CHAPTER 1

AN ACCOUNT OF IRON & STEEL INDUSTRY: EVOLUTION AND PRESENT POSITION
The analysis of the present trends and development in the Iron & Steel industry in India requires an idea about the condition and history of the industry in the early age. History says that Iron age came after stone & copper age. With the advent of iron age the industries all over the world faced a revolutionary change. Iron industry in India, it is estimated, is as old as our Rig-Veda (2000 B.C) for there is reference to iron in many places of Rig-Veda. Iron age in India started long before it started in the European Countries. Ancient Indian Steel was named as Wootz, the production of which was initiated in areas currently known as Andhra pradesh & Tamilnadu. Reference may be made to the age old iron pillar in Delhi (near Kutub Minar) to show the evidence of supremacy of Indian iron industry in early ages. It is the victory pillar of King Chandra who defeated the Bhangas and Bahliks and celebrated the victory by making this pillar along with several inscriptions on it in Gupta script.  

The Iron pillars of Dhar (33 miles west from Indore) and Iron beams of Sun temple of Konarak 20 miles away from Puri

deserve their mention in this connection. Outside India an example of India's supremacy in production of iron is the famous blades of Damascus. The strong and flexible blades; it is said, are made of the material brought by the Persian traders from Indian villages.

It appears that the above examples are sufficient to prove that Iron production was started & practised at various places in India in the ancient ages. The raw materials used for this production, it is learnt, were iron ores scattered in differed corners of India. Charcoal made from the forest woods etc. Dr. M.S.Krishna wrote in his "Iron ores of India", "The ores were gathered beaten up to the size of coarse sand winnowed in the breeze or washed in a stream to separate the associated gangue. The Furnaces were built of locally available clay and smelting was done by rule of thumb methods, handed down through generations with the help of artisan's family". The quality of this wrought iron was very high. It is said that this indigenous steel (wootz) was even superior in quality and purity to the then available European steel.

TAMIL NADU & DECCAN

The process of indigenous manufacture of iron through furnaces made of clay and goat skin bellows (for blast of air) perhaps was initiated in the eighteenth century in
different parts of India, specially in Madras of Deccan and W. Bengal and U.P. in Northern India. In the Nineteenth century the smelting of iron ore in India started in the year 1830 at Porto Novo in Tamil Nadu. The Company concerned was named as Indian Iron, Steel and Chrome Company. The Company established its furnaces, forges and even rolling mills at Boypur, Malabar. The iron ores for the company came from Sankarapuram, Madura Hills and South Arcot District. Charcoal was available in the nearby forest. In the year 1853 another company named as East India Iron Company was formed in London which started erections of smelters & works at Tiruvannamalai and Pulampatti. The daily output of pig iron from each furnace was 6 tons. The production however entirely depended on the supply of ore & charcoal and it was not regular. For various reasons the operations of Porto Novo ceased in 1866 and those of Pulampatti and Boypur in 1858 and 1867 respectively.

WEST BENGAL

In West Bengal Birbhum District was the path-finder in regard to the indigenous production of iron. In the year 1852 there were as much as 70 furnaces at Deucha and other places near Mohammadbazar. The furnaces were large and the annual output of each of such furnace was 34 tons. In the year 1855 Birbhum Iron Works Company tried to start operation selecting their site at Mohammadbazar. But the
operations could not run at a profit for want of Charcoal and hence it was abandoned. An earlier move by Messrs. Jessep & Co. to start melting operations at Burdwan with coke as fuel was also not successful.

In the year 1875 Bengal Iron Works Company constructed its works at 'Kulti' in the district of Burdwan. In 1878 there were two blast furnaces in the works which produced 40 tons of pig iron per day. A foundry was also constructed to convert pig iron into railway pot sleepers. The iron products were not suitable for making steel and the cost of production of pig iron was nearly double the cost of that in England. The company acquired many collieries for regular supply of coal and obtained its water supply from nearby river. In 1882 the works were acquired by the Govt. and renamed as Barakar Iron Works. In 1889 the Govt. transferred the Company to Bengal Iron and Steel Company which was an undertaking of Messrs. Martin & Co.

KUMAON IN UTTAR PRADESH

Another name in the history of indigenous smelting of iron ore in India is Kumaon in U.P. There was no doubt about the presence of workable iron ore in Kumaon but for various reasons attempts to establish a suitable iron works by the private industrialists as well as the British Govt. all ended in smoke. The Govt. erected smelting works at Dechauri in
Kumaon in 1857. Messers Davis & Co., a private company also started operations at "Khurpa Dal". But both the attempts were abandoned. Later, Messers Drumand & Co. and Messers Davis & Co. were amalgamated and the new name was North of India, Kumaon Iron Works Co. Ltd. in 1862. But this Company also suspended its operations within two years. After 1877 a final attempt was made to renew the smelting operations under the guidance of A. Campbell an expert in the field of Iron & Steel. But ultimately this attempt also had to be withdrawn.

Scattered attempts were also made by many authorities to start iron works at Chanda district and also in Indore etc. but all ended in vain.

GRADUAL DEVELOPMENT & ENTRY INTO THE MODERN INDUSTRIAL ERA:

The Bengal Iron Works Company after being acquired by the Govt. and renamed as Barakar Iron Works faced a number of difficulties to continue operation and as such it was transferred to Messers Martin & Co. and was again renamed as The Bengal Iron & Steel Company. The Company was completely remodelled and in the first decade of the twentieth century it had three blast furnaces with annual capacity of 75000 tonnes. At the time of the First world war the number of furnaces rose to four and output of pig iron rose to 500
tonnes per day.

The modern age of the Iron & Steel industry in India started with the foundation of the Tata Iron & Steel Company in the year 1907. The works of the company were situated at "Sakchi" which is a small village in Singbhum District. Originally there were two 200 tonnes blast furnaces. After the first world war there had been a significant expansion of the company and gradually it became the largest steel co. in India. To-day it is the only large-scale unit in steel industry under private sector.

