CHAPTER THREE
CHAPTER THREE
THE STEEL INDUSTRIES IN INDIA

3.1 Introduction:

Iron and Steel industry is the most important of all manufacturing industries and is considered the basic or key industry of any nation. For the development of an Iron and Steel industry, the basic requirements are the availability of raw materials like, iron ore, limestone, dolomite and manganese, the availability of fuel; i.e., coking coal, a large supply of water for tampering of steel, availability of capital and a big market to absorb the products of the industry. The Iron and Steel Industry is generally described as material oriented industry. Its best location is one where both coal and iron ore are found in close proximity, if coal and iron ore are found together then the plant is more suitably located near coal mines, iron ore mines or at intermediary location or even near the market.

3.2 Importance of Steel Industry:

The per capita consumption of steel can be considered as an index for the industrial prosperity of a nation. Steel is required for the production of different kinds of machinery in industries such as transport and defence equipment. So, Iron and Steel are essential not only in times of peace but also in times of war. In fact, the production of steel has long been a pre-requisite of military strength and it has been said that 'steel is power'. There is a high degree of correlation between steel output and the industrial status of a country. In fact, the level of industrial advancement of a country can be easily judged from the level of iron and steel output of that country. Thus, all industrially advanced countries produce large quantities of iron and steel, while the output of iron and steel in industrially backward countries is very small. For example, in industrially developed countries like U.S.A., 9.3 million tonnes, in Russia 4.8 million tonnes, in France 1.3 million tonnes, in Japan 8.7 million tonnes, West Germany 4.3 million tonnes, France 1.9 million tonnes and in aggregate these nations produced more than 30 million tonnes of crude steel. On the other hand
underdeveloped countries like India produced 2.3 million tonnes, Brazil 2.3 million tonnes, Argentina 0.4 million tonnes and in aggregate they produced 5 million tonnes in March 2000. 

It is also true that the higher the level of economic development, the greater is the per capita consumption of steel. Thus, the per capita consumption of steel in the U.S.A. is 604 kgs, whereas in India, it is only 26 kgs. 

The world production of crude steel in 1985 was 719 million tonnes, in 1995, it was 748 million tonnes which increased to 780 million tonnes in 1998-99. India produced only 22.57 million tonnes in 1998-99.

In 2001, world crude steel output was 847 million metric tonnes. China remained the World’s largest crude steel producer in 2001 (149 million metric tonnes) followed by Japan (103 million metric tonnes) and U.S.A. (27 million metric tonnes).

3.3 History and Growth of the Steel Industry:

The earliest production of iron ore for use was perhaps made in an area between the Black Sea and the Caspian Sea sometimes in 1500 BC. The art of iron smelting became known by 1300 BC in the whole of the Middle East.

India had a fine tradition in iron and steel, evidence of which is available in the iron pillar near Kutub Minar (Delhi) dating back to 1600 years and in the iron beams of Konark Temple (Orissa) in 13th century. Despite the ancient tradition, the rich deposits of iron ores and the fact that the steel production along modern lines was started towards the end of the eighteenth century.

The formation of the Barakar Iron Works and its take over by Government of Bengal are events of considerable significance. The Barakar Works of Kulti made pig iron in open top blast furnace in 1875. After some years, the company was faced with marketing and financial problems. The Government of the Bengal Presidency in the public works department took over the work in 1881 and ran it for a decade. The
Bengal Iron and Steel Company formed in England, took over the operations in 1891 and Martin & Co., became the managing agents in 1892. A discovery of good iron ore made by the Company in 1906 in Singhbhum, led the promotion of the Indian Iron and Steel Company Limited by Burn & Co. in March 1918 with works at Hirapur near Asansol to produce pig iron for the domestic and export markets. Pig iron from Hirapur was highly competitive in the foreign market and enjoyed a good reputation for quality.

In 1936, the Bengal Iron and Steel Company was absorbed by Indian Iron and Steel Company. The Steel Corporation of Bengal was promoted by Burn & Co., in 1937, with Sir Biren Mukherjee as Chairman of the Board of Directors. Next to the Hirapur works at Napuria, a steel plant was erected in 1939 and utilised the hot metal from Hirapur. Steel was made in November 1939. In a final merger move, the Indian Iron and Steel Company absorbed the Corporation of Bengal in December, 1952 to form the Burnpur Works which had a steel production capacity of 350000 tonnes per annum. Thus Indian Iron and Steel Company was the first company to produce iron by modern methods and to earn a reputation for quality of manufacture and financial profitability.

Jamsetji Nusserwariji Tata had a vision of establishing an integrated iron and steel industry and scouted in 1902 for the best technology and talent in America. After exhaustive surveys for raw materials and infrastructure, a site was chosen in 1905 at Sakchi, situated at the confluence of Kharkai and Subarnarekha rivers and about three kilometres away from Kalimati station on the erstwhile Bengal-Nagpur Railway, 245 kilometres away from Calcutta.

The Tata Iron and Steel Company was registered at Bombay, on 26th August, 1907 with Dorabji Tata as Special Director and Chairman. The inflow of capital from the market was overwhelming. Construction work was blown in 2nd December, 1911 and the first ingot rolled on 16th February 1912. The company had then a capacity of 100,000 tonnes of finished products.
The state of Mysore had a progressive outlook and wanted large scale industrialization when Tata were busy starting the steel industry. Sir M. Visvesvarya, the then Dewan, took advantage of the technical expertise available with Tatas in 1915 and laid out plans for the manufacture of charcoal pig iron. The location of the plant was Benkipur on the banks of river Bhadra, which came to be known later as Bhadravati. Construction work was started in 1919 and metal flowed out in January, 1923. For the next six years, Sir Visvesvarya struggled at Bhadravati to improve operations and render the venture viable. The plant went in for vertically cast pipes in 1929 and steel manufacture by 1936, to a 30000 tonne capacity and with facilities for rolling. The name of the company was changed to Mysore Iron and Steel Works (MISL) in 1936. A ferro silicon plant was added in 1942, the first of its kind in India. MISL diversified itself in later years to production of alloy and special steels.10

After independence, various steps were taken under the economic planning, to develop public sector steel plants in India. The first and second world wars created scarcity of steel in the country and the Government was compelled to help indigenous industry to expand its output.

When the Industrial Policy Statement was issued in 1948, Iron and Steel Industry was placed under the category of key industries where the establishment of new undertakings was to be the responsibility of the state and other public authorities. With the launching of the first five year plan in 1951, it was realised that the development of the basic and heavy industries should be given priority over the production of consumer goods. It was, therefore, decided that steel being the essential basic industry should receive top priority. Accordingly, in the fist plan itself the steel industry was included in public sector. February 1953 can be considered a month of historic importance for the Iron and Steel industry of India. During this month, an agreement was signed between the Government of India and the German firm Krupp and Demag for setting up a steel plant in public sector at Rourkela (Orissa). Although the preparations for Rourkela steel project had begun in 1953, nothing concrete could be done till the beginning of the Second Five Year Plan. The new Industrial Policy, 1956 placed the iron and steel industries in schedule A where only public sector units could be established, by facilitating the liberal expansion of existing Iron and Steel
industries in the private sector. During the Second Five Year Plan, three integrated Iron and Steel plants in the public sector at Rourkela (Orissa), Bhilai (Madhya Pradesh) and Durgapur (West Bengal) and then existing steel plants in the private sector, the Tata Iron and Steel Company and Indian Iron and Steel Company were earmarked for planned expansion. The Hindustan Steel Limited was started to operate in the public sector steel plants. Government of India entered into an agreement with the German concern 'Krupp Demag' in 1954 to erect a steel plant at Rourkela with five lakh tonnes capacity. The second agreement was entered into in 1956 with the Russian Government to set up another steel plant in Bhilai in Madhya Pradesh. The third agreement was entered into with the British consortium to set up one more steel plant at Durgapur in West Bengal. During the first two plans, development of steel industry was quite rapid with the establishment of three public sector plants. During the third plan, the production capacity of the previous three plants was doubled. A new plant was established at Bokaro later in 1972. Since the introduction of the fourth plan, steps were taken for the development of three more steel plants one each at Salem, Bijaynagar and Visakhapatnam.  

Thus, with the development of public sector units, the total production of steel ingots has gradually increased from 1.47 million tonnes in 1950-51 to 6.14 million tonnes in 1970-71 and then 27.0 million tonnes in 2000-01.

The total production of finished steel also rose from 1.04 million tonnes in 1950-51 to 4.64 million tonnes in 1970-71 and then 14.3 million tonnes in 1991-92 which increased to 23.82 million tonnes in 1998-99 (2.5% of the world output). This sector contributes to around 10% of the national exchequer. Nearly 51% of crude steel production was by public sector while the remaining 49% was by private sector. In 2001-2002, the integrated steel plants produced 42% of finished steel and the remaining 58% was contributed by the secondary producers.
Table 3.1
(in million tonnes)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pig iron</td>
<td>3.30</td>
<td>3.39</td>
<td>3.00</td>
<td>3.18</td>
<td>3.39</td>
<td>3.95</td>
</tr>
<tr>
<td>Sponge iron</td>
<td>5.00</td>
<td>5.32</td>
<td>5.11</td>
<td>5.34</td>
<td>5.44</td>
<td>5.66</td>
</tr>
<tr>
<td>Finished steel</td>
<td>22.72</td>
<td>23.37</td>
<td>23.82</td>
<td>27.17</td>
<td>30.60</td>
<td>31.10</td>
</tr>
</tbody>
</table>


The above table shows that pig iron and sponge iron depicted a rising trend from 1996-97 to 2001-02 except in the year 1998-99 as there was demand recession. Of course, the finished steel production showed a rising trend. The pig iron production increased from 3.30 million tonnes to 3.95 million tonnes. Sponge iron production increased from 5.00 million tonnes to 5.66 million tonnes and the finished steel production increased from 22.72 million tonnes from 1996-97 to 31.10 million tonnes in 2001-02. It shows the improvement in production of steel by the Indian Steel Industries.

