CHAPTER - V

SUGAR INDUSTRY IN MAHARASHTRA -

LOCATION PATTERN AND DISTRIBUTION OF INSTALLED CAPACITY

5.1) Introduction:

In the chapter III, we briefly reviewed the growth of sugar industry in Maharashtra. "The agro-climatic conditions in Maharashtra are favourable for cane cultivation. The initial experiments demonstrated the profitability of sugarcane cultivation and therefore, wherever there was certainty of annual water supply, increasing demands for organisation of sugar factories on cooperative basis came from many corners of the state."

Thus, although growth of sugar factories was restricted to the south and central zones initially, in the 70's and 80's the sugar industry spread in the North East zone also. In this chapter, we shall try to analyse the changes in the locational pattern of the sugar industry in Maharashtra during the period 1960-90.

1. The report of the committee for recommending a package for rehabilitation of sick sugar factories in cooperative sector, Govt. of Maharashtra, June 1990.
The manufacturing industry that may develop in a given region, could be classified into four categories, depending on various locational factories:

1. Material oriented industries: These industries are located at the source of the raw material. The reason is, transport of finished product is easier than transport of raw material to the production site e.g. sugar steel.

2. Services industries developed in order to support the major industry in the region.

3. Residentiary industry producing mainly for local consumption.

4. Footloose industries where transport costs are not of any significance while choosing the location.

The sugar industry comes in the category of materials oriented industry. A sugar factory is always located near the sugarcane cultivating areas in order to minimise the cost of transportation. Another important reason for locating a sugar factory near the sugarcane fields is that sugarcane is a 'weight loosing' raw material and it should be processed as early as possible after cutting. These are important factors because sugarcane price forms a substantial part of total cost of production (more than 50%). Hence, it is very important to use this raw material judiciously.

---

2. North D.C.: "Location Theory and Regional Economic Growth".
Thus, the location pattern of sugar industry is dependent on the geographical pattern of sugarcane cultivation in a given region. "Initially sugar factories were established in those areas where assured irrigation facilities were available for supporting cane cultivation. Later however, factories were set up where irrigation sources were from smaller dams and had ample underground water".

In Chapter-III, we reviewed the growth of sugar factories and area under sugarcane cultivation in the state. Apart from the organizational growth, due to bringing additional area under sugarcane cultivation and intense efforts for getting increased yield per acre, sugarcane production has increased to such an extent that the crushing capacity of some co-operative sugar factories needed to be enhanced to cope with the increased production of sugarcane.

Such factories expanded the crushing capacity. Thus during the growth of the sugar industry, number of factories increased and, at the same time factory size also increased.

To analyse the structure and growth of the sugar industry during the last 30 years, we referred to the distribution of the installed crushing capacity, and number of factories in the state during this period. To study the spatial trend, we attempted a comparative study of the distribution in the years 1960-61, 1970-71, 1980-81 and 1989-90.

This analysis will enable us to take a closer look at the regional concentration in this industry during the initial period and to quantify trend of spatial shift during the period under study. The analysis will be carried out in two parts. The objectives are:

1. To examine the structure of sugar industry in the spatial context.

2. To assess the nature, extent and trend of change in the location pattern and structure of sugar industry in Maharashtra.
5.2) METHODOLOGY:

To study the structural changes in the sugar industry in Maharashtra, we obtained the factory-wise data on the installed capacity (I.C.) for the years 1960-61, 1970-71, 1980-81 and 1989-90 (Table 5.1A). This data was further compiled into district-wise number of factories and total installed capacity and later on the data was again classified to give us the zone wise picture. The zone-wise and district-wise classification of installed capacity and number of factories is reported in the table 5.1. This portrayed the relative growth of sugar industry during the period under study.

For further analysis, we define the concepts of "significant factory" and "significant capacity".

Significant Factory:

A factory with higher installed capacity than the average factory size will be referred to as significant factory. Whereas -

\[
\text{Average Factory size} = \frac{\text{Total I.C. in the state}}{\text{Total No. of factories in the state}}
\]

5. The zones were not formulated in the 60's and 70's we have extended the classification backwards to obtain a zonewise pattern for earlier years also.
**Significant Capacity:**

Significant capacity refers to the sum total of installed capacity in significant factories in a given region/state.

The number of significant factories and significant capacity in the districts and zones are given in Table 5.1 for the 4 years under study.

