Cast Iron Spun Pipes	17,000
11. Cast Iron Plate Sleepers	15,000
12. Refractories	9,600

Actual Production

3.2.4 The actual production for the years 1978-79 and 1979-80 are given below :—

(Quantity in Tonnes)

Product	Actual production	
	1978-79	1979-80 (Provisional)
Mild Steel	29,784	28,351
Special Steels	56,153	64,268
Steel Ingots	1,05,415	1,18,492
Ferro Silicon	16,265	8,241
Cement	95,265	87,004
Ferro Alloys	3,444	1,680
Pig Iron	93,160	71,234
Steel Castings	2,110	2,073
C. I. Castings	8,587	8,801
Cast Iron Spun Pipes	5,383	921
Refractories	5,006	6,366

3.2.5 The supply of power to the plant which was relatively satisfactory during 1978-79 has been critical during 1979-80.

Working Results

3.2.6 During the year ended 31st March, 1979 the company made a net profit of Rs. 47·74 lakhs as against a loss of Rs. 613·66 lakhs incurred in 1977-78.

Sales

3.2.7 The sales turnover during 1978-79 and 1979-80 was Rs. 5790·29 lakhs and Rs. 8400 lakhs respectively. The Company exported 1999 tonnes of Ferro Silicon valued at Rs. 92·33 lakhs during 1978-79.

CAPITAL SCHEMES

Forge Plant

3.2.8 The plant was commissioned during 1977 except for 5 Nos. dispositioning furnaces. The indigenous party on whom the order was placed for supply and erection of these furnaces failed to execute the order. Action is being taken to procure the materials and instal them through other sources. Production in the Forge Plant has however been kept up by using heat treatment furnaces available elsewhere.

Vacuum Degassing (VD)/Vacuum Oxygen Decarburnisation (VOD) Unit :

3.2.9 For producing quality ingots for the Forge Plant a VD/VOD unit is being installed at an estimated cost of Rs. 212 lakhs. The unit is expected to be commissioned by May, 1980.

Ferro Vanadium Project

3.2.10 A project for the production of 100 tonnes of Ferro Vanadium a year, estimated to cost Rs. 45 lakhs, is being financed by the Government of India through loans. The project is likely to be completed by February, 1981.

3.2.11 The company has formulated a proposal for the installation of balancing facilities to optimise production, at an estimated cost of Rs. 36 crores. This is to be implemented in two stages. The first stage estimated to cost about Rs. 25 crores has been cleared by the Company and is under consideration of SAIL/Government of India.

NEW STEEL PLANTS

3.3 Salem Steel Project

3.3.1 *Background*

The first stage of the Salem Steel Project approved by Government in March, 1977, is planned to produce 32,000

tonnes of cold rolled stainless steel sheets and strips per year from purchased hot bands. It is estimated to cost Rs. 126·81 crores and is scheduled to be completed by September, 1981.

3.3.2 *Orders for Equipment*

Out of the total equipment worth Rs. 77 crores, orders totalling Rs. 70 crores have already been placed. These include the main plant equipment such as the Sendzimir cold rolling mill, annealing and pickling lines, skinpass mill, shearing and slitting lines, strip grinding line, coil build-up line, sheet polisher, salvaging equipment, EOT cranes etc. Ordering of equipment for utilities, power distribution and auxiliary shops is in progress and is expected to be completed by early 1980.

3.3.3 The first consignment of major production equipment-furnace shells for the annealing and pickling lines and material handling equipment have been received at site and are under erection/assembly. The bulk of the equipment is expected to be received by September, 1980. Erection of production equipment is scheduled to commence in April, 1980.

Know-how

3.3.4 Peugeot Loire (PL) of France are the Know-how Advisers for supply of production and process knowhow, product application and development and training services for cold rolling of stainless steel.

Capital Expenditure

3.3.5 The capital expenditure on the project upto 31st March, 1979 was Rs. 27·09 crores.

3.4 VISAKHAPATNAM STEEL PROJECT

3.4.1 The Government sanctioned in June, 79 the setting up of an integrated steel plant at Visakhapatnam with a capacity of about 3·4 million tonnes of liquid steel in two overlapping stages at an estimated cost of Rs. 2,256 crores including a foreign exchange component of Rs. 500·20 crores. The first stage is scheduled to be completed in four years from start of construction. The second stage will be completed in two years from commissioning of the first stage. The Soviet Government has extended technical and financial assistance and an agreement providing for cooperation between the two countries in designing and construction was signed on June 12, 1979.

The credit offered by the USSR is Rs. 250 crores for the first stage.

3.4.2 The plant will produce pig iron, billets, wire rods, light and medium merchant products and universal beam mill products which incidentally would be manufactured for the first time in the country. Visakhapatnam Steel Plant (VSP) will have the largest size equipment used so far in the country such as 3200 M^3 Blast Furnaces as will as 7 M tall coke ovens and will have a 100% continuous casting route. The production capacity envisaged for the first stage is 710,000 tonnes of light medium merchant mill products, 305,000 tonnes of saleable billets and 512,000 tonnes of saleable pig iron.

3.4.3 The Detailed Project Report is being revised by the Soviet and Indian consultants and is expected to be completed by middle of 1980. The detailed working drawings for some of the units are under preparation and the work relating to preparation of the site is in progress. Most of the land required for the steel plant construction has been acquired and site survey and soil investigation works are in progress. At the same time, work to provide about 1·5 Mgd. of water for construction purposes has already started and is expected to be completed in early 1980. Similarly, the immediate requirement of power for construction which is of the order of 6 Mws would be met early in 1980 by the Andhra State Electricity Board. The site levelling work which is of the magnitude of 20 million M^3 of earth work has been entrusted to HSCL. Other works connected with approach roads, railway siding etc. to take up the massive construction works are also well in hand.

3.5 VIJAYANAGAR STEEL PROJECT

3.5.1 The Detailed Project Report of Vijayanagar Steel Project prepared by MECON envisages an estimated cost of Rs. 1580 crores to create 3·0 MT liquid steel capacity based on prices prevailing in the 3rd quarter of 1976. Updated Costs and Financial Analysis of the Project' since received from the Consultants is under consideration of the SAIL Board.

3.5.2 Meanwhile a number of preparatory jobs/investigations have been completed such as land acquisition for plant, fencing of the acquired land, topographical survey, geological investigations, investigations on permanent water supply, raw materials investigations and testing, preliminary traffic cum-

engineering survey by Railways and development and master plans for the steel city. Action is on hand by the State Government to acquire land for the township and slag dump.

3.5.3 Expenditure during the year for the period ending December, 1979 is approximately Rs. 22 lakhs and cummulative expenditure so far (i. e. upto 31st December, 1979) is Rs. 4.08 crores including advances for land and other preparatory jobs.

3.6 Coastal Steel Plants

Government have been considering the feasibility of setting up more shore-based steel plants besides Visakhapatnam Steel Plant. Discussions have been held and are continuing with a number of countries such as Romania, France, West Germany, U.K. and Canada on the parameters of technical and financial collaboration that they could offer.

3.7 Sponge Iron India Limited

3.7.1 Due to limited deposits of coking coal, necessary for production of steel through the blast furnace route, and the supply of indigenous melting scrap used to produce steel through the electric furnace route also being limited, Government had been considering the production of sponge iron, through direct reduction of iron ore, by using the extensive deposits of non-coking coal, to supplement the ferrous scrap used in electric arc furnaces. Sponge Iron, besides insulating the operations of the ministeel plants from the fluctuations of the scrap market, would be a better feedstock for them.

3.7.2 As the process of producing sponge iron from non-coking coal is sensitive to the characteristics of iron ore and coal, Government considered it expedient to first set up, a semi-commercial plant for assessing the techno-economic feasibility of producing sponge iron from various combinations of iron ores and coals. UNDP/UNIDO came forward with assistance to set up such a plant in the coal bearing region of Andhra Pradesh near Kothagudem. As a result, Sponge Iron India Limited was set up as a joint sector project of the Government of India and the Government of Andhra Pradesh for installing a Demonstration Sponge Iron Plant with an annual capacity of 30,000 tonnes.

3.7.3 Messrs. Lurgi Chemie of West Germany have been awarded the contract for supply of imported equipment, engineering and personnel services.

3.7.4 The initial estimated cost of the project was Rs. 11·40 crores to be financed as under :—

(I) Share Capital :	
(i) Government of India	Rs. 1·7 crores
(ii) Government of Andhra Pradesh	Rs. 1·5 crores
(II) Loans :	
(i) Government of India	Rs. 4·00 crores (Interest free)
(III) Grants :	
(i) UNDP/UNIDO	Rs. 3·70 crores
(ii) Central Subsidy for location of project in backward area	Rs. 0·15 crores
(iii) Deposit from technology supplier	Rs. 0·35 crores
Total	Rs. 11·40 crores

3.7.5 The cost has since gone up mainly on account of the erosion in the value of US Dollar with reference to the DM and the additional plant facilities which are being provided at the instance of UNIDO for facilitating development of the plant into a Regional Centre for Development of technology in the field of producing sponge iron. The revised estimate is now under consideration.

3.7.6 Rapid progress has been made on the project. The equipment erection is in the final stages of completion. The plant is expected to start trial runs by April, 1980.

3.7.7 The total number of employees, as on 31-12-1979, indicating separately the number of scheduled castes, Scheduled tribes and women are given below :—

	Total	S.C.	S.T.	Women
1. Group 'A'	5	—	—	—
2. Group 'B'	7	—	—	—
3. Group 'C'	57	2	—	1
4. Group 'C' (Sweepers)	—	—	—	—
5. Group 'D' (Excluding Sweepers)	48	6	2	—
6. Group 'D' (Sweepers)	4	1	—	1
Total	121	9	2	2

3.8 National Mineral Development Corporation

3.8.1 National Mineral Development Corporation Limited was incorporated on November 15, 1958 with the main objective of developing and exploiting certain of the mineral resources (other than fossil fuels and atomic minerals) in the country. Presently it is engaged in the extraction of iron ore and diamond and exploration and development of minerals such as diamond limestone, dolomite, bentonite, rock phosphate, apatite, gypsum selenite, copper etc.

3.8.2 On the restructuring of SAIL w.e.f. May 1, 1978 the iron ore deposits at Bailadila 14 & 5, Donimalai and Panna diamond mining project at Majhagawan & Ramkheria, M.P. remained under the control of NMDC. In addition, NMDC is engaged in the exploration and investigation of the iron ore deposits at Bailadila Deposits No. 4, 10, 11B, 11C and 13, in Madhya Pradesh, Kumaraswamy BC&D Blocks in Karnataka, Malangtoli in Orissa Bababundan in Karnataka, Ongole in A.P. and West Coast deposits in Karnataka. It is also exploring Majhagawan area in M.P. and Wajrakarur area in Andhra Pradesh (in collaboration with GSI & MEC) for diamonds.

Finance

3.8.3 The authorised capital of the Corporation is Rs. 150 crores. The paid up capital of the Corporation as on 31st March, 1979, was Rs. 71·32 crores. The total government's loans outstanding as on 31st March, 1979 amounted to Rs. 68·50 crores.

3.8.4 Taking into account interest subsidy of Rs. 618·50 lakhs on Government loans, the Company sustained a loss of Rs. 230·18 lakhs in 1978-79. However, after adjustments pertaining to earlier years, there was a profit of Rs. 189·41 lakhs as against the loss of Rs. 11·77 crores in 1977-78. The cumulative loss of the Company which amounted to Rs. 2390·58 lakhs as on 30th April, 1978 came down to Rs. 1300·58 lakhs on 31st March, 1979 mainly due to the transfer of Kiriburu unit from the Company. The main reason for the losses is the very low price paid to the Corporation in respect of iron ore exported from Bailadila. Though the country is receiving export prices comparable with the international prices for iron ore, NMDC receives only the residual sale proceeds after meeting the full charges of the railways, port trust and customs.

Production

3.8.5 The production in the units of NMDC during 1978-79 and 1979-80 is tabulated below :—

(in lakh tonnes)

Name of the Project	1978-79		1979-80 (Target)		Actual (provisional)	
	Lump	Fines	Lump	Fines	Lump	Fines
Bailadila—14	36·76	—	22·40	—	22·56	—
Bailadila—5	24·03	—	22·50	—	22·53	—
Donimalai	4·72	3·74	4·50	1·30	5·81	4·15*
	65·51	3·74	49·40	1·30	50·90	4·15*

*This includes 2·73 lakh tonnes of fines which was dumped at the mines.

(in Carats)

Panna Diamond Mining Project	14,210	13,975	13,428

3.8.6 The production target for Iron ore during 1979-80 was reduced, as the Japanese Steel Mills agreed to take only 60 lakh dry long tons (or 63 lakhs wet metric tons) of iron ore against the contracted quantity of 81·60 lakh WMT from Bailadila complex. Keeping in view the accumulated stock at mines and port as on 1-4-79, production and despatches from Bailadila sector during 1979-80 have been planned as 54 & 63 lakh tonnes respectively, providing for despatch of 9 lakh tonnes from accumulated stock. Float ore operations in the Bailadila Sector were finally closed w.e.f. 1-7-79.

3.8.7 It has been agreed in principle to develop Bailadila-11-C as a supplementary/replacement mine for Bailadila-14 for meeting the anticipated domestic and export demands.

Donimalai

3.8.8 The plant had gone into trial production, in October, 1977. Production during the year 1978-79 was below the target due to certain mechanical defects in the plant and slow rail movement resulting in the closing of the stock yard. During the year under report, production has exceeded the target.

Panna Diamond Mines

3.8.9 Production during the year was slightly less than the target mainly due to power shortage and breakdown in the plant and equipment. Diamonds auctioned during 1979-80 (April-Dec.'79) were 10443 carats valued at Rs. 156·38 lakhs as against 15139 carats valued at Rs. 284·50 lakhs auctioned during 1978-79.

Pelletisation Plants/Sponge Iron

3.8.10 Government is considering the setting up of two Iron ore Pelletisation Projects in the Public Sector to make use of the iron ore fines from the Donimalai and Bailadila Mines to optimise the maximum realisation. In terms of the Memorandum of Understanding between India and Indonesia signed on 7th March, 1979, Indonesia would purchase iron ore pellets on a long term basis from the proposed pelletisation plant at Bailadila including a buy-back arrangement of Sponge Iron produced in Indonesia. NMDC has been assigned the work of importing and distributing sponge iron which will be consumed by the electric arc furnace units within the country. Investment decision on the pelletisation plant is to be taken shortly.

Feasibility Studies/Investigation

3.8.11 The position of the more important feasibility studies/investigation taken up by NMDC is indicated below :—

Bababudan Iron Ore Deposits

3.8.12 Government sanctioned Part I of Second Phase Investigation of Bababudan Iron Ore Deposits in January, 1979. The field investigations are in progress and likely to be completed by about March, 1980. Techno-economic Feasibility Report is expected to be ready by September, 1980.

Ongole Magnetite Deposits

3.8.13 The first phase of investigation has been completed. The results being encouraging, investigation of adjoining deposits at Annangi, Burepalli, etc., was also taken up to augment the core reserves of Marlapadu-Konijedu Deposits. The outstanding feature of the deposits is their proximity to the Bay of Bengal (about 10 KM. of fairly plain ground) satisfactory recovery and high grade concentrate. Proposals for further development will be prepared after the results of the current work are available by the end of March, 1980.

West Coast Iron Ore Deposits

3.8.14 Mysore Mineral Limited holds mining leases in respect of West Coast Iron Ore Deposits. NMDC is negotiating the modalities of the joint exploration scheme of the selected deposits in this area with Mysore Minerals Limited. After the modalities are approved by the respective companies, the investigation work on the selected deposits will be initiated.

Bailadila-10/11 B

3.8.15 The investigation of Bailadila Deposits 10 & 11B was taken up with a view to selecting the most suitable deposits for supply of ore to Vizag Steel Plant/export. Detailed exploration of Deposit-11B has been taken up as its ore was better both in terms of quality and quantity. The exploration report is expected to be ready by about October, 1980.

Kumaraswamy

3.8.16 Engineering surveys are being carried out at present for preparing a techno-economic feasibility report for Kumaraswamy mine.

Jagdalpur Dolomite Investigation

3.8.17 Following the Memorandum of Understanding reached with Indonesia in regard to supply of Bailadila Pellets and grant of P.L. for the Dolomite deposits, NMDC propose to take up this investigation. The deposit can meet the requirement of the proposed Bailadila Pellet Plant as well as Visakhapatnam Steel Plant, if needed. The work is expected to be completed within 18 months from the date of commencement.

Foreign Exchange Earnings

3.8.18 During 1979-80 (upto December, 1979) the Corporation exported iron ore through MMTC from Bailadila and Donimalai Sectors and earned foreign exchange equivalent to Rs. 65·53 crores as against foreign exchange earned equivalent to Rs. 81·17 crores during 1978-79. The total foreign exchange earned by the Corporation as on 31-3-1979 amounted to Rs. 468·93 crores.

R&D Laboratories

3.8.19 NMDC have set up R&D Laboratories which have undertaken in-house studies on beneficiation of iron ore and other minerals for supporting the production projects.

Personnel

3.8.20 The total number of Personnel of NMDC as on 31-12-1979 is given below :—

	Total No. of employees	Scheduled Castes	Scheduled Tribes	Women employees
Group A . .	473	13	3	12
Group B . .	534	17	6	14
Group C . . (Excluding Sweepers)	4852	616	821	202
Group C . . (Sweepers)	122	75	3	21
	5981	721	833	249

Industrial Relations

3.8.21 The overall industrial relations situation in the Corporation during the year was generally peaceful except for the strike by the workers of the Bailadila Complex during November-December, 1979. A Memorandum of Understanding has been arrived at between NMDC and the workers regarding the revised wage structure which is under consideration of Government.

3.9 Bolani Ores Limited

3.9.1 Bolani Ores Limited was incorporated in 1957 as a joint undertaking of the Government of India and Orissa Minerals Development Company Limited (OMDC), a company in the private sector, with the Central Government holding 50·5% shares and OMDC 49·5%. The company was formed mainly for supplying iron ore to Durgapur Steel Plant. On its formation in 1973, the shares held by Central Government were transferred to SAIL. In view of its continued unsatisfactory performance and the urgent need for substantial funds to carry on and expand its operations, it was decided in 1978 to acquire the shares held by OMDC, transfer them to SAIL and merge the company with SAIL. Accordingly, the Bolani Ores Ltd. (Acquisition of Shares) and Miscellaneous Provisions Act, 1978 was enacted. The enforcement of the Act which was to take effect from 1-1-1979 was, however, stayed on account of the *ex parte* and *ad interim* stay granted by the Supreme Court on a writ petition filed by OMDC. On 17-4-1979, the Supreme Court vacated the *ad interim* stay granted earlier and accordingly, the act came into effect on that date. The undertaking of Bolani

Ores Limited was transferred to SAIL and ceased to exist as a company from that date. The Writ-Petititon filed by OMDC challenging the constitutional validity of the legislation is still pending in the Supreme Court.

3.10 Kudremukh Iron Ore Project

Background

3.10.1 The Kudremukh Iron Ore Project, situated in Chikmagalur district of Karnataka State is being implemented in pursuance of a long-term contract for supply of iron ore concentrate to the National Iranian Steel Industries Co. (NISIC). Through a separate agreement, the Government of Iran have undertaken to provide credit not exceeding US $ 630 million to finance the construction of the project and the related infrastructural facilities.

3.10.2 Both these agreements—the Sale and Purchase contract with NISIC and the Financial Agreement with the Government of Iran—were executed on the 4th November, 1975 by the Steel Authority of India Limited (SAIL). With the formation of Kudremukh Iron Ore Co. Ltd. (KIOCL) to implement this project, the two Agreements were assigned by SAIL to the new company.

Scope of the project

3.10.3 The Sale and Purchase Contract with NISIC provides for supply of 150 million tonnes of iron ore concentrate of the specified quality over a period of 21 years starting from August, 1980, at the average rate of 7·5 million tonnes per year. The project comprises mines, the ore processing and concentrating facilities, the tailings dam in which the detritus after extraction of concentrate will be dumped, the slurry pipeline to the port, the port facilities for filtration, storage and ship loading, the road from project site to the port, facilities for generation and supply of power and the further development of the new Mangalore port to receive and lead ore carriers of upto 60,000 D.W.T. The project will use the latest methods of beneficiation of low grade magnetite and long distance transport by pipeline in the form of slurry. The development of port facilities is the responsibility of the Mangalore Port authorities. The project is estimated to consume about 522 million units of electrical energy with a maximum demand of 118·50 M.W. To meet the power requirement, it has been decided to construct dams on the Chakra and Savehaklu rivers and water conductor systems to divert the

Personnel

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water to the Sharavati reservoir. This work has been entrusted by the Government of Karnataka to the Mysore Power Corporation Limited.

3.10.4 Canadian Met-Chem Consultants Ltd., Montreal, a subsidiary of U.S. Steel Corporation, are assisting Kudremukh Iron Ore Company in this project as the Mining Associate-cum-Engineer Constructor. Apart from providing fully integrated and coordinated services from the planning and design stage to the start-up and commissioning of the project, Canadian Met-Chem will also supervise the operation of the project during the first three years.

Progress of work

3.10.5 During 1979-80, the fourth year after setting up of the Company, significant progress has been achieved in the implementation of the project proper. The 620 metres long and 70 metres high Tailings dam (Lakhya dam) was inaugurated on the 11th May, 1979. The 66·5 KM. long Slurry pipeline from Kudremukh to Mangalore was completed on the 22nd May, 79. Crusher No. 1 was commissioned on 12th November, 1979. Civil foundations for all the slurry pumps inside the concentrator building were completed during this year. 450 spirals, 68 slurry pumps, 66 hydro-separators and primary magnetic separators in the concentrator were also erected during the year. The erection of all mechanical and electrical facilities in the project proper is scheduled to be completed by the 31st March, 1980.

3.10.6 The development of New Mangalore Port has been undertaken by the Ministry of Shipping and Transport. This work is scheduled to be completed by the 31st May, 1980 and is progressing on schedule. The Chakra Diversion scheme to generate the electric power needed for the Kudremukh project, which has been undertaken by the Government of Karnataka, was scheduled to be completed by June, 1980. A delay of about a year is apprehended in the completion of this scheme. The Government of Karnataka have, however, assured both KIOCL and the Government of India thar the Kudremukh project will not face any shortage of power on this account.

Project Estimate and Expenditure

3.10.7 Based on the detailed cost estimates submitted by Canadian Met-Chem for their scope of work and the revised estimates prepared by other agencies for work and facilities outside the scope of Met-Chem, Government have approved a project estimate of Rs. 647·33 crores ($ 719·10 million). It

is anticipated that the final cost of the project would be within the approved estimate.

3.10.8 Based on the approved capital cost estimate, the authorised capital of the company was raised from Rs. 185 crores to Rs. 200 crores during the year and was fully subscribed by October, 1979. The remaining requirement of funds is being provided to the Company in the shape of loans. Outstanding Government loans given to KIOCL as on 31st March, 1979 was Rs. 103.61 crores. Loans given to the Company from 1st April, '79 to 31st December '79 amounted to Rs. 65 crores. The total expenditure incurred on the project proper upto the 31st October, 1979 was 347·27 crores. In addition, an expendture of Rs. 70·80 crores was incurred on port facilities, road and power schemes upto the 30th September, 1979. The budgetary estimates of expenditure during 1979-80 and 1980-81 on the project proper are Rs. 108 crores and Rs. 70 crores, respectively.

3.10.9 It has since transpired that Iran would be able to lift only about 4·5 to 5 million tonnes of Kudremukh concentrates. It is, therefore, contemplated to set up a pelletisation plant in Mangalore with a 3 million tonne capacity. Possibilities of foreign collaboration with a long-term buy back arrangement are being explored. A decision on this is to be taken shortly.

3.10.10 The present wage scales for non-executives in Kudremukh Iron Ore Co. Ltd. are based on the wage structure in NMDC. The revision of wage scales of NMDC workers has recently been approved. Revision of wages of non-executives of KIOCL is being processed. Pending such revision, and with the approval of the Government, interim relief of Rs. 50/- has been granted to the non-executives with effect from 1st September, 1978.

3.10.11 The total number of employees of the company as on 31st December, 1979 and the number belonging to the Scheduled Castes, Scheduled Tribes and women among them, are shown in the table below :

	Total No. of employees	No. of S/C	No. of S/T.	No. of Women
Group 'A'	316	12	2	5
Group 'B'	84	3	1	2
Group 'C' (Excluding Sweepers)	1235	128	40	65
Group 'C' (Sweepers)	1	1	—	—
Total	1636*	144	43	72

*The above figures include 12 Trainees.

3.11 Manganese Ore India Limited

3.11.1. Manganese Ore (India) Limited (MOIL) was formed in 1962 with the Government of India and the two State Governments of Madhya Pradesh and Maharashtra holding 51% shares and the Central Province Manganese Ore Company Limited (CPMO), a U.K. based Company holding the balance 49% shares. The shares held by CPMO were acquired by Government and MOIL became a wholly owned government company MOIL was granted permission to enter the area of Dongri Buzurg Mine in Maharashtra which was previously being worked by CPMO.

Finance

3.11.2. The authorised capital of the company is Rs. 6 crores consisting of 4,00,000 equity shares and 2,00,000 7½ per cent preference shares of face value of Rs. 100/- The paid up capital of the Company is Rs. 2,15,45,100. The main activity of the Company is mining of manganese ore. The company is the largest producer of manganese ore in the country. The bulk of its production is of high grade ore. Until last year, its activities were confined only to the States of Maharashtra and Madhya Pradesh. MOIL has, however, extended its operations subsequently to the States of Orissa and Andhra Pradesh.