In the year 1918 Indian Iron & Steel Co. was formed under the management of Burn & Co. The works started at Hirapur near Asansol. At start it had two blast furnaces with 500 tonnes capacity each. Later in the year 1936 the Bengal Iron & Steel Company was amalgamated with Indian Iron & Steel Co.

Perhaps the 1st successful State initiative in the field of iron industry (after failure and transfer of Barakar Iron Works) got its shape in the foundation of Mysore State Iron Works at Bhadravati. The 1st blast furnace started operation in 1923. The small steel plant under the works started production in 1936.

In 1937, with a view to manufacturing steel from the
pig iron produced by I.I.S. Co. Steel Corporation of Bengal was formed under the managing agency of Messers Burn & Co. The works of the Co. were established at Burnpur just by the side of Hirapur. In the year 1953 Steel Corporation of Bengal was merged with Indian Iron & Steel Co. and the Company became an integrated steel co.

With the initiation of Five-year plans, specially from the Second Five-year Plan, development of steel industry got much emphasis since it was believed that industrialisation was the cornerstone of the country's rapid economic progress. During the Second five year plan it was decided to reach a target capacity of 6 million tonnes by increasing the capacity of TISCO to 2 million tonnes ingot steel per year and that of IISCO to 1 (one) million ton. It was also decided to establish three integrated steel plants in the public sector with 1 million tonne capacity each.

Accordingly, during the Second plan period, three public sector steel plants, one each at Rourkella, Orissa, Bhilai, Madhya Pradesh, Durgapur, West Bengal were set up. In the year 1957 all these three units came under the management of Hindustan Steel Ltd., registered as a Govt. Company with its Head Office at Ranchi. H.S.L commenced its production in the year 1958. The third five-year plan set a target of raising the ingot capacity to 10.2 million tonnes and pig iron production capacity to 1.5 million tonnes.
Another significant development of the steel industry in India, during the Third Five-year plan was the establishment of a new steel plant at Bokaro, Bihar, under public sector. The new plant had a target capacity of one million ton steel ingot and it was to specialise in the production of flat products. In 1960 it was decided to set up an alloy steel plant at Durgapur with an annual output of 48000 tonnes.

The programme for expansion of Iron & Steel production during the Fourth Five-year plan was made not only with a view to meeting requirements during this plan but also to meet the estimated future needs of the Fifth plan. The programme included an expansion of Bhilai Steel Plant and completion of the 1st stage ingot capacity (1.7 million ton) of Bokaro Steel Plant. Another important development in the 4th plan came in the year 1972-73 with the establishment of Steel Authority of India Ltd. as a Govt. Company with an authorised capital of Rs.2000 crores to take over the public sector steel companies as its subsidiary and to have operational control on them. The objectives and financial history of SAIL will be discussed seperately.

The installed capacity for production of ingot steel has progressively increased during the five-plan periods as will be evident from the following table :-
PRODUCTION OF INGOT STEEL DURING THE PLAN PERIODS

(INSTALLED CAPACITY)

<table>
<thead>
<tr>
<th>Five year plans</th>
<th>Year ended</th>
<th>Installed capacity at the end of plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>First plan</td>
<td>31st March '56</td>
<td>1.5</td>
</tr>
<tr>
<td>Second plan</td>
<td>31st March '61</td>
<td>6.0</td>
</tr>
<tr>
<td>Third plan</td>
<td>31st March '66</td>
<td>8.9</td>
</tr>
<tr>
<td>Fourth plan</td>
<td>31st March '74</td>
<td>8.9</td>
</tr>
<tr>
<td>Fifth plan</td>
<td>31st March '78</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Source: Report of the Govt. of India, Ministry of Steel & Mines (1979-80)

The production of ingot steel in the integrated steel plants in public sector was 8.424 million tonnes in the year 1977-78, 8.152 million tonnes in 78-79 and 8.028 million tonnes in 1979-80. The production of ingot steel in the private sector (Tata Iron & Steel Company Ltd.) was 1.968 million tonnes in 77-78, 1.866 million tonnes in 78-79 and 1.779 million tonnes in 79-80.

The production of saleable steel in public sector was 6.591 million tonnes in 1978-79 and 6.039 million tonnes in 79-80. Those in private sector were 1.601 million tonnes in 77-78, as compared to 1.516 million tonnes in 1978-79 and
1.447 million tonnes in 1979-80.

The gradual trend of decrease in production of both ingot and saleable steel in 78-79 and 79-80 was due to serious shortage of power supply, acute shortfall in the supply of coking coal, transport bottlenecks etc.

THE FINANCIAL HISTORY OF H.S.L. & SAIL

Hindustan Steel Ltd was registered as a Govt. Company to have an operational control over the public sector steel companies along with a few other companies in the year 1957. It commenced operation/production from 1958.

During the 15 years of its span of life (From 1957 to 1972) Hindustan Steel Ltd. stood as the principal producer of steel in India and it played an important role in the economy by saving valuable foreign exchange. It attracted the largest investment by the Govt. in comparison to all other units in the public sector. The following table will indicate the amount of investment, turnover and amount of profit or loss sustained by H.S.L during the 10 years ending on 31.3.75.
# H.S.L Statistics of Investment, Sales and Profit/Loss

<table>
<thead>
<tr>
<th>Year</th>
<th>INVESTMENT (Rs. in crores)</th>
<th>Sales (Amt.) (Rs. in crores)</th>
<th>Profit/Loss (Rs. in crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equity</td>
<td>Loan</td>
<td>Total</td>
</tr>
<tr>
<td>1965-66</td>
<td>528.00</td>
<td>451.17</td>
<td>979.17</td>
</tr>
<tr>
<td>66-67</td>
<td>528.00</td>
<td>500.50</td>
<td>1028.50</td>
</tr>
<tr>
<td>67-68</td>
<td>552.00</td>
<td>531.50</td>
<td>1083.50</td>
</tr>
<tr>
<td>68-69</td>
<td>557.00</td>
<td>541.83</td>
<td>1098.83</td>
</tr>
<tr>
<td>69-70</td>
<td>557.00</td>
<td>516.25</td>
<td>1073.25</td>
</tr>
<tr>
<td>70-71</td>
<td>557.00</td>
<td>479.00</td>
<td>1036.00</td>
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<tr>
<td>71-72</td>
<td>594.37</td>
<td>443.70</td>
<td>1038.07</td>
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<td>72-73</td>
<td>610.85</td>
<td>427.42</td>
<td>1038.27</td>
</tr>
<tr>
<td>73-74</td>
<td>623.58</td>
<td>393.41</td>
<td>1016.99</td>
</tr>
<tr>
<td>74-75</td>
<td>664.22</td>
<td>365.16</td>
<td>1029.38</td>
</tr>
</tbody>
</table>