Finally, to get the relative positions of the districts, the districts were ranked according to their share in the total installed capacity in the state for the reference years. The top 5 ranked districts and their relative share in the total installed capacity in the state are reported in Table 5.2. In the following section we shall analyse the results presented in Table 5.1 and Table 5.2.

5.3) **Analysis:**

In the year 1960-61, the sugar industry operated only in the south and central zone. The total installed capacity of the industry during this year was 26678 (TCD) there were 26 sugar factories in the state. The average factory size was 1026 TCD.
<table>
<thead>
<tr>
<th>Zone</th>
<th>1960-61 No. of plants</th>
<th>Total IC</th>
<th>No. of signi plants</th>
<th>1970-71 No. of plants</th>
<th>Total IC</th>
<th>No. of signi plants</th>
<th>1980-81 No. of plants</th>
<th>Total IC</th>
<th>No. of signi plants</th>
<th>1989-90 No. of plants</th>
<th>Total IC</th>
<th>No. of signi plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolhapur</td>
<td>4</td>
<td>4778 (17.3)</td>
<td>1 1700</td>
<td>6</td>
<td>10520 (18.1)</td>
<td>4 3300</td>
<td>10</td>
<td>22200 (16.9)</td>
<td>7 19500</td>
<td>11</td>
<td>27700 (16.5)</td>
<td>9 25500</td>
</tr>
<tr>
<td>Sangli</td>
<td>1</td>
<td>1016 (3.8)</td>
<td>- -</td>
<td>2</td>
<td>4750 (8.1)</td>
<td>1 3300</td>
<td>5</td>
<td>18200 (14.7)</td>
<td>2 7000</td>
<td>7</td>
<td>12320 (17.4)</td>
<td>2 7000</td>
</tr>
<tr>
<td>Satara(N)</td>
<td>1</td>
<td>1000 (3.7)</td>
<td>- -</td>
<td>1</td>
<td>2400 (4.5)</td>
<td>1 8600</td>
<td>3</td>
<td>6650 (16.4)</td>
<td>2 7200</td>
<td>6</td>
<td>8600 (5.8)</td>
<td>3 7200</td>
</tr>
<tr>
<td>Southzone</td>
<td>6</td>
<td>6748 (25.3)</td>
<td>1 1700</td>
<td>4</td>
<td>17900 (30.8)</td>
<td>6 14400</td>
<td>16</td>
<td>39900 (29.7)</td>
<td>11 32500</td>
<td>21</td>
<td>44400 (29.5)</td>
<td>13 39400</td>
</tr>
<tr>
<td>Satara(N)</td>
<td>2</td>
<td>1600 (6.0)</td>
<td>- -</td>
<td>2</td>
<td>3750 (4.4)</td>
<td>- -</td>
<td>3</td>
<td>3750 (4.9)</td>
<td>- -</td>
<td>4</td>
<td>5650 (13.5)</td>
<td>1 2000</td>
</tr>
<tr>
<td>Pune</td>
<td>3</td>
<td>3200 (12.0)</td>
<td>1 1400</td>
<td>3</td>
<td>6766 (11.6)</td>
<td>2 3250</td>
<td>6</td>
<td>10316 (7.8)</td>
<td>4 8500</td>
<td>7</td>
<td>12044 (8.7)</td>
<td>3 8250</td>
</tr>
<tr>
<td>Solapur</td>
<td>2</td>
<td>2016 (7.6)</td>
<td>- -</td>
<td>4</td>
<td>4886 (8.3)</td>
<td>1 1750</td>
<td>9</td>
<td>11566 (8.8)</td>
<td>1 3100</td>
<td>8</td>
<td>13664 (8.6)</td>
<td>3 7000</td>
</tr>
<tr>
<td>A&quot;Nagar</td>
<td>10</td>
<td>9899 (37.1)</td>
<td>- -</td>
<td>12</td>
<td>16730 (29.1)</td>
<td>6 11250</td>
<td>17</td>
<td>29020 (22.5)</td>
<td>7 18100</td>
<td>13</td>
<td>26750 (16.0)</td>
<td>9 24450</td>