Performance

3.11.3. The production of manganese ore from the mines of the Company in 1978-79 was 4·13 lakh tonnes. During the period April-December, 1979 the production was 3,29,000 tonnes against the target of 3,23 000 tonnes. The Company earned a profit of Rs. 92·79 lakhs in 1977-78 as against the profit of Rs. 95·11 lakhs in the preceding year. The Company has declared a dividend at the rate of 10% on the Equity Shares and 7½% on the 7½% Cumulative Preference Shares for the year 1978-79.

Personnel

3.11.4. The total number of personnel employed in the MOIL as on 31-12-1979 with the number of Scheduled Castes and

Scheduled Tribes and Women is shown in the table below:

	Total No. of Employees	Scheduled Castes	Scheduled Tribes	Women employees
Group 'A' . .	120	1	2	5
Group 'B' . .	52	2	1	11
Group 'C' . .	1397	189	232	55
Group 'D' . . (Excluding Sweepers)	11022	1899	4249	4284
Group 'D' . . (Sweepers)	140	—	—	69
Total : . .	12731	2091	4484	4424

3.12. Bharat Refractories Limited

3.12.1. The Bharat Refractories Limited was registered on 22nd July, 1974 as a wholly owned subsidiary Company of the Bokaro Steel Limited with an authorised capital of Rs. 2 crores. Only one refractories plant located at Bhandaridah was under the control of Bharat Refractories Limited upto 30-4-1978. Consequent upon the restructuring of Steel Authority of India Limited in accordance with the provisions of the Public Sector Iron and Steel Companies (Restructuring and Miscellaneous Provisions) Act, 1978, the following units have been transferred to Bharat Refractories Limited with effect from 1-5-1978 :

1. HSL Refractories Plant at Marar (now known as Ranchi Road Refractories Plant).
2. Sillimanite Mines in Meghalaya
3. The Refractories Plant of HSL located at Bhilai (now known as Bhilai Refractories Plant).
4. India Firebricks and Insulation Company Limited, (which was subsidiary of SAIL) has been made a subsidiary of Bharat Refractories Limited w.e.f. 1-5-1978.

Finance

3.12.2. The authorised capital of the Company is Rs. 30 crores and the present paid up capital is Rs. 16·34 crores.

Production

3.12.3. The production of various units including that of India Firebricks and Insulation Company Ltd., during the period

1978-79 and 1979-80 is indicated below :

Item		1978-79		1979-80	
		Target Qty. MT	Actual Qty. MT	Target Qty. MT	Actual Qty. MT
Bhandaridah Refractories Plant	Bricks	13179	10988	12616	10647
	Mortar	5424	5193	5105	3983
Ranchi Road Refractories Plant	Bricks	5350	4814	5670	4673
	Mortar	850	400	240	214
TOTA: :		24803	21395	23631	19517
India Firebricks & Insulation Co. Ltd.	Bricks	28000	29013	32864	28903
	Mortar	—	917	1022	1883
Grand Total :		52803	51325	57517	50303

The reason for lower production when compared with the target frequent interruption of power supply which resulted in high percentage of rejection. In case of Bhandaridah, only one Compressor could be operated against the normal requirement of three Compressors during April, 1979. The power failure not only affected the green production but also affected the products inside the Kiln. In the absence of fresh orders for Ladle Bricks, the plant had to manufacture bricks of lower weights with consequent lower production. Labour unrest in this Unit also resulted in loss of production. In India Firebricks & Insulation Company Limited one Tunnel Kiln was switched over to Gas Firing which also affected its normal production in the first quarter of the year.

In Ranchi Road Refractories Plant, the Power Generating Set, had operational problems resulting in delay in firing cycles and increased consumption of furnace oil.

The position of despatches during 1978-79 and 1979-80 is also indicated below :

Units	Item	1978-79		1979-80 (provisional)	
		Target	Actuals	Target	Actuals
A. Bhandaridah Plant	Bricks	13516	10713	12025	10873
	Mortar	5230	5192	5000	3706
		18746	15905	17025	14579
B. Ranchi Road Refractories Plant	Bricks	5349	4903	5977	4593
	Mortar	950	1016	240	207
		6299	5919	6217	4800
C. India Firebricks and Insulation Co. Ltd.	Bricks	30000	28606	35027	31243
	Mortar	—	693	1278	1600
		30000	29299	36305	32843

Working Results

3.12.4. The Company incurred a net loss of Rs. 70·57 lakhs during the year 1978-79 after providing for depreciation amounting to Rs. 21·24 lakhs and interest amounting to Rs. 6·02 lakhs as against the loss of Rs. 36·75 lakhs incurred by the Company during the year 1977-78.

Number of Employees

3.12.5. The total number of employees working in the various units of BRL, including its subsidiary, namely IFICO Ltd., is as under :

Name of Unit	Total	S/C	S/T
1. Bhandaridah Refractories Plant	778	110	71
2. Ranchi Road Refractories Plant (including Nongstoin Silimanite Mines in Meghalaya)	581	31	122
3. Bhilai Refractories Plant	412	49	53
4. Registered Office	52	1	2
5. India Firebricks and Insulation Co. Limited	975	52	149
TOTAL :	2798	243	397

Industrial Relations

3.12.6. The Industrial relations remained by and large cordial in all the Units and the subsidiary company during the period under review except in case of Bhandaridah Unit where during August-September, 1979 there were frequent stoppages of work.

Bhandaridah Refractories Plant

3.12.7. This plant has a licensed capacity of 24,000 tonnes of fireclay bricks per year; the installed capacity of the plant, however, is 15,000 tonnes per year. It was decided in May, 1977 to expand the plant to the economically viable capacity of 26,000 MT a year at an estimated cost of Rs. 3·20 crores. The expansion is expected to be completed in 1980-81.

Bhilai Refractories Plant

3.12.8. The setting up of a refractory plant at Bhilai as a part of Bhilai Steel Plant to produce 1,37,500 tonnes of quality refractory bricks was approved by Government in October 1975 at an estimated cost of Rs. 26 crores. The revised cost of the project is now Rs. 37·42 crores. The basic and silica shops of the plant are expected to be commissioned shortly.

India Firebricks and Insulation Company Limited

3.12.9. With effect from 1-5-1978, the company became a subsidiary of Bharat Refractories Limited. The licensed capacity of the plant is 72,000 tonnes of refractories per annum and the installed capacity is 50,000 tonnes per annum, of which about 30,000 tonnes would be of standard varieties. A committee consisting of experts from SAIL and MECON was appointed to study the requirements of balancing facilities, etc. to make the plant an economically viable unit. The Committee recommended an investment of Rs. 327·10 lakhs which was approved by SAIL. Work on the scheme is in progress.

3.12.10. The paid up capital of the Company (IFICO) amounts to Rs. 1,49,66,875 against the authorised capital of Rs. 2 crores.

3.12.11. In 1979-80 the Company suffered a loss amounting to Rs. 69·42 lakhs (till 29-2-80) as compared to a loss of Rs. 27·80 lakhs and Rs. 56 lakhs in the years 1978-79 and 1977-78 respectively. The main reasons for loss have been attributed to

change in the method of calculation of depreciation from reducing balance method to straight line method, writing back the excess provision in the accounts upto the previous year amounting to Rs. 68·49 lakhs and also to frequent interruptions in power supply and high percentage of rejections due to fluctuation of temperature in tunnel kiln.

3.12.12. The production of the Company during the years 1979-80, 1978-79 and 1977-78 was as follows :

	1979-80		1978-79	1977-78
	Target MT	Actual MT	Actual MT	Actual MT
Bricks & Mortar . . .	33886	30786	29930	25218

3.12.13 The Company (IFICO) has undertaken a rehabilitation scheme costing about rupees 227 lakhs which is now estimated to cost rupees 263 lakhs. Besides, the Company also plans to spend Rs. 11 lakhs towards additions/modifications, etc. during the current year. The gas producer plant was successfully completed and will be a substitute for furnace oil. The dedusting plant has been installed to improve working conditions. The two imported hydraulic presses have been installed. Installation of the 3rd Diesel Generating set is expected to be completed by July, 1980. The preparation of master plant and Survey work for building residential accommodation is in progress.

3.13 METAL SCRAP TRADE CORPORATION LIMITED

3.13.1 Metal Scrap Trade Corporation Limited, the subsidiary of Steel Authority of India Limited, continued to be the canalising agency for import of Ferrous Scrap including rerollable scrap in the form of old ships, vessels etc. for breaking. It is also a canalising agency for export of Ferrous Scrap, in addition to being the sole selling agency for the scrap generated by the integrated steel plants viz. IISCO, Rourkela, Durgapur, Bhilai and Bokaro Steel Plants. During the first six months of 1979-80 MSTC imported 18 vessels of aggregate GRT-36613 and LDT-24188, valued at Rs. 267·62 lakhs. This included both Indian and Foreign Flag vessels. MSTC has been able to induce State Industries Development Corporation, Andhra Pradesh to set up a ship breaking yard at Visakhapatnam. The yard has already started work on breaking Foreign Flag vessels. It is understood that Kerala State Industries Development

Corporation is also planning to set up a ship breaking yard at Cochin. Setting up of a ship breaking yard on the west coast by MSTC is also under consideration.

3.13.2 The old Foreign Flag vessels imported by MSTC, for breaking, are sold to Indian Ship breakers by auction, or, as in the case of public sector undertakings who have taken to ship breaking, by allotment. MSTC is permitted to retain only the cost price of the ship and its service charge. The amounts received in the auction, over and above this, have to be credited by them to a fund to be used for furthering ship breaking activities. In the case of allotment of ships a fixed contribution of Rs. 100 towards this fund is charged from the buyer.

3.13.3 The Government have appointed a high level Committee, called the Ferrous Scrap Committee, to deal with the various problems like availability, import etc. of ferrous scrap, including ship breaking. It meets every two months, in various parts of the country and holds dialogue with various interests involved. The fund, mentioned above, will be operated according to directions received from this Committee.

3.13.4 During 1978-79, licences for import of 4·81 lakh MT Ferrous Melting Scrap were issued by the licensing authority on the recommendation of the MSTC. The actual imports during 1978-79 were 38,013 tonnes. In 1979-80 the imports totalled 98,136 tonnes.

3.13.5 Export of ferrous scrap during 1979-80 was on much reduced scale as the production of steel by the mini steel plants increased considerably raising the requirement of scrap within the country. Only such categories and quantities of scrap which were surplus to indigenous requirement were allowed to be exported. Export of cast iron scrap is being allowed in a very limited way from time to time mainly against earlier commitments. The export of ferrous scrap during 1979-80, is 32,786 tonnes as against 54,331 tonnes in 1978-79.

3.13.6 The financial performance of MSTC during 1979-80 has been satisfactory. Compared to Rs. 64·97 lakhs profit earned during 1978-79 before tax, it earned a profit of Rs. 72·02 lakhs (provisiona) in 1979-80.

3.13.7 A new joint venture company named Ferro Scrap Nigam Limited has been established by MSTC in collaboration

with Harsco Corporation incorporated in USA with equity participation in the ratio of 60 : 40. This company has taken over from August 1, 1979 the operation of scrap processing from M/s. Heckett Engineering Company, a division of Harsco Corporation which has been operating in steel plants of TISCO, IISCO and Rourkela.

3.13.8 The total number of employees as on 31-12-1979 indicating separately scheduled castes, scheduled tribes and women are shown below :—

	Total	SC	ST	Women
Group—A	19	—	—	—
Group—B	5	—	—	—
Group—C (excluding Sweepers)	28	5	—	1

3.14 METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED

3.14.1 As per the provisions of the Public Sector Iron & Steel Industries (Restructuring) and Miscellaneous Provisions Act, 1978, which came into effect from 1st May, 1978, MECON was delinked from SAIL and has come directly under the administrative control of the Ministry of Steel and Mines, Government of India.

3.14.2 The authorised capital of the company is Rs. 4·0 crores. Its paid-up capital continued to be Rs. 5,000/- till 30-4-1978. Under the provisions of the aforesaid Act, the immovable properties (i.e. land and buildings, including furniture and fixtures and facilities of the office and residential colony complex) of Hindustan Steel Limited (HSL) in Ranchi stood vested in MECON with effect from 1st May 1978. On 22nd June, 1979, in compliance with the order (Order No. GSR. 272(E) dated April 28, 79) of the Ministry of Steel & Mines, Government of India, issued under the provisions of the aforesaid Act, fully paid up Equity Shares of the Company of the face value of Rs. 2,01,48,000/- have been issued by the Company in favour of President of India in full payment of the value of the aforesaid assets. With this allotment of shares, the Issued, Subscribed and Paid-up Equity Share Capital of the Company stood increased to Rs. 2,01,53,000/-.

3.14.3 The turn-over of the company in 1978-79 was Rs. 12·21 crores as compared to the turn-over of Rs. 9·69 crores in 1977-78. It made a net profit of Rs. 2·4 crores in 1978-79 against a net profit of Rs. 2·1 crores in the preceding year.

Activities

3.14.4 During the year 1978-79 a number of assignments were completed. The important ones among them included—Feasibility Reports for Portland Blast Furnace Slag Cement Plant for Bhilai Steel Plant; Coke Oven Battery 5-B; Installation of Bloom Casting Machine, on-line Ultra-sonic Testing for Wheel and Axle Plant for Durgapur Steel Plant; Separate Reheating Furnace and Slag Yard for Plate Mill for Rourkela Steel Plant. MECON also submitted a report for assessment of Iron Making, Steel Making and Blooming Mill Capacity for Indian Iron & Steel Company. A techno-economic proposal was also submitted by MECON for acquisition of Sindri Coke Oven Complex for Bharat Coking Coal Limited. A project Report for installation of Process Control Computer for LD Converter for Rourkela Steel Plant, Techno-economic feasibility Report for Bailadila Pellet Plant for National Mineral Development Corporation were also submitted.

Major Assignments in Hand

3.14.5 Major assignments in hand at the close of the year 1978-79 were :—

(a) Detailed engineering for expansion of Bokaro Steel Plant from 2·5 MT to 4·0 MT and 4·75 MT stages, Slag Granulation Plant, 3 × 60 MW Power Plant etc. Work relating to Design, engineering and supply of the second Cold Rolling Mill complex and detailed engineering for all processing lines connected therewith is in progress.

(b) Detailed engineering for expansion of Bhilai Steel Plant to 4·0 MT including 8th Coke Oven Battery, Second Sintering Plant, Dalli Mines and Refractory Plant. MECON has also been commissioned to design, engineer and supply, erect and commission Auxiliary Systems for the Plate Mill which is a part of the 4·0 MT expansion.

(c) At Rourkela Steel Plant work on design and supply of equipment for modernisation of Hot Strip Mill, detailed engineering for rebuilding of Coke Oven Battery IA, SMS Slag Disposal & Slab Yard facilities is continuing. MECON is also

rendering engineering and consultancy services for commissioning of 4-Hi Reversing Cold Rolling Mill for Silicon Steel Project.

(d) Detailed engineering and consultancy work for the Fabrication shops of Korba Project of Bharat Aluminium Company Limited (BALCO) was continued.

(d) The work on Durgapur Steel Plant covers detailed engineering supervision and inspection of Coke Oven Battery No. 2 and detailed engineering and consultancy for modification of Blast furnace.

(f) Detailed engineering (in part) for the Kudremukh Iron Ore Project, Meghahatuburu Iron Ore Project, Bhawnathpur Limestone Project (II Stage), Bharat Refractories Limited, Sponge Iron Plant in Orissa, Calcium Carbide Plant for Andhra Pradesh Chemicals Ltd., Titanium Dioxide Pigment Project for Kerala Minerals and Metals Limited at Quilon Seemless Steel Tube Plant of Bharat Heavy Electricals Limited at Trichurapalli, Carbon Black Project for CACIL were also continued.

(g) Design, engineering and supply of Combination Reversing Cold Reducing and Skin Pass Mill for Steel Strips Limited, Chandigarh, Blooming and indigenous equipment for expansion of Alloy Steel Plant of Mahindra Ugine Bombay, 3-stand Bar Mill Complete with erection and commissioning of Mishra Dhatu Nigam, Hyderabad, 7-stand Wire Rod Mill for Mishra Dhatu Nigam and 2-Hi Skin Pass Mill for Salem Steel Project.

(h) MECON was also engaged in preparation of feasibility report for Charge Chrome Plant for Orissa Mining Corporation, 60 MW power plant for Visvesvaraya Iron and Steel Limited (VISL), Salem Magnesite Plant and Mines for Burn Standard Company Limited Calcutta and assistance to Balco for preparation of a feasibility report for setting up an Aluminium Plant in Andhra Pradesh.

Foreign Assignments

3.14.6 MECON has been rendering technical consultancy and project monitoring services to the Federal Government of Nigeria for setting up of 1·0 million tonne direct reduction plant near Warri in Nigeria. MECON has also been extending assistance, in the form of technical consultancy, to the Nigerian Government for Township Project as well as expansion scheme

for the aforesaid plant in anticipation of finalisation of contracts in these respects.

3.14.7 MECON signed an agreement on 5th March, 1979 with the General Establishment of Geology & Mineral Resources, Ministry of Petroleum & Mineral Resources, Syrian Arab Republic, for preparation of a Feasibility Report for setting up a million tonne Iron & Steel Project in Syria. The scope of work extends to market study, technical supervision of geological exploration and investigation, soil investigation, survey, testing of ore etc. The report is likely to be submitted in June, 1980.

3.14.8 The assignment for setting up a consultancy and engineering bureau at Algiers for the Arab Iron & Steel Union is progressing.

3.14.9 MECON has joined with Swiss Aluminium Company Limited (ALUSUISSE), one of the largest fully integrated producers of aluminium in the world, to form a new Company, INDO SWISS ENGINEERING COMPANY LIMITED which was incorporated in India on 5th December, 1979. This is a joint venture with 50 : 50 equity ownership by the two parties and has an authorised capital of Rs. 20 lakhs. The Company has been formed with a view to setting up industrial projects in third countries.

Industrial Relations

3.14.10 The wages of MECON workers were revised with effect from 1st September, 1978 in accordance with a tripartite settlement between MECON management, MECON's employees union (Recognised) and Deputy Labour Commissioner, Ranchi, on 7th August, 1979 on the lines of the wage agreement for steel workers. Under this settlement, the minimum wage was revised to Rs. 505/- per month.

Personnel

3.14.11 The total number of employees of the Company as on 31-12-1979 indicating separately the number of employees belonging to Scheduled Castes and Scheduled Tribes and the number of women employees is given in the Table below :—

Group of posts	Total No. of employees	No. of SC employees	No. of ST employees	No. of Women employees
'A' . .	1634	34	13	14
'B' . .	298	3	13	15
'C' . .	947	84	128	79
'D' . . (Excluding Sweepers)	458	65	226	16
'D' . . (Sweepers)	79	56	20	9
Total . .	3416	242	400	133

3.15 HINDUSTAN STEEL WORKS CONSTRUCTION LIMITED

3.15.1 Incorporated in June, 1964, with the principal object of undertaking all major construction works connected with setting up of steel plants, Hindustan Steel works Construction Ltd. (HSCL) has diversified its activities and has emerged as a major construction company.

3.15.2 The authorised capital of the company is Rs. 20 crores and the paid up capital as on 31st March, 1979 was Rs. 8·50 crores. An amount of Rs. 4 crores was released towards equity in 1979-80.

3.15.3. The annual turnover of the company increased from Rs. 108·32 crores in 1977-78 to Rs. 117·34 crores in 1978-79. The turnover during the year under report is expected to be Rs. 137·34 crores. During the year, the Company has also secured foreign orders for the first time to the tune of Rs. 63 crores from Iraq and Libya. Negotiations are now in progress for more works in these countries.

3.15.4 The company incurred a loss of Rs. 474·60 lakhs in 1978-79 as against a profit of Rs. 14 lakhs in 1977-78. This was mainly due to the impact of surplus staff following the completion of a substantial portion of work at Bokaro Steel Plant

3.15.5 Value of works on hand is Rs. 414·47 crores as on the 31st December, 1979.

3.15.6 Some of the more important construction projects that the Company is executing are listed below :—

A. INDIA

Steel Sector

Bokaro Steel Plant	Expansion to 4·0 M.T. stage
Bhilai Steel Plant	4. m. t. expansion.
Durgapur Steel Plant	Re-building of coke oven battery No. 2 Capital repairs of Coke Oven Battery No. 3A.
Rourkela Steel Plant	Re-building of Battery 1A, Heavy loco Repair Shop, Additional Nephtha Plant, Silicon Project, Capital and running repairs to Coke Oven Battery.
Salem Steel Plant	Cold Rolling Mill, Mechanical and Electrical Repair Shop, Central Stores, Training Institute etc.
Visakhapatnam Steel Plant	Site levelling and civil engineering works.

Works outside Steel Sector

Kudremukh Iron Ore Project	Civil and structural works for the plant and designing and construction of the township.
Super Alloys Projects, Hyderabad	Civil and structural works.
Mysore Power Corporation, Karnataka.	Dam Construction at Supa.
Bharat Heavy Electrical Ltd.	Obra Thermal Power Plant—structural works and erection of 3 Nos. Boilers.
National Thermal Power Corporation Ltd.	Super Thermal Power Plant at Singrauli—levelling and civil engineering works of Water Circulation System. Construction of 220 M high multiflue RCC chimney including foundation (Pile Cap) and accessories for Korba Super Thermal Power Project Phase—I of Stage—I (3×200 MW) Unit at Korba.
Maharashtra State Electricity Board	Bhusawal Thermal Power Plant—Erection, testing and commissioning of 210 MW Boiler.
Mysore Power Corporation, Karnataka.	Nagjhari Power House—Civil and structural works.
Bharat Coking Coal Ltd.	Coal Preparation Plant at Moonidih Dhanbad.

Hindustan Copper Ltd. Malanjkhand.	Township, civil and structural works for Crushing & Screening Plant.
National Mineral Development Corporation Ltd.	Ore Processing Plant and Ore Handling Plant, Meghahataburu Iron Ore Project.
National Thermal Power Corporation Ltd., Korba.	Korba Super Thermal Power Plant—jungle clearance, site levelling, piling works and Coal Handling Plant (civil and structural works). 220 M high RCC multiflue chimney.
Fertilizer Corporation of India Ltd., Durgapur.	Captive Power Plant—Structural Works.
Metro Railway, Calcutta	Sub-way structures excluding diaphram walls and stations for 4 sections.

B. OVERSEAS

(i) Libya	(i) Construction of 53 Nos. school buildings.
	(ii) Construction of Main Training Centre at Tripoli.
	(iii) Construction of 8 Nos. school buildings, Ware house and Administrative Buildings and 5—storey block of slabs at BEIDA.
(ii) Iraq	Water Research Centre Complex at Baghbdad.

Personnel

3. 15. 7 The total number of employees in Hindustan Steel works construction Ltd., as on 31-12-1979 is given below :—

Group of posts	Total strength	of which		No. of women
		Scheduled Castes	Scheduled Tribes	
A	1981	23	8	4
	546	23	1	4
B	17873	1995	1759	91
C	5734	1298	1534	1316
(excluding Sweepers)		85	24	27
D (Sweepers)	126			
Total	26260	3424	3326	1442

CHAPTER IV

THE PRIVATE SECTOR

4.1. Tata Iron & Steel Company Limited

4.1.1. The industrial complex of Tata Iron & Steel Company Limited consists of the integrated steel plant at Jamshedpur, captive collieries at Sijya, Jamadoba and West Bokaro and an iron ore mine at Noamundi. The Steel Plant at Jamshedpur is the oldest integrated steel plant in the country. It has an installed capacity of 2 million tonnes per annum of steel ingots equivalent to 1·5 million tonnes of saleable steel. This capacity was achieved through a series of modernisation and expansion programmes which were partly financed by the Government of India and the World Bank.

Production

4.1.2. The steel plant has been operating at more than 90 per cent capacity for the past many years. The production during the past three years has been as under :—

(Figures in thousand tonnes)

	Steel ingots	Saleable Steel
Capacity	2,000	
1977-78	1,968	1,500
1978-79	1,866	1,601
1979-80	1,779	1,516
		1,447

During 1979-80, operations have been seriously affected by acute shortage of coking coal, poor quality of purchased coal and severe power restrictions imposed by D.V.C.

Exports :

4.1.3. During the year 1978-79, the company's exports of steel were 44,000 tonnes. Against this, the exports during 1979-80 amounted to 7300 tonnes of steel. The decline in export is due to the ban imposed by the Government on the export of certain categories of steel materials.

Important Capital Schemes :

4.1.4. The Board of Directors of the Company have sanctioned a capital expenditure programme amounting to Rs. 177 crores of which Rs. 165 crores would be spent during the five year period 1979-80 to 1983-84. The progress on some of the important projects included under this programme is indicated below :—

(a) *Coke Oven rebuilding programme* :

The Company has drawn up a phased programme to rebuild coke oven batteries. Under this programme, three batteries were rebuilt in September, 1975, Nov., 1976 and March, 1979. A Coke Handling plant was totally revamped and a major renovation of the coke oven by-product plant is about to be completed.

(*b*) *Colliery Development Project Phase-I*

This project is for increasing the production from the Captive Collieries to 2·7 million tonnes of raw coal a year. The project is expected to be completed shortly.

(c) *Colliery Development Project Phase II*

The Company was granted an Industrial Licence in May, 1977 for expansion of West Bokaro Colliery to increase production from 0·7 million tonnes of raw coal per year to 2·5 million tonnes of raw coal per year. With this expansion, TISCO would become self sufficient in coking coal. Substantial progress has been made in the implementation of this project. The project is expected to be completed in 1981.