Source:
(i) Annual reports of the working of Industrial & Commercial Undertakings of the Central Govt.
S A I L

In December 1972 the Govt. of India decided to form a holding company in the steel sector e.g. Steel Authority of India Ltd. (SAIL). Accordingly, in January 1973 S.A.I.L was registered with an authorised capital of Rs. 2000 crores with its registered office at New Delhi. All the shares of Hindustan Steel Ltd. hitherto held by the President of India were acquired by S.A.I.L and H.S.L became the subsidiary of S.A.I.L from the date of registration.

The 1st annual report of SAIL mentioned that the Company (SAIL) was set up with the following objectives:

i) To plan promote and organise an integrated and efficient development of the Iron & Steel and associated input industries....in accordance with national economic policy and objectives laid down by the Govt. from time to time.

ii) To co-ordinate the activities of its subsidiaries to determine their economic and financial objective and to review, control, guide and direct their performance with a view to securing optimal utilisation of all resources placed at their disposal.

iii) To act as entrepreneur on behalf of the state to
identify new areas of economic investment and to undertake or help in the undertaking of such investments.

iv) To formulate and recommend to the Govt. a national policy for the development of Iron & Steel and related input industries and to advise it in all policy & technical matters.

With the above objectives in view, Bokaro Steel Plant, another important steel manufacturing unit in the public sector had been taken over by SAIL as its subsidiary in the year 1973.

The progress of work of SAIL since inception may be presented in brief as follows:

In 73-74 the paid-up capital of SAIL rose to Rs.1317.48 crores from 72-73 figure of Rs.1294.41 crores. The Company's investment in subsidiaries and others also increased from the previous total of Rs.1293.81 crores to Rs.1326.09 crores in 73-74. The Income and expenditure of the company amounted to Rs. 31.68 lakhs and 53.89 lakhs respectively. So the excess of expenditure over income amounted to 22.21 lakhs and was met from the Govt. grants.

In 74-75 the paid up capital increased by Rs.48.17 crores from that of the previous year. The Company's investment also increased by Rs.46 crores. This year the company did not
draw any fund from Govt. as grant-in-aid, though expenditure increased remarkably. H.S.L, one of its important subsidiary in the steel sector made a profit of Rs.48.24 crores though another subsidiary in the same sector Bokaro Steel Plant suffered a loss of Rs.11.65 crores. (On June 10, 1974 another fully owned subsidiary of SAIL was registered in the name of "SAIL International Limited" with an authorised capital of Rs.50 lakhs and registered office at Calcutta. The Company was appointed as the canalising agency for export of Iron & Steel with a view to co-ordinating the export & import of steel items.)

As on March 31, 1976 (1975-76) paid up capital of SAIL rose to Rs.1401.04 crores excluding share money pending allotment. Total revenue expense of the Company rose to Rs.396 lakhs from the last year's amount of Rs.252 lakhs. After meeting this expense the company enjoyed a small profit of Rs.2546 and so like previous year, this year also the company took no grant-in-aid from the Govt. H.S.L this year made a profit of Rs.44.66 crores whereas B.S.L suffered a loss of Rs.16.94 crores. SAIL International Ltd this year managed to export various categories steel for Rs.110 crores. Exports were made to a number of countries including Japan, Korea, Philippines, Thiland, Malaysia, Singapur, Bangladesh, Pakistan, Poland, Yogoslavia, Egypt, Libia, Syria and Venezuela. Another company named as India fire bricks and Insulation Co. Ltd. came as a subsidiary of SAIL from this year. (Another important
govt. decision in this year (75-76) is the restructuring of H.S.L which was for long under consideration of the govt. since the formation of SAIL in 72-73. However the long awaited govt. decision has since arrived and all the four units (Durgapur Steel Plant, Bhilai Steel Plant, Rourkela Steel Plant and Alloy Steel Plant) under operational control of H.S.L became direct and fully owned subsidiary of SAIL. In terms of agreement with the Govt. of Iran another new Govt. company in the name of Kudremukh Iron Ore Company Ltd. was registered on 2nd April 1976 to sell iron ore concentrate to the National Iranian Steel Industries Company, Tehran for which a financial agreement for a loan of 630 million U.S. Dollars was entered into with the Imperial Govt. of Iran.).

During the financial year 76-77 the paid up capital of the company increased to Rs.1557.14 crores including shares pending allotment showing an increase of Rs. 98.65 crores over the corresponding figure of the last year. Investment of the company also increased from 1446.42 crore to Rs.1551.68 crores. The Company this year enjoyed a surplus of Rs. 2.55 lakhs and did not draw any fund from Govt. as grant-in-aid. This year B.S.L made a profit of Rs.1.76 crores (after providing for depreciation) for the 1st time. (In March '77 the Govt. approved the project report on Salem stainless steel plant for the manufacture of 32000 tonnes of cold rolled stainless steel sheets and strips in the first stage.
The Project report of two other steel project one at Karnataka (Vijay Nagar Steel Project) and the other at Andhra Pradesh (Visakhapatnam steel project) were waiting approval).