</tr>
<tr>
<td>Nasik</td>
<td>2</td>
<td>8000 (8.8)</td>
<td>1 1800</td>
<td>3</td>
<td>3200 (5.5)</td>
<td>- -</td>
<td>6</td>
<td>7750 (16.0)</td>
<td>1 2000</td>
<td>7</td>
<td>11220 (14.7)</td>
<td>1 2550</td>
</tr>
<tr>
<td>Central zone</td>
<td>19</td>
<td>18914 (70.9)</td>
<td>2 2600</td>
<td>27</td>
<td>35514 (61.0)</td>
<td>9 14250</td>
<td>40</td>
<td>62644 (47.8)</td>
<td>13 31150</td>
<td>29</td>
<td>44952 (41.2)</td>
<td>17 40250</td>
</tr>
<tr>
<td>Sholle</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>1</td>
<td>1250 (2.1)</td>
<td>- -</td>
<td>2</td>
<td>3750 (2.9)</td>
<td>1 2000</td>
<td>4</td>
<td>7250 (4.3)</td>
<td>1 2500</td>
</tr>
<tr>
<td>Jalgaon</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>2750 (2.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
</tr>
<tr>
<td>A&quot;bad</td>
<td>1</td>
<td>1016 (3.8)</td>
<td>- -</td>
<td>1</td>
<td>1016 (1.7)</td>
<td>- -</td>
<td>5</td>
<td>6014 (9.8)</td>
<td>- -</td>
<td>5</td>
<td>7000 (4.2)</td>
<td>1 2000</td>
</tr>
<tr>
<td>Jalna</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>2</td>
<td>2500 (1.5)</td>
<td>- -</td>
<td>2</td>
<td>2500 (1.5)</td>
<td>- -</td>
</tr>
<tr>
<td>Beed</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>3750 (2.9)</td>
<td>- -</td>
<td>4</td>
<td>5000 (3.0)</td>
<td>- -</td>
<td>4</td>
<td>5000 (3.0)</td>
<td>- -</td>
</tr>
<tr>
<td>Parbhani</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>3750 (2.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
</tr>
<tr>
<td>Nanded</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>1</td>
<td>1250 (2.1)</td>
<td>- -</td>
<td>2</td>
<td>2500 (1.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
</tr>
<tr>
<td>Osmanabad</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>1</td>
<td>1250 (2.1)</td>
<td>- -</td>
<td>1</td>
<td>3800 (1.4)</td>
<td>1 2800</td>
<td>2</td>
<td>3450 (1.8)</td>
<td>1 2800</td>
</tr>
<tr>
<td>Latur</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>3750 (2.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
<td>3</td>
<td>3750 (2.9)</td>
<td>- -</td>
</tr>
<tr>
<td>Viderbha</td>
<td>-</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>2500 (1.9)</td>
<td>- -</td>
<td>2</td>
<td>2500 (1.9)</td>
<td>- -</td>
<td>2</td>
<td>2500 (1.9)</td>
<td>- -</td>
</tr>
<tr>
<td>NE Zone</td>
<td>1</td>
<td>1016 (3.8)</td>
<td>- -</td>
<td>4</td>
<td>4766 (8.2)</td>
<td>- -</td>
<td>5</td>
<td>29464 (22.5)</td>
<td>2 4700</td>
<td>36</td>
<td>49750 (29.3)</td>
<td>2 7700</td>
</tr>
<tr>
<td>State total</td>
<td>25</td>
<td>56700 (100.0)</td>
<td>3 4300</td>
<td>40</td>
<td>58180 (100.0)</td>
<td>15 39650</td>
<td>78</td>
<td>131050 (100.0)</td>
<td>25 66800</td>
<td>96</td>
<td>167300 (100)</td>
<td>23 92800</td>
</tr>
</tbody>
</table>
### TABLE 5.2