4.2. *Mini Steel Plants*

4.2.1. The mini steel plant concept takes advantage of local availability of major in-puts, viz., scrap and power, and proximity to the consuming points. The growth of the mini steel industry in the country has been phenomenal after 1970. The industry had been facing problems since 1975 in maintaining production to capacity and marketing its products at Competitive prices. While the Government took some measures like granting permission to diversify to alloy and special steels, and rebate on excise duty, it was considered necessary to have the problems studied in detail by professional consultants. Accordingly, the consultants surveyed the industry and made recommendations to the Government in 1977.

4.2.2. Consequent to the recommendations made by this survey, the Government announced the following measures to improve the economic viability of the mini steel plants :

(i) Import of almost all categories of ferrous melting scrap for use in the electric arc furnace was exempted from customs duty; exemption was given from countervailing duty on import of melting scrap other than heavy melting scrap;

(ii) Import of ferrous melting scrap was placed on the canalised list. In addition, direct import of 200,000 tonnes of ferrous melting scrap by the electric arc furnace units, on ad-hoc basis during 1977-78, and upto 25% of the licenced capacity of each unit during 1978-79 was permitted. Against the permission granted for direct import during 1977-78, the units finally imported 40,000 tonnes, during 78-79. During the year under review, the permission for direct import upto 25% of the licensed capacity has been extended to such units which have fully utilised the earlier licences, with the further provision that if the quantity so calculated for any firm is above 10,000 tonnes, the firm will be allowed to import upto 20,000 tonnes to make a shipload. It will also be entitled for additional direct imports as soon as it has fully utilised the licence issued. In addition, import of foreign flag vessels for breaking up has been provided for under the import policy. This is expected to generate 10-15% melting scrap which will be available for melting apart from 75% re-rollables which will be supplied to the re-rolling mills, which in turn, will thus be making more melting scrap available to the electric arc furnaces;

(iii) Excise duty on certain categories of heavy melting scrap procured from the integrated steel plants was abolished;

(iv) Mini steel plants were permitted freely to diversify to certain grades of carbon and alloy steel;

(v) Financial institutions would consider favourably applications for loans from mini steel plants for purposes of diversification.

(vi) Import of graphite electrodes has been allowed to meet the shortage of supply from indigenous sources;

(vii) Steel re-rolling mills and mini steel plants may now seek financial assistance under the Soft Loan Scheme;

(viii) Efforts are being made to arrange for the import of some quantity of sponge iron on an experimental basis;

(ix) Government are encouraging the setting up of continuous casting facilities by mini steel plants to improve the quality of their products and metal losses.

(x) A scheme to grant selective permission under the 'forward integration policy' for installation of rolling mills by the mini steel plant is under consideration.

4.2.3 As on 1-12-1979, there were 145 licensed electric arc furnace units with a total annual licensed capacity of 3·32 million tonnes. Out of these, 132 units have commenced production, corresponding to a capacity of 3 million tonnes. The remaining units are either closed or still in the stage of implementation. The progress of the units under implementation is being closely monitored.

In quantitative terms, production increased by 50% in 1978-79 over that of 1977-78. The number of units that were in commission increased from 92 in 1977-78 to 102 in 1978-79. The average capacity utilization increased to 70% in 1978-79 compared to 55% in 1977-78.

4.2.4 Production of electric arc furnace units licensed to produce ingots/billets for the year under report and the preceding two years is shown below :

Year	Alloy Steel	Other than Alloy Steel (including mild steel)	Total (in lakh tonnes)
1977-78 . . .	2·11	9·23	11·34
1978-79 . . .	2·07	14·50	16·57
1979-80 . . .	2·57	13·59	16·16*

*Estimated for the year on the basis of the actuals for 10 months, April 1979 to January 1980.

The decline in production during 1979-80 was mainly due to power shortage and non-availability of raw materials.

Imposition of severe power cuts by several States was responsible for the slump in production. Government appointed a Committee in July, 1979 to make an in depth study of the problems faced by the industry and suggest remedial steps to

enable the industry maintain higher rate of production. The Committee submitted its report in November, 1979. Action on many of the suggestions had been finalised simultaneously as the Committee, was discussing problems with the industry and the Committees report contains the final action taken on many of the recommendations made.

4.3 *Re-rolling Industry*

4.3.1. This industry has a wide spectrum of production consisting of bars, rods, flats, twisted deformed bars, sections and various types of profiles rolled out of billets, pencil ingots and various other kinds of re-rollables including scrap. There are 204 re-rolling mills, in the organised sector, with a capacity of 4·11 million tonnes per annum. Out of these, 22 units also have their own electric arc furnaces in the same name and in the same location but under separate licences.

4.3.2. In addition to the units in the organised sector there are about 800 units in the small scale sector, registered with State Directorates of Industries. In the past the capacity utilization was low in view of lack of demand for finished products. The demand has improved considerably during the last two years. However, non-availability of input materials (re-rollable materials) and power shortage have put a damper on better capacity utilisation. To augment indigenous availability Government have permitted import of re-rollable scrap on OGL. The import of 1 lakh tonnes of semis to meet the requirement of re-rolling industry has also been permitted.

4.3.3. A Technical Committee was constituted in September 1978, to make an in depth study of the industry. The terms of reference of the Committee are as follows :

(i) To assess and recommend capacity of steel re-rolling units on maximum utilization basis;

(ii) To evaluate the facilities installed by all the re-rolling units with special attention to the identification of—

(a) Units which are technically capable of rolling ingots, blooms and billets of carbon as well as alloy steels;

(b) Units considered fit to avail of the ISI certification mark-scheme in respect of their end products;

(c) units which are integrated or have tied-up for ingots/billets with mini steel plants; and

(d) units which are lying closed.

(iii) To recommend a plan of rationalisation of sections for rolling between integrated plants and re-rollers;

(iv) To recommend any other measures for the growth diversification and development of the rolling industry.

The Committee has made considerable progress in carrying out verification and inspection of the facilities that exist with the units. It is expected that the Committee would submit its report very soon.

4.3.4. The total production of rolled products achieved by the re-rollers in the organised sector during the past three years is as follows :—

Year	Production— (in lakh tonnes)
1977-78	9·82
1978-79	10·51
1979-80	9·22*

*Estimated for the year on the basis of the actuals for the months April 1979 to January 1980.

4.4. *Wire Drawing Industry*

4.4.1. There are 71 wire drawing units in the organised sector with an annual licensed capacity of 7·34 lakh tonnes, on the basis of maximum utilization of plant and machinery. During the year no new unit was granted an industrial licence, owing to adequate capacity having already been licensed in the country. In addition, there are a large number of wire drawing units in the small scale sector with an estimated capacity of over 8 lakh tonnes per annum.

The units in the organised sector produce almost all types of steel wires in the country except some varieties of thinner sizes. The units in the small scale sector produce only thicker gauges of mild steel wires.

4.4.2. The inadequate availability of the principal raw material, i.e. mild steel and medium/high carbon steel wire rods has been a major handicap. The current import policy, however, allows import of mild steel and medium carbon steel wire rods on restricted basis to supplement the indigenous availability of

of wire rods. Alloy Steel wire rods and stainless steel wire rods may be imported according to requirement. The existing wire drawing units have been permitted to freely diversify to production of all grades of carbon and alloy steel wires, subject to the condition that such diversification will not intrude into areas in which small scale sector wire drawing units are predominantly concentrated, viz., in gauges 18 SWG and thicker.

4.4.3. With the introduction of radial tyre in the rubber/tyre industry, a capacity of 6,000 tonnes *per annum* has been allowed in the form of Letters of Intent, in the wire drawing sector, to meet the demand for steel tyre chord wires.

4·4·4. The total production of various grades of wires by the units in the organised sector during the last 3 years is as indicated below:

Year	Production (Tonnes)
1977-78	325,900
1978-79	363,700
1979-80	288,800*

*(Estimated for the year on the basis of the actuals in the first half of the year).

4·5. *Tinplate*

4·5·1. Apart from the Rourkela Steel Plant, there are 2 Tinplate producing units in the organised sector. The Tinplate Company of India Limited, Jamshedpur has a capacity of 1,60,000 tonnes per annum including 90,000 tonnes per annum of electrolytic tinplate, tin free steel and 70,000 tonnes per annum of hot dipped tinplate. The other unit, namely, K. R. Steel Union (P) Limited, Thana, Maharashtra has a licence for manufacture of 60,000 tonnes per annum of electrolytic tinplate. This unit as well as the electrolytic line of Tinplate Company of India Limited is not linked with any indigenous source for supply of cold rolled TMBP coils for tinning. Their requirements have to be met by imports. The electrolytic line of Tinplate company of India Limited commenced production in January, 1979. Both the units have been allowed to import cold rolled TMBP coils for tinning through Steel Authority of India Limited.

The production of tinplates during the last 3 years was as follows:

Year	Production (in tonnes)
1977-78	34,141
1978-79	32,507
1979-80	42,300*

*(Estimated for the year on the basis of the actuals for the first half of the year).

4·6. *Strip Manufacturing Industry*

4·6·1. Cold rolled strips have their uses in a large number of industries. To encourage the development of different qualities of products, diversification has been allowed to hot-cold rolled strips manufacturers in all grades of carbon and alloy steel strips except stainless steel and heat resisting grades. However, in stainless steel/heat resisting grades, they have been allowed upto 200 tonnes within their licensed capacity per annum.

4·6·2. There are 28 units licensed for manufacturing steel strips in the organised sector. Among them : 25 units are cold rolled units; 2 hot rolled units and 1 is for hardening and tempering of cold rolled strips. The total capacity is 2·16 lakh tonnes per annum. Out of this licensed capacity, only 2 units accounting for a capacity of 16,240 tonnes are yet to go into production.

4·6·3. The total production of HR/CR strips in the country is indicated below:

Year	Production (in tonnes)
1977-78	94,286
1978-79	1,16,029
1979-80	1,23,400*

*(Estimated for the year on the basis of the actuals for the 10 months, April 1979 to January 1980).

4·7. *Ferro Alloys Industry*

4·7·1. The Ferro Alloys Units are divided into 2 broad groups producing.

(a) High Carbon Ferro Alloys and

(b) Low Carbon Ferro Alloys.

High Carbon Ferro Alloys are required for production of steel in general and for alloy and special steel, low carbon ferro alloys are important input materials.

4·7·2. There are 22 Ferro Alloy Units in the organised sector and their annual licensed capacity is 4·45 lakh tonnes for manufacturing various ferro alloys. High Carbon Ferro Alloys such as Ferro Manganese, Ferro silicon and Ferro Chrome for which raw materials are indigenously available are being produced in sufficient quantity and excess production is allowed to be exported. However, Government had to curb export of Ferro silicon during the middle of this year to meet the domestic requirement. For low carbon ferro alloys production, imported raw materials are required. The import policy for 1979-80 has been liberalised to allow import of concentrates and also import of low carbon ferro alloys, to tide over the shortages.

The production of Ferro alloys, during the last 3 years was as follows:

Year	Production (in tonnes)
1977-78	2,83,862
1978-79	2,99,963
1979-80	2,60,800*

*(Estimated for the year on the basis of the actuals for ten months, April, 1979 to January, 1980).

4·8. *Sponge Iron Industry*

4·8·1. There is presently a world-wide interest in methods of steel making that seek to by-pass the traditional blast furnace and steel melting shop route of the integrated steel plants. The production of sponge iron and its converison in direct reduction furnaces is one such method.

4·8·2. The feasibility of production of sponge iron with hydro-carbon gases as reductant is already established in other countries. India, not being endowed with enough hydro-carbon gases, efforts are being made to establish the production of sponge iron with solid reductant. A Demonstration Plant to produce sponge iron with non-coking coal is being set up with UNDP assistance, by the Central and State Government at Kothagudam, in Andhra Pradesh.

4·8·3. Messrs, Industrial Promotion & Investment Corporation of Orissa Limited, have been granted a Letter of Intent for the production of 3 lakh tonnes of sponge iron per annum. In this project, it is proposed to use 80% solid reductants and 20% oil as inputs.

4·8·4. A pilot plant is being set up by the Research and Development Centre of SAIL at Ranchi for the development of rotary kiln direct reduction process technology, based on the use of non-coking coal as reductant, at an estimated cost of about Rs. 4·78 crores. The initial capacity of this plant will be 10 tonnes per day.

4·9. *Pig Iron Industry*

4·9·1. Apart from the integrated steel plants, there are 2 pig iron producing units, namely M/s. Industrial Development Corporation of Orissa Limited and M/s. Sandur Manganese and Iron Ores Ltd. with a total annual capacity of 1·36 lakhs tonnes. These units produce high quality pig iron.

4·9·2. There is, however, need to develop production of special categories of pig iron, such as low/high phosphorus, spheroidal grain and low carbon grain pig iron.

4·9·3. The total production of saleable pig iron in the private sector during the last 3 years has been as follows:

Year	Production (in '000 tonnes)
1977-78	96·2
1978-79	103·7
1979-80 (Estimates)	121·0

4·10. *Scrap Processing and Ship-breaking Industry*

4·10·1. Ferrous melting scrap is one of the basic raw materials for the Electric Arc Furnace units. Therefore,

considering the need to develop the scrap processing industry on proper lines, Government have, by a notification dated June 13, 1979, clarified that scrap processnig is also covered by the provision of Industries (Development & Regulation) Act.

4·10·2. Ship breaking, a labour intensive industry, inter alia, generates melting and rolling scrap. For organising the industry on proper lines it has also been clarified on June 13, 1979 that ship breaking is also covered by the provisions of Industries (Development & Regulation) Act.

4·10·3. The ship-breaking & scrap processing units would thus now require licensing under Industries (Development & Regulation) Act. Applications for grant of licences have started flowing in.

CHAPTER V.

SUPPLY OF RAW MATERIALS

5·1. *Iron Ore*

5·1·1. India is well endowed with large reserves of iron ore, both in terms of quantity as well as quality. The iron ore reserves of the country are presently estimated at 13,500 million tonnes, out of which 10,500 million tonnes are haematite and 3000 million tonnes magnetite.

5·1·2 The production of iron ore during 1979 was 40·6 million tonnes as against 38·4 million tonnes in 1978, showing an increase of 6%. Goa was the chief producer of iron ore during 1979 accounting for 13·3 million tonnes or 33% of the total production, followed by Madhya Pradesh 10·7 million tonnes or 26% Bihar and Orissa 5·9 million tonnes or 14·5% each, Karnataka 3·2 million tonnes or 8%, and Maharashtra 1·5 million tonnes or 4 percent. The production of iron ore during 1979 as compared to the previous year is shown below:—

(In million tonnes)

	1977	1978	1979 (estimated)
Production of iron ore	42·4	38·4	40·6
Despatch for :			
Internal consumption	16·5	16·1	15·1
Exports	25·5	21·3	24·5

5·1·3 By and large, there have been no problems in meeting the requirements of iron ore for the steel plants during the year. However, owing to acute recession in world steel industry resulting in a slump in demand, there was substantial decline in exports.

Pelletisation

5·1·4 Recent trends in blast furnace technology have favoured the use of sinter and pellets produced from iron ore fines instead of lumpy ore. There are two pelletisation plants already operating with a total capacity of 1·5 million tonnes.

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5·1. *Iron Ore*

5·1·1. India is well endowed with large reserves of iron ore, both in terms of quantity as well as quality. The iron ore reserves of the country are presently estimated at 13,500 million tonnes, out of which 10,500 million tonnes are haematite and 3000 million tonnes magnetite.

5·1·2 The production of iron ore during 1979 was 40·6 million tonnes as against 38·4 million tonnes in 1978, showing an increase of 6%. Goa was the chief producer of iron ore during 1979 accounting for 13·3 million tonnes or 33% of the total production, followed by Madhya Pradesh 10·7 million tonnes or 26% Bihar and Orissa 5·9 million tonnes or 14·5% each, Karnataka 3·2 million tonnes or 8%, and Maharashtra 1·5 million tonnes or 4 percent. The production of iron ore during 1979 as compared to the previous year is shown below:—

(In million tonnes)

	1977	1978	1979 (estimated)
Production of iron ore	42·4	38·4	40·6
Despatch for :			
Internal consumption	16·5	16·1	15·1
Exports	25·5	21·3	24·5

5·1·3 By and large, there have been no problems in meeting the requirements of iron ore for the steel plants during the year. However, owing to acute recession in world steel industry resulting in a slump in demand, there was substantial decline in exports.

Pelletisation

5·1·4 Recent trends in blast furnace technology have favoured the use of sinter and pellets produced from iron ore fines instead of lumpy ore. There are two pelletisation plants already operating with a total capacity of 1·5 million tonnes.

Another pellet plant with a capacity of 1·8 million tonnes installed by M/s Mandovi Pellets Company, in the joint sector has also gone into production. National Mineral Development Corporation will hold one third of the equity in this joint sector plant. Its production is earmarked for export to Japan under a long term contract.

5·1·5 In the public sector, National Mineral Development Corporation has formulated proposals for the setting up of 2 export oriented pellet plants, each with a capacity of 2 million tonnes per year at Bailadila (M.P.). and Donimalai (Karnataka) subject to suitable market tie up. These are under Government's consideration.

5·2. *MANGANESE ORE*

5·2·1. Manganese is a vital and critical input required for the production of steel. In the year 1970-71, the Geological Survey of India and the Indian Bureau of Mines had surveyed and prepared a joint inventory of the reserves in the country as on 1-1-1971. In the case of Manganese Ore reserves, only the insitu reserves were considered and they were estimated to be around 108·366 million tonnes, the break up being indicated as under :

(In million tonnes)	
7·652	(Measured Category)
32·740	(Indicated Category)
67·974	(Inferred Category)

5·2·2 Re-assessment conducted by the Concerned agencies revealed that the recoverable Reserves as on 1-1-75 were 79·48 million tonnes which included 11·87 million tonnes of measured, 17·88 million tonnes of indicated and 49·73 million tonnes of inferred categories. The measured reserves of Manganese Ore are 15% of the total recoverable reserves. Being a scarce mineral an urgent need was felt for taking up large scale proving operations in the potential areas apart from exploration of virgin areas. A concerted programme of exploration was jointly taken up by various agencies, for instance, Mineral exploration Corporation, Manganese Ore India Ltd., and the State Government agencies. Further to ensure optimum utilisation of the manganese reserves, various experimental projects such as, beneficiation of the low grade ore dephosphorisation of high phosphorous ore and utilisation of fines and rejects were taken up by the

National Metallurgical Laboratory, Indian Bureau of Mine and Regional Research Laboratory. In the interest of conservation the export of high grade manganese ore is banned and other grades are permitted within ceilings fixed.

5·2·3 The production of manganese ore during 1979 totalled 1,755,000 tonnes registering an increase of 8% over that of the previous year. All the producing States achieved higher production during 1979, barring Orissa and Bihar. The prime reasons for decline in production in these two States were shortage of labour and explosives. Orissa and Karnataka were the leading producing States accounting for 63% of the total production in 1979, their individual contribution being 37% and 26% respectively. Another 33% was contributed by Madhya Pradesh, Maharashtra and Andhra Pradesh, their individual contribution being 16%, 12% and 5% respectively. The remaining 4% of the output was from Goa, Bihar and Gujarat. Out of a total of 1,559,000 tonnes of Manganese Ore, 1,051,000 tonnes were internally consumed and 508,000 tonnes were exported during 1979.

5·2·4. The figures for production, exports and internal consumption during the last four years are given below:—

Production and Despatches for Internal Consumption and Exports for 1976 to 1979

Year/ Period	Qty. (Tonnes)	Value (Rs. '000)	Total (Tonnes)	For internal consumption	For Exports
1976	1,834,697	1,64,659	1,786,996	1,052,058	734,938
1977	1,865,052	1,85,570	1,607,516	1,013,032	594,484
1978	1 619,000	1,93,591	1,551,748	1,003,488	548,260
1979	1,755,000	2,14,177	1,559,000	1,051,000	508,000

5·3. *CHROMITE ORE*

5·3·1. Chromium is an important alloying element in ferrous metallurgy, perhaps next in importance to manganese only.

5·3·2 The known reserves of chromite in the country as on 1-1-75 were estimated at 17·3 million tonnes, the major part of which (13·84 million tonnes), was located in Orissa. Recent exploratory work conducted by the Geological Survey

of India, has revealed a reserve of approximately 31·17 million tonnes of chromite ore in the 'Indicated Category' in Orissa. The grade of ore is generally high but further tests have to be undertaken to finally establish the actual availability and usability of the indicated reserves.

5·3·3 As regards production, the decline which had set in since 1975, was reversed in 1979. Production was reported to be around 309,142 tonnes marking an increase of 16% over the preceding year. 80% of the total production of chromite in the country was in Orissa. The total despatches were 247, 218 tonnes in 1979, the despatches for exports being 119,112 tonnes.

5.3.4 The production and despatches for internal consumption and exports during the last four years are as follows:

Production and Despatches for Internal Consumption and Exports for 1976 to 1979

Year/ Period	Production			Despatches	
	Qty. (Tonnes)	Value (Rs. '000)	Total (Tonnes)	For internal consumption	For Exports
1976 .	402,111	196,195	364,903	126,662	238,241
1977 .	352,535	168,673	303,721	151,191	152,530
1978 .	266,293	119,120	214,630	126,806	87,824
1979 .	309,142	134,576	247,218	128,106	119,112

5.3.5 Keeping in view the limited reserves of this Ore, especially the high grade lumpy variety, the export of this category, suitable for metallurgical purposes, has been completely banned. As regards the other grades of Chromite, appropriate ceilings have been fixed for export. The export of Chromite was canalised through MMTC during the year.

5.4. *MINERAL DEVELOPMENT BOARD*

5.4.1 The erstwhile Iron Ore Board was registered under the Societies Registration Act and came into existence on 20-1-1973. The objective and purpose behind inception of the Iron Ore Board was to create a centralised agency for ensuring systematic, coordinated and integrated development of iron ore deposits within the country. Its functions, inter alia, included aspects like the conservation and optimum utilisation of iron ore

OBJECTIVE, ROLE AND FUNCTIONS OF THE MINERAL DEVELOPMENT BOARD

5.4.2. During the 6 years of its existence, the Board undertook a number of studies. The Board also performed a useful function in bringing together a mass of techno-economic data available with individual agencies, viz., the Geological Survey of India, the Indian Bureau of Mines and the Mining Organisations, in the form of inter-disciplinary Studies. The Iron Ore Board was renamed as the Mineral Development Board on 15-6-1979 because of extending its scope to important input materials to the steel industry such as manganese, chromite, vanadium, titanium, nickel, tungston, kyanite, etc. At present there are a number of agencies engaged in the task of exploration, regulation and mining of these minerals. Similarly research organisations are also active in the field of mineral processing and their utilisation. It was, therefore, felt that their activities should be coordinated so as to impart to their efforts a productive and project-oriented direction. This alone can ensure a stable base of raw materials and intermediates for the steel industry and progressively alter the present profile of export of low value raw ores and import of high value derivatives into a profile of increasing sufficiency and export of processed, concentrated, value-added metals and alloys.

CONSTITUTION OF THE BOARD

5.4.3. The constitution of the Board provides for 15 members, five of them whole-time including the Chairman and Member-Secretary and, ten part-time members. The Board's expenses are met entirely by Central Government grants.

CHAPTER VI

PROGRESSIVE USE OF HINDI

General

6.1. The work relating to the progressive use of Hindi for official purposes in the Department of Steel is looked after by the Hindi Section consisting of one Hindi Officer, four Translators and two typists. The Government's policy relating to the use of Hindi for official purposes as contained in the Constitution, the Presidential orders, the Official Languages Act and Rules issued in this connection is being implemented in the Department of Steel. The annual programmes framed by the Department of Official Languages in connection with the progressive use of Hindi for official purposes as also the general orders issued by them are also being implemented in the Department. In addition, the non-Hindi employees of the public sector undertakings are provided with incentives for learning Hindi by arranging competitions in debates, drama and essay writing. Suitable awards are given to the non-Hindi employees who fare well in such competitions and tests. Noting and drafting in the Hindi Section is done in Hindi. The other sections and the Hindi knowing officers in the Department write short notes and drafts in Hindi.

6.2. With a view to keeping a proper watch over the implementation of the official policy in connection with the progressive use of Hindi for official purposes, departmental officers carry out regular inspections of their attached and subordinate offices as well as their public sector undertakings. The inspection reports are forwarded to the concerned offices for suitable follow-up action on the deficiencies pointed out therein. During the year under review inspections were carried out of the Offices of National Mineral Development Corporation, Hyderabad, Manganese Ore (India) Limited, Nagpur, Sponge Iron India Limited, Hyderabad, the Regional Iron and Steel Controllers situated at Bombay, Hyderabad and New Delhi, Kudremukh Iron Ore Company Limited, Bangalore, Metallurgical and Engineering Consultants (India) Limited, Ranchi, Bharat Refractories Limited, Bokaro and Bhilai Steel Plants.

HINDI TYPEWRITERS AND HELP-LITERATURE

6.3. There are 17 Hindi Typewriters in the Department. Help literature has been provided to officers and staff to encourage

them to work in Hindi. In order to create interest among the employees for Hindi, magazines/newspapers in this language have been provided in the Library.

6.4. *COMMITTEES RELATING TO OFFICIAL LANGUAGE*

(i) *Official Language Implementation Committee*

An Official Language Implementation Committee is functioning in the Department. The Committee reviews the quarterly progress made in the use of Hindi for official purposes in the Department, its attached/subordinate offices and undertakings and decides on the measures to be taken to accelerate its use. During the year under report, 4 meetings of this Committee have been held. Similar committees are also functioning in all Offices/Undertakings of this Department.

(ii) *Liaison Committee*

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

(iii) *Hindi Salahkar Samiti*

A Hindi Salahkar Samiti for this Ministry was reconstituted on the 21st February, 1978. So far 5 meetings of this Samiti have been held.