The new economic policy introduced in July 1991 paved the way for delicensing of steel industry and ushered in a number of new green field steel plants under Essar, Lloyds, Jindal, Vijaynagar and Ispat industries. The main features of these new steel plants were state-of-the-art technology namely corex technology for steel making, thin slab casting, secondary refining facility. All the steel plants were mainly producing HR coils, thereby meeting the demand for all the down-stream varieties in the flat category.13

Following liberalisation, the consumption of finished steel grew at a higher rate of average 17 to 18% per annum during 1999-2000 to 2002-03 when it reached the average level of 24.50 million tonnes to 29.02 million tonnes.

However, the Iron and steel are freely exportable and India is a net exporter of steel.
Table 3.2
Export of finished steel (1996-97 to 2001-02)

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity in million tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>1.622</td>
</tr>
<tr>
<td>1997-98</td>
<td>1.880</td>
</tr>
<tr>
<td>1998-99</td>
<td>1.771</td>
</tr>
<tr>
<td>1999-00</td>
<td>2.670</td>
</tr>
<tr>
<td>2000-01</td>
<td>2.664</td>
</tr>
<tr>
<td>2001-02</td>
<td>2.725</td>
</tr>
</tbody>
</table>


Iron and steel are freely importable as per the Import Policy. The following table shows India's imports from the year 1996-97 to 2001-02.

Table No. 3.3
Import of finished steel

<table>
<thead>
<tr>
<th>Year</th>
<th>Import Quantity in million tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>1.56</td>
</tr>
<tr>
<td>1997-98</td>
<td>1.59</td>
</tr>
<tr>
<td>1998-99</td>
<td>1.13</td>
</tr>
<tr>
<td>1999-00</td>
<td>1.60</td>
</tr>
<tr>
<td>2000-01</td>
<td>1.41</td>
</tr>
<tr>
<td>2001-02</td>
<td>1.37</td>
</tr>
</tbody>
</table>


The above table shows India's imports in 1996-97 was 1.56 million tonnes increased to 1.60 million tonnes in 1999-2000. It came down to 1.37 million tonnes in 2001-02 due to increase in production of steel from 27.17 million tonnes to 31.10 million tonnes.

Recessionary trends in most of the steel intensive segments like capital goods, consumer durables and construction segments coupled with lack of investment in the infrastructure sector led to a stagnant level of steel consumption in the country which is currently hovering around an average level of 29 million tonnes.15

The economic reforms and the process of liberalisation has resulted in profound changes in the Indian steel industry. The steep decline in tariff rates, the abolition of licensing and import liberalisation has hastened the pace of integration of Indian Steel industry with the international market. The fluctuations in the global
market have now an immediate impact on the Indian Steel market as the recent history of South-East Asian Crisis, the upward trend in flat product prices has conclusively proved.\textsuperscript{16} India’s share in the export market to negligible 2.7 million tonnes out of 30 million tonnes, around one percent of the trade in 2001-02 depicts India’s poor performance in the world market.\textsuperscript{17} One of the major constraints faced by all the exporters have been in the area of infrastructure. The port capacities are extremely inadequate leading to poor storage facilities. The long waiting time for berthing of vessels and the resultant incidence of high demurrage charges are the major irritants for all foreign vessels in Indian ports. The loading system and the equipment available at port also are not suitable for faster loading/unloading which again acts as a disincentive to shipping lines. The capability of Indian Railways to cope with ever rising demand of movement has come to a saturation point. For the past few years, the annual railway’s freight traffic has been static at around 40 million tonnes. The movement of export cargos does not enjoy a preferential treatment in rail transportation. Moreover, the Railway provides for minimum chargeable distance, which adversely affects port based manufacturers while the railways are currently going in for massive track renewal / gauge conversion, their rolling stock procurement for wagon and coaches is much below the plan.

Roads are also not having adequate capacity and good condition to handle heavy steel traffic passing through congested areas. Availability of large trailers is also limited. In the current year, the Government have come up with policy changes whereby the private sector is being involved in high way, express way construction. Construction of new highway linking the four metros has also been initiated.

In spite of increase in consumption of steel, India is still deficient in respect of production of steel. Thus, a large gap between the consumption and production of steel persists. To meet such gap, India is importing steel to the extent of 1 to 1.5 million tonnes leading to a huge bearing on foreign exchange reserves. In 2000-01 and 2001-02, India imported steel worth Rs. 3570 Crore and Rs. 3975 Crore respectively. India has currently an advantage in terms of raw materials cost (iron ore and fluxes) and labour. But, it has yet to attain efficiency levels and technological improvements in conformity with world standards. The cost competitiveness is indicated in the following table.
Table No. 3.4
Comparative cost statement (dollars/t)

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S.</th>
<th>U.K.</th>
<th>Japan</th>
<th>India (SAIL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>87</td>
<td>79</td>
<td>87</td>
<td>142</td>
</tr>
<tr>
<td>Iron ore</td>
<td>61</td>
<td>66</td>
<td>56</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>158</td>
<td>152</td>
<td>194</td>
<td>110</td>
</tr>
<tr>
<td>Total material cost</td>
<td>306</td>
<td>297</td>
<td>337</td>
<td>275</td>
</tr>
<tr>
<td>Labour</td>
<td>157</td>
<td>106</td>
<td>127</td>
<td>62</td>
</tr>
<tr>
<td>Misc. taxes</td>
<td>7</td>
<td>9</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>Works cost</td>
<td>470</td>
<td>412</td>
<td>527</td>
<td>364</td>
</tr>
<tr>
<td>Depreciation and interest</td>
<td>35</td>
<td>32</td>
<td>98</td>
<td>50</td>
</tr>
<tr>
<td>Total cost</td>
<td>505</td>
<td>444</td>
<td>625</td>
<td>415</td>
</tr>
</tbody>
</table>


The table mentioned above indicates that Indian steel is cost competitive. Although, the cost of energy in India is $142/t which is much higher compared to international costs which range between $80 and $90 a tonne of saleable steel. India has an advantage in other material costs. Secondly, despite low manpower productivity, cheaper labour costs give Indian steel an advantage over others. However, steel majors like, SAIL and RINL (Rashtriya Ispat Nigam Limited, Visakhapatnam) which have carried excess manpower for social reasons may find labour cost a source of potential cost disadvantage in future. The cost advantage of Indian Integrated Steel producers is threatened by steep escalation in input costs. The cost of coal, power and transportation have experienced a sharp increase, while international steel producers have had the benefit of static and in some cases, even declining input costs.

Setting up a new plant or modernising an existing plant will call for massive investments and working capital requirements. Raising funds in India is expensive. The prime lending rate in India is about 14.5% compared to 6-8% in the U.K. and U.S.A. Due to depreciation of the rupee and the rising inflation, foreign currency debts in past have turned out to be expensive. Raising funds for operations and capital will be of particular concern to Indian steel producers.
The challenge before the steel industry would be to take advantages it enjoys over its rivals in the developing far eastern countries. India has the fourth largest iron ore deposits estimated around 10.3 billion tonnes in the world with a 60% ferro-content. Iron ore accounts for about 6 to 7% steel’s variable cost of production. A ton of indigenous iron ore costs between Rs. 180 to Rs. 270 which is much lower than Rs. 1100/- per tonne of the comparative quality of iron ore. Skilled labour is cheap and available at plenty. The Indian per hour cost of a skilled labour works out to the US $ one against US $ 20 in the U.S.A. Wage costs account for 10% in the total cost in India as compared to 20-30% in Europe and the U.S.A.18

The performance owes a lot to the easy availability of raw material and the large supply of skilled and semi-skilled labour. In 2003-04, the National Mineral Development Corporation (NMDC) turned out 17.96 million tonnes of iron ore production.19

Iron ore reserves are mainly located in the states of Bihar, Orissa, Madhya Pradesh and Rajasthan. Demand for high grade iron ore has been on the rise internationally. Iran, China, South Korea, Pakistan and Japan have emerged as major buyers of Indian iron ore. The Government’s mineral policy seeks to promote private participation in exploration and development of iron ore mines. It has also favoured foreign technology participation.

Iron ore as the key material in steel does face certain problems. Lack of proper transport and handling facilities and, high cost of freight and demurrage are some of the problems. Mines in India do not use modern techniques and recovery rates are low. There are certain problems concerning foreign or domestic investment in mining sector. The need of the hour is to increase mechanisation to tone up efficiency in extraction and recovery levels. The problem is how to achieve this without compromising the interest of labourers in this labour intensive sector. This has been the major challenge these days.