Spatial Concentration (1960-90)

#### 1960-61

<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Total IC</th>
<th>% to Total IC</th>
<th>Factories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ahmednagar</td>
<td>9898</td>
<td>37.1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Kolhapur</td>
<td>4732</td>
<td>17.7</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Pune</td>
<td>3200</td>
<td>12.0</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Nasik</td>
<td>2200</td>
<td>8.2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Solapur</td>
<td>2016</td>
<td>7.6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>22046</strong></td>
<td><strong>82.6</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

#### 1970-71

<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Total IC</th>
<th>% to Total IC</th>
<th>Factories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ahmednagar</td>
<td>16932</td>
<td>29.1</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Kolhapur</td>
<td>10550</td>
<td>18.1</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Pune</td>
<td>6766</td>
<td>11.6</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Solapur</td>
<td>4866</td>
<td>8.3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Sangli</td>
<td>4750</td>
<td>8.1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>43864</strong></td>
<td><strong>75.4</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>

Contd.....
### 1980-81

<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Total IC</th>
<th>% to Total IC</th>
<th>Factories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ahmednagar</td>
<td>29082</td>
<td>22.2</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>Kolhapur</td>
<td>22200</td>
<td>16.9</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Solapur</td>
<td>11566</td>
<td>8.8</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Pune</td>
<td>10316</td>
<td>7.8</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Satara(s)</td>
<td>8450</td>
<td>6.4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>81614</strong></td>
<td><strong>62.2</strong></td>
<td><strong>44</strong></td>
</tr>
</tbody>
</table>

### 1990-91

<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Total IC</th>
<th>% to Total IC</th>
<th>Factories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kolhapur</td>
<td>27700</td>
<td>16.5</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Ahmednagar</td>
<td>26750</td>
<td>16.0</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Sangli</td>
<td>13250</td>
<td>7.9</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Solapur</td>
<td>13066</td>
<td>7.8</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Pune</td>
<td>12066</td>
<td>7.2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>92832</strong></td>
<td><strong>55.5</strong></td>
<td><strong>46</strong></td>
</tr>
</tbody>
</table>

More than 70% of the installed capacity was located in the central zone. There were 19 sugar factories located in the central zone with the total installed capacity 18914 TCD. Further, in the central zone, industry was concentrated in Ahmednagar district.
37% of the total installed capacity in the state was located in this district. After the success of Pravaranagar co-operative sugar factory in this district, large number of factories came up in the district.

However, there were only two significant factories in this zone. Mostly the factories operated below the average factory size. The proportion of significant capacity to total capacity in the district was only 14%.

There were 6 sugar factories in the south zone. The total installed capacity located in this zone was 6748 TCD. This amounted to 25.3% of the total installed capacity in the state. It could be seen that in the south zone, Kolhapur district was the major sugar producing district, where 17.7% of the total installed capacity in the state was located. In the south zone only one sugar factory was significant. The significant capacity constituted 25% of the total IC located in the south zone.

In the north eastern zone the sugar industry almost did not exist in this period. There was only one sugar factory in Aurangabad district.

During the period 1960-70, the capacity of the sugar industry expanded to 58160 TCD. Thus the industry
registered more than 100% increase in the installed capacity during this decade. The number of factories increased to 40. Consequently the average factory size in the state also increased to 1455 TCD.

The zonewise distribution of installed capacity in 1970-71 shows that the relative shares of the three zones have changed.

The south zone showed 165% increase in the installed capacity over the decade. The total installed capacity located in the south zone in 1970-71 was 17900 TCD and number of factories also increased to 9. The relative share of south zone in the total capacity in the state was 30.8%.

The factories in the south zone now operated on the larger scale as compared to 1960. This is evident from following two observations. Firstly the number of significant factories increased to 6. Secondly, the proportion of significant capacity in the total capacity has risen to 80% in the year 1970-71 as compared to 25% in 1960-61.

During the period 1960-61 to 1970-71, three more sugar factories were setup in the NE zone. The total capacity located in this zone was 4786 (8% of the state capacity). Out of the four factories in this zone, 1
was in Dhule district and 3 were located in Marathwada region. There were no sugar factories in Vidarbha. The main reason for this slow growth in NE zone was lack of irrigation facilities required to raise the cane crop. All the four factories were below the average size (1455 TCD for 1970-71).

During the period 1970-80, the capacity of the sugar industry was raised to 131030 TCD. This showed a 125% increase during this decade. The number of factories increased from 40 in 1970-71 to 78 in 1980-81. But the average factory size showed very little rise i.e. from 1455 TCD to 1680 TCD.

During this period, the south zone further consolidated its position by maintaining its relative share, in total capacity at 30%. The number of factories increased from 9 to 16 out of which 11 were significant factories. This shows that, as the average factory size in the state increased, south zone managed to keep pace with this increase. There was two way expansion in the south zone (1) the number of factories increased and (2) there was expansion of factory size. This is further evident from the fact that significant capacity forms almost 84% of the total capacity in the zone.

However, central zone again shows a decline in its relative share in the total capacity, which stood at
47.8%. The installed capacity in the central zone increased from 35514 TCD to 62664 TCD. This shows a 76.4% rise in the installed capacity during this period. There were 40 factories located in the central zone. Out of these 13 were significant. The central zone still had a large number of factories that operated below the state average.