6.5. *Hindi Workshop*

A Hindi workshop was arranged for the first time in this Department. Steps are being taken to arrange another workshop so that more officers/officials may be trained to use Hindi in their official work.

6.6. *Trainingin Hindi/Hindi Typewriting/Hindi Stenography*

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

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

I. Hindi Training

Total number of employees (Group A, B & C)	217
Total number of employees possessing requisite Hindi Qualifications	161
Total number of employees who have passed Prabodh, Praveen and Pragya/Intensive Course/Special Departmental Examination, etc.	36
Total number of employees under training	1
Total number of employees yet to be trained	19

II. Hindi Typewriting/Stenography

	Trained	Under Training	Yet to be Trained
Hindi Typewriting	8	—	43
Hindi Stenography	8	—	30

6.7. *NOTIFICATION OF THE DEPARTMENT AND ITS OFFICES IN THE GAZETTE OF INDIA.*

In addition to the Department of Steel and two of its subordinate offices, namely, the Offices of Regional Iron and Steel Controllers at New Delhi and Kanpur which were notified in 1978 in terms of rule 10(4) of the Official Languages (Use for official purposes of the Union) Rules 1976, the following units of HSCL have additionally been notified during the current year :

1. Bokaro
2. Patna
3. Korba
4. Bangalore
5. Delhi
6. Bombay.

This implies that 80% or more of the staff working in these offices possesses working knowledge of Hindi.

6.8. Some statistical details for the Calendar year 1979 regarding the use of Hindi in the work of this Department are

given below:—

(a) Total number of Hindi communications received from anywhere in this Department	2646
(b) Total number of communications replied to in Hindi	1053
(c) Total number of communications replied to in English	21

Position regarding originating Correspondence

	Number issued		
	Total	In Hindi	In English
(a) To the Offices in Hindi Speaking States and States/Union Territories which have adopted Hindi for purpose of communication with Government of India	6	1	5
(b) To public of Hindi Speaking States	1	—	1
(c) (1) To Central Govt. Offices located in Hindi Speaking States	278	101	177
(2) To Central Govt. Offices located in States/Union Territories which have adopted Hindi for purpose of communication with Government of India	2	1	1
(3) To Central Govt. Offices located in Non-Hindi speaking States	70	4	66

	Documents issued both In Hindi and English		
	Number issued billingually	Number issued in Hindi only	Number issued in English only
	(1)	(2)	(3)
(1) General Orders	66	10	128
(2) Resolution Notification	90	—	—
(3) Rules	—	—	—
(4) Administrative and other Reports	1	—	—

(1)	(2)	(3)
(5) Fulfilment of Assurances given in Parliament	38	—
(6) Budget Performance of the Department for the year 1978-79	1	—
(7) Government Reviews on the Annual Report	3	—
(8) Agenda Notes and Minutes of the meeting of Staff Council and Consultative Committee	All agenda papers & minutes of the Consultative Committee meeting & staff Council Meeting were issued billingually.	

APPENDIX-I

ALL INDIA PRODUCTION OF IRON AND STEEL

('000 tonnes)

Products	1975-76	1976-77	1977-78	1978-79	1979-80 (Estimated)
(1)	(2)	(3)	(4)	(5)	(6)
(i) Saleable Pig Iron@	1629	2052	1529	1587	1094
(ii) Saleable Steel :					
I. MILD STEEL					
A. MAIN PRODUCERS :					
(a) *Semis*	1817	2018	1920	1615	1672
(b) *Flat Products*					
Plates	447	705	638	657	670
*HR Sheets (10-14G)	169	187	202	223	217
*HR Coils/Skelp	586	931	891	933	823
CR Sheets/Coils/HR Sheets (16 G & above)	275	337	414	417	515
GP/GC Sheets	173	187	197	195	186
Tin Plates	48	54	59	58	55
Electrical Steel Sheets	50	43	61	74	69
(c) *Non-flat Products*					
Rounds/Flats	641	695	709	704	598
Wire Rods	392	473	480	458	385
Structurals	819	839	936	844	696
(d) *Railway Materials*					
Rails	215	319	235	255	
Sleepers	61	41	64	50	
Wheel, Tyres & Axles	37	37	39	41	328
Other railway materials	5	2	3	15	
TOTAL (A)	5728	6867	6848	6538	6014

(1)	(2)	(3)	(4)	(5)	(6)
B. MINI STEEL PLANTS :					
Billet/Pencil Ingot	400	700	957	1503	1345
II. ALLOY AND TOOL STEELS	248	290	304	387	425
GRAND TOTAL	6376	7857	8109	8428	7784

*Includes production of Strips meant for Rourkela Pipe Plant.

@IISCO normally does not have any pig iron for sale. Therefore, the saleable production figures above represent actually the despatches to their own Kulti/Ujjain Works.

Note : Alloy and special steels produced by TISCO in the form of semis is included in "Alloy and Tool Steels".

APPENDIX-II

CATEGORY-WISE IMPORT SHIPMENTS DURING APRIL 1978—MARCH 1979 AND APRIL 1979—MARCH 1980

(QTY—Tonnes, VALUE—Rs. lacs)

Sl. No.	Category	During April 1978—March 1979		During April 1979—March 1980	
		Quantity	Value	Quantity	Value
1.	CR Sheets/Coils	191,432	6,055·75	118,957	4,549·53
2.	CR/HR Strips	2,800	255·64	4,908	311·05
3.	Structurals	95,840	2,761·04	320,461	10,469·11
4.	MS Plates/HT Plates	221,200	6,309·74	400,932	12,155·49
5.	BQ Plates	6,442	250·87	22,585	888·50
6.	SBQ Plates	3,222	89·90	1,209	38·88
7.	Tinplate Prime	49,537	2,283·08	21,589	1,175·73
8.	Tinmill Black Plate	11,512	390·01	26,638	1,117·76
9.	Electrical Steel Sheets	33,586	2,491·73	30,743	2,809·40
10.	HR Sheets/Coils	108,749	3,277·30	172,558	5,114·39
11.	Stainless/Special Steels	12,593	1,434·16	4,558	459·65
12.	GP/GC Sheets	28,488	1,128·19	32,555	1,475·81
13.	MS Bars & Rods	—	—	2,170	157·60
14.	Slabs/Blooms	—	—	86,055	1,931·50
15.	Billets	—	—	88,969	2,338·64
16.	Wire Rods	16,800	682·54	—	—
	Total (Steel)	782,201	27,359·95	1334,887	44,993·04
17.	Ferro Alloys	199	69·41	3	3·25
	Grand Total (Steel & Ferro Alloys)	782,400	27,429·36	1334,890	44,996·29

APPENDIX-III

STATEMENT SHOWING CATEGORY-WISE EXPORTS OF PIG IRON. STEEL AND FERRO ALLOYS DURING 1978-79 AND 1979-80

(Qty in Million Tonnes : Value : Rs. in Lakhs)

S. No.	Category	Exports during 1978-79		Exports during 1979-80*	
		Quantity	Value	Quantity	Value
	Pig iron	266496	2014	44197	431·25
	Steel				
1.	*Billets*	122555	1795	14825	219·88
2.	*Bars & Rods*	251194	5287	28739	709·31
3	*Structurals*	47591	862	141	3·47
4.	*Rails/Railways materials*	40647	1387	231	8·63
5.	*H.R. Plates*	381	9	17	0·13
6.	*H.R. Coils*	12715	218	—	—
7.	*CR Sheets/Coils*	26149	613	10690	307.19
8.	*GP/GC Sheets*	5909	154	75	5·00
9.	*Pipes*	15003	358	5855	152·24
10.	*Special Steel*	1775	53	86	3·34
	Total Steel	523919	10736	60659	1409·19
	Total Pig Iron Steel	790415	12750	104856	1840·44
	Ferro Alloys	153014	2826	72888	1770·38
	Grand Total	943429	15576	177744	3610.82

*This includes actual figures for April, 1979-80—February 1980 and provisional figures for the month of March, 1980

APPENDIX IV

CATEGORY-WISE BREAK UP OF EXPORT OF CANALISED FERRO-ALLOYS DURING 1979-80 (PROVISIONAL)

Sl. No.	Category	Quantity (M/T)	Value (Rs. in lakhs)
1.	Ferro-Manganese	33,904	948
2.	Ferro-silicon	8,288	426
3.	Ferro-chrome (incl. charged chrome)	6,814	353
4.	Ferro-Manganese slag	23,882	43
	TOTAL :	72,888	1770

PART III

DEPARTMENT OF MINES

CHAPTER I

GEOLOGICAL SURVEY OF INDIA

Introduction

1. Geological Survey of India is a multi-disciplinary scientific organisation for carrying out geological mapping, mineral investigations and geotechnical investigations in the country. It also conducts research, both fundamental and applied, in all the branches of earth sciences, besides specia linvestigations in glaciology, environmental geology and geothermal studies.

2. Commensurate with the resources available, continued emphasis is being placed on systematic geological mapping which forms the foundations of all geological activities. So far nearly 44% of the total area of India (3·28 million sq. km.) has been covered on 1:63, 360/1:50,000 scale. In the field of mineral exploration, reassessment and evaluation of known mineral deposits and search for new finds of important minerals/ores like Copper, Lead, Zinc, Aluminium, Iron, Manganese, Chromium, Coal, Phosphorite, etc. is being pursued vigorously. Time bound national projects have been mounted for exploration of the minerals like Tin, Tungsten, Gold, Diamond and Potash.

3. As part of the International Hydrological Programme, the Geological Survey of India has been carrying out studies on some of the important Himalayan Glaciers. Multi-disciplinary environmental programmes on rural and urban development are being continued in all the regions. The studies so far carried out have already yielded tangible results in identifying new areas for ground water resources, agriculture development and mineral resources for establishing small scale/cottage industries in rural areas.

PERFORMANCE

Systematic Mapping

4. Systematic mapping was carried out both in hard rock areas and in Quaternary formations. An estimated total of 96,060 sq. km. was mapped on 1:63,360/1:50,000 scale against an annual (April 1979 to March 1980) target of 99,320 sq. km.

Mineral Investigations

5. In connection with mineral investigations an estimated total of 4,991 sq. km. of large scale mapping was done against the annual target of 6,821 sq. km. In addition, 144 sq. km. of detailed mapping was also done. Besides, an estimated 1,00,400 m of drilling was carried out against annual target of 1,47,000 m.

Coal

5.1. Regional exploration by drilling and mapping was continued in 20 coal fields spread over Andhra Pradesh, Assam, Bihar, Orissa, Madhya Pradesh, Meghalaya, Tamil Nadu and West Bengal. A total of 50 drills in 39 sectors were deployed. A total of about 102 million tonnes of reserves have been assessed in different coal fields during this period.

5·2. *Base-Metal ores*

Investigations for base metal ores by drilling was continued in different parts of the country. As a result of the work carried out, the additional reserves estimated in different States are:— 30 million tonnes of lead-zinc ore with 3% lead and zinc, 3·52 million tonnes of copper ore with 0·9 to 1·26% copper in Rajasthan; 5 million tonnes of copper ore with 0·8 % copper in Maharashtra; 0·6 million tonnes of lead-zinc copper ore in Tamil Nadu; 1·7 million tonnes of copper ore with 1% copper in Karnataka and 2·48 million tonnes of lead-zinc ore with 4·46% zinc and 4·45% lead in West Bengal.

5.3. *Bauxite*

As a result of investigations carried out, additional reserves of bauxite estimated are 40 million tonnes in Madhya Pradesh and 16 million tonnes in Bihar.

5·4. *Iron Ore*

Additional reserves of iron ore estimated at 275 million tonnes of haematite ore of all grades in Bihar-Orissa; about 100 million tonnes of haematite ore in Andhra Pradesh; and about 181 million tonnes of haematite ore in Madhya Pradesh have been established.

5·5. *Manganese*

In different areas of Orissa about 9·26 million tonnes of manganese ores of all grades were estimated. The reserves of

manganese ores estimated in parts of Madhya Pradesh and Maharashtra are of the order of 5 and 2 million tonnes respectively.

5·6. *Chromite*

The intensive programme of exploration carried out for chromite has indicated the reserves of 29·27 million tonnes of metallurgical grade of chromite in different sectors of Orissa.

5·7. *Gold*

Exploration for gold was continued in the Hutti and Gadag gold fields, Karnataka and Malappakonda in the Southern part of Kolar Gold Fields wherein the extension of gold mineralisation has been established.

5·8. *Phosphorite/Apatite.*

Investigations for phosphorite have indicated reserves of 4·5 million tonnes of phosphorite with 25—35% P_2O_5 in parts of Jhabua and Sagar Districts in Madhya Pradesh. In Purulia District of West Bengal reserves of 3·29 million tonnes with 10·31 % P_2O_5 content was estimated.

5·9. *Potash*

The tempo of drilling in Nagaur basin of Rajasthan has been intensified. The thickness of evaporite sequence met with at Jhanjhu and Sudesar areas are 161 m and 152 m respectively. At Gossainsar, halite zone was encountered from 577 m. Samples from 591·90 m to 594·97 m indicated 1·79% to 8·7% potash.

5·10. *Other minerals*

Investigations for tin ore (cassiterite) alongwith niobium, tantalum and wolfram in Bastar District of Madhya Pradesh and Koraput District of Orissa over an area of 500 sq. km. were continued. Investigation for tungsten mineralisation in sourth-east of Sirohi in Rajasthan were continued.

Investigation was also continued for Kyanite in Lapsoburu, Singhbhum District, Bihar; for sillimanite in Sonapahar area, Khasi hills District, Meghalaya; and Pipalgam area of Bhandara District, Maharashtra; for vanadium in Masanikera, Taverekere in Shimoga District, Karnataka; for graphite in Vadakode, Ernakulam District, Kerala; for chromiferrous magnetite in Pukhpur, Tuengsang District of Nagaland and for

limestone in Shella-Khasimara area, Khasi hill District of Meghalaya. Drilling for baryte was completed in Mangampeta in Cuddapah District of A. P. and initiated in Vinjaman area, Nellore District of A. P. and for diamond in Wajrakarur area of Anantpur District of Andhra Pradesh.

6. *GEOTECHNICAL INVESTIGATION*

Nearly 200 geotechnical investigations were carricd out of which 64 items were continued from earlier pericd. The investigations are in connection with different river valley projects, location of bridges, landslides and slope stability etc.

7. *GEOPHYSICAL INVESTIGATION*

54 field cum laboratory investigations were carried out; some of the highlights of this work are:—

(a) Investigation for diamondiferous pipe rocks in Wajrakarur area yeilded two interesting gravity 'Lows' flanked by gravity high.

(b) Promissing gravity anomaly were located in Sukinda area of Orissa.

(c) In Dariba-Rajpura area of Rajasthan, anomalies, picked up on the basis of Turam Surveys, were tested by drilling and proved lead-zinc mineralisation in 16 boreholes in Sindeswar Kalan.

8. *SPECIAL INVESTIGATION*

8·1. *Geothermal Investigation*

Geothermal investigations in Parbati Valley, Himachal Pradesh; Alakananda Valley, Uttar Pradesh; Sohna, Haryana and Puga, Jammu & Kashmir were continued.

Drilling in Unhavre area of Ratnagiri District, Maharashtra was carried out and thermal logs reveal temperature reveals at 78 m below ground level.

8·2. *Glaciological Investigations*

Glaciological studies were made in Beas Basin, in Neh-Nar glacier, Anantnag District, Jammu & Kashmir; Gara and Gor, Garang glaciers in Himachal Pradesh, and in Puga Basin. Surficial movement of glacier ice varied from 5·5 m to 7 m in case

of Gor Garang glacier and upto 42·60 m in case of Neh Nar glacier. Geomorphological studies around Puga brought to light the existence of Morainic ridges.

8·3. *PROJECT CRUMANSONATA*

The project CRUMANSONATA, was initiated to understand in totally the spatial crust-mantle relationship along the Son-Narmada-Tapti lineament zone in the India Crust plate. The A.M.S.E. completed the computation of coordinates for points on recovered flight paths for Blocks II and III. Photogeologically 4000 sq. km. area in 1:61,000 scale was covered in parts of Uttar Pradesh and several parallel fractures are traced in the State. Geophysical surveys were conducted. About 150 sq. km. of the area was covered in parts of Madhya Pradesh as a ground check on photo interpreted map and 425 sq. km. area was covered by geological mapping. In Western Region delineation of carbonatite bodies around Ambadongar area in Gujarat on 30 airphotos on 1:80,000/1:32,000 scale was carried out.

RESEARCH INVESTIGATIONS

9. Nearly 150 research investigations were continued in connection with petrology, palaeontology, geochronology and isotope geology, off-shore mineral exploration and marine geology, mineral physics, photogeology and remote sensing etc. In geochronology division, Rb/Sr isochron age determinations was carried out to date three major geological events in different parts of the Indian sub-continent.

In palaeontology, studies have been made on the Neogene-Quaternary boundary problem, Permo-Triassic age of geological evolution, on the Pre-Cambrian Biostratigraphy etc.

10. *CENTRAL CHEMICAL LABORATORY*

Participated in the international collaborative analytical programme of analysis of standard minerals and ores. Detailed analyses were carried out on samples of iron ore from International Standards Organisation and samples of Copper, Lead, Zinc Ores from Canada and bauxite laterite from Holland.

11. *OFF SHORE MINERAL EXPLORATION AND MARINE GEOLOGY*

The off-shore minenral Exploration & Marine geology Wing has taken up GSI-NIO Collaborative programme of preparation

of surficial geological map of the part of the continental shelf between Purangarh Bay and Neori Point along Ratnagiri Coast. The study of the Prc deltaic region of the Gc davari Krishna river system has been continued and that of the off-shore region between Nava Bounder and Rajpura along the Saurashtra has been completed and further evidences of eustatic changes in this area have been collected. The National Committee on Science & Technology programme for the study of the pro-deltaic region of Godavari and Krishna river systems and the programme for investigations of diamonds from breaches and off-shore areas on Southern Andhra Pradesh are being continued.

12. *ENVIRONMENTAL INVESTIGATIONS*

Under the environmental investigations for development of rural backward areas, studies have been carried out in parts of Anantpur District, Andhra Pradesh Dharampuri District, Tamil Nadu; Sironcha area of Chandrapur District, Maharashtra; Jaipur urban complex and mining areas around Udaipur, Banswara District and desertic tracts of Rajasthan canal system; Banda District, Uttar Pradesh; Mongyr District, Bihar and East Khasi Hills District, Meghalaya; Baroda urban-*cum*-industrial complex and Ambamata mining area in Gujarat; and Visakhapatnam urban-*cum*-industrial complex, Bangalore, Tumkur-Kolar industrial belt etc. These studies have helped in preparing geomorophological, land use and pedological maps, groundwater resources, as well as proper planning and development of the cities and to suggest remedial measures for the control of pollution from mining/industrial wastes in mining belts.

13. *GEODATA CENTRE FOR MINERALS AND EARTH SCIENCES*

Over the years the G.S.I. has collected a wealth of earth science data which is being used continuously by the Department as well as various user agencies. A system of storage coding and retrieval is being adopted by the Geodata Centre established in the Department to facilitate speedy processing and handling of data in collaboration with Indian Statistical Institute and National Information Centre.

14. *TRAINING INSTITUTE*

The G.S.I. Training Institute which commenced functioning in 1976, has by now, completed three Orientation Course

in geology benefiting about 290 geologists. The fourth Orientation Course involving nearly 90 newly recruited geologists from the Department and nearly 10 geologists from various States and Public Undertakings has commenced from November, 1979 at Raipur and will be completed at various satellite training camps.

15. *TRAINING IN HINDI UNDER THE HINDI TEACHING SCHEMES ETC.*

During the period 128 officers/employees were nominated for undergoing training in the Hindi Praveen/Pragya Special experimental courses under the Hindi Teaching Schemes and 17 trainees were successful in the examination, One L.D.C. was nominated for Hindi Type writing. Out of 211 communications/representations, 82 were replied in Hindi while others needed no reply to be given. During the period 4 technical write up notes were translated from English to Hindi. 139 Gazettee Notifications were issued in Hindi alongwith English version. Notings and drafting in Hindi in routine nature of cases was introduced.

16. *Construction Programme*

In 1979-80, a major break-through has been achieved in pushing forward the construction programme in G.S.I. An amount of Rs. 66·63 lakhs was secured for the 'Works Budget'. With this, action has been initiated for construction of functional buildings at 22 locations and residential building at one location. Every possible effort has been made to push forward the construction programme, and considerable success has been achieved in this regard.

17. *Budget*

The Plan and Non-plan Budget Estimates (1979-80) for G.S.I were Rs. 13·05 crores and 21·09 crores respectively. Against this, the Revised Estimates (1979-80) are Rs. 8·75 crores and Rs. 19·17 crores respectively. The savings is due to non-finalisation of the orders placed for the purchase of machinery and equipment. The saving was also effected by observance of economy orders in regard to consumption of petrol.

The Plan and Non-plan Budget Estimates (1980-81) are Rs. 11·50 crores and 21·00 crores respectively. The major physical targets of the programme are 123,200 sq. km. of Systematic Geological mapping; 5100 sq. km of large scale mapping and 144,000 m of Drilling.

18. *Audit observation and paras*

A total of 7644 items of audit observations amounting to Rs. 65,81,593/- were carried over from March, 1979 to the current financial year. A total of 8815 audit observations amounting to Rs. 3,80,93,129/- were added during the current financial year. After settling 2616 items amounting to Rs. 2,23,16,259/- a total of 13,843 items amounting to Rs. 2,23,58,463/- remain to be settled. Similarly, 379 audit paras were carried over from the previous year and during the current year 389 new audit paras were added. After settling 65 audit paras 703 paras remained unsettled.

CHAPTER II

MINERAL EXPLORATION CORPORATION LIMITED

2.1 The Mineral Exploration Corporation Limited was set up on 21st October, 1972, in the public sector, to undertake the work of detailed mineral exploration. The Corporation's activities are of two types viz.,

(i) Contract work.

(ii) Promotional projects undertaken with the approval of the Government, the cost of which is met by the Central Government.

Organisation

2.2. The Corporation with its headquarters at Nagpur functions under the overall supervision of a Chairman-*cum*-Managing Director, who is assisted by Divisional Heads.

Performance and Programmes

2.3. Targets and achievements for the past four years are set out in the following table :—

Table

(In metres)

Item	1976-77		1977-78		1978-79		1979-80	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
1. Drilling (m) . . .	1,00,650	99,464	1,50,090	1,35,137	1,83,700	1,87,163	1,89,000	1,45,984
2. Mining (m) . . .	4,338	5,375	6,710	6,542	7,900	8,275	9,000	8,422
3. Value of Works (In Rupees Lakhs) . . .	560·19	622·95	866·90	825·73	1,006·12	1,067·44	1,048·00	794·16

This is the value of work done upto end of February, 1980.

The Corporation has steadily increased its output from year to year. The value of work done has also correspondingly increased. Statement giving the mineral-wise distribution of work done and reserves established during the years 1978-79 and 1979-80 is at Annexure I. The major part of its efforts were deployed for exploration of coal followed by Bauxite, Chromite, Copper-Lead-Zinc, Manganese, Limestone and Gold etc. Exploration in the East-Coast bauxite zone is continuing.

2.4. The improved performance is also reflected in the financial results of the company. In the years 1974-75 and 1975-76 the Corporation had incurred losses to the extent of Rs. 85·11 lakhs and 73·28 lakhs respectively. The Company, for the first time made a profit of Rs. 105·12 lakhs in the year 1976-77. During 1977-78, a profit of Rs. 102·45 lakhs was made. In the year 1978-79 the Company made a profit of Rs. 184·79 lakhs. For the first time the Corporation has declared dividend, at the rate of 6% on the equity, amounting to Rs. 107,38,667.

2.5. The capital expenditure of the Company is met partly from internal resources and partly from equity contribution by Government. Promotional projects are paid for by Government on the basis of approved schedule of rates. The payments to the Company on account of equity and promotional projects are shown in the table below :—

(Rs. in crores)

Year	Payments	
	Equity	Promotion
1973-74	3·45	—
1974-75	3·64	0·61
1975-76	4·00	1·64
1976-77	3·40	1·25
1977-78	3·50	1·68
1978-79	Nil	4·00
1979-80	Nil	4·00

The paid-up capital at the end of 1979-80 will be Rs. 17·99 crores as against the authorised capital of Rs. 25·00 crores.

2.6. During the year 1980-81, the Corporation has set for itself a target of 1,88,900 metres of drilling and 10,487 metres of mining.

Table

(In metres)

Item	1976-77		1977-78		1978-79		1979-80	
	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment
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1976-77	3·40	1·68
1977-78	3·50	4·00
1978-79	Nil	4·00
1979-80	Nil	

The paid-up capital at the end of 1979-80 will be Rs. 17·99 crores as against the authorised capital of Rs. 25·00 crores.

2.6. During the year 1980-81, the Corporation has set for itself a target of 1,88,900 metres of drilling and 10,487 metres of mining.

Highlights of Work done during 1979-80

Coal :

2.7. Major portion of the resources of the Corporation continued to be employed for exploration of Coal. A total of 93,907 metres of drilling in 38 blocks in Bihar, M.P., Maharashtra and West Bengal, out of which 10 were taken up during the year, was done. Coal reserves totalling 1548 million tonnes comprising 930 million tonnes of coking coal and 618 million tonnes of non-coking coal were established.

Bauxite :

2.8. Exploration for Bauxite on the East Coast in Andhra Pradesh and Orissa was continued. Work was completed in two projects viz., Panchapatmali and Gandhamardan in Orissa. Two new projects i.e. Gudem in Andhra Pradesh and Mainpat in Madhya Pradesh were taken up during the year. Work in Jerrela (Kerukonda) deposit in A.P. and Kodingamali in Orissa is likely to be completed during this year.