The steel producers convert coking coal into coke in coke oven. Coke accounts for nearly 35% of steel’s variable production cost. Producers have to depend
on Coal India, captive mines and imports for their coal requirements. Experts feel the quality of India's coking coal is not as good as that of imported coal. This is because Indian coal has high ash content about 18% even after beneficiation against a norm of less than 10%. The steel companies have imported coal at a high price to maintain the product quality. The international coal price is at least 70% more than the Indian coal price. The estimated coal reserves up to a depth of 1200 metres is about 200 billion tonnes.\textsuperscript{20}

Coal mines were nationalised in two phases – the coking coal mines in 1971 and non-coking coal mines in 1973. These nationalised mines were organised under Coal India Limited, as the holding company in 1975. There are at present seven producing companies and one planning and designing company Central Mine Planning and Design Institute.\textsuperscript{21}

The coal industry has responded by increasing production from around 75 million tonnes to 336 million tonnes in 2002-03.\textsuperscript{21} India is now the third largest coal producer in the world, behind China and the U.S.\textsuperscript{22}

Steel continues to play a critical role in industrialisation even though in recent years plastics has emerged as a substitute. India turns out around 32 million tonnes of steel and ranks 15\textsuperscript{th} among steel producing nations in the world. Yet the per capita consumption of steel at 26 kgs in India is way far behind the world's average per capita consumption of around 149 kgs.\textsuperscript{23}

Yet India is fortunate in having a fairly good base of major raw materials like iron ore, coking coal, lime stone, dolomite and manganese of good quality and in abundance.

The major problems of the Iron and Steel industry include over staffing, inefficient personnel, high rate of raw material consumption, outdated energy intensive technology, poor maintenance, poor quality of output and wastage. Our share of less than 1% of the global market bears testimony to this fact. Weak infrastructure, poor power availability, poor quality and quantity are some of the main causes.
Technological upgradation of the steel industry is the crying need of the day. Unless measures are taken on a war footing to alleviate these problems and make E.A.F. (Electric Arc Furnace) a competitive route for steel making, India's hope of becoming a major player will remain a pipe dream.

Globalisation needs increasing attention in the area of marketing from all steel producers. The overseas buyers are not only time conscious but also very particular about quality. It is therefore, expected that the steel producers will attach greater importance on both quality and price of steel available.

The Chelliah Committee Report made a strong plea for a reduction in the cost of operations in steel industry. It said, "we would urge that the iron and steel industry should take appropriate steps to ensure that all the products upstream as well as downstream are produced with the highest efficiency so that the whole of the economy benefits. We have advantages relating to the most basic inputs iron ore."^24

It is interesting that the Chelliah Committee recommended that a graded reduction in the levels of import duty on a host of items relating to the iron and steel industry by 1997-98. Dr. Manmohan Singh, Ex-Finance Minister in his 1995-96 budget speech laid emphasis on cost efficiency of industries.

In recent years, the Government has liberalised the steel policy to meet the projected demand supply gap during the Eighth and Ninth plan and also to encourage export of steel and steel based products. This process of liberalisation had started since 1982. In 1986, private sector units were allowed to produce steel by using E.A.F. process. Expansion of units with a ceiling capacity of 25 lakh tonnes was permitted in February, 1988. In June 6, 1990, the Government issued a set of new guidelines in order to rationalise and liberalise the manufacture of steel and steel based products, to remove unwanted restrictions and also to raise the minimum economic scale of production. Accordingly, private sector investments were allowed to set up plants with its maximum capacity up to 1 million tonnes per annum. In January 16, 1992, the Government took an important decision to abolish price and distribution controls on Iron and steel products manufactured by integrated steel
plants. With delicensing and decontrol on the steel industry and reduction of import duties on iron and steel items, producers have become more responsive to consumer needs. There is also increasing awareness of the need to improve quality and cut down costs.

Decontrolling of prices and distribution of iron and steel in January, 1992 has opened up new opportunities for the investment in the industry. It has also enabled the public sector steel plants to raise their own resources for their modernisation and expansion schemes. In fact, the pace of augmenting resources was set in with the new industrial policy announced in June 1991.

Still then, Indian steel is priced at levels some what more expensive than prices world wide. With deteriorating plant performance and a paralysed management doing nothing to check the rapid downhill slide, its plants are frighteningly overmanned and their technologies are obsolete.

3.4 Location of the Industry:

In accordance with the objective of Indian planning to ensure balanced regional development, attempt so far has been made in the direction of locating, public sector plants in as many states as possible. Thus, the first four public steel plants have been located in four different states – Rourkela in Orissa, Durgapur in West Bengal, Bhilai in Madhya Pradesh and Bokaro in Bihar. However it does not mean the question of locations has in the past been decided wholly on non-economic or non-technical considerations. India’s coking coals are situated in West Bengal and Bihar in North Eastern India. These are close to ore deposits of Bihar, West Bengal and Orissa. Therefore, so far dispersals of plants in different states have been in conformity with technical advantages. Durgapur and Bokaro are coal based whereas Bhilai and Rourkela are ore based. Bhilai and Rourkela are close to the source of limestone. Bhilai is the only plant which is outside the “Ruhr of India” – a region centred around the Bengal-Bihar-Orissa ore and coal fields. Although Bhilai is very far from the sources of raw material, this disadvantage is offset by the higher iron content, the greater hardness and the lower alumina of the Dhalli-Rajhara ores upon which it is based.
At present there are 10 major steel plants, one of them in private sector and 9 others in public sector, as explained below:

1. Tata Iron and Steel Company (TISCO) at Jamshedpur (The first private sector enterprise).
2. Indian Iron and Steel Corporation (IISCO) at Burnpur.
4. Rourkela Steel Plant at Rourkela in Orissa.
5. Bhilai Steel Plant in Chhattisgarh.
6. Durgapur Steel Plant in West Bengal.
8. Alloy Steel Plant in West Bengal (Durgapur).
10. Visakhapatnam Steel Plant in Andhra Pradesh.

(Rashtriya Ispat Nigam Limited)

1. **Tata Iron and Steel Company at Jamshedpur:**

   It is the first steel company of India, established on modern lines at Sakchi in Bihar, on the confluence of Kharkai and Subarnarekha and about three kilometres from Kalimati station on the Bengal Nagpur Railway, 245 kilometres from Calcutta in 1907 under the initiative of Jamshedji Nusserwanji Tata.

   The Tata Iron and Steel Company (TISCO) was registered at Bombay on 26th August 1907 with Dorabji Tata as Special Director and Chairman. The inflow of capital from the market was overwhelming. Construction work started in February, 1908 and the first blast furnace was blown in 2nd December, 1911 and the first ingot rolled on 16th February, 1912. The company had then a capacity of 100,000 tonnes of ingot steel and 72000 tonnes of finished steel products.

   Tata Steel had been constantly at modernisation and increase of plant capacity to half a million and later to 1 million tonne by the fifties. They had contributed significantly to the needs of the Government to Defence during the Second World
War, through innovation and successful experimentation with available resources. Their financial stability had always been sound.

It is located neither on raw materials nor on the market, but it is very conveniently situated in respect of both. Jamshedpur is well connected by railways and all the raw materials are collected by railways. Iron ore is obtained chiefly from Gorumahisani, Badampahad and Sulaipat mines of Mayurbhanj district of Orissa, situated at a distance of 75 kilometres and from Noamundi mines of Singhbhum district in Bihar. Coal is obtained from Jharia Coal Fields situated at a distance of about 170 kilometres. Limestone and dolomite are obtained from Panposh in Rourkela area of Orissa. Manganese is obtained from Rajgangpur, Bonai and Keonjhar in Orissa and also from Madhya Pradesh and Chota Nagpur. The river Subarnarekha provides water to the plant. Jamshedpur is also not far from the great industrial market of Calcutta which is only 245 kilometres away towards the east. The Calcutta port facilitates exports of pig iron.

The company produces a variety of steel items like, blooms, billets, tin bars, rails, structural bars, structural steel sheets, strips, plates, black and galvanised sheets, rolled rings, railway wheels, tyres and axles; ferro manganese, structural tools, Ammonia sulphate and benzol products.

The following statement shows the financial performance of TISCO in 2000-01 and 2002-03.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2000-01</th>
<th>2001-02</th>
<th>2002-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>3.401 million tonnes</td>
<td>3.533 million tonnes</td>
<td>3.905 million tonnes</td>
</tr>
<tr>
<td>Sales/Income</td>
<td>7759.44</td>
<td>7597.07</td>
<td>9793.27</td>
</tr>
<tr>
<td>Expenditure</td>
<td>6057.44</td>
<td>6325.89</td>
<td>7491.29</td>
</tr>
<tr>
<td>Operating profit</td>
<td>1702.00</td>
<td>1271.18</td>
<td>2301.98</td>
</tr>
<tr>
<td>Interest</td>
<td>376.61</td>
<td>369.75</td>
<td>304.82</td>
</tr>
<tr>
<td>Depreciation</td>
<td>492.25</td>
<td>524.75</td>
<td>555.48</td>
</tr>
<tr>
<td>Profit after Tax</td>
<td>553.54</td>
<td>204.90</td>
<td>1012.31</td>
</tr>
</tbody>
</table>

Source – 94th and 96th Annual Report, TISCO
Table 3.5 depicts that TISCO earned a profit of Rs. 1012.31 Crore in 2002-03; i.e., Rs. 158.87 Crore more than the profit of 2000-01. Sales rose by 8.82% to 3.26 million tonnes from 3.905 million tonnes from 3.401 million tonnes.