As on 30th April 1978 (year 77-78) the paid up capital of SAIL including share money pending allotment amounted to Rs. 1980.31 crores. There has been an increase of Rs.423.17 crores over that of last year. This year the company had a deficit of Rs.87.36 lakhs after providing for preliminary expenses and accumulated losses amounting to Rs.96.95 lakhs relating to Bhilai Ispat Ltd., Durgapur Misra Ispat and Rourkella Ispat Ltd. The year 77-78 is noteworthy for the completion of the 1st. stage of development of B.S.L and agreement with Peugeot Leire of France for the supply of knowhow (agreement signed on 26.1. 78) for cold rolling Mill of Salem Stainless Steel Plant.

The most important year in the life of SAIL and perhaps in the history of Iron & Steel Industry of India is 1978-79. The Public Sector Iron & Steel Companies (restructuring) and Miscellaneous Provisions Act 1978 came into force from 1st May 1978 and with that the nature and activity of SAIL were changed, it became an operating Company.

With the passing of this act some of the subsidiaries of SAIL e.g. H.S.L., Bhilai Ispat, Rourkella Ispat, Durgapur Steel and Durgapur Mishra Ispat Ltd., Bokaro Steel Ltd., Salem Steel Ltd., and SAIL International Ltd. stood dissolved (with the
exception of a few undertakings under H.S.L.) and transferred to and vested in SAIL from the aforesaid date. Share holding of SAIL in H.S.W.C.L., MEGON, NMDC, BSL etc. also stand transferred to the Govt. from 1st May '78. For the first time since inception, the authorised capital of SAIL has been increased to Rs.2500 crores from Rs.2000 crores. The paid up share capital of the company as at 31st March 1979 stood at Rs2228.02 crores exclusive of share money pending allotment of Rs.29.85 crores. The borrowings from the Govt. of India, as on 31st March '79 stood at Rs.730.96 crores.
A SHORT HISTORY OF THE DIFFERENT UNITS
UNDER IRON AND STEEL INDUSTRY:

PRIVATE SECTOR:

TATA IRON & STEEL COMPANY

The history of the Indian Iron & Steel is closely associated with the history of Tata Iron & Steel Company at Jamshedpur. As the leading, old manufacturer of pig iron, steel ingot and different kinds of saleable steel in India the concern has a great contribution towards the development of Indian economy. The founder of this Company was Jamshedji Nusserwanji Tata. In the year 1882 having been inspired by a report of the German Geologist R.V.Schwartz he at first visited a place named Lohara at Maharastra but found it unsuitable for setting up steel industry for want of coking coal. Ultimately as per decision of Sri P.N.Bose an eminent Indian Geologist, "Sakchi" was chosen as the ideal site. The present town of Jamshedpur has grown around sakchi. The site of the industry is at the confluence of Subarnarekha and Khorkai. The plant at Sakchi started in 1908 with two blast furnaces of 200 tonnes capacity each, four 40 tonne open hearth furnaces, 180 copper coke-ovens, one steam driven blooming mill, one rail and structural mill and a small bar mill.

4. Verrier Elwin, The Story Of Tata Steel,
The Company took extension plan after First world war. By 1924 the annual production exceeded the target capacity of 4,50,000 tonnes of steel ingots. The plant produced rails, merchant steel, sheets spring steel and carbon steel. By the year 1942 it became an integrated iron and steel plant with a capacity of 8,00,000 tonnes of finished steel per year.

An analysis of the working results of the company in the last decade or so gives the following important events.

In 69-70 operations at works suffered a severe set back due to the deterioration in the condition of older coke-oven batteries resulting in a decrease in the production of coke, iron & ingots. In 70-71 there was an improvement in the production of coke, iron and ingots although the production of saleable steel was lower by 65,000 tonnes. In 1971-72 production of coke and saleable steel showed a marginal improvement over the previous year, but there was a slight decline in the output of iron and ingots. Exports of steel declined to 43,000 tonnes as a result of Govt. restriction. Profits for the year also declined owing to escalation in the costs without any increase in the price of steel. In 1972-73, inspite of an increase of about 94000 tonnes in the sales of steel products the pre-tax profit recorded steep fall. This was attributed to significant rise in production cost which was only partly compensated by increase in price of steel.
In 73-74 the company planned to achieve a production of 1.5 million tonnes but its effort was hindered by the unprecedented shortage of coking coal and electrical power. As a result production slumped to 1.2 million tonnes. Frequent dislocation of rail movement and shortage of wagons had a severe impact on despatch of finished steel from works. Despite a short fall in the production and despatches, the profit after taxes recorded a considerable increase. In 74-75 with the improvement in the supply of coal and power, the production of iron, coke, ingot and saleable steel rose significantly. The general economic slow down and the credit squeeze resulted in the slackening of steel market, especially for bars and rods used in the construction industry. In 1975-76 inspite of a high tempo of operations, with the production of saleable steel touching 99% of the capacity the profit suffered a serious set back as compared to the previous year. In 76-77 also the rising tempo of operations was mentioned. Saleable steel production also increased with the rebuilt coke-oven battery, coke output rose by 7% over the previous year. Export shipment also reached a record level of 1,84,000 tonnes of steel. In 1977-78 inspite of frequent and severe restrictions on power supply during the 2nd half, production performance was the best since 66-67 both in output and quality. From fifth June '78 the Govt. increased the price of all categories of steel except railway materials subject to the condition that the company should not declare dividend of more than 12% on equity shares.
In 1978-79 total turnover increased by Rs.20 crores to Rs.381 crores. This was due to the price increase from June '78 and a better product mix partly offset by lower sales. Pre-tax profit also improved substantially over the previous years. But the production of saleable steel was much lower during the year due to shortage of coal, transport bottle-neck and fall in the power supply. Fall in the quality of coke also affected blast furnace operations. With effect from 7th April 1979 the Govt. further increased the selling price of all categories of steel except railway materials and as a result the total turnover of the company rose by Rs.74 crores to Rs.455 crores during '79-'80 despite 3% fall in the quantity sold. In spite of lower production, increase in operating cost and higher depreciation and interest charges the profit before tax could be maintained at the previous year's level because of improvement in the product mix and profits from products other than steel. In '78-'79 Govt. financial institutions sanctioned a loan of Rs.30 crores in aggregate to meet partly, the cost of 5 year rolling capital expenditure programme 78-79 to 82-83. In April 1980 steel development fund agreed in principle to lend Rs.100 crores for the Company's modernisation programme.
PUBLIC SECTOR:

VISVESVARAYA IRON & STEEL LTD., BHADRAVATI

The Mysore Iron & Steel Works was started in 1923 as a departmental undertaking of the State Govt. at Benkipur now known as Bhadravati, on the Vadra river near Shimoga in Karnataka state. In the beginning it started with a small charcoal based furnace and its target capacity was 24,500 tonnes of pig iron per year. The works got high grade iron ore (Mamattite) from Kommangundi at Babubadan hills, dolomite from Sankargodda in Shimoga district. Later on a small steel plant and steel rolling mills were also added with this works, both of which started production in the year 1936. The plant depended on charcoal and hydro-electricity as fuel in the absence of coal which was a serious handicap towards the development of this area as a centre of steel.

Production process was modernised during the Second Five-Year Plan. In the year 1971-72 an overall increase in the production of various items including alloy & special steel was marked to be 50% (in case of pig iron 57%) over the previous year. During this year Ferro-silicon was produced in this works for the first time in India by using mill scale.

In February 1976 the name of this company was changed to Visvesvaraya Iron & Steel Ltd. which at present is jointly
owned by the Govt. of Karnataka State and the Govt. of India through S.A.I.L. 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.

The authorised capital of the company is Rs.50 crores and paid up capital as on 31.3.79 was Rs.39.45 crores of which Rs.23.67 crores (60%) has been held by the Karnataka Govt. and the balance 15.78 crores by S.A.I.L. During the year ended 31st March '79 the Company reached a turnover of Rs.8400 lakhs and made a profit of Rs.47.74 lakhs.

INDIAN IRON & STEEL COMPANY

In 1918 Indian Iron & Steel Company was formed under the managing agency of Burn & Co. in the private sector, at Hirapur which is at a distance of 4 miles from Asansol and 140 miles from Calcutta. The Company got Iron ore from Gua at South Singbhoom, coal from Ranigunge field and water from nearby Damodar river. There were two blast furnaces of 500 tonnes of capacity each in the beginning of the works here. The Bengal Iron & Steel Company was amalgamated with IISCO in 1936. Later on Steel Corporation of Bengal formed under the same managing agency of Messers Burn & Co. was also merged with the I.I.S.Co. Thus it became an integrated iron and
steel company of much repute from the year 1953.

In view of the progressive decline in the production of steel, the deterioration of the condition of the Plant and equipment and its financial difficulties, the management of the company was taken over by the Govt. of India with effect from 14th July 1972 for a period of two years which was further extended by three years.

Just after the takeover of the management of the company a Plant Rehabilitation scheme was launched to restore the technical health of the plant. A ten year programme of capital reconstruction was also taken-up to hold production at rated level. In the year 1976 57.33% of equity shares and 57.37% of the preference capital of the company were acquired by the Central Govt. Accordingly an act e.g. the Indian Iron & Steel Co. (Acquisition of shares) Act 1976 was passed to make the acquisition of the privately held shares of the company by the Govt. effective.

With effect from 1st May, 1978 shares thus held by the Govt. were transferred to Steel Authority of India Ltd. to manage the financial and technological problems effectively and to ensure the co-ordinated development of the plant. Thus IISCO became a subsidiary of SAIL from 1st May 1978. Subsequently the remaining equity shares and preference shares of IISCO also were purchased by the Central Govt. on payment of
compensation at prescribed rate to the State Govt. and financial institutions and they also were transferred to SAIL. Thus the Company (IISCO) has been merged with SAIL and has become one of its divisions like other public sector steel plants with effect from 30th March 1979.

On 31.3.79 the authorised capital of IISCO was ₹ 100 crores and paid up capital was ₹ 54.32 crores. The outstanding govt. loans to the company as on the above date was ₹ 66.64 crores.
The production and profit performance of IISCO for the last 10 years (70-71 to 79-80) will be apparent from the following table:

<table>
<thead>
<tr>
<th>Year</th>
<th>PRODUCTION</th>
<th>Profit/Loss (Rs. in Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ingot steel (in 000 tonne)</td>
<td>Saleable steel (in 000 tonne)</td>
</tr>
<tr>
<td></td>
<td>Rated capacity 10,00,000 tonnes.</td>
<td>Rated capacity 8,00,000 tonnes.</td>
</tr>
<tr>
<td>1970-71</td>
<td>627</td>
<td>508</td>
</tr>
<tr>
<td>71-72</td>
<td>617</td>
<td>500</td>
</tr>
<tr>
<td>72-73</td>
<td>431</td>
<td>347</td>
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<td>73-74</td>
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</tr>
<tr>
<td>74-75</td>
<td>532</td>
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<td>76-77</td>
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<td>651</td>
<td>506</td>
</tr>
<tr>
<td>78-79</td>
<td>628</td>
<td>481</td>
</tr>
<tr>
<td>79-80</td>
<td>565</td>
<td>430</td>
</tr>
</tbody>
</table>

ROURKELLA STEEL PLANT:

R.S.P was established at the commencement of the Second five year plan at Rourkella in the province of Orissa purely under public sector by the Govt. of India. During the Second five year plan the Govt. of India formed a limited company named as Hindustan Steel Ltd. and it took charge of the Rourkella Steel Project at first.

During 1972-73 with the establishment of SAIL, Rourkella steel plant also like other units of H.S.L came under the control of SAIL as its subsidiary.

On 30th October 1976 R.S.P was incorporated as the fully owned subsidiary of SAIL as per decision of the Govt. of India, Ministry of Steel & Mines. The issued subscribed and paid up capital of the company as on 31.3.77 was Rs41,68,000/-. All the shares are held by the SAIL and its nominee.