Chromite :

2.9. MECL is engaged in exploration drilling for Chromite in Bhimtanagar area of Orissa. During this period a total of 6,156 m. of drilling was done. The programme of work allocated to MECL is likely to be completed ahead of schedule.

Limestone :

2.10. For cement grade limestone, work in the Siju area of Meghalaya is continuing. Phase I of the work was completed by April, 1979 which has established reserves of 27·49 million tonnes.

Gold :

2.11. Exploratory drilling for gold, on promotional basis, was taken up in Chigargunta project in the southern parts of Kolar Schist belt. During this period: 1,502 metres of drilling was done. Further work is in progress.

Manganese:

2.12. In Bonai-Keonjhar project of Orissa the Corporation has done 1573 metres of deep pitting bringing the total work to 3973 m. against a target of 5,000 m.

Copper-Lead-Zinc

2.13. Work for Copper-Lead-Zinc was continued in Askot in U.P., Dikchu in Sikkim and Kesarpur in Orissa. During the period 638 m. of exploratory drilling and 707 m. of Mining was done. Work on a new project Sindeswar Kalan in Rajasthan will start during the year. Exploration report on Malanjkhand Phase-II for Copper was submitted establishing reserves of 62·20 million tonnes of copper ore with 1·28% cu.

Mine Construction Projects

2.14. In addition to exploratory mining and drilling, the Corporation also undertakes work relating to mine construction. The following mine construction projects were undertaken and a total of 2524 metres of work was done during the period.

(In metres)

Mineral	Client	Project	Work done
Manganese	MOIL	Bharweli Dongri-Buzurg Tirodi Extn. Ukwa	2524
Lead-Zinc	H.Z.L.	Balaria IV Baroi	—

Geotechnical Work :

2.15. The Corporation, for the first time, has taken up geotechnical investigation for obtaining data on dam-site geology in Assam and Arunachal Pradesh on behalf of Brahamaputra Flood Control Commission. During the period, the work done in Subansiri and Dihang area was drilling of the order of 3015 metres and drifting of 1137 metres.

Programme for 1980-81

2.16. The following programme for drilling and mining has been drawn up for the year 1980-81 :—

(In metres)

S. No.	Minerals	Drilling (m)	Mining (m)
(1)	(2)	(3)	(4)
1.	Coal	1,29,000	—
2.	Bauxite	15,000	1,559
3.	Tin	—	1,000

1	2	3	4
4.	Graphite	—	300
5.	Gold	2,000	—
6.	Manganese	—	3,240
7.	Diamond	6,900	1,600
8.	Iron Ore	7,000	—
9.	Lead-Zinc-Copper	26,000	2,58 0
10.	Geotechnic al investigation	—	208
11.	Others	3,000	—
	Grand Total	1,88,900	10,487

Statistical information regarding representation to SC and ST candidates in the services of the Mineral Exploration Corporation Limited :

2.17. The following is the position with regard to the representation of SC and ST candidates in the services of the Corporation (as on 31-3-1980)

Group	Total	S.C.	S.T.
A	302	18	3
B	17	3	—
C	1,127	131	60
D (excluding sweepers)	100	25	7
Sweepers	3	3	—
Total of all Groups	1,549	180	70
(ii) Total employees of all categories required from 1-4-79 to 31-3-80	169	19	7

Official Language Implementation Programme :

2.18. In pursuance of Government's policy of extending the use of Hindi for official purposes, several steps were taken by the Corporation. The Corporation nominated 23 employees for Hindi classes. The Annual Report of the Corporation for the year 1978-79 has been printed in Hindi. Recruitment Rules and circulars of the Corporation were translated into Hindi. Various forms and publicity material were also translated into Hindi. A quarterly magazine 'Khanij Gaveshan' is published in Hindi. Summaries and abstracts of some technical reports were also prepared in Hindi.

ANNEXURE-I

MINERALWISE DISTRIBUTION OF WORK DONE AND RESERVES ESTABLISHED

S. No.	Mineral	Previous year 1978-79			Current year 1979-80			Remarks
		Drilling (M)	Mining (M)	Reserve established (million tonnes)	Drilling (M)	Mining (M)	Reserves established (million tonnes)	
1	2	3	4	5	6	7	8	9
1.	Coal	134,407	Nil	1,386	93,907	—	1,548	Reserves are computed from reports submitted during the year where work was done earlier.
2.	Bauxite	40,402	1,135	134	36,034	1,967	163	Do.
3.	Iron Ore	—	2,483	792	1,110	424	—	Reserves under 1978-79 are from Chirian Reserves estimation for work done in 1979-80 will be done by G.S.I.
4.	Chromite	9,681	—	—	—	6,156	—	Do.
5.	Copper-Lead-Zinc	1,228	1,512	—	—	638	707	62 Reserves are from Malanjkhand where work was completed during 1978-79, but report was submitted during 1979-80.

1	2	3	4	5	6	7	8	9
6.	Manganese	—	1,728	—	—	1,573	—	Reserves will be estimated by G.S.I.
7.	Limestone	1,105	—	—	1,782	—	27	Reserves from interim report on Siju area submitted during 1979-80.
8.	Gold	—	—	—	1,502	—	—	—
9.	Diamond	—	—	—	—	90	—	—
10.	Mine construction	—	1,330	—	—	2,524	—	—
11.	Geotechnical	340	87	—	3,015	1,137	—	—
12.	Sand	—	—	—	1,732	—	—	—
13.	Ground Water	—	—	—	108	—	—	—
	Total	187,163	8,275	2,312	1,45,984	8,422	1,800	—

CHAPTER III

INDIAN BUREAU OF MINES

Organisational set up

3.1. The Indian Bureau of Mines has the following main functions :

(a) Enforcement of the Mineral Conservation and Development Rules, 1958;

(b) Supervision of mining activities in the country with the object of conserving and properly utilising mineral resources;

(c) Providing technical consultancy services in the field of geology, mining and mineral beneficiation;

(d) Research on beneficiation of low grade ore and analysis of ores and minerals; and

(e) Collection and dissemination of statistics and information on mines and minerals.

3.2. The headquarters of the Indian Bureau of Mines are at Nagpur. It has following six divisions :

(a) Mines Control and Conservation of Minerals Division.

(b) Technical Consultancy, Mining Research and Publication Division.

(c) Mineral Economics Division.

(d) Mineral Statistics Division.

(e) Ore Dressing Division.

(f) Administration Division.

3.3. The Bureau has 11 regional offices in the country. In addition, laboratory and pilot plant facilities for ore dressing are available at Nagpur. Ore Dressing laboratories and pilot plants are being set up at Ajmer and Bangalore to provide such facilities.

3.4. A committee under the chairmanship of the Additional Secretary, Department of Mines, was set up in October, 1978 to review the organisational structure and to recommend measures

for the improvement of the functions of the IBM. The Committee has completed its study and submitted its report in December 1979. It has recommended certain changes in the Charter of IBM's functions and a suitable organisational structure to ensure that the functions are effectively carried out. It has also recommended an advisory body to oversee and guide the functioning of the IBM. The report is under consideration of Government.

Salient features of work done

3.5. Progress of work in various fields of activities of the IBM and its salient features is detailed below :

3.6. *Technical Consultancy Services*—During the year, 10 assignments were completed and 4 were in progress. Some of the important assignments completed include preparai on of detailed mining plan for the supply of limestone to Walayar Cement Project of M/s. Malabar Cements Limited, Kerala, geological appraisal of the reserves of Manganese Ore India Ltd. and bentonite mines in Gujarat.

3.7. *Inspection of Mines*—During the year, 1500 mines were inspected. In addition, 39 detailed studies, 11 regional mineral development studies, 59 mining-geological studies, 15 studies on mineral rejects and 19 special studies in connection with the grant of mining leases and issuance of Essentiality Certificate were also carried out.

3.8. During the inspection 2178 violations of the Mineral Conservation Development Rules, 1958 were detected and pointed out to the lessees. Out of these, 601 were rectified. Show cause notices were issued to 463 parties and prosecutions were launched in 130 cases.

3.9. 137 cases of relaxation under Rule 21 of the Mineral Conservation and Development Rules, were considered and relaxation was granted in 37 cases. Approval for stopping was given in respect of 27 cases. Over 1200 suggestions were given to various mine owners for systematic development of mines, 333 suggestions were complied with.

3.10. *Preparation of Mineral Maps*—During the year, mineral maps of all the iron ore leaseholds of Keonjhar (Orissa) and Singbhum (Bihar) sector were completed and preparation of such maps of the leaseholds of copper, lead and zinc in Bihar, Gujarat and Rajasthan was taken up.

3.11. *Research on Special Mining Problems*—As a result of research carried out on the improvement of blasting efficiency and fragmentation at Noamundi Iron Ore Mine and Birmitrapur Limestone mine a modified pattern of blasting was suggested to the mine managements. A field study for the use of concrete mat in mica mine in Bihar for maximisation of extraction of ore and minerals is under progress. Besides study of pegmatites in Bihar to evolve guidelines for the location of mica deposits of economic importance has also been taken in hand.

3.12. *Beneficiation and Analysis of Ores and Minerals*—During the year, 37 ore dressing investigations, 16,049 chemical analysis and 1,040 mineralogical investigations were completed. 42 ore dressing investigations were in progress. The more important investigations include studies on iron ore samples from Rourkela Steel Plant, blue dust sample from Goa, rock phosphate of Jhamarkotra, bauxite sample from Orissa and Andhra Pradesh, magnesite from Dewalthal (U.P.), copper, lead, zinc and barytes from Rajpura Dariba mines of Rajasthan, chromite from Kalipani mines of Orissa and silica sand from U.P. The pilot plant studies include the investigation of limestone from Purulia and the recovery of scheelite from Kolar Gold Fields. Ore-dressing investigations were in progress at Hutti Gold Mines for Scheelite and in Bastar district for tin.

3.13. *Publications*—Under the Mineral Conservation and Development Rules, information regarding mineral production value, stocks, despatches employment, inputs in mining, etc. was collected and published in different publications. The Bureau released the "Indian Mineral Year-book, 1974" and 1975 "Bulletin of Mineral Statistics and Information" (bi-monthly) upto March-April, 1979, "Quick Release to the Mineral Statistics of India (monthly) upto December 1979", "Mineral Statistics of India (half-yearly) upto April 1979" and "Mineral Stocks, 1977".

3.14. *Mines and Minerals Data Bank*—During the year, 5308 data sheets for mineral concessions covering 119 districts of fourteen States were completed. Designing of data formats in respect of the mineral inventory was initiated.

3.15. *Monographs and Bulletins*—During the year, monographs on limestone and dolomite were under finalisation and the preparation of a monograph on chromite was taken up. Besides,

two bulletins, namely "Practical Guide to Mineral Exploration" and "Record Maintenance for Management of Small Mines" were also under finalisation. Another bulletin titled "Working of Captive Limestone Mines of Cement Plants in India" was released.

3.16. *Inventory of Mineral Resources*—Work of updating the inventory as on 1-1-1975 was completed in respect of lead and zinc, sillimanite, china-clay and fireclay. Preparation of inventories in respect of bauxite, copper, bentonite, magnesite, pyrite, rock-phosphate, sulphur, felspar, flourite and graphite was in progress.

3.17. *Market Survey*—The market survey on Talc/Steatite was released and those on Bentonite and Granite were under preparation. Market Survey of rock phosphate was also in progress. Besides, Quarterly Bulletin on consumption of non-ferrous metals (copper, lead-zinc) in India for the quarters July, September, 1979, October-December, 1979 were released.

3.18. *Training Centre*—The training centre conducted refresher courses for Technical Assistants, Orientation course for Hindi Translators and the second Refresher Course on Ore-Dressing, Technical Consultancy, Mining Research and Publications for the executives of other divisions. Special course for group A & B officers of geology discipline on preparation of mineral inventory. "Hindi Karyashala" for technical officers and staff was conducted at the regional offices at Jabalpur, Ajmer and Nagpur. The course on Russian language started in the preceding year was concluded. Besides, 42 officers of different groups were deputed for training at various institutions in the country.

3.19. *Advisory Role*—The Bureau continued to advise the Central and State Governments on matters concerning export and import policies on minerals, fiscal levies and cesses, minimum wages, mineral consumption and industrial utilisation, substitute minerals, recovery of by-products and co-products; planning for mineral exploration and exploitation, demand and supply of important inputs into the mining industry, grant and renewal of mining leases, etc. Assistance was also rendered to private parties, institutions and foreign organisations on mineral production, consumption, etc.

3.20. *Audit objections*—Upto 31-3-1978, 21 Audit Paras involving an amount of Rs. 13,43,261.00 were pending and during the period from 1-4-1978 to 31-3-1980, 100 more Audit paras involving an amount of Rs. 1,17,260·00 were added, thus making a total of 121 Audit paras involving Rs. 14,60,521.00. Out of these 121 Audit Paras, 65 paras involving Rs. 12,03,351.00 have been finally settled, thus leaving a balance of 56 Audit paras involving Rs. 2,57,170·00.

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CHAPTER IV

ADMINISTRATION OF MINING LAWS AND MINERAL DEVELOPMENT

Administration of Mining Laws

4.1. The Mines and Minerals (Regulation and Development) Act, 1957, and the rules made there under namely (1) The Mineral Concession Rules, 1960, (2) The Mineral Conservation and Development Rules, 1958 and (3) The Mining Leases (Modification of Terms) Rules, 1956, are administered by this Department. The Mines and Minerals (Regulation and Development) Act, 1957 has been extended to the State of Sikkim.

During this year amendments have been made to rules 12, 16 and 26 of the Mineral Concession Rules, 1960 to streamline the procedure for the grant and renewal of mineral concessions. Two new sub-rules have been added to rule 12 and 26 to avoid straight rejection of such applications as are not accompanied by requisite documents. Rules 16, which provides for submission of a prospecting operation report by the PL holder, has also been substituted to remove ambiguity. A new rule 37A and a new model form 'O' have been inserted in these rules for transfer of a Mining Lease. New rules 58, 59 and 60 (relating to reservation and availability of mining areas) have been substituted for the earlier rules. A number of other amendments to simplify these Rules are also under consideration.

A Committee to review the Mineral Conservation and Development Rules, 1958 which was appointed by the Government has recommended a number of amendments to these Rules which are under consideration.

Mineral Concessions

4.2. The total number of pending mineral concession proposals arising out of references from the State Governments under Section 5, 6 and 8 of the Mines and Minerals (Regulation and Development) Act, 1957, as on 1-1-1979 was 128. 278 such proposals were received till 31-3-1980 and 282 disposed of, leaving 124 proposals pending on that date.

Revision applications

4.3. Central Government entertains revision applications under Section 30 of the Mines and Minerals (Regulation and Development) Act, 1957 against orders passed by the State Government. A Joint Secretary from the Department of Mines and a Joint Secretary from the Ministry of Law together perform the quasi-judicial functions of the Central Government under these provisions.

4.4. There has been a substantial increase in the number of fresh revision applications during the year. The pendency of such applications increased from 509 on 1-1-79 to 710 as on 31-3-80. During this period, 2477 revision applications were received compared to only 1541 received during the whole of the previous year. The disposal during this period was 2276.

Mining Leases (Modification of Terms) Rules, 1956

4.5. These rules were framed under Section 7 of the Mines and Minerals (Regulation and Development) Act, 1948 and were adopted for the purpose of Section 16 of the Mines and Minerals (Regulation and Development) Act, 1957 to enable modification of pre-1949 mining leases. The work of modification of mining leases continued to be done part-time by one of the Regional Controller of Mines of the Indian Bureau of Mines.

There were 814 cases of mining leases pending for modification under the Act of 1957 at the end of March, 1979. During the year (1-4-1979 to 31-3-1980) 79 mining leases were modified and 19 new cases of mining leases for modification were detected. 119 mining leases pertaining to the Union Territory of Goa, Daman and Diu were modified by the previous Controller of Mining Leases fixing the period of mining leases with effect from 15-1-1966, which is the date on which Section 16 of the Act was extended to the Union territory. The period should have been fixed with effect from 1-10-1963 when the main Act was extended to the Union territory. Accordingly, orders of the Controller of Mining Leases in respect of these 119 mining leases have been set aside to the extent that period of these leases shall be fixed with effect from 1-10-1963. This will bring the number of mining leases pending for modification at the end of March, 1980 to 873. This number is likely to increase considerably on receipt of particulars of mining leases from the States of Bihar, Madhya Pradesh, Karnataka and Manipur.

Revision in the rates of royalty on minerals

4.6. The last general revision in the rates of royalty, which can be revised once during a period of four years, was made in April, 1975. At that time it was not considered necessary to make any revision in the royalty rates on manganese ore and magnesite. During this year Central Government has revised the royalty rates on manganese ore (from 1-1-1979) and magnesite (from 13-2-1979).

With a view to make a general review of the royalty rates on major minerals, the Central Government constituted a Study Group on Revision of Royalty Rates in October, 1978. This Study Group has since completed its study and submitted its Report. The Report has been sent to all the State Governments/ Union Territories and concerned Central Ministries for their comments

Mineral Production

4.7. The total value of mineral production maintained its increasing trend and during 1979, recorded on all time high at Rs. 1,819·1 crores thus showing an increase of 18% over the previous year. This increase in value was mainly due to rise in output of Coal and Petroleum (crude). A statement showing the mineral production and value thereof during the period 1975 and 1979 is given in Annexure-I.

During 1979, in the total value of mineral production, coal and lignite together contributed 52·2%, petroleum (crude) and natural gas 25·5% iron ore 5·6% and limestone (including other calcareous minerals) 3·7%. Among the States, Bihar continued to occupy the first place accounting for 26% of the total value of mineral production followed by Madhya Pradesh 15%, Bombay High 11%, West Bengal 10%, Assam and Gujarat 8% each.

Foretgn Trade in Minerals

4.8. The quantities and values of minerals imported and exported during 1975-1978 are shown in Annexure-II and III respectively.

The total value of imports of minerals increased from Rs. 1,713·36 crores in 1977 to Rs. 1,811·54 crores during the year 1978. In terms of value, petroleum (crude) accounted for

Rs. 1,243·89 crores or 68·7% in the total value of imports followed by diamond (un-cut) Rs. 437·61 crores or 24·2%.

The total value of exports of minerals rose from Rs. 743·57 crores in 1977 to Rs. 885·42 crores in 1978. Diamond (mostly cut and precious and semi-precious stones) was the principal mineral exported from India and its share in the total exports earnings was Rs. 581·87 crores or 65·7%, followed by iron ore Rs. 218·92 crores or 24·7% and mica Rs. 25·40 crores or 2·9%.

Rock Phosphate (Apatite & Phosphorite)

4.9. The production of rock phosphate continued to maintain increasing trend during the period 1975 to 1978. In 1979 however, the production at 665,232 tonnes recorded a fall of 16% compared to the preceding year. The fall in production was mainly in Rajasthan due to power failure, break-down of machinery, and development work. Rajasthan contributed 74% of the total production in 1979 followed by Madhya Pradesh 14%, Uttar Pradesh 9% and West Bengal 2%.

Barytes :

Production of barytes during 1979 was at 387,815 tonnes which was at the same level as in the previous year. About 98% of the total production was contributed by Andhra Pradesh. The remaining 2% was shared by Rajasthan, Tamilnadu and Himachal Pradesh.

Mica

The production of mica (crude) was at 8,896 tonnes for the year 1979 which was lower by 7% compared to 9,593 tonnes recorded during 1978. Bihar continued to be the leading mica (crude) producing state contributing about 60% of the total output during 1979 followed by Andhra Pradesh 30% and Rajasthan 10%.

ANNEXURE-I

MINERAL PRODUCTION 1975 To 1979

(Important Minerals)

Value in Rupees Thousand

Mineral	Unit of Quantity	1975		1976		1977		1978		1979(P)	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
All Minerals (Value)			11,113,906		13,628,745		14,632,963		15,402,746		18,191,203
Asbestos	Tonne	20,586	7,781	24,119	10,252	22,177	7,959	24,623	10,057	37,816	10,563
Apatite	,,	30,338	3,896	38,280	6,415	35,361	6,686	29,770	5,427	20,548	4,001
Phosphorite	,,	455,243	156,682	644,058	172,816	704,961	173,286	759,500	188,489	644,684	155,481
Barytes	,,	226,099	9,244	236,240	13,005	330,989	19,981	388,582	26,635	387,815	19,039
Bauxite	,,	1,274,432	34,060	1,448,961	42,893	1,518,685	45,949	1,662,609	60,201	1,934,436	61,202
Chromite	,,	500,294	157,656	402,111	196,195	352,535	168,673	266,293	119,120	309,142	134,576
Coal	'000 tonnes	93,911	5,596,339	100,876	7,122,689	100,358	7,147,372	101,973(P)	7,177,517(P)	103,845	9,324,496
Lignite	,,	2,822	148,615	3,895	192,399	3,632	199,740	3,613	197,799	3,264	178,652
Copper Ore	,,	1,838	196,155	2,395	238,266	2,551	298,673	2,126	256,842	2,173	238,702(e)
Diamond	Carat	19,994	12,684	20,487	9,987	18,297	12,396	15,942	8,448	14,956	9,504
Dolomite	'000 tonnes	1,457	43,756	1,886	61,719	2,152	74,213	1,969	79,475	1,988	80,423
Fireclay	Tonne	671,927	9,669	681,533	11,527	725,583	13,001	724,813	13,088	582,149	11,907
Fluorite (graded)	,,	3,067	3,600	3,643	4,593	3,586	4,923	3,519	4,792	4,081	5,003
Fluorite Concentrates	,,	11,598	13,834	13,980	18,146	15,209	24,586	14,027	21,435	17,092	26,069
Gold	Kilogram	2,825	127,990	3,152	151,154	3,014	169,697	2,774	186,611	2,636	170,364
Gypsum	Tonne	816,124	12,960	726,831	15,590	777,805	16,767	883,858	19,833	860,605	18,200
Iron Ore	'000 tonnes	41,794	766,971	43,740	869,666	42,598	915,925	38,838	1,011,993	39,534	1,024,510
Kaolin	Tonne	370,768	19,503	437,673	24,397	444,827	25,467	417,720	35,115	471,076	34,523
Kyanite	,,	52,673	13,680	47,172	16,025	42,123	12,345	30,897	9,335	39,016	10,866
Sillimanite	,,	8,278	2,604	14,896	5,157	15,023	5,071	13,471	4,505	15,736	4,833
Lead Concentrates	,,	15,117	25,264	15,856	32,587	16,744	35,547	16,833	37,032	20,938	48,612(e)
Limestone & other Calcareous Minerals											
(i) Limestone	'000 tonnes	26,519	509,456	29,987	597,155	30,380	626,035	30,915	673,974	30,586	653,818
(ii) Limekankar	,,	282	2,816	85	581	265	2,801	224	2,482	100	1,111
(iii) Limeshell	,,	99	4,872	97	4,226	93	4,533	124	6,085	119	6,108
(iv) Calcareous Sand	Tonne	902	2,831	1,074	3,308	898	2,602	932	8,266	768	6,456
Magnesite (Raw)	'000 tonnes	313,453	29,735	329,698	40,393	402,007	50,058	414,166	57,236	384,665	53,930
Manganese Ore	Tonne	1,605	134,032	1,835	164,659	1,865	185,570	1,619	193,591	1,755	214,177
Mica (Crude) (P)		11,501	24,392	9,494	22,146	9,352	23,577	9,593	26,603	8,896	24,033

(1)	(2)	(3)	(4)	(5)	(6)
Natural Gas	Milllion Cu. metres	1,252	45,960	1,513	52,542
Petroleum (Crude)	'000 tonnes	8,283	2,276,168(e)	8,659	2,720,971(e)
Pyrites	Tonne	50,633	11,646	47,531	12,902
Steatite	Tonne	217,353	8,581	220,461	9,822
Zinc Concentrates	,,	39,150	59,262	45,322	81,987
Other major minerals (value)			45,977		50,221
'Minor minerals' (value)			595,235		652,354

(P) =Provisional
(e) =Estimated

Note : (i) The value figures pertains to the pit-head value.
(ii) Data except for coal, lignite, petroleum (crude), natural gas and minor minerals are based on the returns received under M.C.D.R., 1958 by the Indian Bureau of Mines.
(iii) Figures for the previous years have been revised wherever necessary.
(iv) Figures for 1979 (cols. 11 and 12) are revised as on 31-3-1980.

Source : (i) Coal :—Coal Controller, Calcutta.
(ii) Lignite :—Neyveli Lignite Corporation and Gujarat Mineral Development Corporation.
(iii) Petroleum (crude) & Natural gas —Ministry of Petroleum, Chemical & Fertilizer, New Delhi.

1. Excludes production of fire-clay, if any, recovered incidental to coal mining.
2. In addition a quanitty of 260 tonnes and 110 tonnes of lead-copper bulk concentrates were produced in 1975, and 1976 respectively from Rajpura-Dariba mines of Hindustan Zinc Ltd.
3. Includes production from Bombay High from 1978 onwards. Relates to gas utilised.
4. Includes production from Bombay High from 1976 onwards.

(7)	(8)	(9)	(10)	(11)	(12)
1,631	56,966(e)	1,731	60,616(e)	1,929	65,574(e)
10,185	3,353,157(e)	11,270	3,889,910(e)	12,839	4,565,210
31,085	7,809	63,781	13,826	73,536	18,678
246,601	11,526	297,678	16,982	329,861	20,064
46,113	85,778	66,019	126,250	71,677	140,280(e)
	72,478		81,360		78,422
	771,816		771,816(×)		771,816(×)

(×) Figures for 'minor minerals' have been repeated.