2. **Indian Iron and Steel Company Limited, Burnpur, West Bengal.**

The Indian Iron and Steel Company (IISCO) was set up in 1908 by Burn & Company at Hirapur near Asansol. Initially Indian Iron and Steel Company restricted itself to the manufacture of pig iron primarily for export to U.K. and Japan. In 1936, it acquired the defunct Bengal Iron and Steel Company (started in 1889). In the same year, the steel corporation of Bengal was formed by the management of Indian Iron and Steel Company to undertake the construction of a steel unit adjacent to the blast furnace of Indian Iron and Steel Company. Steel Corporation of Bengal and Indian Iron and Steel Company were later merged in 1953 under the new name of Indian Iron and Steel Company.

This company started its work near the coal fields of Raniganj, iron ore is obtained from the local fields of Pansia, Buru and Gua of Singhbhum district of South Bihar. Lime stone and dolomite are obtained from Rourkela and Bisra in Rajgangpur area of Orissa and also from Madhya Pradesh. The river Damodar supplies the necessary water. It is situated on the Calcutta-Delhi rail route and is only 215 kilometres from the great market of Calcutta. IISCO has an installed capacity of 1.0 million tonnes of steel ingots. Steel is made up by Duplex process. It started iron making in 1922 and became an integrated steel plant in 1939 and it now employs about 44000 people. The management of the plant was taken over by the Government of India on 14th July 1972 due to mismanagement. Now, it is a fully owned subsidiary company of Steel Authority of India Limited with effect from 07.05.1978. It produces wide range of products like structurals, casting, special sections, rails, bars, flat rolled and galvanised sheets, spun iron pipes are produced in its units at Kulti and Ujjain. It also manufactures foundry iron for casting.

The authorized and paid up capital of the company as on 31.03.2002 were Rs. 550 Crore and Rs. 387.60 Crore respectively. The location of the registered office is
at Calcutta. The units are located at Burnpur and Kulti in Burdwan (West Bengal), Gua in West Singhbhum (Jharkhand) and Chasnalla and Jitpur in Bihar.

Table 3.6
Statement containing financial performance of IISCO

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Sales/turnover (Rs)</td>
<td>918.06</td>
<td>910.64</td>
<td>909.08</td>
</tr>
<tr>
<td>Net profit / Net loss (—)</td>
<td>(—) 210.38</td>
<td>(—) 357.24</td>
<td>(—) 395.15</td>
</tr>
</tbody>
</table>

It is found from the above table 3.6 that sales showed an increasing trend, and the net losses showed downward trend. The sales increased from Rs. 909.08 in 1997-98 to Rs. 910.64 in 1998-99 and Rs. 918.06 Crore in 1999-2000. Similarly, the net losses decreased from Rs. 395.15 Crore to Rs. 357.24 Crore in 1998-99 and Rs. 210.38 Crore in 1999-2000.

Sluggish market condition, high interest burden, high input cost, low sales realization etc. are the main reasons for losses. The company is presently under BIFR. The final outcome of the restructuring proposal through the joint venture, submitted by the SAIL, holding company, is under consideration of the BIFR. However, cost control measures such as rationalization of manpower, optimum utilization of in-house facility, improvement in market segments, improvement in techno-economic parameters, reduction in subsidiaries etc. have been taken for performance improvement. As on 31.03.2002, there were 24,724 employees on the roll of the company. During 1999-2002, 380 employees retired under VRS.

3. Mysore Iron and Steel Limited at Bhadravati in Karnataka:

After the First World War, in 1923 Mysore State Iron Works (now Mysore Iron and Steel Limited) was started at Bhadravati in the forest belt of Karnataka by the Maharaja of Mysore. After the First World War, the iron and steel industry started suffering and was beset with acute depression. But under various subsequent protective measures taken by Government, the industry continued to make steady progress. In 1939, the production of pig iron and steel was 18 lakh tonnes and 8 lakh
tonnes respectively. With the outbreak of Second World War in 1939, the industry received some impetus. But during the post war period again slackening down of production started. It was then realised that iron and steel industry and its development could not be left entirely in the hands of private enterprise. Some governmental initiative became necessary in order to bring the industry on sound and stable footing.

It is the only steel plant lying outside the great mineral belt of India. It obtains iron from Kemmanguda in Bababudan hills, at a distance of 40 kilometres towards south, limestone from Bhandiguda, at a distance of 24 kilometres, towards the east, and manganese from Shimoga and Chitaldurg, both lying within 50 kilometres from Bhadravati. Due to complete absence of coking coal, the industry used charcoal for smelting iron ore, which is found in the forests of Shimoga and Kadur districts. Now electricity is brought from Jog hydro-electricity and Siva Samudram as the electric furnaces installed. It was the only steel industry in South India till 1982. It has got the installed capacity of producing one lakh tonnes of steel ingots. It also produces about 250 tonnes of steel casting for railways and various other industrial concerns. It also possesses one cast spun plant with a capacity of 17000 tonnes per year and a ferro-silicon plant with a capacity of 20000 tonnes. It is converted into an alloy and special steel unit for meeting future demand of engineering industries of the country. It is now a joint venture undertaking of the Government of Karnataka and Government of India through SAIL.

4. **Rourkela Steel Plant (Orissa):**

Rourkela was the first steel plant to be taken up in the public sector in the country in collaboration with West German combine of Krupp Demog. This company formerly known as Hindustan Steel Limited was formed in 1954 with an authorised capital of Rs. 100 Crore. The plant is ore based and is situated only at a distance of 80 kilometres from Bonai and Teldih, limestone is brought from Biramitrapur and manganese from Jamda and Bonai and coking coal is brought from the fields of Jharia and Ranigang. The present capacity of the plant is 2 million tonnes of hot metal, 1.9 million tonnes of crude steel and 1.671 million tonnes of saleable steel. It was the first integrated steel plant in India designed to produce only flat products and the first in
India to introduce basic oxygen furnace (BOF) process at a time when this process was yet to receive recognition from established steel producers at home and abroad.

The plant produces a wide range of flat steel products like plates, hot and cold rolled coils and sheets, galvanised sheets, electrical steel sheets, electrolytic tin plates and large diameter electric resistance welded (ERW) and spiral welded (SW) pipes.

Continuous technological innovation has led to greater diversification in this plant’s product range. The new unit for producing cold rolled non-grain oriented sheets has been commissioned. A singular feature of Rourkela is the fertiliser plant which is rated to produce 4,60,000 tonnes of Calcium Ammonium Nitrate (CAN). It employs about 24674 people.

As the largest industrial venture in the state of Orissa, Rourkela Steel Plant signifies the revival of past glory for a people known for commercial skill in the medieval era.

In 2002-03, Rourkela Steel Plant produced 1.48 million tonnes of crude steel (13.35% of SAIL) and 1.53 million tonnes of saleable steel. (15.15% of SAIL).

5. Bhilai Steel Plant (Chhatishgarh):

Towards the middle of 1954, the Soviet Government showed interest in collaborating, for the setting up of a steel plant in India. Accordingly on 10th September 1954, the production committee of the Central Cabinet sent an invitation to the Soviet Government for sending a team of specialists to study the question of setting up a steel plant. The Russian team visited proposed sites for location and submitted the preliminary project report on 13th January, 1955. The report received the approval of cabinet on 27th January, 1955. An agreement was signed between the Government of India and U.S.S.R. regarding the establishment of an integrated steel plant with an initial capacity of 1 million tonnes of ingots and 7.5 lakh tonnes of finished steel products. The project formed part of the Second Five Year Plan (1956-61). Bhilai was chosen as the site on the 14th March, 1955. It is situated on the main railway line between Murubai and Calcutta, 260 km from
Nagpur, Durg being the mail rail-stop, 1,102 km from Mumbai and 866 km from Calcutta. It is principally an agricultural area but the location was influenced primarily by the availability of good quality iron ore in the Dhalli-Rajhara hill, only 90 km away. Another determining factor was the proximity of Bhilai to the markets of Central and Western India. It is located 40 kilometres west of Raipur, the capital city of Chhattisgarh and stands along the Howrah-Mumbai railway line and the Great Eastern Highway. The plant started its operation on the 31st January, 1959 when the coke oven Battery Number 1 was commissioned. The production of pig iron in Bhilai commenced on 4th February, 1959 when the Blast Furnace Number 1 was inaugurated by the President of India, Dr. Rajendra Prasad. Steel manufacturing commenced on 12th October, 1959 when the Soviet Ambassador in India Mr. I.A.Benedictov, inaugurated the open Hearth Furnace Number 1. Rolling of steel was commenced on 12th November 1959. Last of the six open hearth furnaces was commissioned on 22nd February 1961 which marked the completion of the one million tonne steel works.

The Bhilai Steel Plant has achieved the unique distinction of being the first steel plant in the public sector in India to have been completed with the least delay.

The construction of the one million tonnes plant having been successfully completed, the Bhilai Steel Plant drew a plan for expansion in two stages – expansion to 2.5 million tonnes and expansion to 3.5 million tonnes. Proposal for further expansion to 4 million tonnes sprang to various stages and was completed in June, 1986.

It obtains iron ore from Dalli Rajhara hills of Durg district situated 32 kilometres south of Bhilai and also from Hahaladdi Kondapukha, Chargaon and Rowghat and Coal from Korba in Madhya Pradesh and Jharia in Bihar, lime stone and dolomite from Tandula Tank. This plant is centrally located; so it enjoys a good market for its products the chief consumers being Hindustan Shipyard of Visakhapatnam and the industrial markets of Muanbai.