The scene in the north eastern zone changed dramatically in the decade. During this period the sugar industry spread in the NE zone rapidly. The installed capacity showed a sharp increase (increased from 4766 to 29466 TCD). In the year 1970-71, there were just 4 sugar factories in this zone. The number increased to 22 factories, spread mainly in Marathwada and Khandesh. There were only two sugar factories in Vidarbha. The relative share of north eastern zone in the total capacity increased to 22.5%. Thus, during this period, the sugar industry in NE zone acquired sizeable proportion.

The rapid growth during this period should be mainly attributed to the Govt. policy. In 1970, NCDC suggested that the Govt. contribution to the share capital should be made on the basis of location of the unit in 'developed' and 'under developed' regions. Accordingly, the state govt. formulated a preferential
financial policy for units to be located in the underdeveloped regions. This was a major step towards the dispersion of sugar industry in the state. The growth of sugar industry in the south and central zone took its natural course. But the NE zone did not have the favourable conditions for the growth of sugar industry. The govt. policy gave the much needed impetus to the growth of sugar industry in the NE zone.

The distribution of capacity in the year 1989-90, suggests that the process of dispersion that started in the 70's has continued in the 80's also. It was observed that the positions of the three zones did not change but the relative shares suggest that the concentration has reduced.

South zone has managed, during the 80's also, to maintain a relative share of 30%, irrespective of the dispersion process. The total capacity located in south zone showed an increase of 51% over the year 1970-71. The no of factories increased to 31. The number of significant factories increased from 11 to 13. But the proportion of significant capacity to total capacity went down to 79%.

6. The policy has been discussed at length in the earlier chapter.
Central zone did not show much growth during this period. The capacity in this zone increased only by 10% during the ten year period. In fact, 5 of the factories in Ahmednagar district closed down during this period. As a result, the relative share of central zone in total capacity went down further to 41%. Only significant factories increased from 13 to 17 in 1989-90. Thus proportion of significant capacity increased to 66%.

However, the relative share of NE zone in the total capacity in the state has further gone up to 29%. There were 36 sugar factories located in the NE zone. The installed capacity showed a 66% increase over the year 1970-71. The capacity as well as number of sugar factories increased. But there were only 3 sugar factories in this zone that were significant. In fact the data on factory wise installed capacity suggested that small sugar factories with capacity of 1250 TCD is common feature in this zone. Important principle that determines the factory size is that, the factory size should be in tune with cane supply in that area. However, the cane cultivation in this zone, compared to south and central zone gives a different picture. In the NE zone, sugar cane is not grown in large plantations as in the other two zones, but in small areas. That puts a restriction on the factory size in this zone. Large size
factories are not always viable in these areas, i.e. Khandesh, Marathwada and Vidarbha.

From this zonewise analysis of distribution of installed capacity, following conclusions could be drawn:

1. The sugar industry in Maharashtra has grown rapidly in last 30 years.

2. Initially the industry was restricted to south and central zone.

3. The 70's and 80's saw the growth of sugar industry in the NE zone.

4. During the process of expansion, the south zone has managed to keep pace with the expansion process and maintain its relative share of approx. 30%. On the other hand, as the growth process was initiated in the NE zone, the central zone lost its relative share.

5.4) Spatial Concentration, Districtwise Analysis:

The districtwise spread of sugar industry suggests that, irrespective of the growth and spread of sugar industry over the years, Ahmednagar and Kolhapur districts have been the focal points of sugar industry in Maharashtra.
The districts were ranked according to the relative position with respect to installed capacity. The top 5 ranked districts and the capacity located in those districts are given in the table 5.2.

Mostly, the top five places are shared between the same districts, namely Ahmednagar, Kolhapur, Pune, Solapur, Sangli. The first and second rank is shared between Ahmednagar and Kolhapur throughout the period under study. Ranks of other districts often changed, as can be seen from the table 5.2.

The distribution for the year 1960-61 suggests that, initially more than one third of capacity of sugar industry was located in Ahmednagar district followed by Kolhapur and Pune. Approx. 83% of the total capacity was concentrated in these five districts with 21 sugar factories.

It was observed that the concentration in these districts gradually reduced as the sugar industry grew in other parts of the state. But still, in 1989-90 more than 30% of the capacity was located in two districts, i.e. Ahmednagar and Kolhapur.