IMPORTS OF MINERALS

1975 To 1978

Value in Rupees Thousand

Mineral	Unit of quantity	1975		1976		1977 (P)		1978 (P)	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All-Minerals (Value)			11,627,498		13,864,948		17,133,587		18,115,425
Antimony Ore & concentrate	Tonne		8,482		13,378(u)	1,453	21,577	106	1,416
Asbestos	,,	724	112,879	1,523(u)	171,010	65,968	282,335	45,431(u)	204,405(u)
Borax	,,	41,514	23,442	47,167	13,177	10,446	15,811	11,242	19,684
Copper ore & concentrates	,,	18,996	47,703	11,504	—	—	—	—	—
Cryolite & chiolite	,,	25,368	—	—	8,264	2,571	11,185	605	2,572
Diamond Industrial (including bort)	Kilogram	159	18,772	1,961	10,387	155	17,314	666	19,396
Diamond uncut	—	N.A.	694,888	96	1,400,017	N.A.	2,875,976	N.A.	4,376,090
Emerald (uncut)	—	N.A.	40,842	N.A.	60,017	N.A.	78,479	N.A.	61,262
Floorspar	Tonne	4,206	3,519	N.A.	2,888	N.A.	3,598	5,000	3,983
Graphite (Natural)	,,	404	1,377	4,062	2,793	4,752	3,299	540	3,335
Lead Ore & concentrate	,,	30	369	647	1,759	698	262	101	1,325
Manganese Ore	'000 Tonnes	5,430	7,302	145	296	20	8,933	4,045(u)	7,735(u)
Petroleum (crude) (2)	Tonne	13,669	9,792,000	190	11,436,913	5,048	12,844,600	14,892	12,438,903
Rock Phosphate (Apatite)		567,314	324,838	14,032	238,715	14,850	427,125	829,578	342,052
Precious & Semi-Precious stones (uncut) (1)	—			471,521		951,032			
Sulphur	Tonne	N.A.	4,569		3,991		3,564	N.A.	6,404
Tungsten Ore & Conc.	Tonne	617,115	452,276	N.A.	348,931	N.A.	381,828	818,203(u)	406,092(u)
Zinc Ore & Concentrates	,,	258	14,702	588,763	30,318	767,346	42,191	342	34,174
Others (Value)		23,079	47,575	517	89,372	428	31,675	83,212	110,244
			31,963	38,493	32,722	19,001	83,835		76,353

N.A. = Not available

(P) = Provisional

1 = Excluding Pearls and Synthetic stones.

(U) = Under reference

2 = Data received from Ministry of Petroleum & Chemicals.

Source : DGCI & S, Calcutta.

EXPORT OF MINERALS

Mineral	Unit of Quantity	1975		1976		1977(P)		1978(P)	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All Minerals (Value)			3,985,526		5,472,590		7,435,664		8,854,168
Asphalt & Bitumen	Tonne	1	1					284	232
Barytes	,,	173,610	66,372	15,199	13,250	924	919	195,017(u)	99,896(u)
Bauxite	,,	14,320	4,499	151,426	77,024	177,188	92,276	1,900	747
Bentonite	,,	9,665	4,261	21,190	3,624	47,665	12,134	19,781	9,991
Chromite	,,	370,719	188,302	12,631	6,855	18,538	8,858	59,116	49,155
Coal	'000 Tonnes	425	142,379	277,798	263,163	167,057	167,049	446(u)	83,262(u)
Coke	Tonne	15,389	8,272	478	123,242	623	124,879	4,985	3,382
Diamond (Mostly cut)	—	N.A.	856,428	24,313	10,591	14,818	3,780	N.A.	5,445,589
Dolomite	Tonne	3,369	434	N.A.	1,876,326	N.A.	3,753,681	5,834	975
Emerald (Uncut)	—	N.A.	6,299	5,946	734	7,497	1,087	N.A.	1,578
Felspar	Tonne	6,509	1,824	N.A.	5,781	N.A.	3,831	12,241	3,012
Ilmenite (1)	,,	68,975	14,814	11,983	3,355	13,533	3,638	96,728	15,254
Iron Ore	'000 Tonnes	22,796	2,064,610	120,727	29,941	76,699	14,761	19,778	2,189,156
Kaolin	Tonne	1,818	1,269	23,403	2,324,692	23,191	2,521,212	4,064	3,139
Kyanite	,,	23,579	17,976	3,778	2,913	5,265	4,186	3,575	2,794
Limestone	,,	121,258	2,308	11,291	10,538	8,830	8,065	163,375	4,169
Magnesite	,,	9,698	5,948	219,172	6,278	139,063	3,329	6,888	5,065
Manganese Ore	,,	793,359	169,315	8,240	5,745	13,078	9,555	577,292	149,973
Mica	,,	34,679	189,245	714,438	159,509	554,375	132,296	23,565(u)	253,965(u)
Precious & Semi-precious Stones, (natural) N.e.s. (2)				22,158	240,917	23,212	287,092	N.A.	373,118
Quartz (Natural)	Tonne	N.A.	179,993	N.A.	204,553	N.A.	197,139	12,327	3,870
Sillimanite	,,	2,929	1,365	6,520	2,602	9,121	2,879	151	170
Steatite	,,	100	129	455	642	550	620	12,459	9,428
Stone (Building & monumental granite etc.)	,,	7,158	4,348	8,783	5,540	18,000	12,251	163,280	107,941
Sulphur (mostly sublimed precipitated etc.)	,,	56,910	22,551	155,392	67,705	183,263	94,929	995	2,556
Others (Value)	—	704	12,963	799	13,673	725	2,080		35,751
			19,621		13,397		23,138		

(1) Includes beneficiated Ilmenite to the U.S.A.
(2) Excluding pearls & synthetic gem stones.
N.A.=Not available.
n.e.s=Not else-where specified.
(P)=Provisional.
(U)=Under reference.
Source : D.G.C.I. & S., Calcutta.

ANNEXURE-III

1975 To 1978

Value in Rupees Thousand

CHAPTER V

ALUMINIUM

5·1 *General*

The production of aluminium in the year 1979-80 was only 191,874 tonnes as against 213,729 tonnes in the last year. The installed capacity for production of aluminium being 321,000 tonnes, this represents a utilisation of 60% of the capacity. The main constraint in production of aluminium has been inadequate supply of power. During the current year, the State Electricity Boards have imposed larger power cuts on aluminium smelters consequent on failure of monsoons.

The Hirakud smelter of the Indian Aluminium Company (INDAL) was shut down with effect from 24-9-1979 because of non-availability of power. It was reopened on 1-2-1980 and has again been closed on 29-3-1980 for want of power. Its Belgaum smelter has been subject to over 70% cut on its contracted demand of 171 MW during the major part of the year. The Renukoot smelter of the Hindustan Aluminium Corporation (HINDALCO) is drawing about 40 MW from the UP grid as against its contracted demand of 85MW. The third and fourth potlines of Korba smelter of the Bharat Aluminium Company (BALCO) which have been made ready since December 1977 and September 1978 respectively have not yet been commissioned for want of power from the Madhya Pradesh Electricity Board. The output of the other two potlines is also much lower than capacity because of low and unsteady power supply. The production of aluminium has also been affected during the year by labour problems. The Korba smelter was closed because of a strike for a period of 11 days in October, 1979. The Alwaye smelter which ceased production from 5th November, 1979 because of labour problems has resumed production, towards the end of March, 1980.

5·2 *Smelting Capacity*

The licenced capacity of different smelters and their schemes for expansion are given below :

Name of the Company	Location	Existing licensed capacity	Additional/ new scheme approved or under implementation
		(tonnes)	(tonnes)
A. *Public Sector*			
Bharat Aluminium Company Limited	Korba (Madhya Pradesh)	100,000	—
B. *Private Sector*			
(a) Indian Aluminium Co.	1. Hirakud (Orissa)	20,320	
	2. Alwaye (Kerala)	15,850	
	3. Belgaum (Karnataka)	60,000	
(b) Hindustan Aluminium Corpn. Ltd.	Renukoot (Uttar Pradesh)	100,000	20,000
(c) Madras Aluminium Co.	Mettur (Tamil Nadu)	25,000	
		321,170	20,000

5·3 *Demand and Supply*

The demand for aluminium in the year 1979-80 is estimated at 325,000 tonnes. It is expected to grow at the rate of 10% per annum. The installed capacity for aluminium in the country if fully utilised, would be sufficient to meet the requirements of aluminium for the present.

In order to meet the shortfall in indigenous production, BALCO had been importing aluminium since September, 1977. It imported 9,000 tonnes in 1977-78 and 33,000 tonnes in 1978-79. In May, 1979 it was decided that the import of aluminium would henceforth be canalised through the Minerals & Metals Trading Corporation (MMTC) and 75,000 tonnes of the metal would be imported to supplement domestic production during 1979-80. Orders for imports are being placed on a continuous basis by the MMTC to cover the anticipated deficiency in domestic supply in 1980-81. 76,200 tonnes of aluminium were imported during 1979-80 including 16,100 tonnes imported by BALCO against orders placed in the previous year.

5·4 *Aluminium pricing policy*

The aluminium pricing policy was revised in October, 1978. The dual pricing policy was abolished and a uniform pricing policy was introduced for the entire production of metal. Under the revised policy, the EC grade aluminium (in all its saleable forms) representing 50% of the production is price controlled; in respect of balance 50% of the production (mainly of commercial grade aluminium) the price control is confined to primary metal only—semifinished products (i.e. rolled and extruded products) and alloys are outside the purview of price control. In February, 1979, price control was extended to unwrought metal used by the primary producers in their auxiliary units for further processing and sale as semifinished products.

It has been the policy of the Government to make the imported aluminium available at the price of the indigenous metal. This was being achieved by suitable adjustment of the import duties. The international price of aluminium, however, showed a rising trend and a stage was reached when even with nil import duty the price of imported aluminium became much higher than of indigenously produced metal inclusive of excise duties. It was, therefore, decided to pool the price of duty free imported aluminium with the price of indigenously produced aluminium inclusive of excise duties. The Aluminium (Control) Orders, 1970 was suitably amended for the purpose and pooled prices were announced on 4-10-1979. As the cost of power had increased since the last fixation of prices on October 18, 1978, the retention prices for the Indian producers were also raised to reflect the increased cost of power. The present (i.e. April, 1980) uniform pooled prices of EC grade and commercial grade aluminium ingots are Rs. 14,089 and Rs. 13,718 per tonne respectively.

5·5 *Distribution control*

Control over distribution of EC grade aluminium was introduced in June, 1979. Under this procedure, allocations of EC grade aluminium (representing 50% of all aluminium producers' total production) have been made to (i) conductor manufacturing units based on their capacity and maximum off-take during the last four years and (ii) cable manufacturing units based on only their past off-take during the last four years, as capacity figures were not available with the

DGTD & DC,SSI. The imported metal has been pooled with the indigenously produced metal for the purpose of pricing and distribution.

There is no control over the distribution of commercial grade aluminium although certain guidelines have been formulated for the distribution of imported metal of the commercial grade among the actual users.

5·6 *Bharat Aluminium Company Limited*

The Bharat Aluminium Company Limited (BALCO) a public sector undertaking under the Department of Mines, was incorporated on the 27th November, 1965 with the main object of constructing, operating and managing Aluminium projects. The authorised capital of the company is Rs. 165 crores. The subscribed capital as on 31-3-1980 amounted to Rs. 148·62 crores while loans from the Government of India amounted to Rs. 147·12 crores.

A review of projects under implementation by BALCO and the progress made during 1979-80 are outlined in the succeeding paragraphs.

5·7 *Korba Aluminium Project*

The Korba Aluminium Complex is based on bauxite deposits in the Markantak & Phutkapahar areas in Madhya Pradesh and on power from the Madhya Pradesh grid. It has been designed to produce 200,000 tonnes per annum of alumina to feed the smelter which has a primary metal capacity of 100,00 tonnes per annum. The down-stream facilities of 85,000 tonnes include production of aluminium 'semis' in the form of rolled and extruded products and electrical conductor grade wire rods. The approved revised cost of the project is Rs. 278 crores which is now expected to go up to Rs. 330 cores.

The Alumina Plant was commissioned in April, 1973. The first cell house of the smelter representing 25,000 tonnes of primary metal capacity, was commissioned in May, 1975. The commissioning of the second cell house of the smelter (25,000 tpa) which was ready to go into operation in June, 1976, could take place only in September, 1977 owing to delayed release of power by the Madhya Pradesh Electricity Board. The other two cell houses are yet to be commissined

because of non-availability of power although they have been ready for operation long since.

The Alumina Plant and the two potlines of Korba smelter (25,000 tpa capacity each) continued to be in partial operation during the year. Owing to the inadequate and highly fluctuating power supply from Madhya Pradesh Electricity Board, not only the remaining 16 pots of the 2nd Phase of the smelter plant could not be energised but some of the operating cells had also perforce to be cut off from the production line. As a result of these wide fluctuations and stoppages in power supply, power consumption per tonne of metal considerably increased, metal purity was affected and operating norms disturbed. Based on Madhya Pradesh Electricity Board's assurances of improved power supply from July, 1979 and adequate power supply for one more potline of the smelter, the target for production of alumina and aluminium was fixed at 150,000 tonnes and 40,000 tonnes respectively. The expectation of improvement in power supply was wholly belied. The production of alumina during 1979-80 was 116,850 tonnes while that of aluminium was 29,499 tonnes. The production of alumina and aluminium in 1978-79 was 126,650 and 33,451 tonnes respectively.

The Properzi Unit for the fabrication of electrical conductor grade wire rods, which was commissioned in 1976, produced 10,521 tonnes of wire rods during 1979-80 as against 10,226 tonnes of wire rods during 1978-79. A new Properzi Mill of 25,000 tpa capacity is being installed mainly to cater to the growing demand of cable and conductor manufacturers for power transmission.

With the commissioning of Induction Furnace and Round Billet Casting facilities in the Foundry Shop during the year, alloy pigs and round billets for extrusion have been added for the product line of the company. In the P&T Shop, 800 tonne Extrusion Press has commenced commercial production in July, 1979.

In the alumina plant, certain balancing facilities are proposed to be installed in order to overcome the operating problems in achieving rated capacity. The proposal is under the consideration of Government.

5·8 *Operating Results*

The turn-over from the production of the Korba Plant during 1979-80 would be around 59 crores including Rs. 10 crores from export of alumina. The turn-over during the year 1978-79 was Rs. 89·74 crores including Rs. 7.63 crores from export of alumina.

The operating results of BALCO during the last two years are given below :

(Rs. in lakhs)

Year	Loss
1977-78	Rs. 390·65 (After providing for depreciation amounting to Rs. (533.00 lakhs.)
1978-79	550·53 (After providing for depreciation amounting to Rs. 710.98 lakhs.)

The main reasons for loss during the year 1978-79 were:

(i) production in the smelter suffered seriously for want of adequate power supply;

(ii) highly erratic power supply adversely affected consumption norms of inputs resulting in high incidence of costs;

(iii) steep rise in the price of inputs;

(iv) non-commissioning of 3rd & 4th phases of Korba smelter for want of requisite power supply; and

(v) provision of Rs. 157 lakhs that may have to be paid to Madhya Pradesh Electricity Board on account of fuel surcharge adjustment for earlier years.

5·9 *Progress of construction*

(*a*) *Profile and Tube Shop* (10,000 tpa)

A 800 tonnes press has been commissioned during the current year.

The installation of 2,500 tonnes Press has been completed and trial production is about to commence.

The third press (3150 tonnes) is expected to be commissioned in June, 1980.

(b) *Sheet Rolling Shop* : (40,000 tpa)

It is expected that the Rolling Mills will be commissioned progressively from mid-1980 to early, 1981.

(c) *Properzi Unit* (35,000 tpa)

A Properzi Mill with a capacity of 10,000 tpa was commissioned in February, 1976.

A new Properzi Unit of 25,000 tonnes capacity is expected to be commissioned by the 3rd quarter of 1980.

5·10 *Ratnagiri Aluminium Project*

The implementation of the Project has not yet been taken up.

5·11 *East Coast Projects*

A feasibility report for the proposed Alumina Plant with a capacity of 800,000 tpa and an aluminium plant with a capacity of 220,000 tonnes per annum, based on bauxite deposits in Koraput district of Orissa has been received from M/s. Aluminium Pachiney of France and is under consideration. Meanwhile, mining lease for the South Panchapatmali block has been executed by BALCO and the Orissa Government has been approached for grant of mining lease for the Central and North block of the above deposits.

Tsvetmetpromexport of the USSR who had been assigned the preparation of a feasibility study for an export oriented alumina plant with a capacity of 600,000 tpa based on bauxite deposits in Andhra Pradesh submitted in April, 1979 their report on laboratory tests of representative samples of bauxite for determining the main process characteristics. They have submitted in November, 1979 varient I of the feasibility report which assumes equipment of Soviet Origin. The varient II of the feasibility report envisaging supply of equipment from India or to be procured advantagenously from third countries has been received in January, 1980. The report is presently under examination.

M/s. Development Consultants Pvt. Ltd. have been assigned the job of preparing a Feasibility Report for the proposed captive power plant. The report on the system of transportation, bulk handling, storage and ship loading at Vizag, received from M/s. Howa India Ltd., is under scrutiny.

The Feasibility report in respect of a proposed captive caustic chlorine plant is expected to be received shortly from M/s. Engineers India Ltd.

5·12 *New Schemes*

Foil Plant—The Feasibility Study for a 5000 tpa Aluminium Foil Plant has been received from M/s. Hunters and is under examination.

R & D Complex—A research, Development & design complex for the aluminium industry is proposed to be established at Korba under the Indo-Soviet Assistance & Cooperation Programme.

5·13 *Management of Industrial Undertaking at Jaykaynagar taken over under Industries (Development & Regulation) Act*

On Ist May, 1978, BALCO was appointed as the authorised person under the Industries (Development & Regulation) Act, 1951, to manage the affairs of Jaykaynagar Industrial Undertaking belonging to Aluminium Corporation of India for one year. The period has been extended upto 30-4-1980. The fabrication and auxiliary work started after an agreement has been negotiated with the labour union in June, 1979. The foil mill of the undertaking which has a capacity of 500 tpa has also commenced production from October, 1979.

5·14 *Plan Outlays*

The Plan outlays on various schemes of BALCO for 1980-81 are as under :

(Rs. in crores)

Continuing Schemes	
1. Korba Aluminium Smelter & Fabrication Plants	20·00
2. Balancing and additional equipment for Korba Alumina Plant and Mines (Revamping)	1·60
3. Replacement & Renewals	0.55
	0·05
	0·20
New Schemes	
1. Ratnagiri Aluminium Project	1·00
2. 2nd Properzi Mill	
3. Gandhamardan Mines	10·10
4. Proposed schemes of the East Coast Bauxite Projects including Foil Plant	
Total	33·50

The third press (3150 tonnes) is expected to be commissioned in June, 1980.

(b) *Sheet Rolling Shop* : (40,000 tpa)

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4. Proposed schemes of the East Coast Bauxite Projects including Foil Plant	
Total	33·50

BALCO's target of production 1980-81

(i) Alumina	150,000 tonnes
(ii) Aluminium metal	48,500 tonnes

5·15 *Statistical information regarding representation to SC and ST candidates in the services of BALCO*

The information is given in the following statement:—

Statement showing the total number of employees and number of Scheduled Castes and Scheduled Tribes among them as on 31-12-1979

	Strength Total	Scheduled Castes		Scheduled Tribes	
		Total	Percentage	Total	Percentage
Group A	539	13	2·40	2	0·37
Group B	254	8	3·15	3	1·18
Group C	3175	334	10·51	399	12·56
Group D (excluding sweepers)	1862	401	21·53	453	24·32
Group D (Sweepers)	132	91	68·93	5	3·78
Total	5962	847		862	

CHAPTER VI

HINDUSTAN COPPER LIMITED

6·1 In order to minimise dependence on imports, Hindustan Copper Limited (HCL) was constituted on 9-11-1967 with the specific responsibility of developing the various copper deposits in the country. Subsequently the undertaking of the Indian Copper Corporation Limited, Singhbhum (Bihar) was taken over by the Government in 1972 and merged with HCL. Since then, copper is a fully nationalised industry.

6·2 The present authorised share capital of HCL is Rs. 150 crores and its projects and Indian Copper Complex, and Rakha Copper Project in Bihar, Khetri Copper Complex, and other small copper mines (Dariba and Chandmari) in Rajasthan and Malanjkhand Copper Project in Balaghat Distriet, Madhya Pradesh (under construction).

6.3 *Plan Outlays*

The outlays for annual plan for 1979-80 and 1980-81 for HCL are as below:—

(Rs. in crores)

S. No.	Item	Revised Estimates 1979-80	Budget Estimates 1980-81
1.	Continuing schemes	24·41	32·85
2.	New Schemes	0·02	0·70
	Sub-total	24·43	33·55
3.	Replacement & Renewals	6·00	6·50
	Total	30·43	40·05

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3.	Replacement & Renewals	6·00	6·50
	Total	30·43	40·05

6·4 *Production Performance*

6·4·1 The production figures of ore and metal are given below:—

Unit : Tonnes

S. No.	Item	1978-79	1979-80	
			Target	Actual
1.	Ore raised	21,41,094	29,77,500	19,46,173
2.	Ore milled	22,32,108	29,73,500	18,54,983
3.	Blister copper	21,888	30,000	22,471
4.	Cathodes	18,628	27,000	18,802
5.	Wire bars	13,264	24,500*	11,604

*Quantity depends on sale of Cathodes.

6·4·2 Reasons for shortfall vis-a-vis targets. The production during 1979-80 was affected due to the following reasons :—

(i) Prolonged strike at Mosaboni (Bihar) which started on 12th March, 1979 and continued upto end of April, 1979 and its after effects.

(ii) Serious power interruptions and load restrictions varying from 40 to 80% at Indian Copper Complex and power cuts from 25% to 90% at Khetri since December, 1979.

(iii) Prolonged shut-down of the Khetri Smelter for about 3 months during August-November, 1979 for annual overhaul.

6·4·3 *Corrective steps taken*

(i) For easing the power problems at the mines at ICC to some extent, diesel generator sets are proposed to be installed.

(ii) The recommendations of M/s. Furukawa (Japanese consultants) have been implemented during the annual overhaul of the Khetri Smelter. The performance of the Khetri Smelter is expected to improve in coming months.

6·5 *Indian Copper Complex (Bihar)*

Indian Copper Complex comprises a copper smelter of 16,500 tonnes per annum capacity with supporting mines. A scheme for the expansion of the mine capacity of Mosaboni Mine, at an estimated cost of Rs. 6 crores, is under implementation.

The work on this project has suffered during 1979-80 due to unsatisfactory power supply position. This has affected mine development, ore production, ore milling and other activities at the unit.

The precious metals refinery and other by-product plant at Ghatsila produced following quantities of gold, silver, selenium and nickel sulphate during 1978-79 and 1979-80.

Item	1978-79	1979-80
Silver (Kgs.)	800	521·240
Gold (Kgs.)	120	68·773
Selenium (Kgs.)	5183	4693
Nickel sulphate (Tonnes)	156	180·525

The company also produced kyanite from its mines at Lapsoburu amounting to 14,044 tonnes during 1978-79 and 17,557 tonnes during 1979-80.

6·6 *Rakha Copper Project Phase-I (Bihar)*

Rakha Copper Project (Phase-I) is designed for the production of 1,000 tonnes of ore per day; a matching concentrator plant has also been set up. During the year the performance of this unit also was adversely affected by the unsatisfactory power supply position.

6·7 *Khetri Copper Project (Rajasthan)*

This is a major project of HCL with a designed capacity of 31,000 tonnes of copper metal per annum and 1,94,000 tonnes of triple super-phosphate per annum as by-product. The major technological problem facing the Khetri Smelter relating to excess generation of reverts has been successfully tackled with the assistance of a Japanese firm of consultants. All the long term recommendation of the Consultants for technological improvements have been implemented

During the year the Phosphoric Acid Plant was commissioned successfully on dihydrate route. Khetri is producing both TSP and SSP.

About 40,000 tonnes of copper reverts had accumulated at Khetri Copper Project. The company decided to get these reverts toll smelted abroad with return of wire bars. About 8,000 tonnes of wire bars have been received during the year.

6·8 *Dariba Copper Project (Rajasthan)*

This is a small project for the production of 100 tonnes of ore per day. A matching concentrator plant has also been set up. The mine has almost worked out and hence the rate of production has been restricted. An exploration programme at Dariba to investigate the availability of additional ore reserves at the deposits so that the life of the mine could be prolonged is in progress.

6·9 *Chandmari Copper Project (Rajasthan)*

This is a small open cast mine which is being developed for ultimate capacity of 1000 tonnes of ore per day. Due to hard ground conditions, difficulties have been encountered in the development of this deposit. However, corrective steps taken in the recent months are expected to hasten the development of this project.

6·10 *Malanjkhand Copper Project (Madhya Pradesh)*

6·10·1 This will be the country's first large size open cast mine in hard rock and has been planned for ultimate production of 2 million tonnes of ore equivalent to about 23,000 tonnes of copper metal per annum. The project will comprise of the mine and a matching concentrator plant. The concentrates to be produced at Malanjkhand will be smelted at the Khetri smelter. The sanctioned project cost is Rs. 85·60 crores.

6·10·2 After completion of the preparatory work, regular overburden removal operations were started from July, 1979. The progress of excavation from April, 1979 to February 1980 was 980091 M^3. This project is expected to be commissioned in July, 1982 and attain full rated capacity 2 years later.