The main products of Bhilai Steel Plant comprise rails, sleeper bars and crossing sleepers, heavy structurals, angels, rounds, rods, granulated slag and pig iron.
A number of by-products like Ammonium Sulphate, tar, benzol, benzine xylene, toluene and naphthalene are also produced. It employs about 65000 people. It produced 4.23 million tonnes of crude steel (35.02% of SAIL) and 3.62 million tonnes of saleable steel (35.84% of SAIL) in 2002-03.

6. Durgapur Steel Plant:

Durgapur in West Bengal, once a terror infested area, has been transformed into a modern steel city. It is located 180 kilometres west of Calcutta, in the district of Burdwan. Early in 1955, the Government of India decided to set up a third steel plant to achieve the production of six million tonnes of ingot steel by the end of Second Five Year Plan. At that time, United Kingdom was showing interest in supplying necessary facilities for the setting up of a plant in India. Therefore, under the Colombo plan, Government of India invited a technical mission headed by Sir Eric Coates from the U.K. This mission was to study the economic and technical problems along with the selection of a suitable site for the proposed third steel plant. In August, 1955, the mission recommended Durgapur in the state of West Bengal as the site which was accepted by the Government.

On the basis of the preliminary estimates of Indian Steel Works Construction Company originally the capital expenditure for one million tonnes plant was estimated at Rs. 115 Crore. But in 1956, this estimate was increased to Rs. 138 Crore when the contract was finally entered into. But even this was later found to be low and therefore in 1963 a revised estimate of Rs. 205.24 Crore was made. The main reason for this increase was that the approved estimate of Rs. 138 Crore was related to plant. It did not cover the cost of township, development of the sources of water supply etc. However, out of the total estimate, foreign exchange requirements constituted about Rs. 100 Crore.

Production in some of the units had commenced in December, 1959. However, till the end of 1964-65 most of the units could not reach the rated capacity. It gets coking coal from Ranigang coal fields of Pansia Buru and Gua of Singhbhum district of South Bihar, limestone and dolomite from Rourkela and Bisra in Orissa and
Manganese from Rajagangpur of Orissa and Balaghat of Madhya Pradesh. It gets water from river Damodar, it is situated on the Calcutta-Delhi route at a distance of 160 kilometres from the industrial market in and around the port city of Calcutta.

With the successful commissioning of the modernized units, Durgapur Steel Plant is all set to produce 2.088 million tonnes of hot metal, 1.8 million tonnes of crude steel and 1.586 million tonnes of saleable steel annually.

The plant has also got the capacity to produce 60000 tonnes of alloy steel. The main products of Durgapur Steel Plant are pig iron, forging blooms, forging billets, rerolling billets, light rails, merchant sections, sleepers, fish plates, wheels, excels, skelp, tar products, benzo products and ammonium sulphate.

Durgapur Steel Plant has the biggest sleeper plant and the wheel and axle plant is also one of the longest of its kind in Asia.

It produced 1.71 million tonnes of crude steel (15.41% of SAIL) and 1.59 million tonnes of saleable steel (15.74% of SAIL) in 2002-03. Durgapur Steel township is well planned, spreading over an area of around 40 square kilometres, with all modern facilities for a qualitatively high standard of living. Situated at a distance of 158 kilometres from Calcutta, it stands along the banks of the Damodar river. The Grand Trunk Road and the main Calcutta-Delhi railway line pass through Durgapur.

7. Bokaro Steel Plant in Jharkhand:

Bokaro Steel Limited was formed on January 29, 1964. The company was formed with the main object of contributing and owning an integrated iron and steel works with an initial capacity of 1.5 to 2 million tonnes and a township to be set up at a site which overlaps the borders of district of Dhanbad and Hazirabagh in the state of Bihar. Formerly the registered office of the company was located at New Delhi. But later on it has been shifted to Bokaro Steel City, Bokaro. As on 31st March 1974, the authorised capital of the company was Rs. 600 Crore divided into 60,00,000 shares of Rs. 1000 each. Before the formation of Bokaro Steel Limited, the affairs of Bokaro
Steel Project were handled by the Hindustan Steel Limited. But after the formation of Bokaro Steel Limited, all the assets and liabilities of Bokaro project were transferred to it on 1\textsuperscript{st} April, 1965. With the formation of Steel Authority of India Limited in January 1973, the Bokaro Steel Limited has become a subsidiary of SAIL from 22\textsuperscript{nd} March 1973.

The Bokaro Steel Limited was formed on the basis of the detailed project report prepared by M.N. Dastur and Company as modified by the technical committee of the Hindustan Steel. In May 1964 an offer was received from the Government of U.S.S.R. regarding financial aid and technical collaborations and this was accepted by the Government of India.

On 25\textsuperscript{th} January, 1965 an agreement was entered into between the Government of India and the Government of U.S.S.R. for cooperation in the construction of an iron and steel plant at Bokaro and for extending a credit for the purpose. Main features of the agreement were as follows:

(i) It provided for the construction of a modern integrated iron and steel works with a capacity of 1.5 to 2 million tonnes, with provision for continuous expansion to 4 million tonnes.

(ii) The Government of U.S.S.R. agreed to extend a credit up to 190 million roubles (Rs. 100.50 Crore) bearing 2.5 percent interest per annum for the purpose of meeting the foreign exchange cost of the plant. The loan is repayable in 12 years.

(iii) According to Article 7 of the agreement, the Russian credit will be utilised by the Government of India towards the payment for the designing work carried out by the Soviet organisations; the equipment and materials which are not available in India and delivered from the U.S.S.R., the expenses connected with deputing Soviet specialists to India for rendering technical assistance in the establishment of the works, except for expenses within the territory of India, which will be re-imbursed by the Indian Government in Rupees.
The first blast furnace complex was commissioned by the late Prime Minister Mrs. Indira Gandhi on 3rd October, 1972 and the first oxygen converter commissioned in 1974. It employed about 53000 people.

This plant is nearer to Kargali, Bokaro and Jharia coal fields. Iron ore can be brought from Rourkela and Bhilai on its return journey. It has a capacity of 4 million tonnes.

This plant represents the Indian advancement in design, engineering and construction of steel plants. The Indian Engineering and equipment suppliers have played a major role in setting up this plant. With a capacity of 4 million tonnes, Bokaro Steel Limited was designed to produce flat products like hot rolled coils, plates and sheets, cold rolled coils and sheets, tin mill black plates and galvanized plain and corrugated sheets. Bokaro’s hot and cold rolled products have been acclaimed in both developed and developing countries. The plant has recently been materialized by introducing continuous casting facilities and updating the hot strip mill, a major step towards providing state-of-the-art technology for producing quality steel of international standards.

It produced 3.67 million tonnes of crude steel (33.09% of SAIL) and 3.35 million tonnes of saleable steel (33.17% of SAIL) in 2002-03.

The steel city of Bokaro is located in beautiful surroundings, flanked by the high ranges of Parasnath Hills and set on the banks of river Damodar. An ideal mix of communities from all parts of the country makes this city a mini-Bharat.

8. **Alloy Steel Plant in Durgapur (West Bengal):**

Alloy Steel Plant was originally designed to produce 100000 tonnes of ingot steel capacity in 1960, with Japanese assistance with an estimated cost of Rs. 45 Crore installed in Durgapur, West Bengal employing about 7,400 people. This plant is the largest alloy steel producing unit in the country. Recognising the need to create further capacity to meet the growing demand, stage-I expansion increased the crude
steel capacity to 1,60,000 tonnes per annum. Stage II expansion envisages augmenting
the crude steel capacity to 2,60,000 tonnes per year. Among the wide range of alloy
and special steels produced are armour plates, grade steel, and many special grade
alloys to meet the vital and strategic needs of the country in the areas like nuclear
energy, defence and space. The plant produces alloy steel, forged products, bars and
rods and sheets/plates.

This plant is equipped to manufacture all the important and critical grades of
carbon alloy, tool and special quality engineering steels. Its range of manufacture will
eventually comprise nearly 200 different types of alloy and special steels of various
sizes. It produced 0.11 million tonnes crude steel (0.99% of SAIL) and 0.09 tonnes of
saleable steel (31.03% of SAIL) in 2002-2003.

9. Salem Steel Plant (Tamil Nadu):

Salem Steel Plant in Tamil Nadu represents a dispersal of industries and
balanced regional development and it brings to India the latest sophistication in cold
rolling. Inaugurated in March, 1982, it employs about 12000 people. The plant is
designed to roll out 32000 tonnes of cold rolled stainless steel strips and wide sheets
per annum in the first stage. Detailed project report envisages in the second stage,
production of 220000 tonnes of stainless, electrical and other special steels annually.
It is proposed to switch over from the imported hot band currently being used by the
plant as the feed stock, to the hot band rolled at Bokaro and Rourkela out of slabs
made at Alloy Steel Plant. Salem Steel Plant can produce stainless sheets to mirror
finish stainless steel from Salem. It finds application in many industries such as
nuclear, petroleum, chemicals, fertilisers, food processing, pharmaceuticals, dairy,
household appliances and cutlery. The plant is actively pursuing development
activities to promote use of stainless steel in new areas such as coinage, railway
coaches, buildings, architecture, furniture, automobiles etc. It produced 0.09 million
tonnes of alloy saleable steels (40.91% of SAIL).
10. Visakhapatnam Steel Plant (Andhra Pradesh):

This plant was set up after the formal announcement of late Prime Minister, Mrs Indira Gandhi on 7th April 1970. Consultants were appointed in February 1971 for the preparation of techno-economic feasibility reports.

