Introduction

Metal-based industries are highly concentrated in the western part of the district, particularly in Asansol and Durgapur sub-divisions, a linear industrial area running from Barakar in the west to Durgapur in the east. As a result of various programmes on industrialization, new centres of metal-based manufacturing industry had come up in this area during the Second Plan. The manufacturing of metal-products had been assigned very high priority in this area since then. A pronounced emphasis was given to rapid industrialization for securing rapid economic growth. Large scale development of engineering industry was also proposed at that time. Barddhaman is the only district in West Bengal which contains heavy and basic industries.

From the point of view of mineral and energy resources the western part of Barddhaman district may be considered the richest in West Bengal, especially in terms of coal. In addition, the traditional location of iron ore and many other industrial minerals, in close proximity to these coalfields in considerable abundance, has favoured the development of large-scale industrial units in and around this coalfield. The effective utilization of these resources is made by the large-scale industrial units. Iron-ore is brought from Gua deposit of Singhbhum district, Bihar. Electricity is supplied from DVC, Bandel Thermal Power Station, Santaldih and also from Rihand and Hirakund Grid through the DVC. Because of these factors, this part of the district saw rapid growth of industries from 1960. To identify the spatial impact of industrial growth, the trend of development of this industry has been studied over
two decades.

**Major Concentration**

Large scale developments took place in the field of basic metal and alloy industry. These basic industrial units are developed in Durgapur, Hirapur, Kulti, Chittaranjan, Salarpur, Raniganj, Asansol, Kanksa, Barddhaman, Memari and Katwa police stations (Sketch 5.1). Among these, the last five police stations are insignificant as they are very small. Though in the number of industrial units the other six police stations account for only 5% of district's total number of industrial units at present, these units absorb over 54% of district's total number of workers. Thus, it is clear that the average employment capacity of these units are maximum. Most of the large scale units are developed under this section particularly in some police stations. The following is a complete analysis of the distribution and size of the industrial units.

In this respect Durgapur is ahead of all other police stations. At present it accounts for nearly 2/5th of the total basic metal industries (Table 5.1) absorbing about 1/2 of these industrial workers in the district. At the early stage, particularly in 1960, Durgapur ranked 3rd in terms of manpower strength of this class. Durgapur Steel Plant (DSP), established in 1959, doubled its capacity during 1960-65. The employment capacity of DSP was 6165 in 1960, and 16955 in 1970, a three fold increase within a span of ten years. During that period, Alloy Steel Plant came into existence with a high employment capacity. So, Durgapur became the leading industrial police station from 1970. The number of industrial units was also increased at that time. There was a gradual increase of percentage share in manpower strength in the following years.
CONCENTRATION OF BASIC METAL INDUSTRIAL UNITS (BARDDHAMAN DISTRICT, 1960-82)

Sketch 5'1

- One industrial unit
Sketch 5.2 clearly shows the industrial position of some police stations in basic metal industry.

Table - 5.1

Percentage share of basic metal industrial workers in some police stations of Barddhaman district

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Durgapur</td>
<td>19.21</td>
<td>32.03</td>
<td>45.84</td>
<td>50.73</td>
<td>55.37</td>
<td>53.12</td>
</tr>
<tr>
<td>Hirapur</td>
<td>55.09</td>
<td>44.09</td>
<td>34.47</td>
<td>33.42</td>
<td>29.09</td>
<td>34.12</td>
</tr>
<tr>
<td>Kulti</td>
<td>22.03</td>
<td>18.47</td>
<td>12.68</td>
<td>13.11</td>
<td>10.58</td>
<td>8.62</td>
</tr>
<tr>
<td>Raniganj</td>
<td>3.67</td>
<td>5.41</td>
<td>4.19</td>
<td>5.93</td>
<td>1.30</td>
<td>1.38</td>
</tr>
<tr>
<td>Chittaranjan</td>
<td>-</td>
<td>-</td>
<td>2.82</td>
<td>2.55</td>
<td>3.01</td>
<td>2.45</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.19</td>
<td>0.45</td>
<td>0.31</td>
</tr>
</tbody>
</table>

* Jaykaynagar aluminium factory was closed. A small unit was there having 4 person employed per day. Thus, the percentage share was -

\[
\frac{400}{48970} = 8.17 \times 10^{-3}
\]

48970 = total employment capacity of the district in basic metal industry.