6·10·3 Apart from excavation, all the major contracts for concentrator and auxiliary facilities have already been awarded and construction work is progressing satisfactorily. The project is on schedule.

6·11 *New Schemes*

6·11·1 For treatment of Malanjkhand concentrates at Khetri the capacity of smelter and refinery at KCC are being expanded from 31,000 tonnes per annum to 45,000 tonnes per annum. HCL have identified consultants for the preparation of feasibility reports. At ICC, it is proposed to expand the existing refinery from 8,400 tonnes per annum to 20,000 tonnes per annum for which feasibility study has also been commissioned.

Considering the potential for production of additional quantities of ore/concentrates from the mines under ICC, it is also proposed to expand the smelter capacity at Ghatsila from 16,500 tonnes per annum to about 20,000 tonnes per annum.

6·11·2 A study has also been undertaken for the recovery of cobalt rich alloy at Ghatsila from the converting slag.

6·11·3 At Malanjkhand Copper Project, prototype test leaching facilities have been set up for the preparation of a scheme for the extraction of copper from oxidized and low sulphide ores.

6·11·4 HCL are also having under consideration schemes for expansion of by-product recovery plants at ICC and setting up of a Nickel Sulphate Plant at KCC.

6·12 *Sales Turnover*

The turnover of HCL in the last 3 years and current year has been as under :—

	(Rs. in lakhs)
1976-77	8232
1977-78	8078
1978-79	6819
1979-80 (Provisional)	9979

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6·12 *Sales Turnover*

The turnover of HCL in the last 3 years and current year has been as under :—

(Rs. in lakhs)

1976-77	8232
1977-78	8078
1978-79	6819
1979-80 (Provisional)	9979

6·13 *Financial Results*

The operating results of HCL during the last 3 years and current year are indicated below:—

(Rs. in lakhs)

1976-77	200·95
1977-78	(—)3111·39
1978-79	(—) 481·24
1979-80 (Provisional)	454·00

6·14 *Industrial Relations*

6·14·1 The Mosaboni Group of Mines of ICC faced a workmen's strike from 12-3-1979 to 1-5-79. No major difficulty has been experienced in the field of industrial relations, at other units of the company.

6·14·2 Hindustan Copper Limited have arrived at a settlement with the unions on 27-3-80 for a uniform wage pattern for all their projects.

6·15 Statistical information regarding representation to SC/ST candidates in the services of HCL upto 31-12-79 is furnished below:—

Category	Total No. of Employees	No. of S.C.	No. of S.T.
Group A	824	39	9
Group B	562	24	11
Group C (excluding Sweepers)	12020	1489	1431
Group C (Sweepers)	—	—	—
Group D (excluding Sweepers)	10262	1096	4819
Group D (Sweepers)	611	611	—

CHAPTER VII

HINDUSTAN ZINC LIMITED

7·1 Hindustan Zinc Ltd. (HZL) is a public sector undertaking with an authorised capital of Rs. 100 crores. The company has the following units:—

A. *Smelters* :

1. Zinc Smelter, Debari (Rajasthan).
2. Lead Smelter, Tundoo (Bihar).
3. Zinc and Lead Smelters, Visakhapatnam (Andhra Pradesh).

B. *Mines* :

1. Zawar Group of Mines (Rajasthan).
2. Maton Rockphosphate Mine (Rajasthan).
3. Rajpura-Dariba Mines (Rajasthan).
4. Sargipalli Lead Deposits (Orissa).
5. Agnigundala Lead Mine (Andhra Pradesh).

7·2 The outlays proposed for annual plans of Hindustan Zinc Limited for 1979-80 and 1980-81 are as below:—

(Rs. in crores)

Sl. No.	Item	Revised Estimates 1979-80	Budget Estimates 1980-81
1.	Continuing Schemes	17·45	22·27
2.	New Schemes	0·41	2·18
	Sub-Total	17·86	24·45
3.	Replacement and Renewals	4·70	5·00
	Total	22·56	29·45

Production figures of ore as well as metals during 1979-80 as against 1978-79 are given below:—

(Figures in tonnes)

Product	1978-79	1979-80
Ore raised	10,90,332	10,22,412
Zinc metal	51,186	44,543
Lead metal	10,475	11,431

Smelters

7·3 *Zinc Smelter, Debari (Rajasthan) :*

Roaster and Acid Plant after revamping was put into operation from August, 1979 and therefore the available capacity during 1979-80 has improved from 30,000 to 39,000 M.T. The production of Zinc Ingots during 1979-80 is 27,257 M.T., which is lower by 2·6% over 1978-79.

Phosphoric Acid Plant was put on trial runs during end January, 1979 and the performance test was conducted during May, 1979. The production during the year 1979-80 is 10,109 M.T. P_2O_5.

A proposal for setting up of a Leach Residue Treatment Plant at Debari Zinc Smelter has been approved by the Government in December, 1979 at a cost of Rs. 10·41 crores. This will enhance the recoveries of zinc metal and of silver.

7·4 *Lead Smelter, Tundoo (Bihar) :*

The plant could not be operated at rated capacity due to dearth of power and frequent power interruptions.

A Diesel Generating set has been installed for supplementing power during peak hours. Due to shortage of diesel, however, it has not been possible to fully utilise the generator.

7·5 *Vizag Smelter, Visakhapatnam (Andhra Pradesh):*

The Sinter Machine (Lead Plant Phase-II) has been commissioned and with this, the second phase of lead plant is complete.

7·6 *Expansion of Lead Smelters:*

Detailed Project Reports for modernisation of the Lead Smelters at Tundoo (Bihar) and expansion of the Lead Smelter at Vizag (Andhra Pradesh) from 10,000 T.P.A. to 22,000 T.P.A. are being finalised by the Hindustan Zinc Ltd.

Mines :

7·7 *Balaria Mine Project :*

This zinc-lead mine with a production capacity of 2,000 tpa has now achieved 80% capacity utilisation. Due to presence of fissured strata, rock blasting is not yielding the desired results and higher capacity utilisation has not been possible. Efforts to overcome these problems are continuing.

7·8 *Baroi Mine Project:*

A scheme for detailed exploration to improve the confidence level of ore reserves at Baroi was approved by Government last year. Accordingly, exploratory mine development and drilling work have been taken up and are expected to be completed in 1981.

7·9 *Maton Rockphoshate Mine (Rajasthan) :*

Hindustan Zinc Ltd. has been operating a Rock-phosphate mine with a capacity of 600 tonnes per day with matching facilities for beneficiation. The second stream of beneficiation plant has also been completed and trial runs have started.

7·10 *Sargipalli Mine Project (Orissa):*

Work is in progress for development of this Mine to produce 500 tonnes per day of lead ore and setting up of a matching capacity concentrator. The project is expected to be completed by end of 1982.

7·11 *Agnigundala Lead Mine Project (Andhra Pradesh) :*

The mine is operating at a level of 120 tonnes per day of lead ore with a matching concentrator. The second stream of concentrator of 100 TPD capacity has been commissioned and trial runs have started.

7·12 *Rajpura-Dariba Mine (Rajasthan) :*

Development of this mine to produce and beneficiate 3,000 tonnes of ore per day is in progress. The mine is expected to be developed to its planned capacity by 1982.

Financial Results

7·13 The turn-over of the company during the last three years is indicated below:—

Year	Rs. in lakhs
1976-77	2413·08
1977-78	3810·19
1978-79	5842·04

The company made the following profits during the last three years :—

Year	Rs. in lakhs
1976-77	355·09
1977-78	1·82
1978-79	500·54
1979-80 (Provisional)	850·00

During the year 1978-79, there had been an increase in the sales turnover by 53·6% over the preceding year. Profits however, had not been commensurate with the increased turnover and improved physical performance. Zinc and lead prices remained at the level of April, 1978 upto the first half of 1978-79. Prices of zinc and lead metals were revised in line with the international trend, only from October, 1978. Average weighted realisation for zinc had been Rs. 8 316/- per tonne as against Rs. 8,988/- per tonne in 1977-78., i.e. a fall of Rs. 672/- per tonne. This resulted in lower realisation to the extent of Rs. 334 lakhs despite increase in sales from 27,419 tonnes to 49,729 tonnes during 1978-79. Average realisation on lead metal had, however, been favourable as compared to the preceding year resulting in higher realisation by Rs. 79 lakhs. The net lower realisation of Rs. 255 lakhs was, however, cushioned to the extent of Rs. 212 lakhs by the excise rebate earned on higher despatches resulting from higher production. Besides the lower prices, budgetary levies on power, consumables etc., also had their effect on the profitability.

Inspite of these adverse factors, it had been possible for the company to earn a profit of Rs. 501 lakhs after providing for higher depreciation and interest charges during 1978-79. This had been possible due to concerted efforts made to reduce the cost of production and inventory holdings, improved recovery and increased production.

Industrial Relation :

7·14 Industrial relations in all the units of Hindustan Zinc Limited during 1979-80 remained normal and peaceful.

The management has entered into a long term wage settlement with the recognised Union(s). This wage settlement will be in operation for a period of four years with effect from Ist January, 1979.

7·15 Statistical information regarding representation to Scheduled Castes and Scheduled Tribes candidates in the services of Hindustan Zinc Limited as on 31-3-1980 is as under:—

Group	Total number of employees	Scheduled Castes	Scheduled Tribes
Group 'A'	620*	25	4
Group 'B'	261	5	1
Group 'C' (Excluding Sweepers)	8318	1070	1611
Group 'C' (Sweeperr)	141	139	—
Group 'D'	—	—	—

*Including 15 Probationer Engineers/Trainees and 2 Class-II Officers.

CHAPTER III

BHARAT GOLD MINES LIMITED

8·1 The Bharat Gold Mines Limited was formed on 1-4-72 as a public sector company to own and manage the erstwhile Kolar Gold Mining Undertaking, earlier run as a Departmental Undertaking. The authorised capital of the company is Rs. 25 crores and paid up capital as on 31st March, 1980 is Rs. 21·52 crores.

8·2 *Production Performance*

8·2·1 The quantity of ore milled, gold and silver extracted during 1978-79 and 1979-80 are given below:—

	1978-79	1979-80	
	Actual	Target	Actual
Ore milled (tonnes) . . .	372,557	363,060	344,978
Gold extracted (grammes) . .	1,791,904	1,983,852	1,649,513
Silver extracted	149,475	By product	120,362

8·2·2· The shortfall in production of gold during 1979-80 compared to the target is due to the following reasons:—

(i) Fall in the grade of the ore,

(ii) Extensive flooding of the mines in October, 1979 as a result of unprecedented rains during September-October, 1979.

8·3 *Financial Results*

The working results of the company for the last 2 years and estimated results for the current year are as below:—

(Rs. in lakhs)

Profit/Loss		
1977-78	1978-79	1979-80 (Provisional)
(—)214·18	(—)82·12	(+)239·56

8·4 *Pricing Policy*

8·4·1 Under the existing pricing policy, the gold produced by the Company is purchased by the Government at a price which is equal to the cost of production of the mine in 1975-76 plus a 12% return on capital and reserves subject to a periodical review of the cost of production by the Government which will take into account inescapable increase in cost of production in the mines. This is however subject to a minimum price equal to the average international price during the preceding month and a maximum equivalent to the average international price in the preceding month plus 25%. The India Government Mint, Bombay, actually makes payment on the basis of I.M.F. price (Rs. 84·40 for 10 gms.) and the balance due to BGML in accordance with the pricing formula is paid by the Government as a price differential. The amount so paid to the company for the last 2 years and the current year is as follows :—

Rs. in lakhs

1977-78	910·81
1978-79	1030·00
1979-80	1488·00

A revised pricing policy which envisages sharing of the internal market for gold for industrial consumers equally by Bharat Gold Mines Limited and Hutti Gold Mines Co. Limited and the balance gold to be purchased by Government at an appropriate price is under consideration of Government.

8·5 *Plan Schemes* :

The outlays in the annual plan 1979-80 and 1980-81 are as follows :—

(Rs. in lakhs)

S. No.	Item	Revised Estimates 1979-80	Budget Estimates 1980-81
1.	Continuing Schemes . . .	180·00	135·00
2.	New Schemes	120·00	135·00
3.	Replacements & Renewals . .	100·00	30·00
	Total	400·00*	300·00

*(Net outlay of Rs. 332·41 lakhs after adjusting spill over from previous year of Rs. 67·59 lakhs).

8·6. *Diversification*

8·6·1. With a view to improving its financial performance, BGML, has been engaged in various diversification activities. The Central Workshop of the company maintained manufacture of TCT Drill rods, shaft equipment and mining machinery for supply to other public sector undertakings. The company continued the execution of contract work in mine construction at Kolihan, Mines of Hindustan Copper Limited, Mailaram Copper Project of Andhra Pradesh Mining Corportion and shaft sinking for Manganese Ore India Limited. Contracts for shaft sinking were concluded with Hindustan Zinc Limited and Western Coal Fields.

8·6·2. During the year the company recovered 615 Kgs. of silver from the film wastes of Hindustan photo Film Manufacturing Co. Limited, Ootacamund.

The Company has taken up a scheme for recovery of Scheelite (Tungsten ore) from the tailing at a cost of Rs. 47·40 lakhs.

8·7. *Exploration activities*

8·7·1. With the close co-operation of GSI, the Company continued exploratory activities for the following areas in search of new gold prospects:—

(i) Mallappakonda and Chigarkunta hill areas in Southern Extension of KGF.

(ii) Manighatta area in Northern Extension of KGF.

(iii) Betrayaswamy Block of KGF.

8·7·2. Exploratory development at Yeppamana Mine was also continued.

8·8. *Industrial Relations:*

Industrial relation in the company remained, by and large peaceful.

8·9. Statistical information regarding representation of

SC/ST candidates in BGML as on 31-12-1979 is given in the table below:—

Group	Total No. of Employees	Scheduled Castes	Scheduled Tribes
Group A	101	10	1
Group B	154	9	1
Group C	4930	2427	10
Group D (Excluding Sweepers)	6225	3731	17
Group D (Sweepers)	543	291	—

CHAPTER IX

SIKKIM MINING CORPORATION

9·1. Sikkim Mining Corporation, a joint venture of Government of India and State Government of Sikkim, has been working the Bhotang poly-metal ore deposit at Rangpo in Sikkim. The ore is treated for production of copper, lead and zinc concentrates.

9·3 The authorised and paid up capital of the Corporation are Rs. 100 lakhs and Rs. 57·35 lakhs respectively. The share capital is jointly held by the State Government of Sikkim and Government of India in the ratio 51:49.

9·3. *Production Performance* :

(Unit : Tonnes)

Year	Copper Concentrates			Zinc Concentrates			Lead Concentrates		
	Target	Production	Short fall	Target	Production	Snort fall	Target	Production	Shot fall
1978-79	840	2	838	360	0·50	359·50	240	0·50	239·50
1979-80	420	250*	—	180	100	*—	120	50*	—
1980-81	840	—	—	360	—	—	240	—	—

*Estimated production.

9·3·1. *Reasons for shortfall in production :*

The targets for 1979-80 were based on the assumption that power would be made available in full from Lower Lagyap Hydel Project from Mid 1979-80. Power supply resumed from 17th September, 1979, but has been available only for about one shift working per day. This accounts for the shortfall in production compared to target.

9·3·2. For the year 1980-81, the targets have been fixed on the basis that stable and full electric power will be made available to the project throughout the year.

9·4 Production of concentrates in the Beneficiation Plant resumed from October , 1979.

9·5 Since the quality of concentrates produced at present is not upto the mark due to contamination by other metals, and there is considerable loss of metals in the tailings, it is proposed to undertake modifications/improvements in the equipment and layout of the Beneficiation Plant in 1980-81.

CHAPTER X

PRODUCTION OF NON-FERROUS METALS

10·1 The production statistics of the following non-ferrous metals and gold are given in Table 1(a) to 1(d):—

(a) Aluminium (separately for EC and CG grades)—Table 1(a);

(b) Copper (separately for Blister Copper, Copper Cathodes and Wire Bar)—Table 1(b);

(c) Zinc and Lead—Table 1(c);

(d) Gold—Table 1(d).

In each Table, the quantity produced in the fiscal year 1979-80 (estimated) is compared to fiscal year 1978-79. The targets for 1980-81 (fiscal) have also been indicated and compared with estimated production in 1979-80; in each comparison, the increase is shown in absolute as well as percentage terms.

10·2 The production of the following metals for the calendar year 1975 to 1979 is also shown in Charts:

(i) Aluminium	Chart—3
(ii) Copper	Chart—4
(iii) Zinc and Lead	Chart—5

(Unit : Tonne)

TABLE-1(a)

1979-80—PRODUCTION STATISTICS

Item : Aluminium Metal

Producer : Aluminium Industry (Public & Private Sector)

Unit : Thousand Tonnes

I	II	III	IV
Period	EC	CG	Total
(A) (a) 1979-80 (Actual)	103	89	192
(b) 1978-79 (Actual)	115	99	214
(i) Increase/Decrease in (a) over (b)	(—)12	(—)10	(—)22
(ii) Percentage of increase/decrease	(—)10%	(—)10%	(—)10%

(B)	(c) 1980-81 (Target) . .	125	125	250
	(i) Increase/decrease in (c) over (a) . .	(+)22	(+)36	(+)58
	(ii) Percentage of increase/decrease .	(+)21%	(+)40%	(+)30%

TABLE-1(B)

1979-80—PRODUCTION STATISTICS

Item : Copper Metal

Producer : Hindustan Copper Limited (Public Sector)

Unit : Tonnes

I	II	III	IV
Period	Blister Copper	Copper Cathodes	Wirebar
(A)			
(a) 1979-80 (Actual) . .	22,471	18,802	11,604
(b) 1978-79 (Actual) . .	21,888	18,628	13,264
(i) Increase/Decrease in (a) over (b) . .	583	174	(—)1,660
(ii) Percentage of increase/decrease .	3%	1%	(—)13%
(B)			
(c) 1980-81 (Target) . .	27,000	24,000	19,200
(i) Increase/decrease in (c) over (a) . .	4,529	5,198	7,596
(ii) Percentage of increase/decrease .	20%	28%	65%

TABLE 1(C)

1979-80—PRODUCTION STATISTICS

Item : Zinc and Lead

Producer : (i) Hindustan Zinc Limited (Public Sector)
(ii) Cominco Binani Zinc Ltd. (Private Sector)

(Unit : Tonnes)

Period	Zinc		Total	Lead
	H.Z.L.	C.B.Z.L.		H.Z.L.
(A)				
(a) 1979-80 (Privisional)	44,543	8,112	52,655	11,431
(b) 1978-79 (Actual)	51,186	13,216	64,402	10,475
(i) Increase/Decrease in (a) over (b)	(—)6,643	5,104	(—)11,447	( )956
(ii) Percentage of increase/decrease	(—)12.9%	(—)38·6%	(—)18.2%	(+)956
(B)				
(c) 1980-81 (Target)	66,000	14,000	80,000	14,000
(i) Increase/decrease in (c) over (a)	(+)21,457	(+)5,888	(+)27,345	(+)2,569
(ii) Percentage of increase/decrease	(+)48·17%	(+)72·58%	(+)51·93%	(+)22·47%

TABLE 1 (d)

1979-80—PRODUCTION STATISTICS

Item : Gold

Producers : (i) Bharat Gold Mines Ltd. (Public Sector)

(i) Hutti Gold Mines Company Limited (State Government Undertaking)

Unit : Kgs.

Period	Bharat Gold Mines Ltd.	Hutti Gold Mines Co. Ltd.
(A)		
(a) 1979-80 (Actual)	1,650	856
(b) 1978-79 (Actual)	1,792	791
(i) Increase/decrease in (a) over (b)	(—)142	65
(ii) Percentage of increase/decrease	(—)8%	8%
(B)		
(c) 1980-81 (Target)	1,777	1,000
(i) Increase/decrease in (c) over (a)	127	144
(ii) Percentage of increase/decrease	8%	17%

CHAPTER XI

SCIENCE AND TECHNOLOGY PROGRAMMES

11·1. Pursuant to the deliberation of the National Committee on Science and Technology, R&D Programmes on a planned basis in the Non-ferrous metals & Industrial (Non-Metallic) Minerals sector were envisaged and a number of S&T Projects for implementation were identified. In order to have proper planning in this field, Government, in April, 78 constituted an inter-Ministerial Standing Committee on Science & Technology Plan Implementation under this Department, to serve as a nodal point for evolving an integrated approach, examining and reviewing the R&D programme in the areas of mineral development and non-ferrous metallurgy.

11·2. The S&T programmes in the Non-ferrous Metals and Industrial (Non-Metallic) Minerals sector are oriented towards development of new and efficient methods of exploration and exploitation of mineral deposits, improvement of efficiencies in mines and plants, recovery of precious and minor (but valuable) metals present in base metal ores and applied research for pollution control and protection of environment in the mining and non-ferrous metals industry.

11·3. A large number of R&D schemes from public sector undertakings, organisations under the Department and outside agencies like Indian School of Mines and Gujarat Mineral Development Corporation were considered by the Standing Committee and approved. The outlays for 1979-80 and 1980-81 for S&T schemes are as below:—

	Rs. in lakhs
Revised Estimates 1979-80	115·00
Budget Estimates 1980-81	200·00

11.4 The progress achieved on the S&T schemes in 1979-80 is furnished below:—

I. Bharat Gold Mines Ltd.

(i) *Seismic Project*

This scheme consists of a net work of Geophones, field amplifiers etc. on surface coupled to multichannel magnetic

taperecorder/stereo replay systems etc. The signals from rock bursts that occur in and around the mining areas in the Kolar Gold Fields are picked up and recorded. This would help in delineating areas of high seismic activity underground and in planning better mining methods for safe & economic exploitation of gold deposits. As this project is for basic study on problems of rock bursts and the means to control them with a view to carry out mining at great depths consistent with safety, it will be not only beneficial to BGML but also to many other mining concerns who face similar problems of strata control and rock burst. The project is being carried out in collaboration with Bhabha Atomic Research Centre, Bombay.

The instrumentation was completed ahead of time schedule and recording of burst signals commenced in Sept., 78 and continued. The recorded signals were replayed on Minggo-graph recorder and sent to BARC, Bombay for analysis. Preliminary analysis was also carried out in Kolar Gold Field with the limited facilities available on the field. By Sept., 79 more than 300 events have been detected and over 100 events with clear onset times on at least four or more sensors have been analysed. It is encouraging to note that computed Foci is in reasonable agreement with the observed rock burst damages. Some modifications are being effected to the system to further improve the location accuracy of the Foci.

(ii) *Material Testing Laboratory*

The main objective of this lab. is to study the physical and elastic properties of rocks and also testing of wire ropes and suspension gear etc. This is an integrated programme of rock burst research and testing of wire ropes, suspension chains etc. which are required under Metalliferrous Mines Regulations, 1961 and non-destructive testing of drum shafts, suspension gear etc.

All the equipment except for the Metallurgical Microscope and 60-Tons Horizontal Tensile Testing Machine have been commissioned and put into use. Tensile tests on wire ropes and comprehensive tests on individual wires have been under-taken. Special investigations into the effect of bending wires for capping purposes, strengths of lagging poles of various types supplied to the mines, quality of cement, etc. have also been taken up.

(iii) *Pilot Plant Project for Investigation on extraction of Scheelite from ROM ore from scheelite rich areas in the Mines.*

With the encouraging results obtained on the investigations conducted earlier on the tailing dump sands, similar investi-gations on the scheelite rich ore in the mines are being carried out where it is possible to mine such ore separately, instead of diluting with other lean ores from the mines. This will be treated separately in the Pilot Plant and the tailing after scheelite recovery will be put back into the present mill circuit for extraction of gold in the usual manner. The coarse ore bin and fine ore bins have been com-pleted. The equipment required for the project has either been received or order has been placed. The scheme is expected to be commissioned by July, 1980.

II. INDIAN BUREAU OF MINES

(i) *Augmentation of ore dressing and agglomeration facilities in I.B.M.*

In the laboratory at Nagpur ore dressing investigations, chemical analysis and mineralogical analysis have been conducted. For the pilot plant at Ajmer, building construction work for laboratory and pilot plant is likely to be completed by March, 1980. Some equipments have already been received and indents have been placed for the remaining. For the pilot plant at Bangalore, construction work is in progress.

(ii) *Development of new mining methods-concrete mats.*

After laying the experimental concrete mat at 28th level in Sethwa Mica Mines, stopping above the mat has progress upto a height of 2 metres. Two sets of readings of all the 4 strain bars and pressure cells emplaced at the time of laying the mat were taken jointly by IBM & CMRS.

(iii) *Establishment of Geodata Centre of Minerals and earth Sciences* (*Mines and Minerals Data Bank*).

Data sheets for mineral concessions in Gujarat, Andhra Pradesh, Himachal Pradesh and Tamil Nadu were prepared. Summary tables were prepared for Andhra Pradesh in order to make detailed analysis as a model. Designing of data formats in respect of mineral inventory was initiated.

(iv) *Research on Mica Pegmatite.*

The study of one productive Mica Pegmatite in Sethwa Mine and a barren pegmatite in Mohaneria Mica Mines has been taken up and is in progress.

III. HINDUSTAN ZINC LIMITED

Augmentation of facilities in Ore Dressing and Agglomeration.

The laboratory building has been completed and all the equipments for bench scale ore dressing tests have been commissioned except heavy media separation plant. The 2 tonnes per day pilot plant for ore dressing is under construction and is expected to be commissioned by the end of May, 1980.

IV. HINDUSTAN COPPER LIMITED

(i) *Improvement in copper Refining Process by the use of high current density and periodic reverse current.*

The erection of the Pilot Plant has been completed, except the electrolyte filters. All equipment have been tried and commissioned. The plant was put on trials. Steady plants operation could not be achieved due to frequent power cuts and interruptions in power supply. 7 Crops of Cathodes were obtained with variation of current density under conventional as well as PRC system.