The feasibility report submitted in February 1972, envisaged the setting up of an integrated steel plant with a capacity of 2.3 million tonnes of long products. In June 1979, Government sanctioned a 3.4 million tonne plant at Visakhapatnam at an estimated cost of Rs. 2256 Crore, with a foreign exchange component of Rs. 500 Crore for a production of 7,10,000 tonnes of light medium merchant sections, 3,05,000 tonnes of billets and 5,12,000 tonnes of pig iron. As in the case of Bokaro, it was the Soviet entry into the scene in December 1978 that made Visakhapatnam a reality. A company, named Rashtriya Ispat Nigam Limited was formed in 1981-82. K.R. Sangameswaran from Burnpur went over in July 1983 to Visakhapatnam as Managing Director and in September 1984, D.R. Ahuja took over the reins. Work began in earnest to set up the plant in 1984 with the sanction of Rs. 4200 Crore for a 3 million tonne plant, which however, ended up costing Rs. 8500 Crore. Technological help came from the Soviets, though most of the work was executed by local engineers.

Rashtriya Ispat Nigam Limited (RINL) was incorporated in 1982 and Visakhapatnam Steel Plant was separated from Steel Authority of India Limited (SAIL) and put under RINL. Project construction commenced on 2nd February 1982, which is considered as the zero date. The last unit of the plant was commissioned in July 1992 and the plant was dedicated to the nation on 1st August 1992 by the then Prime Minister. The main activities involve production of pig iron and steel products in the long categories.

The authorised and paid up share capital as on 31.03.2002 were Rs. 8000 Crore and Rs. 7827.32 Crore respectively.
The Registered office and the only unit (Visakhapatnam Steel Plant) of RINL is located at Visakhapatnam, Andhra Pradesh.

The product mix of RINL comprises pig iron, wire rods, plain and deformed bars, light and heavy structurals, rounds, squares, billets, blooms etc.

For improving the production and capacity utilisation following measures have been taken:

(i) Introduction of slag splashing system in the LD converters of steel melting shop.

(ii) Commissioning of Gega-cutting machine in continuous casting shop.

(iii) Introduction of oil filling system in Billet Mill.

(iv) Major repairs in coke oven batteries.

(v) Increasing production of value added products.

(vi) Increasing production in technological discipline for improving converter lining life.

(vi) Improving the rolling hours in mills.

The working results of RINL for the last three years given below.

Table 3.7

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Sales/turnover</td>
<td>3071.00</td>
<td>2761.13</td>
<td>2972.60</td>
<td>4000.00</td>
<td>4077.00</td>
<td>5058.00</td>
</tr>
<tr>
<td>Net profit / Net loss</td>
<td>(-) 176.73</td>
<td>(-) 457.18</td>
<td>(-) 561.68</td>
<td>(-) 291.00</td>
<td>(-) 75.15</td>
<td>520.69</td>
</tr>
</tbody>
</table>

Source – Annual Accounts, RINL, Visakhapatnam

It is observed from Table 3.7 that the sales came down to Rs. 2761.13 crore in 1998-999 from 1997.98. again, it showed upward trend from the year 1999-2000 and increased to Rs. 2972.60 crore. Again, it increased to Rs. 4000 Crore, Rs. 4077 Crore and Rs. 5058 Crore in 2002-03. It depicts improvement of sales. The net loss trend showed increasing trend till 1999-2000. In 2002-03, this
company earned a net profit of Rs. 520.69 Crore in 2002-03, it depicts a good sign for
the company.

As on 31.03.2003, there were 17254 employees on the roll of the company.

11. Steel Authority of India Limited (SAIL):

The Steel Authority of India Limited (SAIL), a Navaratna public sector
company and India’s largest producer, accounts for half the country’s output of
saleable steel.

The other Navaratna companies are Bharat Heavy Electricals Limited, Indian
Petrochemical Corporation Limited, Videsh Sanchar Nigam Limited, National
Thermal Power Corporation Limited, Bharat Petroleum Corporation Limited,
Hindustan Petroleum Corporation Limited, Indian Oil Corporation Limited, Oil and
Natural Gas Corporation Limited.

On 24\textsuperscript{th} January, 1973, the Government formed a holding company under the
name of Steel Authority of India Limited (SAIL) to improve the efficiency of
management of public sector steel plants in the country with a paid up capital of Rs.
2000 Crore. The paid up capital as on 31\textsuperscript{st} March 1974 was Rs. 1326 Crore. SAIL
has 4 full time and 2 part time directors.

As the largest integrated steel producer in India, SAIL controls half the
industry. It has a market capitalisation of Rs. 800 Crore, making it one of the biggest
companies in India. The company claims that it is the ninth largest steel company in
the world (it was ranked 20 in 1985 and 11 in 1996). Its integrated plants produce a
range of saleable steel for applications in construction, engineering, power, railways,
avtomotive and defence industries. Ranked amongst the top ten public sector
companies in India in terms of turnover, SAIL manufactures and sells a broad range
of steel products, including hot and cold rolled sheets, electrical sheets, structurals,
railway products, plates, bars and rods, stainless steel and other alloy steels. SAIL’s
wide range of long and flat steel products are much in demand in the domestic as well
as the international market. This vital responsibility was carried out by SAIL's own Central Marketing Organisation (CMO) and the international trade division. CMO encompasses a wide network of 38 branch offices and 47 stockyards located in major cities and towns throughout India.

The main objective of the SAIL is to plan, promote and organise an integrated and efficient development of the Iron and Steel and its associated industries such as coking coal, manganese, limestone, refractories etc. In accordance with the national economic policy, it will coordinate the activities of the subsidiaries and identify new areas of economic investment in steel industry. It will formulate the national policy for the development of steel and related industries and will prepare annual and five year plans. With the establishment of SAIL, the Hindustan Steel Limited is abolished.

By the passing of the public sector iron and steel companies Restructuring and Miscellaneous Provision Act, 1978, SAIL was made an operating company. With this Act coming into force, the Hindustan Steel Limited, Bhilai Ispat Limited, Durgapur Mishra Ispat Limited, Bokaro Steel Limited, Salem Steel Limited, SAIL International Limited stood dissolved and transferred to and vested in SAIL, including the Meghabhataburu iron ore and Kiriburu Iron ore mines.

Steel Authority of India Limited (SAIL) is the largest steel producer in India and one of the leading producers of steel in the world with an annual turnover of about Rs. 15000 Crore. Its five integrated steel plants at Bhilai, Durgapur, Rourkela, Bokaro and Burnpur (IISCO subsidiary) have a total capacity of producing over 12 million tonnes of steel annually. SAIL’s Salem produces special steel and Durgapur (Alloy Steel Plant) produces alloy steels.

The authorized and paid up capital of SAIL were Rs. 5000 Crore and Rs. 4130.40 Crore respectively as on 31.03.2000.

The Registered office of SAIL is located at Ispat Bhawan, Lodi Road, New Delhi. The company has four integrated steel plants at Bhilai (BSP), Bokaro (BSL), Durgapur (DSP) and Rourkela (RSP) and three special steel plants namely, Alloy
Steel Plant at Durgapur (ASP), Salem Steel Plant (SSP) at Salem (T.N.) and VISL, Bhadravati (Visvesvaraya Iron and Steel Company, a subsidiary of SAIL has been merged with SAIL, with effect from December 1998). SAIL has seven central units; viz., Research and Development Centre for Iron and Steel Centre for Engineering and Technology and Management Training Institute all located at Dhanbad, Raw Materials Division and Environment Management Division located at Calcutta.

The Central Marketing Organisation, with its head quarters at Calcutta, coordinates the country-wide marketing and distribution network. SAIL Consultancy Division functions within New Delhi.

The Indian Iron and Steel Company Limited (IISCO), Maharashtra Electrosmelt Limited (MEL), SAIL Power Supply Company Limited and Bhilai Oxygen Limited, are subsidiaries of SAIL. It has also 7 joint ventures set up with Indian/foreign companies. Production of SAIL (excluding subsidiaries) during the last 3 years is as under :-

Table 3.8
Production Statement of SAIL
(in million tonnes)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Hot metal</td>
<td>11.62</td>
<td>11.18</td>
<td>10.94</td>
<td>11.20</td>
<td>11.33</td>
<td>12.08</td>
</tr>
<tr>
<td>Crude steel</td>
<td>10.26</td>
<td>9.86</td>
<td>9.79</td>
<td>10.31</td>
<td>10.47</td>
<td>11.09</td>
</tr>
<tr>
<td>Saleable steel</td>
<td>8.71</td>
<td>8.33</td>
<td>9.23</td>
<td>9.41</td>
<td>9.46</td>
<td>10.09</td>
</tr>
<tr>
<td>Pig iron</td>
<td>0.77</td>
<td>0.73</td>
<td>0.57</td>
<td>0.36</td>
<td>0.35</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Source : Annual Accounts, SAIL, 2002-03
The working results of SAIL for the last ten years are given below.