Thus, in this part we attempted to measure and quantify the concentration of sugar industry in the initial stages; the impact of the dispersal policy.
adopted by the Govt. towards sugar industry, both zonewise and districtwise. While studying the dispersal process towards NE zone, it was observed that, south and Central zone dominated the scene, irrespective of the process of dispersion.

PART II

In this part, we shall assess the process that led to the changes in the distribution of capacity and locational pattern of sugar industry over the years. For this purpose we shall study the factorywise movements in the installed capacity, in the three zones, that set the general trend in zones. For this purpose following methodology was adopted.

5.5) Methodology :

In order to examine the pattern of spatial shift during the three decades, we referred to the factorywise data on installed capacity for the years 1960-61; 1970-71; 1980-81 and 1989-90. Following ratios were calculated for the above series of capacity distribution.

MAGNITUDE RATING (B)

This is a ratio of actual magnitude to mean magnitude. We shall calculate the ratio for the magnitude installed capacity of a given factory.

Thus we have -

\[ B = \frac{\text{Installed capacity of a factory}}{\text{Average factory size}}, \]

for a given factory.

We calculated series of B ratios for all the factories in the years 1960-61, 1970-71, 1980-81, 1989-90.

\( B_0 \) = Ratio in the initial year.

\( B_t \) = Ratio in the terminal year.

Further, to take into account the changes in the installed capacity of a factory and change in the total capacity of the industry over time, we adopted following ratio.

INCREASE RATING (n)

This is a ratio of actual change in the magnitude.

Thus we have -

\[ n = \frac{\text{Change in the IC of factory}}{\text{Mean change over a period of time}}, \]
Based on these ratios, following norms are defined with respect to concentration and dispersion.

**Norm-I Spatial Concentration (Bo > 1, n > 1):**

This norm refers to the spatial concentration. The condition implies that a location or factory enjoying a relative significant position at the beginning of a period, retains its relative significance at the end of the period and also has a more than proportionate increase in its share over the period.

The other norms define various processes of dispersion. These are given as follows.

**Norms of Spatial Dispersion:**

**Norm-II a (0 < Bo < 1, Bt > 1):**

This condition refers to process of dispersion. The condition implies that, the locations which were non-significant in the initial year (0 < Bo < 1), have improved and gained in magnitude so as to attain a relatively significant position in the industry over the period (Bt > 1).

This condition measures the dispersal of IC which has been diverted away from further concentration of already significant location and towards the non significant locations to make these locations significant.
Norm-II b \((Bo > 1, Bt < 1, n < 1)\):

This implies that a location which was enjoying a significant position in the beginning of the period \((Bo > 1)\) shows a decline \((Bt < 1)\), and does not gain proportionately in the total increase of the magnitude \((n < 1)\).

Norm-II c \((Bo > 1, Bt >1, n < 1)\):

This condition implies dispersal in the sense that, even if a factory enjoys a significant position at the beginning of the period as well as at the end of the period, it has a less than proportionate share or no share in the total increase of the magnitude. The increased magnitude is dispersed away from these already significant locations.

Norm-II d \((Bo = 0, Bt > 1)\):

This condition describes the locations which did not exist at the beginning of the period and enjoy a significant position at the end of the period. This will measure the dispersal of increased magnitude to new and significant locations.

However, the norms of spatial dispersal defined above do not take in to account the dispersal towards insignificant locations. Since there are large number
of such locations, we shall define the following dispersal norm:

**Norm-II e (Bo = 0, 0 < Bt < 1):**

This condition measures the dispersal of installed capacity towards location which did not exist at the beginning of the period (Bo = 0), and have not attained significant position at the end of the period (0 < Bt < 1).

Thus, norms IIa, IIc, IId, IIe measure the dispersal of the industry towards different locations and the norms IIb and IIC measure dispersal of the industry away from the various significant locations.

In order to assess the nature of concentration/dispersion B60, B70, B80, B90 were computed. Similarly, the n ratio was computed for periods between 1960-61 and 70-71, 70-71 and 80-81 and finally 80-81 and 89-90.

The results of these computations are classified as per the norms that are defined in this section.

The exercise was carried out for three decades, 1960-90. The results are classified separately for the three decades. 1960-70, 1970-80, 1980-90 with 1960, 1970, 1980 as the base years for the analysis.
Thus, we have -

for the period 1960-70:

\[ Bo = B60 \quad Bt = B70 \]

for the period 1970-80:

\[ Bo = B70 \quad Bt = B80 \]

for the period 1980-90:

\[ Bo = B80 \quad Bt = B90 \]

5.6) **Analysis:**

This analysis is mainly concerned with the distribution of the additional capacity created during the decade amongst existing factories and new factories. The change in the relative positions of the factories in the new distribution as compared to the distribution in the base year, will measure the concentration or the dispersal processes as per the norms defined in our methodology.