Hirapur was the leading industrial police station in 1960 in terms of employment (Table 5.1). The Iron and Steel Works at Burnpur reduced its capacity in 1970 and thus the area lost its leading position, from that period. At that time, Durgapur police station overtook the position of Hirapur police station. Now the industrial units of this area absorb 34% of the workers engaged in the district's basic metal and alloy industries. The number of industrial units of this industrial class remained constant over the two decades.
Sketch 5.2 \textit{PERCENTAGE SHARE OF BASIC METAL INDUSTRIAL UNITS \\
& THEIR MANPOWER IN SOME POLICE STATIONS}

**DURGAPUR**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of units &amp; manpower</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>60</td>
<td>40</td>
</tr>
</tbody>
</table>

**HIRAPUR**

<table>
<thead>
<tr>
<th>Period</th>
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<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of units &amp; manpower</td>
<td>60</td>
<td>40</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

**RANIGANJ**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of units &amp; manpower</td>
<td>60</td>
<td>40</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>40</td>
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</tbody>
</table>

**KULTI**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of units &amp; manpower</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>60</td>
<td>40</td>
</tr>
</tbody>
</table>

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Sketch 5.3 **GROWTH RATE OF BASIC METAL INDUSTRIAL WORKERS**

**DURGAPUR**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of growth</td>
<td>50</td>
<td>0</td>
<td>-50</td>
<td>-100</td>
<td>0</td>
<td>-50</td>
</tr>
</tbody>
</table>

**HIRAPUR**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of growth</td>
<td>50</td>
<td>0</td>
<td>-50</td>
<td>-100</td>
<td>0</td>
<td>-50</td>
</tr>
</tbody>
</table>

**RANIGANJ**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of growth</td>
<td>50</td>
<td>0</td>
<td>-50</td>
<td>-100</td>
<td>0</td>
<td>-50</td>
</tr>
</tbody>
</table>

**KULTI**

<table>
<thead>
<tr>
<th>Period</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of growth</td>
<td>50</td>
<td>0</td>
<td>-50</td>
<td>-100</td>
<td>0</td>
<td>-50</td>
</tr>
</tbody>
</table>
Kulti ranked after Hirapur in terms of manpower in 1960. The labour strength of industrial units of this area was about 22% of district's total number of workers engaged in basic metal and alloy industries at that time. This position was suddenly overtaken by Durgapur police station in the following year (Table 5.1). The employment capacity of the Iron and Steel Works at Kulti was reduced to a great extent in 1970. Thus the percentage share of employment capacity was also reduced from that period and now it absorbs nearly 8% of the workers engaged in basic metal and alloy industry.

One industrial unit of Chittaranjan police station came into existence from 1970. Now, it is the only basic metal industrial unit having a capacity of about 1500 persons per day.

At present, degradation of industrial units as well as of their employment capacities is noticed in Raniganj compared to the base year. The industrial units of the area increased their capacities up to 1970. The following year* was significant for a marked fall in manpower. But the increase of employment capacity from 1980 (Jaykaynagar aluminium factory was undertaken by IRCI) compensated the situation.

The basic metal industrial units of Salanpur were established from 1980 with a small employment capacity.

The industrial units of the remaining five police stations were in existence from 1970 onward. Salanpur, Asansol, Kanksa, Memari, Barddhaman and Katwa are among these police stations and are insignificant because of their meagre employment capacities.

* In 1975 Jaykaynagar aluminium factory was closed.
Growth Rate

In the district of Barddhaman the index of industrial growth is 243% and of manpower growth is 89% from the base year (Table B.). The district's highest growth of employment is recorded at present.