**Table 3.9**

**Statement containing financial performance of SAIL**

(Rs. in Crore)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>90-91</th>
<th>91-92</th>
<th>92-93</th>
<th>93-94</th>
<th>94-95</th>
<th>95-96</th>
<th>96-97</th>
<th>97-98</th>
<th>98-99</th>
<th>99-00</th>
<th>00-01</th>
<th>01-02</th>
<th>02-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales/turnover</td>
<td>8184</td>
<td>9360</td>
<td>10175</td>
<td>11671</td>
<td>13867</td>
<td>14710</td>
<td>14131</td>
<td>14624</td>
<td>14994</td>
<td>16250</td>
<td>16233</td>
<td>15502</td>
<td>19207</td>
</tr>
<tr>
<td>Net profit/Net loss(-)</td>
<td>245</td>
<td>366</td>
<td>423</td>
<td>545</td>
<td>1108</td>
<td>1319</td>
<td>515</td>
<td>133</td>
<td>(-)1574</td>
<td>(-)1720</td>
<td>(-)729</td>
<td>(-)1707</td>
<td>(-)304</td>
</tr>
</tbody>
</table>

Source: Annual Accounts, SAIL, New Delhi

Even though sales showed an increasing trend, the net profits showed a declining trend from 1996-97 and in 1998-99 and 1999-2000, it showed net losses due to certain reasons.

**Reasons for 1998-99 and 1999-2000 loss:**

The massive modernisation programme undertaken by SAIL for the plants at Durgapur, Rourkela and Bokaro involved a cost of Rs. 12000 Crore. The company had to generate the fund through internal accruals and market borrowings without resorting to any budgetary provisions from the Government. The incidence of depreciation and interest charges reduced the company’s profitability as evident from the figures presented below.

**Table 3.10**

**Financial performance including Depreciation and Interest of SAIL**

(Rs. in Crore)

<table>
<thead>
<tr>
<th>Year</th>
<th>Operating profit</th>
<th>Net Profit (+)</th>
<th>Depreciation plus interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>2458</td>
<td>(+) 515</td>
<td>1393</td>
</tr>
<tr>
<td>1997-98</td>
<td>2497</td>
<td>(+) 133</td>
<td>2349</td>
</tr>
<tr>
<td>1998-99</td>
<td>1503</td>
<td>(-) 1574</td>
<td>3122</td>
</tr>
<tr>
<td>1999-00</td>
<td>1202</td>
<td>(-) 1720</td>
<td>2922</td>
</tr>
<tr>
<td>2000-01</td>
<td>2157</td>
<td>(-) 729</td>
<td>2886</td>
</tr>
<tr>
<td>2001-02</td>
<td>1011</td>
<td>(-) 1707</td>
<td>2718</td>
</tr>
<tr>
<td>2002-03</td>
<td>2165</td>
<td>(-) 304</td>
<td>2481</td>
</tr>
</tbody>
</table>

Source: Annual Report, SAIL, 2003
SAIL's turnaround plan:

SAIL management anticipated the situation well in advance and early in 1998, the company initiated actions to improve its profitability and achieve long term competitiveness. SAIL prepared a comprehensive “turnaround and transformation plan” and sought globally renowned consultant, for validation of the plan.

The Industrial Development Bank of India (IDBI) was appointed as a consultant for chalking out a financial turnaround plan. The final turnaround and transformation plan incorporating the recommendation of McKensey & Co., and IDBI submitted to Government of India in April 1999.

(1) Short term measures for operational improvements.
(2) Medium term measures for technological upgradation and enhancing product and market capabilities.
(3) Long term measures for financial and business restructuring.

SAIL's new vision:

(1) People are number one resource.
(2) Customers are the centre of all activities.
(3) Attain growth through self-reliance and internal generation of resources.
(4) No limits to improvements in quality.
(5) Cost effectiveness in all spheres of work is the key to success.
(6) SAIL is a multi-technology company.
(7) SAIL must remain a good corporate citizen.
(8) High standards of safety and health of people.
(9) SAIL must diversify into value added special products and related business.

3.5 Problems:

The iron and steel industry of the country is having various problems of its own. These problems are:
(1) Inadequate supply of coal and power:

Iron ore as the key material in steel does have certain problems. Lack of proper transport and handling facilities, high cost of freight and demurrage are some of the problems. Mines in India do not use modern techniques and here recovery rates are low. There are certain problems concerning foreign and domestic investment in the mining sector. The need of the hour is to increase mechanisation to tone up efficiency in extraction and recovery levels.

The steel producers convert coking coal into coke in coke ovens. Coke accounts for nearly 35 percent of the variable production cost of steel. Producers have to depend on Coal India, captive mines and imports for their coal requirements. Experts feel that the quality of India’s coking coal is not as good as that of imported coal. This is because Indian coal has high ash content, about 18 percent even after beneficiation against a norm of less than 10 percent. The steel companies have imported coal at a high price to maintain the product quality. The international coal price is at least 70 percent more than Indian coal price. Power also acts as a constraint on the industries. These have robbed the industry of the advantage of cheap and skilled labour and raw material abundance. Power is a major input in steel production accounting for nearly 20% of the variable production cost. Indian power tariffs are too high in comparison to the international tariffs. Power restrictions imposed by the Orissa Electricity Board created problems for the Rourkela Steel Plant during 1979-80 to 1986-87 till the completion of its own captive power station.

(2) Lack of modern technology:

The advantage of availability of raw material in abundance and cheap labour are nullified by a lack of modern technology. The Indian steel plants are known to consume more energy than the plants in the West. Some of the western countries like Belgium, Luxemburg, Netherlands, West Germany, United Kingdom, Austria, Finland besides Brazil, Chile and South Korea use Blast Oxygen Furnace to turnover 70% of their steel production as against 39% in India. Indian steel uses the electric process 26.5% and the open hearth process 34.1% to turn out a bulk of steel production. It is due to this technological obsolescence the energy consumption per tonne has been increasing continuously.
(3) Over-staffing:
In most of the countries, labour productivity in terms of tonnes per man year is at least seven to eight times higher than that of India.

The Chelliah Committee Report made a strong plea for a reduction in the cost of operations in the steel industry. It said, "we would urge that the Iron and Steel Industry should take appropriate steps to ensure that all the products upstream as well as downstream are produced with the highest efficiency so that the whole of the economy benefits. We have advantages relating to the most basic input iron ore"\textsuperscript{31}.

(4) Inefficiency of public sector units:
The management and control of steel plants leaves much to be expected. Top management often comprises non-specialised, non-technical people who are often incompetent to provide the requisite managerial competence in the complex and capital intensive projects as the steel plants, in fact, are. The management also works under severe constraints like undue political interference, frequent labour disputes etc.

(5) Under utilisation of capacity:
Another problem that has bearing on the production is about the fuller utilisation of the existing capacity. While the capacity utilisation ratio is very high in the private sector; i.e., for Tata Iron and Steel Company, it is not so in the public sector plants. It has varied from plant to plant and from year to year. The average capacity utilisation of four integrated steel plants was 73.8% in saleable steel during 1989-90 while it was 80.3% in 1998-99. Production of steel has increased in due to the initiatives taken by Government in meeting infrastructure needs.

(6) Product mix and waste materials:
Further, there is need to re-orient the product mix of the industry and to use the waste material namely, slag. In view of the contemplated changes in the economy, the production of this industry will have to be increasingly consumer-oriented besides providing material for infrastructure and basic capital goods for small industries.
(7) **Rise in steel prices:**

Steel prices have been raised by 400% during 1973-1982, by 30% between 1982-84 and further by 30% in February, 1985 and 8% on 8th January 1989. Thus, during 1973 to 1989, steel prices increased several times as compared to the beginning of the period. This has made Indian steel quite costlier and affected our competitiveness adversely in the world. Our engineering industry has been affected badly due to rise in steel prices.

(8) **The problems of administered prices and regulated distribution:**

In the field of steel, the Government has followed the policy of administered price and regulation of distribution of steel through allocations on the basis of demands made by various agencies. Because of the inefficiency and corruption of the Government's administrative machinery to carry out the job, there has been a lot of difficulties for the producers and consumers.

(9) **Increasing demand of iron and steel:**

Demand for steel is increasing very fast under the impact of five year plans. This requires that output of the industry should be increased rapidly to cope with the ever-increasing demand.

(10) **Dependence on foreign investment:**

Setting up a new steel plant or modernising an existing plant will call for massive investments and working capital requirements. Raising funds in India is expensive. The prime lending rate in India is about 14.5% compared to 6-8% in the U.K. and the U.S.A.32

Due to depreciation of the rupee and rising inflation, foreign currency debts in past have turned out to be expensive. Raising funds for operations and capital will be of particular concern to Indian steel producers.

(11) **Problems of transportation for carrying raw materials:**

Indian companies also suffer from poor infrastructure, unlike port based plants, the plants of SAIL and TISCO have to spend enormous amount on transferring
their exportables to the ports and out of them. The cost of production also suffers as the same disadvantage leads to an increase in the costs of importing raw materials. With these constraints, the industry will continue to find its place in the world market precariously balanced. Therefore, major attention of the Government should be at removing these rather well known bottlenecks.

(12) Industrial disputes:

The major problem of steel industry today is low productivity and very inadequate discipline, even though labour and management have common goals. The approach of labour is not one of full cooperation. Therefore, very often, steel industry is facing labour unrest. In order to gain political advantage, different trade unions are instigating the workers. The Government as well as the management firmly tell the unions that wages will have to be linked to productivity or increased production and profitability of the enterprise in one way or the other. It is very often noticed that both low productivity and profitability in Rourkela Steel Plant are due to strikes and lockouts.

