DURGAPUR STEEL PLANT & URBANISATION

In the industrial map of modern India, Durgapur Steel Plant is one of the largest units in Steel Industry of the public sector. The old Durgapur of an absolutely rural set up, with dense forest around, has now become a legend substituted by the handiwork of technocrats.

It was built during the late fifties with a capacity of one million tons of ingot steel per year and subsequently it was expanded in the sixties (by 1968) to a capacity of 1.6 million tonnes of ingot steel. Since its inception till the financial year ending on March 31, 1983, the cumulative output of the plant stood at 13,473,245 tonnes of saleable steel.
and the gross turnover, in monetary terms, during the period came to around Rs. 2,672 crores. The gross turnover for the plant for 1982-83 was around Rs. 344 crores.

The main products of Durgapur Steel Plant are Blooms, Billets, Joists, Channels, Rounds, Angles, Shell bars, Bearing plate bars, Plain rounds, Ribbed bars, Flat squares, Skelp for pipes and Sleepers, fish plates, Wheels, Axles for the Railways and saleable pig iron. It also produces by-products and secondary products like Coal Chemicals, fertilizer, slag for manufacture of granulated slag used in Cement making, Coal washery middlings and Coke fractions.

The integrated Steel Plant encompassing the entire chain of production of Steel is over an area of 6.4 Sq. Kilometers.

The Steel Plant requires a variety of raw materials for the production of iron and steel. Among these, Coal, iron-ore, lime-stone and dolomite are most important. The plant
receives Coal from the famous mining belt of Jharia, Raniganj in Bihar and West Bengal. Iron ore comes from Bolani in Orissa and Barajamda (Bihar-Orissa). Lime-stone is brought from Birmapatpur (Orissa) and Satna (Madhya Pradesh). Dolomite comes from Jayanti (West Bengal). The plant requires around 16,000 tonnes of raw materials per day to feed the giant production units.

SELECTION OF DURGAPUR AS A SITE FOR THE STEEL PLANT

Early in 1955, after the two successive Steel Projects were taken up in Rourkela and Bhilai, the Government of India decided to set up a third steel plant by the end of the 'Second Five Year Plan'. A technical mission from the United Kingdom on invitation, visited various places in Bihar and West Bengal to select a suitable site and, finally, recommended Durgapur as the site for the third plant and submitted a report to the government of India in August, 1955.

The history of Durgapur Steel Plant
would remain incomplete without reference to the interesting episode of the long battle over the location of country's Third Steel Plant. Since the time of the decision, a tussle of wit and influence started between Bihar and West Bengal in support of their respective claims over Sindri and Durgapur as sites for the Steel Plant.

A little before this time, in November, 1954, Dr. B.C. Roy (the then Chief Minister of West Bengal) wrote to Pandit Jawaharlal Nehru (the then Prime Minister of India) about his project to have a Coke Oven Plant, a Power Plant and a pig iron plant, costing Rs. 15 crores. He, therefore, urged that the development of Durgapur was the only means by which the problem-stricken state of West Bengal could recover its position in the wake of influx of refugees - both in regard to finance and employment - as the project on its completion, was expected to employ 12,000 people.
On August 31, 1955, Dr. B.C. Roy in reply to the letter of T.T. Krishnamachari (the then Minister in charge of Iron and Steel, Government of India) reiterated the advantages of Durgapur as a location for the proposed Steel Plant. He emphatically pointed out that Durgapur had incomparable facilities as regards the availability of vacant land (unused by farmers) several times more than that of other likely sites, the facilities of communication by Roads and Railways linking Calcutta-Delhi to the convenience of the handling of constructional materials as well as the flow of raw materials direct into the Works' internal rail system, the easy scope for the supply of water with the minimum level in the Damodar at Durgapur.

Moreover, he suggested that seventy-five percent of coal requirements for the Steel Plant could be met from the neighbouring Coal-fields in the Barakar area and this would result in the conservation of high
grade cooking coal, reducing the heavy load on the existing Jharia mines.