(ii) *Improvement of copper quality with recovery of impurity metals as valuable by products.*

Two lots of Flash Smelter dust samples were collected and the analysis of the samples of dust from various plant locations were done for Copper, Nickel, Cobalt, Bismuth, Lead, Zinc & Tellurium. The distribution of dust as well as the above elements in the dust from various plant locations were computed. A few preliminary leaching tests were carried out in the laboratory for recovery of copper. Effects of dust removal on anode quality is under study.

(iii) *Improved steel support for Mines.*

Steel supports have been designed and fabricated. Some special type of 'Pipe-sticks' to be used as props are being fabricated at the ICC workshop. Field trials of the steel supports are in progress. Modifications of design of supports has been taken up.

(iv) *Improved Tunnel Supports.*

Steel supports for tunnels have been designed and fabricated. Field trials of the supports are in progress. Modification of design of supports has been taken up.

(v) *Recovery of cobalt from the Indian Copper Complex Converter Slag.*

Analytical method for cobalt estimation from converter slag was standardised and few samples of converter slag analysed for cobalt. The converter slags were found to contain 0·4% to 0·7% cobalt. A sample of converter slag was collected for extraction studies. Studies on pyritic smelting was carried out using an indigenously fabricated oil fired furnace. The results were encouraging and further trials are in progress.

(vi) *Recovery of Tellurium from the Copper Electrolytic Refinery Slime.*

A few of the slag samples from precious metal recovery plant were analysed for tellurium and encouraging data were obtained. Studies on investigation of tellurium distribution in other refinery and by-products process circuits are under way. About 150 Kgs. of tellurium have been produced during the laboratory tests. A Project Report for a regular Pilot Plant for Tellurium production is being prepared.

(vii) *Recovery of copper by dump leaching of low grade oxidised and lean sulphide copper ores.*

Facilities have been set up on pilot scale for dump leaching of oxidised ores at Malanjkhand. From the leach liquor produced during pilot scale leaching, copper has been extracted as cement copper.

V. GEOLOGICAL SURVEY OF INDIA

(i) *Geodata Centres.*

The geodata Centre has been set up for collecting, processing and disseminating earth science data. The geodata centre has also been identified by Deptt. of S. & T. as a centre for feeding the data on metallic and non-metallic minerals of the prosposed NISSAT system. GSI has entered into a collaboration with National Informatics Centre, Electronics Commission for the development of system analysis

and hardware and soft-ware support. A total of 100 data items have been identified for mineral deposits and analysis is being performed on the various heirarchial structure and mutual inter-relating of these data items for testing of the degree of significance and statistical consistency for a systematic design of the schedule for data transcription and entry.

(ii) *Development of Magnetotelluric Method*

The magnetotelluric method which has not been developed in India so far has application in geophysical exploration for studying sub-surface configurations and consists of development of instrumental data processing and test applications. The methodology will be tested in specific investigations in the field of sub-surface mapping and mineral exploration. The required instrumentations are complex and some of the components of units have to be procured from abroad. The work is proposed to be carried out in collaboration with N.G.R.I&. O.N.G.C. The work for the development of software has already been taken up. Action to import equipment of foreign origin has already been initiated.

(iii) *Development of Induced Polarisation (IP) and resistivity equipment model Studies.*

Under this scheme it is proposed to design and construct portable type transmitter with variable pulse widths and on and off period of reversible polarity. The compatible portable receiver has also to be developed to measure the voltage at various times after the cessation of the pulse and also to determine the time integral of the voltage. The project is tied up with specific items in the field programme to test the applicability for geophysical exploration for minerals/ groundwater with laboratory model studies to refine the interpretation of I.P. data. The construction of the model tank and modification of I.P. transmitter has been already made.

(iv) *Development of geophysical instrumentation and technique for geothermal exploration.*

The project is designed to develop instrumentation systems for bore-hole thermal conductivity studies and heat flow studies which have relevance in the investigation of the geothermal resources. The design & construction of the geothermal probe

has been completed and the instrument is ready for field test. Two digital Panel meters have been ordered.

(v) *Experimental analysis of geometrical properties of Ripple and dune profile in the effect of sorting of bed materials on suspended sediment concentration profile in the open channel flows.*

The objective of this scheme is to establish relationship between the geometry of common bed forms (like ripples and dunes) to flow and sediment parameter. The ultimate objective is to stimulate experiments by recent sedimentary processes under low order statistically uniform & steady conditions in the labo ratory. As a result of the investigation made it has been confirmed that the classical equation of concentration, distribution of suspended sediment in open channel flow is valid for both field and laboratory data provided the bed material is uniformly sized.

(vi) *Application of experimental deformation technqiue in understanding the Development of natural load.*

The objective of the investigation is to set up a laboratory to study the progressive stages and responses of folding deformation and to correlate the experimental results with field observation. The work on the design of apparatus was made and experimental deformation on single and multilayered bodies was initiated. Design of shearing apparatus and vibrator was in progress.

(vii) *Studies on Indian Bauxite*

The objective of the programme is to study the process of the bauxitisation in the environmental context and development of suitable technique for exploration. Selected field traverses have been undertaken to study the geomorphological aspects of the assessed bauxite and identification of areas for in-depth studies. Petrographic studies of deposits of Gujarat have been under-taken. Some equipment required for the studies have been procured.

(viii) *New experimental approach for geothermometry of West Coast Thermal Waters*

The objective of the investigations is to study the interaction of different volcanic/volcano sediments/sedimentary rocks with

water at varying temperature at different period. The conventional geochemical thermometers used for the thermal water elsewhere in the world is not applicable in the case of West Coast. Thermal Waters owing to abundance of Ca, Mg Minerals in the country rocks and in the reservoir rocks. It is proposed to study the behaviour of these ions during water rock interaction at different temperatures. As part of the investigation, design and drawings for autoclave, micro reactors and their spare parts have been completed in consultation with BARC scientists. Work already carried out indicated the reservoir temperature at 150°C at some places on the West Coast.

(ix) *Singhbhum sulphide Mineralisation—Comparative study of regional geo-chemistry and development of exploration technique.*

This item of investigation aims at development of genetic model of the sulphide mineralisation *vis-a-vis* the soda granite, metavolcanics and the metasediments to evolve a probable discriminate function for identification of mineralised zones. Field work has been initiated and 68 samples were collected. Mineragraphic studies were completed in respect of 48 copper ore samples collected from Mosabani Mines. As a result of the mineragraphic studies evidences of retrogression and silicification/sericitization were established. Further work is in progress. Procurement of X-ray Fluorence spectrometer, Atomic Absorption Spectrometer and other instruments is underway.

(x) *Geochemistry of base metal sulphides and associated rocks*

This investigation is designed to carry out research in three different geological environments which are known to have base metal potentialities.

(a) Cupriferous pyrite mineralisation in Aladahalli, Karnataka;

(b) the Strata bound lead-zinc deposits in Cuddapah basin, A.P.;

(c) Cupriferous pyrite mineralisation in Chitradurga, Karnataka.

In pursuance of the investigation, compilation of necessary geological data has been made and samples were collected and chemical estimates for 116 samples for various metal contents

are being made. The processing for procurement of instruments is underway.

(xi) *Development of Analytical Technique for Regional Survey*

The investigation is designed to study the occurrences and distribution of rare earth elements Nb and Ta in different rock types including carbonatites, and also noble metals in sulphide deposits. The R.&.D. efforts will involve development of suitable analytical methods. Method for decomposition of chromite was developed and methods for complete analysis of chromite by A.A.S. technique were tested and standardised.

VI. BHARAT ALUMINIUM COMPANY LIMITED

Bench Scale and Pilot Testing Facilities

Studies on bauxites from various deposits have been carried out in the bench scale testing facility. The pilot plant testing facility is nearing completion and is likely to be commissioned by June, 1980.

NON-FERROUS METAL AND SEMIS PRODUCTION

Non-ferrous metals & semis alloys

(Figures in tonnes)

S. No. Name of Industry	No. of existing units	Licenced/ Reg. capacity	1978-79 production actuals	April-December 1979	Estimates for Jan. to March 1980	Total estimated 1979-80	Remarks
1. Aluminium foils .	2	5500	5454	2992	998	3990	
2. Aluminium extruted rods/sections . .	11	30000	20353	14428	4812	19240	
3. Aluminium wire rods for ACC/ACSR conductors . . .	8	46600	26525	18646	6204	24850	
4. Aluminium sheets & circles . . .	12	75800	49902	32583	10867	43450	
5. Copper/copper alloys (including brass) pipes and tubes . . .	6	4200	2843	2424	816	3240	
6. Copper/copper alloys including brass extruded rods, sections . .	9	8500	4480	3933	1317	5250	
7. Copper/copper alloys including brass) sheets, strips, circles . .	17	28500	14922	9384	3136	12520	
8. Copper/copper alloys (including brass rods & wires for non-electrical purposes including resistance wires . .	8%	2650	2746	2734	916	365	
9. Lead pipes and tubes .	2	600	598	Nil	Nil	Nil	
10. Highly polished ziac sheets for photo-engraving purposes .	3	1065	636	409	141	550	
11. Non-ferrous alloys such as entifriction bearing metal, gun metal, bronze solder etc. .	16	45900	21136	13132	4378	17510	
12. Electrolytic copper wire rods	4	49000	20115	15747	5253	21000	

CHAPTER XII

PROGRESSIVE USE OF HINDI

12.1 During the year under report, implementation of various provisions of Official Language Act, 1967 and Official Language Rules, 1976 continued in accordance with the Programme for the progressive use of Hindi for the year 1979-80.

12.2 During the year two meetings of Official Language Implementation Committee of the Deptt. and two meetings of Hindi Salahkar Samiti of the Ministry of Steel and Mines were held. In these meetings, the position regarding use of Hindi in the Secretariat, the subordinate offices and the public sector undertakings was reviewed and recommendations of appropriate measures for improvement, wherever required were made.

12.3 There are Official Language Implementation Committee in Indian Bureau of Mines & Geological Survey of India (including its regional offices) as well as in the Public Sector Undertakings. These Committees reviewed the progress of Hindi in their respective organisations and suggested measures to be taken for the implementation of the Official Language Policy.

12.4 A regular watch was kept over progress in the use of Hindi by reviewing the Quarterly Progress Reports.

12.5 The Hindi Officer visited a number of offices under this Department to review the position regarding the use of Hindi and suggested measures to solve difficulties in implementation, wherever required.

12.6 During the year (from 1st Jan., 1979 to 31st Dec., 1979) 1808 original letters compared to 1070 last year were sent in Hindi to various Govt. offices and private individuals in region 'A' & 'B'. Besides, all letters received in Hindi, except those which required statutory or legal reply, were replied in Hindi.

12.7 Publication of periodical magazines in Hindi, as well as in English, by the four public Sector Undertakings of the Department continued. A new Hindi magazine entitled 'ZINC-VANI' was introduced by Hindustan Zinc Ltd., Udaipur. Some of the publications of the Indian Bureau of Mines were also issued in Hindi.

12.8 Selection for the various posts for the implementation of the Official Languages Programme, in Indian Bureau of Mines and Geological Survey of India, is yet to be completed by the Staff Selection Commission. Recruitment to the newly created posts in the Hindi Sections of Hindustan Copper Ltd., Mineral Exploration Corporation Ltd. and Hindustan Zinc Ltd. has been completed.

12.9 Training of non-Hindi knowing employees under the Hindi Teaching Scheme was continued. The Deptt. of Mines, and the two regional offices of Geological Survey of India at Lucknow and Jaipur, have been notified in the Gazette of India in terms of Rules 10(4) of Official Languages (use for official purposes of the Union) Rules, 1976, as their staff has acquired the working knowledge of Hindi. The employees of the public sector undertakings under the Department also avail of the facilities under the Hindi Teaching Scheme. In Bharat Gold Mines Ltd. 37 and 16 employees have passed Hindi Praveen and Pragya exams. respectively after completing the Hindi Training in classes run by the Company. Prabodh classes are also being run at Khetri Copper Complex, of Hindustan Copper Limited. Arrangements for adult education also exist. Two of their training courses are run in Hindi.

12.10 Vigorous efforts continued to be made by all the offices under the Department to popularise the use of Hindi among their employees by providing for them interesting Hindi literature in the libraries, organising debates and Essay competitions as well as other cultural programmes in Hindi. Cash award Schemes for doing more work in Hindi is being introduced in the Offices situated in Hindi Speaking areas. Hindi typewriters in all the circles branch offices (except a few situated in non-Hindi speaking areas) have been made available during the year.

12.11 The Public Sector Undertakings of this Department have started using Hindi, alongwith English for stamping and describing their products.

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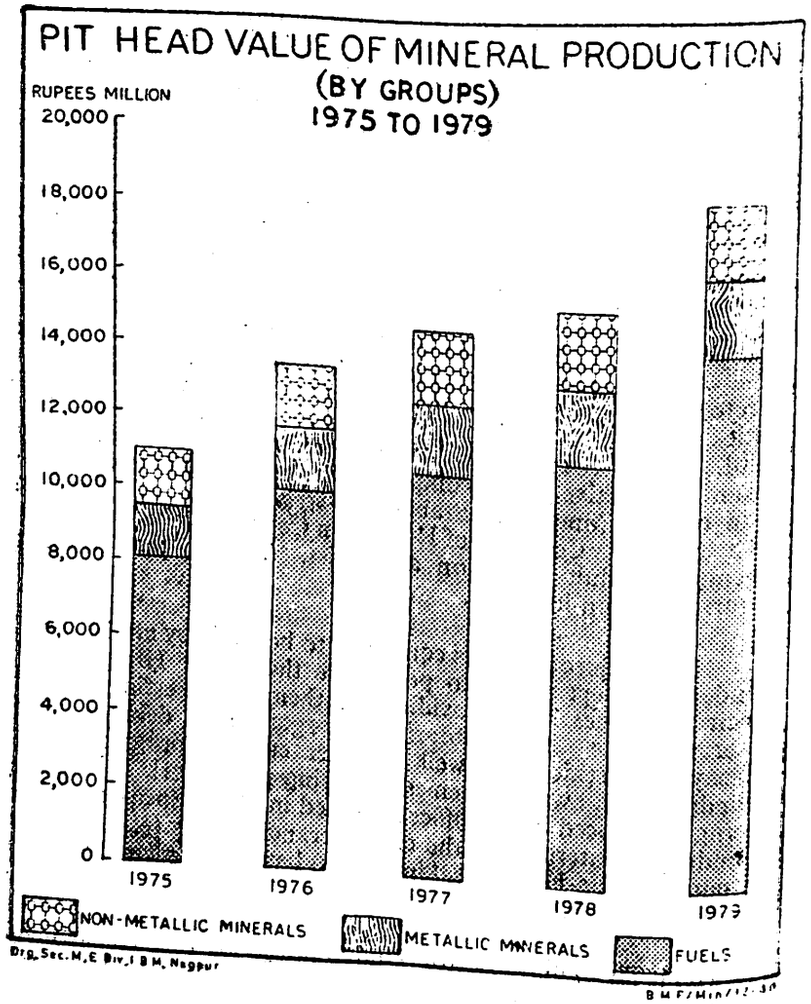

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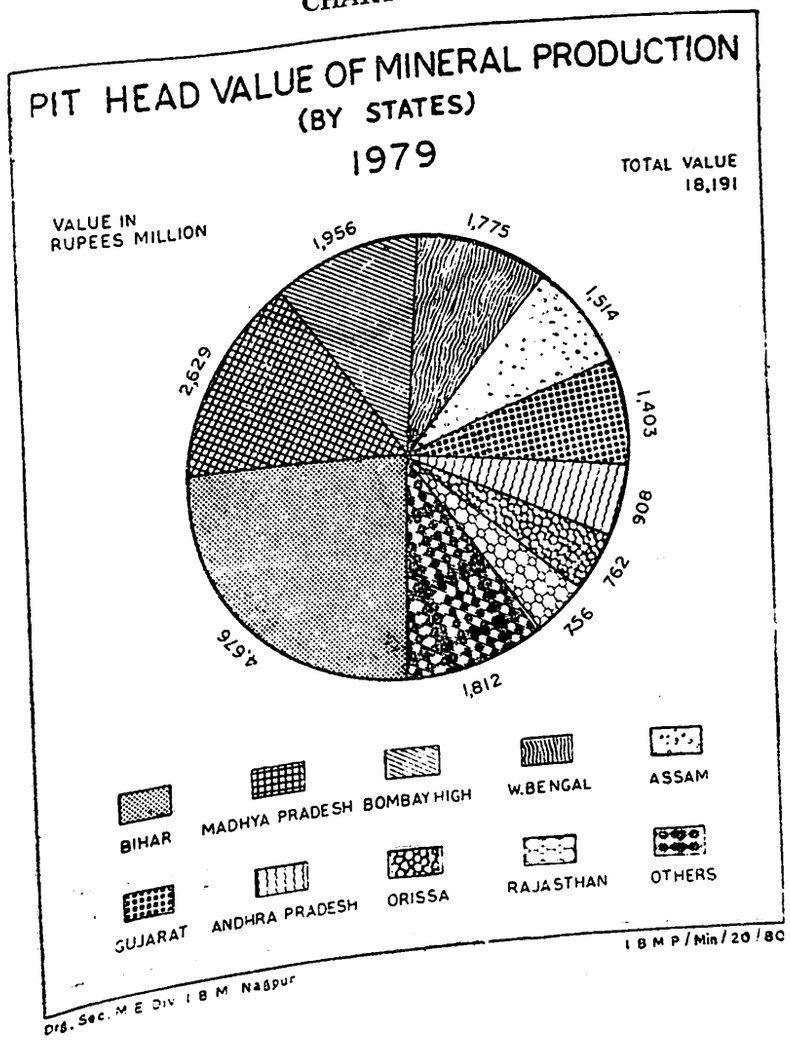

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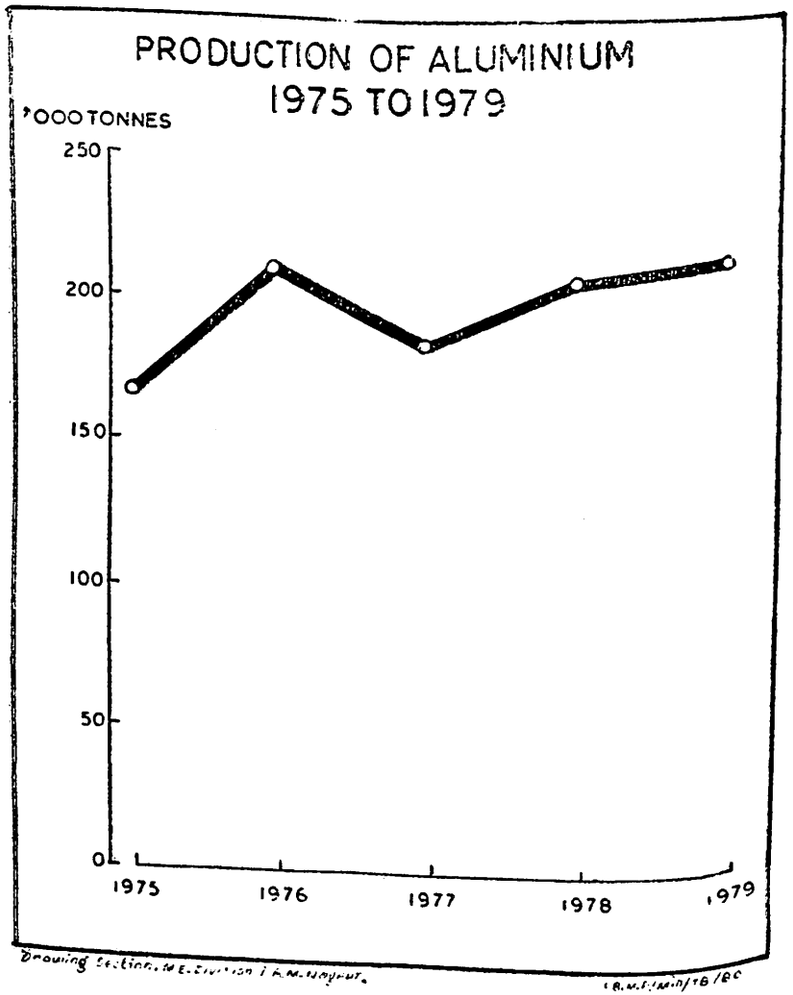

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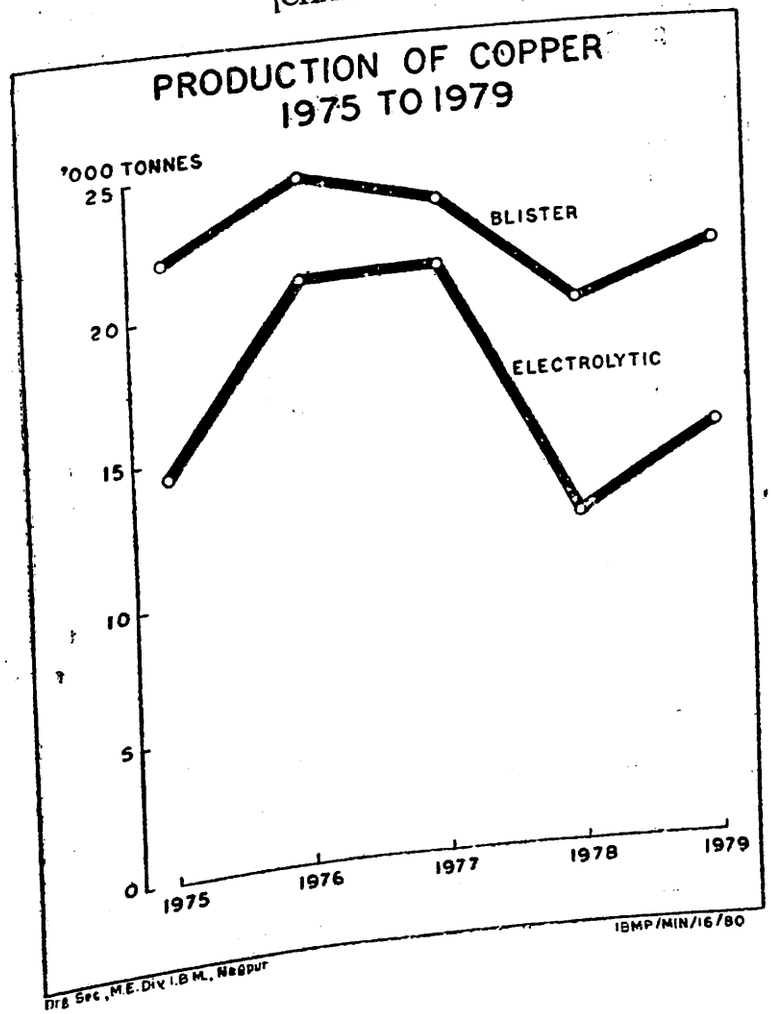

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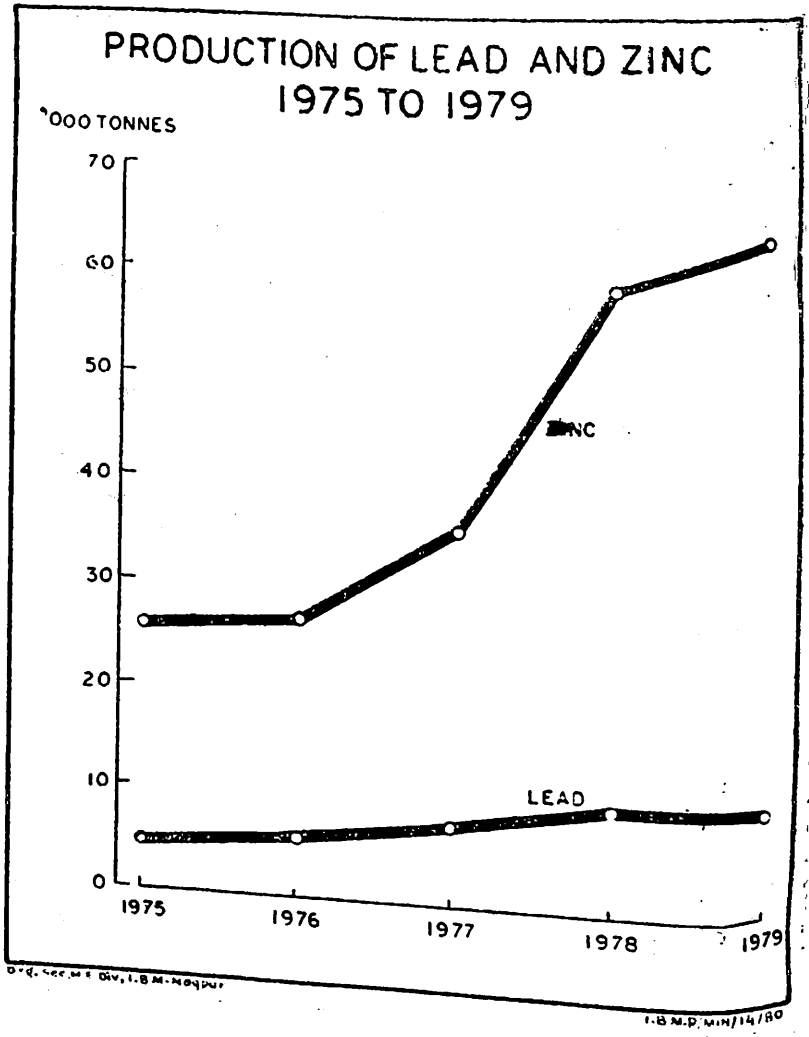

Date — 17/9/12

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