(13) Sickness of mini steel plants:

Till about the mid eighties, integrated steel making was essentially in the Government sector in India. The only private sector plants were those of Tata Iron and Steel Company and Indian Iron and Steel Company (till the later was nationalised in the early seventies) out of 145 mini steel plants originally licensed only 132 units with installed capacity of 3 million tonnes were operative.

Their performance continued to be poor because of heavy backlog of losses. According to the Reserve Bank of India Report on Currency Finance, “the main problems faced by these units included short supply of inputs and a sharp increase in prices of inputs like electrodes and scrap, inadequate power supply, constraint of working capital and poor management”.

(14) Demand-supply gap:

Extensive customer contacts, booking of orders through participation in tenders and negotiations invited by various purchasers including Government
departments, railways, PSU projects and the like, constantly improving after sale services such as refunds, settlement of quality complaints and boasting exports to relieve pressure of domestic market etc., are responsible for minimum gap of production and consumption of steel. The following table shows the trends in steel consumption.

Table 3.11

Trends in steel consumption

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Apparent consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-95</td>
<td>17.82</td>
<td>18.66</td>
</tr>
<tr>
<td>1995-96</td>
<td>21.41</td>
<td>21.29</td>
</tr>
<tr>
<td>1996-97</td>
<td>22.72</td>
<td>22.12</td>
</tr>
<tr>
<td>1997-98</td>
<td>22.57</td>
<td>22.38</td>
</tr>
<tr>
<td>1998-99</td>
<td>23.82</td>
<td>23.20</td>
</tr>
<tr>
<td>1999-2000</td>
<td>27.17</td>
<td>24.50</td>
</tr>
<tr>
<td>2000-01</td>
<td>29.26</td>
<td>26.50</td>
</tr>
<tr>
<td>2001-02</td>
<td>30.61</td>
<td>27.00</td>
</tr>
<tr>
<td>2002-03</td>
<td>33.00</td>
<td>29.00</td>
</tr>
</tbody>
</table>

Source: Annual Report 2002-03, Ministry of Steel

Table 3.11 shows that there was minimum gap between production and apparent consumption of steel in India from 1994-95 to 1998-99. This gap increased from 1999-2000 due to increase in production of steel to meet the requirements of the highway construction.

(15) Increasing global competition:

Modernisation will have to be fully translated into lower consumption of raw materials and energy as well as increased productivity of labour and capital. This is highly important because today the global attention in steel has been towards cut throat competition. Unless, Indian industry is able to reach the global standards, it is not possible to export six million tonnes of steel by 2001-02 (Yojana 1998).

For proper growth, cost reduction and improvement in quality of products together with advanced technology and skills is called for so as to meet the international competitiveness.
(16) Escalation in the cost of inputs:

India is endowed with rich reserves of iron ore and other materials. Hence, it should be possible for the steel making companies in India to reduce their variable costs. In order to achieve this, they will have to improve process efficiency, implement cost effective technology and reduce cost of services by choosing cheaper transportation modes like coastal movements and inland movements through waterways.

Both the Government and the industry will have to jointly develop a strategy to achieve a breakthrough in cost reduction. The impetus to the development of infrastructure will lead to revival of domestic demand and will help to absorb any surplus in steel by 2005-06.

3.6 Suggestions:

Considering the different problems faced by the Steel Authority of India Limited, there is an urgent need to go for major change in the steel sector. Accordingly, the Planning Commission observed, “if steel industry is to be maintained in the interest of industrial and economic development of the country, then basic problems like, tension in labour relation, low productivity of labour, lack of coal, electricity, experts, equipment etc., which hinder the development of the industry, will have to be tackled.” To make the best use of production capacity of steel plants, labour, management, Government and the industry will have to think over.

The following suggestions are important for the development of the steel industry:

(1) Improvement and upgradation of technologies.
(2) Arrangement for the supply of best quality coal.
(3) Full utilisation of capacity.
(4) Diversification of products.
(5) Adoption of efficient management of public sector units.
(6) Solution of labour disputes.
(7) Arrangement of proper training of workers.
(8) Development of small factories.
(9) Attaining stability in the increasing prices of steel.
3.7 Future prospects:

From the long term view, there is tremendous scope for further investment in the sector to achieve at least China's level of 149 million tonnes annual production.

The real impetus to Indian steel industry commenced with the setting up of three major steel plants under public sector at Durgapur, Rourkela and Bhilai in 1960s. This was followed by establishing a flat producing plant at Bokaro in 1970s. The public sector steel plants under Hindustan Steel Limited along with two other steel units at Jamshedpur and Tata Iron and Steel Company and the other at Bumpur under Indian Iron and Steel Company were entrusted with the task of serving the huge demand for steel, meant for construction, machinery and processing industries which were emerging fast during the Second and Fifth Five Year plans. Subsequently the Government created capacities in small mini steel plants with Electric Arc Furnace and a large number of re-rolling units spread though out the country to roll semi-finished steel into the finished products. The latest public sector steel plant was set up at Visakhapatnam under Rashtriya Ispat Nigam Limited.

The new economic policy introduced in July 1991 paved the way for delicensing of steel industry and ushered in a number of new green field steel plants under Essar, Lloyds, Jindal, Vijayanagar and Ispat Industries. The main features of these new steel plants were state-of-the-art technology, namely, corex technology for steel making, thin slab casting secondary refining facility. All the steel plants were mainly producing HR coils, thereby meeting the demand for all the downstream varieties in the flat categories.

Following liberalisation, the consumption of finished steel in the country grew at a high rate of level of 24.5 million tonnes to 29.0 million tonnes from 1999-2000 to 2002-03. However, the recessionary trend in most of the steel intensive segments like capital goods, consumer durables and construction segments coupled with lack of investments in infrastructure sector led to a stagnant level of steel in the country which is currently hovering around an average level of 23 million tonnes. During 1998-99, the finished steel consumption came to 23.32 million tonnes. The
recessionary trend in the domestic market has made the indigenous producers more concerned with international market. Surplus capacity and lack of domestic demand in C.I.S., Russia and other East European countries compelled these countries to export steel at very low prices. The second half of 1997-98 saw the emergence of the financial turmoil and economic crisis in Asian countries led by Thailand and Indonesia which gradually engulfed Japan and South Korea. The drastic currency devaluation in these countries led to a continuous decline in export prices in dollar terms. The declining trend in international prices had affected the export realisation from India. The silver lining is the upward trend in international prices particularly of flat products since April 1999. Coupled with this the latest economic recoveries in South Korea and Malaysia have now provided hopes for firming up prices and consequent higher export realisation for Indian Steel.

The Government is negotiating with several countries including the U.K., West Germany, Japan and Russia for high technology to modernise India's steel industry. Such modernisation is designed to replace obsolete equipment and switching over to more advanced methods of production.

3.8 Summary:

The rapid development of steel capacity is highly essential for rapid industrialisation of any developing country. Steel is used as a basic material in the manufacture of metal products, electric machinery, transport equipment, textile and other machinery. On the eve of independence in 1947 total capacity of iron and steel industry was of the order of 1.3 million tonnes – 1 million tonne from Tata Iron and Steel Company (TISCO) and 0.3 million tonne from Indian Iron and Steel Company (IISCO). By 2001-02, iron and steel industry of India produced 31.10 million tonnes. From the point of view of total investment, iron and steel industry is the most important industry, accounting for total investment of about Rs. 4,000 Crore. Major portions of the investment is in the public sector plants. The industry provides direct employment to 2.5 lakh workers. It is highly capital intensive industry. In spite of the tremendous importance given to the iron and steel industry in industrial policy, 1948, 1956 and 1991 and different Five Year Plans, it is a pity that the country had to import
increasingly large amount of steel – the value of imports or finished steel was Rs. 6870 Crore in 1996-97 and Rs. 3570 Crore in 2000-01. India is only the 15th in the hierarchically world ranking of steel producers. In terms of per capita consumption, Indian average is only 11 kgs of steel compared poorly with 685 kg in U.S.A., 428 kgs in Russia, 623 kgs in Sweden and 494 kgs in Japan. The Steel Authority of India Limited (SAIL) was created in 1973 and was made responsible for the development of the public sector steel industry and also for the major inputs for the industry.

By passing of the public sector Iron and Steel companies Restructuring and Miscellaneous Provision Act, 1978, SAIL was made an operating company. Its five integrated steel plants are Rourkela, Durgapur, Bhilai, Bokaro, Alloy (Durgapur) and Salem. In 2001, China remained the world’s largest producer of crude steel worth 149 million metric tonne followed by Japan 103 million metric tonne and U.S.A. 90 million tonne. But India produced only 29 million metric tonnes in spite of its special advantage of raw materials, power and labour. It has yet to attain efficiency levels and technological improvements in confirming with World Standards. The major disadvantages of Iron and Steel Industry include over-staffing, high rate of raw material consumption, outdated energy intensive technology, poor maintenance, poor quality of output and wastage. Our share of less than 1% of the global market proves this fact that weak infrastructure, poor power availability, poor quality and quantity are some of the main causes. So, it is highly essential on the part of the Government to look into those facts seriously and try to improve quality and quantity of steel for the development of the country.

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