At last the curtain was drawn on the drama over the location of Country's third Steel Plant in favour of West Bengal much to the credit of Dr. B.C. Roy, the architect of modern West Bengal. He took the added advantage of linking his earlier project with the latter to make the Steel Plant viable on the strength of his earlier claim while Bihar had no such scheme before although it had a stronger case in respect of supply of coal.

The consortium known as India Steel Works construction Co. Ltd. (ISCON) of London was invited to send a delegation to discuss ways and means of constructing the plant and to examine the possibility of a 'package deal'. After due deliberations, the team of specialists of the Consortium submitted its preliminary specifications and estimates for the plant to the Government of India in mid-January, 1956, which were examined by the
expert Consulting Engineers and technocrats of the 'Engineering Advisory Board' to the 'Ministry of Iron and Steel'.

The Government of India finally concluded a contract for the plant on October 31, 1956.

The basis of the contract was the construction of the Steel Works by ISCON as a 'turnkey project'. According to it ISCON had undertaken the supply and erection of the complete plant, including the entire mechanical and civil engineering work. The contract covered the supply of plant, machineries, equipments and other steel structures and refractories mainly from the United Kingdom. These supplies were to be supplemented by purchases of equipments and structures manufactured in India. The erection of the whole plant was agreed to be executed by the Consortium under the supervision of the Consulting Engineers to their satisfaction. Under the provision of the contract, the construction of the entire
work was to be completed by the end of July, 1961. The schedule of the construction provided for the completion of the work, in four stages, and operation of the various section of the plant, stage by stage. On the Indian side, the Hindustan Steel Ltd. was responsible for the transport of plant and equipment from the United Kingdom to the site in Durgapur.

It was also entrusted with the responsibility for the construction of the Steel township and work outside the perimeter of the plant such as raw materials, water and power supply, railway connections and other similar facilities.

According to the agreement of October 3, 1956, the British Consortium entered into the Contract at an estimated cost of Rs. 138 crores subject to escalation of a maximum of 15 percent on account of increases (or decreases) of costs of services. Escalation had been provided to certain extent to cover variations in prices of materials and wages.
At the same time it had also been agreed that ISCON alone would bear the excess costs over the target figure up to a maximum of Rs. 50 lakhs. The cost of shipping, insurance, customs and transport was the responsibility of Hindusthan Steel. The other major items of expenditure connected with the implementation of the project were not covered by the agreement. The items like township fees for consultants, cost of other ancillaries including the arrangements for water supply, electrical and railway works were estimated to cost about Rs. 29 crores subject to variations.

Thus the total cost of the project came to about Rs. 167 crores without escalations. Of this, the amount of foreign exchange constitutes about Rs. 100 crores.

To finance a part of the foreign exchange cost of the project the Government of India obtained two loans from the United Kingdom. One of these was a credit of £11.5 million given by a Syndicate of
British Banks, with the rate of interest fixed at 1 percent above the prevailing Bank rate in England from time to time. The credit had been fully drawn.

The second loan of £15 million was offered by the Government of United Kingdom with the same rate of interest. This loan was also fully drawn.

MAJOR UNITS OF THE PLANT

The major units of the Durgapur Steel Plant mainly comprise Coke-Ovens and by-products plant, Blant, Blast furnace Complex, Steel Melting Plant, Blooming and Billet Mills, Section Mill, Merchant Mill, Sleeper Plant and fish-plate finishing plant.

(a) **Coke Ovens & By-products Plant**

Cooking coal is converted into coke at the Coke Ovens by heating coal in absence of air. By-products generated in the process are Coke Oven Gas, Benzene, Sulphuric Acid, Tolume, Solvent Naptha, Cresote Oil, Coal
Coke Ovens Battery

Skelp Mill
Tar, Pitch and also Ammonium Sulphate fertiliser.

The major units comprise 4½ batteries with 78 Ovens in each full battery and 39 Ovens in the half battery. Coal charge per oven is 18 tonnes (dry) and Coking time is 19½ hours (gross). The By-product units comprise Gas Condensation Plant, Acid Plant, Benzol Plant, Tar Distillation Plant, Naphthene plant, Bacteriological Liquid Treatment plant, Phenol Recovery units, and Sulphate Plant.