On 1st May 1978 Public Sector Iron & Steel restructuring and Misc. Provisions Act was enforced and the Rourkella Ispat Ltd. stood dissolved and their undertaking was transferred to and vested in SAIL. The issued subscribed and paid up capital of the Company as on 30.4.78 remained to be 41.68 lakhs as no new share was issued. The profit and loss account for the year ended 30.4.78 showed a net loss of Rs. 40,31,278 inclusive of preleminary expenses of Rs.40,02,937.
1978-79 R.S.P made important progress in regard to the production and capacity utilisation. R.S.P produced 1,204 million tonnes of ingot steel and 963 thousand tonnes of salable steel which were 83% & 88% of the respective targets. The production of pig iron was 78000 tonnes. New records in production of electric sheets spirally welded pipes and galvanised sheets were established. The production of stainless steel clad plates at Rourkella for the first time in the country in association with IDL chemicals was a major achievement.

BHILAI STEEL PLANT

Another important steel plant established during the 2nd five year plan in public sector is Bhilai steel plant at Bhilai of Madhya Pradesh. In the year 1957, it came under the charge of Hindustan Steel Ltd. Amongst the three public sector steel plants established during the 2nd plan Bhilai has been gradually the most important producer of steel. From the year 1969-70 it made a tremendous progress in the field of capacity utilisation which was 77.6 percent in 69-70, 78.1 percent in 71-72 and 84.3 percent in 72-73.

The year 1972-73 saw a creditable performance in Bhilai Steel Plant in production as well as in despatches. All the major units e.g. coke-ovens, sintering plants, blast
furnaces, steel melting shop, rail and structural mill, merchant mill etc. recorded the highest production ever for a year.

During the year 1974-75 the Govt. approved the expansion of Bhilai Steel Plant to 4 million tonnes capacity. MECON had prepared the detailed project report for this expansion. The capital cost of the scheme has been estimated at Rs. 970 crores. The second Sintering plant has been set up with a view to utilising the additional amount of Iron ore expected from the Dalli Mechanised mines.

By virtue of the application of Sec. 43A of the Companies Act Bhilai Steel Ltd became a public limited company and was incorporated as Bhilai Ispat Ltd to take over the running business of Bhilai Steel Ltd. Bhilai Ispat Ltd operated as a subsidiary of SAIL till 1978 May when after the passing of Public Sector Steel Companies (restructuring) and Miscellaneous Provisions Act the Company stood dissolved and was merged into SAIL as its own division. The authorised capital of the company remained at 500 crores, while issued and subscribed capital as on 31.3.77 totalled Rs. 41.68 lakhs. During 1977-78 Bhilai Steel Plant achieved the highest ever production of ingot steel which stood as 2.371 million tonnes indicating 103.1% fulfillment of target. The production of saleable steel during the period was 1.930 million tonnes against the target of 1.925 million tonnes.
DURGAPUR STEEL PLANT

The third important steel plant under public sector established at the commencement of Second five year plan is Durgapur Steel Plant. The works of the plant were erected at Durgapur in the district of Burdwan. The 1st blast furnace of Durgapur was commissioned in December 1959. D.S.P also was managed by the Ministry of Steel Govt. of India departmentally at start. But in the year 1957 H.S. Ltd took charge of this plant also.

In the year 1965 Durgapur was selected as the site of the 1st Alloy & Special Steel Plant and the plant was started in the same year by the Govt. of India, in collaboration with Japan.

During 72-73 there was an overall improvement in the performance of the plant with an increase of 3.3% and 10.4% in production of steel ingots and saleable steel respectively. During 78-79 in order to improve and diversify production at Durgapur a number of schemes were taken up. Of these half coke-oven battery No. 5A has been complete. The provision of some 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 been sanctioned. A scheme for modification of skelp mill for production of high value skelp/strip and mild steel angles

at an estimated cost of ₹7.78 crores is under consideration of the management committee of Steel Development Fund. The Govt. has sanctioned a proposal for installation of 2X60 MW captive power plant for Durgapur Steel Plant and Alloy Steel Plant at an estimated cost of ₹54.91 crores.

As the million tonne plant of Durgapur is more than two decades old the company is proposing to assign the preparation of a development plan for modernisation of this plant to the British Steel Corpn. (Overseas Service) Ltd.

**BOKARO STEEL PLANT**

India's 4th Steel Plant in the Public Sector started production at Bokaro, Bihar, under the Central Govt. in the year 1972 when the 1st blast furnace of the plant was commissioned. It is a unique plant of special feature in many respect. After completion it has been the largest plant in S.E. Asia. Besides, it is the first indigenous iron and steel plant in India. Earlier, in the year 1964 the Govt. of India organised a Company named as Bokaro Steel Ltd. to take over the Bokaro Steel Plant after completion.

After 1970 the Govt. decided to expand the capacity of the plant from 1.7 million ton to 4 million tonnes stage by stage. Central Engineering & Design Bureau of H.S. Ltd had
been appointed as the main consultants in place of earlier Soviet Consultants. The Plant has been expanded by various stages and more than 3 expansion programmes have been drawn up till date.

With effect from 1st May 1978, when the Public Sector Iron & Steel Companies (Restructuring) and Miscellaneous Provisions Act 1978, Bokaro Steel Ltd. along with some other subsidiaries of SAIL stood dissolved and its undertaking stood transferred and vested in SAIL. Bokaro Steel became a division of SAIL.

With a view to obtaining maximum output from the 4 million tonnes stage installations, SAIL approved further expansion of this plant to a capacity of 4.75 million tonnes which is under consideration by the Govt. In July 1979 the slag granulation plant was commissioned with an annual capacity of 1.3 million tonnes. The commissioning of aerial ropeway for transportation of Coal from Dugda to Bokaro is under completion in 1980.

**SALEM STEEL PROJECT**

Another important steel plant in the public sector e.g Salem Steel Project specialises in the production of special steel (cold rolled stainless steel sheets and strips).
The plant is situated in Salem in Tamil Nadu. Salem steel will be one of the most sophisticated plant of its kind and utilise the latest technology with a Sendzimir Mill for cold rolling and neutral electrolytic pickling baths in the annealing and pickling lines. A Company e.g. Salem Steel Ltd. has earlier been formed to takeover the running business of Salem Steel Plant after its completion.