Table 5.2

Growth rate of basic metal industrial workers in some police stations of Barddhaman (1960-82)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Durgapur</td>
<td>103.02%</td>
<td>72.79%</td>
<td>14.87%</td>
<td>11.05%</td>
<td>17.05%</td>
</tr>
<tr>
<td>Hirapur</td>
<td>-2.56%</td>
<td>-5.62%</td>
<td>0.46%</td>
<td>-11.76%</td>
<td>43.64%</td>
</tr>
<tr>
<td>Kulti</td>
<td>2.14%</td>
<td>-17.66%</td>
<td>9.06%</td>
<td>-18.22%</td>
<td>-0.25%</td>
</tr>
<tr>
<td>Raniganj</td>
<td>84.31%</td>
<td>-6.34%</td>
<td>-99.78%</td>
<td>16050.00%*</td>
<td>29.57%</td>
</tr>
<tr>
<td>Chittaranjan</td>
<td>-2.65%</td>
<td>19.52%</td>
<td>-0.31%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Jaykaynagar aluminium factory was reopened in 1980 having 646 persons employed per day. So, the growth rate was =

\[
\frac{646-4}{4} = 16050.00\%
\]

4 = Employment capacity in 1975.

Durgapur has seen a continuous growth of manpower (Table 5.2). During 1960-65, there was 300% growth in industrial units and 103% growth of manpower (Table 5.2). It was the record growth in this police station as well as in the district throughout the twenty-two years. There was no growth of industrial units during 1960-65 and 1980-82. But the total period was significant for a continuous growth of manpower (Sketch 5.3). The increase of employment capacity of two large units* was the cause of such growth.

* 1. Durgapur Steel Plant  2. Alloy Steel Plant
The industrial units of Hirapur police station were marked either by decay or by stagnation throughout the whole period. Thus, no growth of employment capacity was noticed except the current year (Table 5.2). At present, about 44% growth of manpower is observed as the large unit of this police station increased its capacity to some extent.

Kulti, the second leading police station of the past, displayed 100% growth of factory units during 1960-65. This period was followed by a period of stagnation. Beside the period of 1960-65 and 1970-75 no growth of employment was noticed all through the period. These two periods had a small growth in employment capacity (Table 5.2).

The industrial position of Raniganj is different from all other police stations. There was no growth in 1970-75 as the Jaykaynagar aluminium factory was closed at that time. In 1975-80 when this large unit was undertaken by IRCI, a high growth was noticeable in sketch 5.3.

Chittaranjan witnessed 20% growth of employment during 1975-80 though there was no growth in factory units. The other police stations where this category of industry existed, had no growth in employment as well as in industrial units.

Old and New Units and their Employment Capacities

The number of newly established units in the district of Barddhaman was greater during 1975-80.

** During 1980-82, the plant (IISCO) got the technical and financial help from Japan. In this way, few workshops of this plant were reopened - A report from field survey.
Durgapur is favoured by a maximum number of new industrial units from 1960-70, but, their employment capacities were not high. Alloy Steel Plant came into existence in 1965. But, at that time, its capacity was low. This unit showed a rapid growth of manpower in the following years.

In Hirapur police station, there was no new factory during the study period. In Chittaranjan one new industrial unit came into existence in 1970. Kulti was also marked by one new unit in 1965. The existing units* of Hirapur and Kulti are now able to absorb the area's total workers in basic metal industries. Some new units came into existence in 1980 in the other police stations but those were insignificant in size and capacity. The old units of the district are now showing a low growth in employment capacity.

Permanent and Temporary Closure of Industrial Units

The closure of industrial units under this category did not affect the total picture of industrial growth of the district. The temporary closure of Jaykaynagar Aluminium factory in Raniganj police station in 1975 was the exception. It was the cause for unemployment of 99% of the area's total workers at that time. There were permanent and temporary closures of some smel units in Asansol, Raniganj, Memari and Barddhaman police stations in different years. But these did not very much alter the overall picture.

Size of the Industrial Units

Large units in this class of metal-based industry are to be found in Durgapur, Hirapur and Kulti police stations. These are the iron and steel works under public sector.

* IISCO Workshops.
Durgapur Steel Plant, established in 1959, belonged to size Class VIII in 1960. About four fold increase of employment capacity in this unit through this period exhibited an upgradation in size Class. At present it belongs to size class X. Alloy Steel Plant in Durgapur was established in 1965 which belonged to size Class III. An accelerated growth of manpower in the following year helped the unit to be enlisted in the size class VII. Now this unit has moved up to the size Class VIII owing to a certain increase of manpower. After the establishment of these two units many small factories of size Class II or III had come up in this police station in 1965 and 70 (Sketch 5.4). Most of these are casting and forging workshops. At present, 97% of the area's total basic metal industrial workers is employed in these two large-sized public sector plants.