The Captive Coal Washery and the Coal handling units help supply of processed Coking Coal to the Coke Ovens.

(b) Blast Furnace Complex:

In the Blast furnaces, iron ore, coke and lime stone are charged to separate the iron content in the ores through a Chemical reaction and the hot metal is produced. To produce one tonne of iron in Blast furnaces 1600 Kg. of iron ore, 900 Kg. of Coke and 350 Kg. of lime-stone are required. The
plant has 4 Blast furnaces with a capacity of 1250 tonnes per day for 3 and 1500 tonnes for the bigger one. The Blast temperature varies from 816°C (max.) for the first three and 950°C (max.) for the fourth one. The annual capacity is 1.7 million tonnes of hot metal.

The three Casting machines for producing pig iron are with a capacity of 120 T/Hr. each. The Sintering plant with a capacity of 1.5 million tonnes per annum provides Sinter for using in Blast furnace. Ore Handling plant receives and processes different ores for the use in Blast furnace.

(c) **Steel Melting Shop**:

In Steel Melting shop, molten iron is purified in a furnace at a temperature of 1600°C (approx.). The process used in D.S.P. at present is basic open hearth and the produce is mild steel.

There are 8 furnaces of 220 tonnes capacity. The charge is 80 percent hot metal
and 20 percent scrap. Fuel includes furnace oil, pitch, cresote oil and coke-oven gas. Oxygen usage is through roof lancing and flame enrichment. Annual capacity of S.M.S. is 1.6 million tonnes of rollable ingot steel.

A Mixer Bay with 2 Mixers and 2 Desiliconsing stations help processing the hot metal before charging in the furnace.

(d) Blooming and Billet Mills:

Steel ingots are processed in the Blooming & Billet Mills mainly to convert them in semi-finished products. With an annual charge weight of 1.47 million tonnes, the Blooming Mill consists of one 42" mill and one 32" mill for producing blooms and slabs of different specifications.

Annual capacity of the Billet Mill is 0.937 million tonnes. The range of products is billets, sleeper bars and skelp slabs of different specifications.
Product mix of D.S.P.

The Primary Blooming Mill started operation on May 9, 1960.
(e) **Section Mill**:

With an annual capacity of 2,12,800 tonnes, the Section Mill rolls out light and medium structural bars like joists, channels, rounds, shell bars, bearing plate bars and fish-plate bars of different specifications.

(f) **Merchant Mill**:

The continuous Merchant Mill has a capacity of 240,000 tonnes per annum. The range of products is plain rounds, ribbed bars, flats, squares and equal angles of different specifications.

(g) **Skelp Mill**:

The Mill produces skelp for making tubes and pipes. The maximum finished size is with a width of 9½". Capacity is 250,000 tonnes per annum.

(h) **Wheel & Axle Plant**:

One of the biggest units for wheel making in South-East Asia, the plant is divided into the Wheel Forging Section and
Axle Forging Section. The 6000 tonnes wheel forging press is the biggest of the type in the Country. Annual Capacity of the plant 40,600 wheel sets.

(i) Sleeper Plant:

Annual Capacity is 75,000 tonnes. Products are BG/MG sleepers for Indian Railways.

(j) Fish-plate finishing Plant:

With annual capacity of 11,000 tonnes, the Unit produces fish plates for 90 lb. and 52 KG Rails for Indian Railways. In addition, Durgapur Steel Plant has a score of other supporting units to help the production process.
MODERNISATION OF THE PLANT

In a bid to modernise the plant whose main units were installed in the late 50's, a number of modernisation schemes and development programmes have been taken on hand - like a Captive Power Plant with a capacity of 120 M.W. to ease the power situation and improve production of saleable steel, Expansion of Central Engineering and Maintenance shops to meet the spares and maintenance requirements, Installation of balancing facilities at the Wheel & Axle plant to meet the increasing requirements of the Indian Railways, Modification of the Skelp Mill to roll angles in addition to skelps, Experimental Bottom Blown Oxygen Converter to conduct plant scale trials of this modern steel making process as a base for further modernisation, improvement in facilities for preparation and handling of raw materials.
BRIGHT FUTURE