"Peugeot Loire" of France will supply knowhow and offer training and other related services. Salem engineers and technicians will be trained at their works in France for the operation of the plant. The civil work and structural work of this plant has been taken up by Hindustan Steel Works Construction Ltd. M/s M.N.Dastur & Co. Private Ltd. has been rendering their services as technical consultant for this plant. The first stage of the Salem Steel Project approved by the Govt. in March 1977 is planned to produce 32000 tonnes of cold rolled stainless steel sheets & strips per year from purchased hot bands. It is estimated to cost Rs.126.81 crores.

VISAKHAPATANAM STEEL PROJECT

In June 1979 the Govt. of India sanctioned another integrated steel plant at Visakhapatnam in Andhra Pradesh with a capacity of about 3.4 million tonnes in two overlapping stages at an estimated cost of Rs.2256 crores including 500.20 crores
of foreign exchange. The Soviet Govt. extended technical and financial assistance for this plant. The credit offered by the Soviet Govt. is Rs.250 crores for the first stage.

The plant will produce pig iron billets, iron rods light and medium merchant products and universal beam mill products which will be manufactured in this country for the first time. The production capacity envisaged for the first stage is 7,10,000 tonnes of light and medium merchant mill products, 305000 tonnes of saleable billets and 512000 tonnes of saleable pig iron.

VIJAYNAGAR STEEL PROJECT

The detailed project report of Vijaynagar Steel Project prepared by Metallurgical and Engineering Consultants of India Ltd. envisages an estimated cost of Rs.1580 crores to create 3.0 M.T steel capacity based on prices prevailing in the third (3rd) quarter of 1976. Updated costs and financial analysis of the project, since received from the consultants are under consideration of the SAIL Board.
AN ANALYSIS OF PRESENT INVESTMENT IN STEEL INDUSTRY

A large amount of capital has been invested in the steel industry in both public and private sector during the last ten years. Of course present investment in public sector is nearly 16 times larger than that in private sector. The amount of total capital employed in public sector is Rs.3687.07 crores whereas total funds employed in the private sector (TISCO only) amounts to Rs.235.70 crores. Steel industry being a basic industry all new plants after independence have been installed under Govt. initiative. To facilitate our analysis of present investment in steel industry we propose to analyse the same in the two sectors separately.

(a) Public Sector (SAIL):

Public Sector steel industries imply the industrial divisions under Steel Authority of India Ltd. The Authorised capital of SAIL upto 31.3.80 was Rs.2500 crores. This has been increased to Rs.3000 crores after the close of the financial year 79-80 (i.e. from 1.4.80). The paid up share capital of company as at 31.3.80 stood as Rs.2490 crores including share money pending allotment of Rs.56.62 crores. During the year 1979-80 equity funds of Rs.220.87 crores were drawn in cash from the Govt. of India to finance capital projects, township schemes and investment in subsidiaries. The investment in
subsidiaries e.g. Indian Iron & Steel Co. Ltd. and Metal Scrap trade corporation Ltd. stood at Rs.59.59 crores. In Visvesvaraya Iron & Steel Ltd. the investment is Rs.15.78 crores.

As on 31.3.1980 the investment in loan fund was Rs.1077.27 crores and retained profit (Reserves and surplus) amounted to Rs.119.05 crores. The borrowings from Govt. of India stood at Rs.718.53 crores and from Steel Development Fund Rs.158.00 crores. The Company (SAIL) owed an amount of Rs.169.70 crores to S.B.I. on account of over-draft and an amount of Rs.145.60 crores as cash credit. Besides loan advanced by K.W.F. Republic of Germany amounted to Rs.5.26 crores.

The authorised capital of Visvesvaraya Iron and Steel Ltd is Rs.50 crores and subscribed and paid up capital as on 31st March '79 was Rs.39.45 crores of which 23.67 crores was held by the Govt. of Karnataka and 15.78 (40%) crores was held by SAIL.

(b) Private Sector (TISCO):

As stated earlier the investment in private sector stood at Rs.235.70 crores on 31.3.80. Private Sector Steel Plant means the steel plant of Tata Iron & Steel Co. Ltd. The authorised share capital of the company amounts to Rs.71.50 crores comprising of 60,00,000 ordinary shares of Rs.100 each i.e. Rs.60.00 crores of ordinary share capital and Rs.11.50 crores of preference capital consisting of different categories of pre-
ference shares. The subscribed and paid up capital of the company as on 31.3.80 stood as ₹62.84 crores (equity share cap. ₹51.44 crores and preference share cap. ₹11.40 crores). The internal capital (profits retained as reserves and surplus) of the company stood as ₹38.11 crores. The loan capital or borrowed fund in the private sector amounted to ₹84.73 crores excluding trade dues and current liabilities. This comprised of secured loans amounting to ₹47.31 crores and unsecured loans of ₹37.42 crores.

A SURVEY OF INSTALLED AND UTILISED CAPACITY OF THE UNITS

An idea about the rated capacity (installed) of the main steel manufacturing companies in both sectors as well as their capacity utilisation may not be out of place now. A survey of the production performance of the main units will indicate their installed capacity and percentage utilisation. We propose to divide the steel manufacturing companies into three subdivisions. Firstly we take SAIL with all its constituents and subsidiary steel producing units in the public sector. Secondly, we take TISCO, the only integrated and old steel producing company in the private sector. And thirdly we shall take up Visvesvaraya Iron & Steel Ltd. with 60% shares held by the State Govt. and 40% of shares held by Central Govt., through SAIL.