<table>
<thead>
<tr>
<th>Period</th>
<th>No.of</th>
<th>Additional capacity (TCD)</th>
<th>Mean Change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960-70</td>
<td>40</td>
<td>31502</td>
<td>788</td>
</tr>
<tr>
<td>1970-80</td>
<td>78</td>
<td>72850</td>
<td>934</td>
</tr>
<tr>
<td>1980-90</td>
<td>96</td>
<td>36272</td>
<td>378</td>
</tr>
</tbody>
</table>

*Mean change = Additional Capacity created during period

No. of factories at the end of period.
Table 5.3 gives the increase in the installed capacity during the three decades under study. The number of factories that displayed tendency of concentration/dispersion were classified according the norms. This classification is given in table 5.4 for the three decades. Table 5.5 gives the distribution of increased capacity according to the norms in the three zones. We shall analyse process of spatial shift during the three decades.

5.6.1) Decade 1960-70:

During this period the industry was still in the early stages of growth. Between 1960 and 1970, the installed capacity of the industry, increased by 31502 TCD, & number of factories increased to 40. In the additional capacity created during this period, the relative shares of south, central and NE zones were 36.8%, 50.5% and 12.7% respectively.

Spatial Concentration:

During this decade there were not many factories in the state that enjoyed a significant position, because the industry was still in the early stages of growth. Therefore, the process of spatial concentration defined here, could not be traced during this period.
<table>
<thead>
<tr>
<th>Norm/Zone</th>
<th>South No.</th>
<th>Central No.</th>
<th>NE No.</th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1960 - 70</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (a)</td>
<td>4</td>
<td>7</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>II (b)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (c)</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>II (d)</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>II (e)</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>16</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td><strong>1970 - 80</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>4</td>
<td>3</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>II (a)</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>II (b)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (c)</td>
<td>2</td>
<td>5</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>II (d)</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>II (e)</td>
<td>5</td>
<td>13</td>
<td>17</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>26</td>
<td>19</td>
<td>61</td>
</tr>
<tr>
<td><strong>1980 - 90</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>II (a)</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>II (b)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (c)</td>
<td>8</td>
<td>9</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>II (d)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (e)</td>
<td>5</td>
<td>4</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>18</td>
<td>22</td>
<td>17</td>
<td>57</td>
</tr>
</tbody>
</table>

171
### TABLE 5.5  
Zone-wise Distribution of installed capacity according to norms of concentration and dispersal (1960-90)