With the development of matured Labour-Management relations, competent managerial and worker skill, thurst on improvement in the raw material base, augmentation of in-plant power generating capacity and the scheme of modernisation the now on hand, Durgapur Steel Plant looks forward to a bright future to make available to the nation higher quantities of better quality steels so vitally needed for national economic growth.
## PRODUCTION TREND

**Production Performance since 1973-74**

<table>
<thead>
<tr>
<th>Year</th>
<th>Ingot Steel</th>
<th>Saleable Steel</th>
</tr>
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<tbody>
<tr>
<td>1973-74</td>
<td>776</td>
<td>377</td>
</tr>
<tr>
<td>1974-75</td>
<td>819</td>
<td>520</td>
</tr>
<tr>
<td>1975-76</td>
<td>1001</td>
<td>752</td>
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<td>598</td>
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<tr>
<td>1981-82</td>
<td>930</td>
<td>782</td>
</tr>
<tr>
<td>1982-83</td>
<td>952</td>
<td>812</td>
</tr>
</tbody>
</table>

### Contribution to National Exchequer

Since inception till March 31, 1983

(Figures are Provisional) (Rupees in lakh)

- **Excise Duty**: 36639
- **Freight Outward**: 18616
- **Freight Inward**: 21765
- **Electricity Duty**: 942
- **Customs Duty**: 4207*
- **Other Taxes**: 237
- **Central Sales Tax**: 2387
- **West Bengal Sales Tax**: 882

*The figure is from 1968-69.*
n urban view—boys busy playing on the streets
Well maintained broad avenues are the assets of the steel town

Steam Plant Buses

Hostel Complex—Durgapur Steel Plant

Kumaramangalam Park

Photo: D. S. P.
The story of Durgapur would remain incomplete without an account of its sprawling steel township emerging out of an obscure rural set up with jungle around it. The dreadful site with robbers and hostile people has now become a legend substituted by a modern township which speaks of the genius of its planners, architects, engineers and social scientists. Spread over an area of 30 square kilometres, the steel town is the biggest among the conglomerations of several townships of the Durgapur Industrial Complex and it is the Second biggest modern-planned township in West Bengal. The entire steel township is divided into 5 zones covering 29.4 kilometres. Roads have been classified as peripheral, secondary and footpaths covering 293 kilometres. The population of the steel town is around 1,50,000. To cater to the different needs of hard-working steelmen, to their fulfilment of social and cultural life, the concept of modern township has been given due consideration at the time of planning. All the modern civic amenities,
like that of any other metropolitan city of the country, are made available to the residents of which they can boast. The broad, well-lit avenues, the well-maintained rotaries and the sectorised lay-out are really objects of envy even to the people of many big cities of the country. The underground sewerage system with a sewage disposal unit covers all the areas of steel town, maintaining the cleanliness and sanitation of a very highest order. As a result, the general health of the residents of this steel town is better than any other average Indian town.

Self sufficient in civic amenities including low tension and high tension electrical distribution system, incidence of Loadshedding which is now an embarrassing problem, is insignificant in Durgapur.

The other facilities include a net-work of Mukul Schools run by Mahila Samiti; primary and high schools with free education upto Class - X, Community Centres for Cultural activities, Nehru Stadium, Parks, other play grounds for games and sports, Central Public
Library, show houses, easy transport system for taking the employees to the plant and return, a big Hospital (with 493 beds) with five Zonal Health Centres, public health facilities, Horticulture, Sector Markets and the Employees' Co-operatives.