The iron and steel factory at Burnpur in Hirapur police station was the largest existing unit of the district during 1960-65, when it belonged to size Class IX. Now, it maintains its position in the same size class.

The existing unit (Iron & Steel Works) of Kulti police station stood in the size Class VIII all through the period of study. Some small units are also found from 1965 onward (Sketch 5.4).

Chittaranjan has one factory in size class VI from 1970 onward.

The aluminium factory of Raniganj police station stood in size Class VI and then in size Class VII up to 1970 which was followed by a temporary closure. As a result, industrial growth of Raniganj was somewhat halted during 1970-75. So, there were only small units at that time (Sketch 5.4). With the help of IRCI this unit was reopened, but its employment capacity was reduced. So, the size of this unit is now reduced to size class V.

* IRCI - Industrial Rehabilitation Corpn. of India.
SIZE CLASS OF BASIC METAL INDUSTRIAL UNITS

DURGAPUR

RANIGANJ

HIRAPUR

KULTI

Sketch 5'4

Period

% of units

size index

Period

% of units

Period

% of units

Period

% of units

Period
The remaining police stations have a few small sized units, some from 1975, others from 1980.

The small units in Barddhaman and Memari, particularly in the eastern part of the district, are closed now.

At present, 94% of the district's total number of workers in basic metal industries is employed by the above-mentioned large-sized public sector plants. The rest are employed by the small-sized units which are scattered in and around these large-sized units.

Summary of Findings

The study of industrial growth and the trend of development in the different police stations of the district reveals some general trend which can be summarised below:

1. This basic metal and heavy industrial sector has developed particularly in the western part of the district. Most of the large units are found in this category of industry. These units can absorb above 90% of the workers of the basic metal industry of the district. Some of these are existing units and some were established during 1960-65. Most of the existing units are now reducing their employment capacities. The maximum growth of employment capacity has been noticed in this industry. In 1980, the district witnessed the growth of a large number of small units.

2. Durgapur is now the leading industrial police station of the district. Durgapur Steel Plant, one of country's largest steel plants, came into existence in 1959. Alloy Steel Plant was established in the Third Plan period. Three-fold increase of manpower in Durgapur Steel Plant and the rapid increase of
employment capacity in Alloy Steel Plant accentuated the industrial growth of the district as well as of the State. The area was blessed with a number of new units with an average capacity of 128 persons per factory. About half of the district's small units came up then, in and around these large units. In this way, the industrial units of Durgapur can absorb 53% of the district's total number of workers engaged in the basic metal industries at present while it was only 19% in 1960.

3. Large existing units are seen in Hirapur and Kulti police stations. These were under the management of Indian Iron and Steel Company which was nationalized in 1972. These units reduced their employment capacities all through the period except the current year, when the steel plant at Burnpur was able to increase its capacity. In these two police stations there was no closedown of industrial units, but the areas showed marked stagnation in industrial growth.

4. The industrial recession of Raniganj was heralded by the temporary closure of Jaykayanganj Aluminium Factory in 1975. Though it was compensated in the following year, but the capacity was decreased. From 1975, Chittaranjan remains in the same position with only a certain increase of employment.

5. The remaining police stations are marked either by stagnation or by decay. Most of these have small units and came into existence after 1970. These industrial units have not greatly influenced the total industrial trend of the district. Their establishments were connected with the large-scale public sector plants.

6. The temporal variation of industrial growth shows a clearer picture of industrial trend. There was three-fold increase of industrial units over the whole period with doubling of the employment capacity. Maximum number
of newly established units came up during 1965-70, with the simultaneous growth of Iron and Steel Works in Durgapur. The following period (1970-80) was marked by a minimum growth of employment as the public sector plants could hardly show any growth of employment. There was recession in Raniganj in 1975. This period was followed by a maximum growth of employment, though there was no growth in the number of industrial units. Only old, especially the large units increased their capacities. There was no record of closure of industrial units in 1983. On the contrary, there were many new units. These gave a boost to the industrial growth seen at present.