STEEL AUTHORITY OF INDIA LTD. (SAIL):

Steel Authority of India Ltd. including Indian Iron & Steel Co., a subsidiary of it, produced 6.249 million tonnes of Ingot Steel and 4.592 million tonnes of saleable steel in their integrated steel plants in 1979-80. This fell short of the production of the preceding year (1978-79) by 0.6% in the case of ingot steel and 9.5% in case of saleable steel. The overall capacity utilisation in terms of ingot steel was 66.5% and in terms of saleable steel 63.5% though saleable steel

7. Seventh and Eighth Annual Report (78-79 and 79-80) of Steel Authority of India Ltd.
capacity utilisation in the case of Bhilai and Rourkela Steel Plants was much higher at 86.8% and 85.3% respectively. The production of 1979-80 was adversely affected on account of two major factors - (i) Inadequate supply of coking coal both in terms of quantity and quality, (ii) Frequent restrictions and fluctuations in power supply.

The following table will indicate the annual capacity of the various plants under SAIL (Including IISCO), their actual production (utilised capacity) in 1978-79 and in 1979-80.

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| Name of the Plant | Annual capacity (Installed) | Actual production (1978-79) | Actual production (Utilised capacity) (1979-80) | % utilisation (1979-80) |
|-------------------|-----------------------------|----------------------------|------------------------------------------------|
| Bhilai Steel Plant | 2,500                       | 2,200                      | 2,108                                           | 84.32%               |
| Durgapur Steel Plant | 1,600                       | 945                        | 882                                            | 55%                  |
| Rourkela Steel Plant | 1,800                       | 1,319                      | 1,268                                           | 70.45%               |
| Bokaro Steel Plant * 1700/2500 | 1,195                      | 1,426                      |                                                 | 57%                  |
| IISCO | 1,000                       | 628                        | 565                                            | 56.5%                |
| Alloy Steel Plant | 100                         | 97.33                      | 76.72                                           | 76.72%               |
|                   | (SALEABLE STEEL)            |                            |                                                 |                     |
| Bhilai Steel Plant | 1,965                       | 1,846                      | 1,706                                           | 86.8%                |
| Durgapur Steel Plant | 1,239                       | 776                        | 604                                            | 48.63%               |
| Rourkela Steel Plant | 1,225                       | 1,042                      | 1,045                                           | 85.30%               |
| Bokaro Steel Plant * 1355/2000 | 931                         | 849                        |                                                 | 42.45%               |
| IISCO | 800                         | 481                        | 430                                            | 53.75%               |
| Alloy Steel Plant | 60                          | 48.84                      | 45.68                                           | 76.13%               |

* Bokaro Steel Plants' annual capacity was 1.7 Metric ton for 78-79 and 2.5 Metric ton for 79-80 in respect of Ingot Steel and 1.335 Metric ton for 78-79 and 2.0 Metric ton for 79-80 in respect of Saleable Steel.

For a long period Tata Iron & Steel Company Ltd. as an integrated steel plant of India had been the major producer of steel in India. Of course now a days SAIL as a combined unit manufactures nearly 70% of the aggregate production of steel in India. Actually TISCO has been operating at more than 90% capacity for the past many years. During 1977-78 Tata Iron and Steel Co. exceeded the capacity utilisation by 5.1%. Of course during 1979-80 operations in TISCO were seriously affected by acute shortage of coking coal, poor quality of purchased coal and severe power restrictions imposed by D.V.C.

The production and percent capacity utilisation for the last three years has been as under:

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual capacity (in 000' tonnes)</th>
<th>Actual production (in 000' tonnes)</th>
<th>Per cent capacity (utilisation)</th>
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</thead>
<tbody>
<tr>
<td>Steel Ingots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1977-78</td>
<td>2000</td>
<td>1968</td>
<td>98.4%</td>
</tr>
<tr>
<td>78-79</td>
<td>2000</td>
<td>1866</td>
<td>93.3%</td>
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<tr>
<td>79-80</td>
<td>2000</td>
<td>1779</td>
<td>88.95%</td>
</tr>
<tr>
<td>Saleable Steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1977-78</td>
<td>1500</td>
<td>1601</td>
<td>106.73%</td>
</tr>
<tr>
<td>78-79</td>
<td>1500</td>
<td>1516</td>
<td>101.00%</td>
</tr>
<tr>
<td>79-80</td>
<td>1500</td>
<td>1447</td>
<td>96.47%</td>
</tr>
</tbody>
</table>

Visvesvaraya Iron & Steel Limited is one of the main producers of alloy and special steel in India. Other products of the Company are mild steel, ferro silicon, cement, casting, spun pipes and ferro alloys. It is now jointly owned by the Govt. of Karnataka and the Govt. of India (through SAIL).

The present installed capacity, actual production and percent capacity utilisation of this Company are given below:

<table>
<thead>
<tr>
<th>Name of Product</th>
<th>Present Installed capacity (tonnes)</th>
<th>Actual production (utilised capacity)</th>
<th>Percent capacity utilisation (79-80)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1978-79 (In Tonnes)</td>
<td>1979-80 (In Tonnes)</td>
<td></td>
</tr>
<tr>
<td>MILD STEEL</td>
<td>48,000</td>
<td>29,784</td>
<td>28,351</td>
</tr>
<tr>
<td>SPECIAL STEEL</td>
<td>72,000</td>
<td>56,153</td>
<td>64,268</td>
</tr>
<tr>
<td>STEEL INGOT</td>
<td>1,80,000</td>
<td>1,05,415</td>
<td>1,18,492</td>
</tr>
<tr>
<td>FERRO SILICON</td>
<td>20,000</td>
<td>16,265</td>
<td>8,241</td>
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<tr>
<td>CEMENT</td>
<td>96,000</td>
<td>95,265</td>
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<tr>
<td>FERRO ALLOYS</td>
<td>3,800</td>
<td>3,444</td>
<td>1,680</td>
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<tr>
<td>PIG IRON</td>
<td>1,80,000</td>
<td>93,160</td>
<td>71,234</td>
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<tr>
<td>STEEL CASTINGS</td>
<td>2,500</td>
<td>2,110</td>
<td>2,073</td>
</tr>
</tbody>
</table>
References

1. Krishna Dwaipayan Vedavyas : Mahavarata (Birat Parba)
7. Seventh and Eighth Annual Report (78-79 and 79-80) of Steel Authority of India Ltd.