RESIDENTIAL ACCOMMODATION

Housing is a basic need of the employees. A plant with 32,000 workers and 2,000 listed personnel must have arrangements for comfortable accommodation for employees and their families. Keeping this in view, the planners designed a modern township for Durgapur Steel Plant, which comprises five zones. At present, there are around 20,000 houses of different categories in the steel town to accommodate the employees of both Durgapur Steel Plant and Alloy Steel Plant. The accommodation is, no doubt, insufficient, but new houses are being built in a phased manner adding to the size of the steel town. To cover 70 per cent of Durgapur Steel Plant employees, 5,000 (Five thousand)
houses need to be constructed. In addition, around 1,000 houses are required to be provided to the Central Industrial Security Force personnel. A phased programme to start construction of houses during remaining period of the Sixth Five Year Plan has been drawn up. Around each house, there was a provision for sufficient space for gardening. Of late, because of the shortage of developed land and increased cost of land development, apartment types of buildings are coming up to cope with the demand. About 47% of its employees are provided with houses around 15,840 at subsidised rates.

SECTOR MARKET AND SHOPPING FACILITIES

To make day-to-day existence easier with the availability of essential commodities for consumption within the accessible limit of the residents with the development of Community life, township has 7 well-equipped sector markets covering the whole 'A' and 'B' zones to the varied tastes, choices and demands of the steel town men. There are fish, meat and
vegetable stalls in these markets to facilitate quick shopping within a reasonable time. For centralised commercial shopping, there is a Bazar (Market) known as Benachity which meets the requirements of wares and merchandise of not only the steel community but also of the entire stretch of this massive industrial hub. Besides, a departmental shopping centre known as a city centre is being developed by the State Government in between the G.T. Road and the Steel Town. It would go a long way in meeting the requirements of the steel community.

There are Employees' Co-operative Societies which run Ration Shops, Textile Shops, Coal Depots, Consumer Shop, Wheat milling shops, Wholesale shop, General Stores and books, catering different commodities at a cheaper rate than that of the market to the market to the needs of the employees residing in the steel town. With a membership of around seventeen thousand, this is one of the biggest of such co-operatives with a turn-over of around Rs. 4 crores per annum.
The Durgapur Steel Plant also provides facilities to the employees' Co-operative Society with a grant of Rs. 20,000/-, each loan of 12.85 lakhs free of interest, accommodation (at a token rate of Re. 1 per month) for 47 shops, 23 office rooms and 6 godowns. Sixteen Durgapur Steel Plant employees are allowed to work in the Co-operative on whole-time basis (whose salaries amount to around Rs. 2 lakhs for the children of Co-operative employees at a token tuition fee as well as residential accommodation to one employee at par with Durgapur Steel Plant employees subject to availability.

The co-operative credit society provides credit facilities to the employees on reasonable terms. Its membership is around 25,600. The Society is run by elected representatives. The management provides the Society with free accommodation for its houses, a grant of Rs. 2,000/- (yearly) and facilities for recovery of loans by instalment from pay bills.
EDUCATIONAL FACILITIES IN TOWNSHIP

The Steel township is not apathetic either to providing educational facilities for its residents and children. With a network of ten high schools and twenty-one primary schools under the direct administration of a full-fledged Education Department, the Steel township presents a remarkable feature of offering scope for education in an elaborate way. Private organisations and a few missionary establishments have also been encouraged to start schools in the Steel town and six such organisations have already been running schools there with the help of the steel authority to provide variety in education for the children of the employees.

Free education up to the high school level is provided for the children of the employees. There are 20 primary schools and 10 high schools. For education at the pre-primary level and post-high school level, the plant does not take direct responsibility, still it has encouraged private initiative in this respect. Sixteen nursery school buildings built by the plant
have been made over to Durgapur Mahila Samiti, a social organisation, for running them. The plant has also provided building, furniture and library etc. for a plus two level institution in the Steel town.

Facilities provided to the children include free tuition from Classes I to X, school bus service at a concessional rate to the students coming from longer distances and reading in the English Medium Primary Schools and Girls' High Schools, supply of text-books to all the students upto Class V at the primary level, school Health Service through medical examination of all new entrants in the primary schools and the Girls' school.

As to extra-curricular activities, regular training is imparted to students in band and music, both vocal and instrumental, by music teachers and band masters. To make day-to-day teaching more purposeful and practical, programmes in audio-visual education and Health Education are arranged periodically.
To impart training in discipline and social service, Scout and Guide training courses run regularly in those schools, in addition to National Cadet Corps (N.C.C.) training in three of the Secondary Schools. Apart from these, there are arrangements for providing training to the students of all schools—secondary and primary.

All the schools in the Steel Town have spacious play grounds and qualified physical-training instructors to train students in various indoor and outdoor games as well as in athletics and Yoga.

To spot talent in the students, Art, Craft and Science exhibitions and to mark and celebrate the memorable occasions, cultural functions are organised, which are sometimes thrown open to the public and are largely attended.

Besides, Prize-giving functions, Inter-school competitions in elocution, debates, recitation, painting and preparation of greeting cards are held.
To facilitate pursuit of higher education, some scholarships are awarded annually to the children of Durgapur Steel Plant and Steel Plant employees.

Under 'Teacher Development Scheme' seminars are organised for improvement in teaching in co-operation with U.N.I.C.E.F. and the Department of Education, State Government.

SOCIAL & CULTURAL ASPECTS OF LIFE

Steel Town offers all modern amenities of life that an industrial metropolis can expect today. These are very much in need but one can possibly do without. It is social and cultural activities that help machine-men to make their life lively and regain vigour outside the busy hours of factory. Culture is an attitude to life born or grown out of our response to the environment in various forms at various levels. In Steel Complex, the form is a mixed one because of the diversity in population. In Steel Town, culture is almost
synonymous with diversion or a form of entertainment for the workmen mainly by themselves. Of the performing arts that have to be woven in the fabric of life in the area, music and play acting are common and popular. Quite a few recreation clubs have come into being which organise programme from time to time with provision for variety performances. In this matter, the Community Centres play an important role in providing this entertainment. The days of national importance are also observed with due solemnity and appropriateness. Of the religious festivities of major attraction, Viswakarma Puja, naturally enough, is very popular owing to its supposed conceptual relation to the technique of production and productivity.

It is evident that people living in industrial complex have developed a separate outlook from that of others. This is due to the fact that they have got used to a way of more or less comfortable and easy life with scope for employment and the amenities available to them. This, however, has made
them different to some extent from the rest and a class by themselves in respect of attitude towards life.

In the industrial complex of Durgapur Steel Plant which accommodate people hailing from different parts of the land and speaking different languages, we find no exception to it. Of the people of different provinces, the Bengalees are culturally advanced and it is because of their earnestness that some social and cultural organisations have come into being in the town. Of the leading and active cultural bodies, Netaji Bhavan, Deshbandhu Bhavan, Rabindra Bhavan, Fine Arts Club, Anurupa Devi Smriti Pathagar, Rabindra Parishad, Durgapur Club, Steel Club (A-Zone), Ispat Club (B-Zone), Institute of Engineers, Durgapur Akhil Bharatiya Sanskriti Parishad are worth mentioning.

The regular activities of these institutes, primarily, include recreational facilities in the form of indoor and outdoor games, film shows and cultural programmes held occasionally.
by the residents themselves or by professional troupes. Besides, some have provided library facilities. All these bodies receive liberal benefits from the authority of Durgapur Steel Plant and Alloy Steel Plant in forms of having regular grants towards the recurring expenditure incurred in their functioning in addition to the facilities provided, in many cases house-building grants.

The most conspicuous feature is that in all these Cultural institutes enlightened section of the population of Steel town plays prominent role to their benefit in their day to day life.

Field survey report clearly shows that the lower strata of the population in the Steel Town, or the tribals, which form a negligible percentage of the total population, have no such cultural or recreational bodies to their choice.

The reason is not far to seek. Either they have no interest in their old pattern of
cultural life to live, or they try to come closer to the mainstream life. In the following Chapters this will be discussed through evidences from the present author's in-depth interviews with them.
One of the Sector Markets: seven such sector markets are there in the steel town to cater to the different needs of the steelmen and their families.
A blast in the early days of the plant construction in Durgapur in the early fifties before the steel giant sprang up.