<table>
<thead>
<tr>
<th>Norm/Zone</th>
<th>South No.</th>
<th>Central No.</th>
<th>NE No.</th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1960 - 70</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (a)</td>
<td>6652 (61.0)</td>
<td>5734 (38.4)</td>
<td>-</td>
<td>12386 (41.8)</td>
</tr>
<tr>
<td>II (b)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (c)</td>
<td>500 (4.6)</td>
<td>350 (2.3)</td>
<td>-</td>
<td>850 (2.9)</td>
</tr>
<tr>
<td>II (d)</td>
<td>1500 (13.7)</td>
<td>1750 (11.7)</td>
<td>-</td>
<td>3250 (11.0)</td>
</tr>
<tr>
<td>II (e)</td>
<td>2250 (20.6)</td>
<td>7116 (47.6)</td>
<td>3750</td>
<td>13116 (44.3)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10902 (36.8)</td>
<td>14950 (50.5)</td>
<td>3750 (12.7)</td>
<td>25602 (100)</td>
</tr>
<tr>
<td><strong>1970 - 80</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>8300 (39.5)</td>
<td>4150 (15.8)</td>
<td>-</td>
<td>12450 (17.3)</td>
</tr>
<tr>
<td>II (a)</td>
<td>2250 (10.7)</td>
<td>4350 (16.6)</td>
<td>950</td>
<td>7550 (10.5)</td>
</tr>
<tr>
<td>II (b)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (c)</td>
<td>0 (0.0)</td>
<td>2400 (9.1)</td>
<td>-</td>
<td>2400 (3.3)</td>
</tr>
<tr>
<td>II (d)</td>
<td>4200 (20.0)</td>
<td>-</td>
<td>2500</td>
<td>6700 (9.3)</td>
</tr>
<tr>
<td>II (e)</td>
<td>6250 (29.8)</td>
<td>15350 (58.5)</td>
<td>21250</td>
<td>42850 (59.6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21000 (27.2)</td>
<td>26250 (36.5)</td>
<td>24700 (34.3)</td>
<td>71950 (100)</td>
</tr>
<tr>
<td>Norm/Zone</td>
<td>South No.</td>
<td>Central No.</td>
<td>NE No.</td>
<td>Total No.</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------</td>
<td>-------------</td>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>1980 - 90</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>2750</td>
<td>2550</td>
<td>1000</td>
<td>6300</td>
</tr>
<tr>
<td></td>
<td>(25.5)</td>
<td>(46.6)</td>
<td>(5.1)</td>
<td>(17.6)</td>
</tr>
<tr>
<td>II (a)</td>
<td>1500</td>
<td>4500</td>
<td>984</td>
<td>6984</td>
</tr>
<tr>
<td></td>
<td>(13.9)</td>
<td>(82.3)</td>
<td>(5.1)</td>
<td>(19.5)</td>
</tr>
<tr>
<td>II (b)</td>
<td>–</td>
<td>-6882</td>
<td>–</td>
<td>-6882</td>
</tr>
<tr>
<td>II (c)</td>
<td>300</td>
<td>300</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>(2.7)</td>
<td>(5.5)</td>
<td>(0.0)</td>
<td>(1.7)</td>
</tr>
<tr>
<td>II (d)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>II (e)</td>
<td>6250</td>
<td>5000</td>
<td>17500</td>
<td>28750</td>
</tr>
<tr>
<td></td>
<td>(57.9)</td>
<td>(91.4)</td>
<td>(89.8)</td>
<td>(80.4)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10800</td>
<td>5468</td>
<td>19484</td>
<td>35752</td>
</tr>
<tr>
<td></td>
<td>(30.2)</td>
<td>(15.3)</td>
<td>(54.5)</td>
<td>(100)</td>
</tr>
</tbody>
</table>

**NOTE:** Figures in brackets indicate percentage to total.

**Norms of Spatial Dispersion:**

**Norm-IIa:**

The sugar industry during this period displayed very strong tendency of dispersal towards the non-significant locations which attained a significant position at the end of the decade. The industry got dispersed to 11 such locations during this period, 4 in the south zone and 7 in the central zone (Table 5.4). This accounted for approx. 42% of the capacity that was dispersed during this period (table 5.5). Together these 11 factories registered 111.9% rise over the initial production capacity in the year 1960-61.
Norm-IIc:

The industry got dispersed from two factories, one each in the south and central zone as per this norm. The industry got dispersed away from these factories in the sense that these factories had a less than proportionate share in the mean change. The installed capacity of these two factories increased by 27.4% during 1960-70.

Norm-IIId:

Following this dispersion norm, the industry got dispersed towards 2 locations, one each in south and central zone, that did not exist in the initial year and enjoy a significant position at the end of this decade.

Norm-IIe:

This norm measures the dispersion of the industry towards the small or non significant factories. But when the industry gets dispersed towards a large number of such locations, the total capacity dispersed in this manner takes significant proportions. This is evident from the fact that during the period 1960-70, the relative share of the new installed capacity that was dispersed in this manner was as large as 44.3% (13116 TCD). The industry got dispersed towards 12 such
locations during this period 2 in south zone 7 in central and 3 in the NE zone.

Thus it was observed that dispersal towards the insignificant locations, which improved their position over the time, and dispersal towards new locations that were not significant, were the two prominent features of the locational pattern during this period.

5.6.2) Period 1970-80:

This decade saw phenomenal growth of sugar industry. During this period the production capacity of the industry increased by 72850 TCD. This was distributed in the south (29.2%), central (36.5%) and NE zone (34.3%).

Spatial Concentration:

The industry got concentrated on 7 locations during this decade, 4 in the south zone and 3 in the central zone. Table 5.5 shows that 17.3% of the increased capacity got concentrated in these locations.

In the south zone, there were 4 locations that displayed the process of concentration, one each in Sangli and Satara(s) and two in Kolhapur.

Whereas in central zone, 2 such units were located in Ahmednagar district and one in Solapur district.
Together these 7 units registered a 79.6% increase in the total installed capacity over the ten year period.

Spatial Dispersion:

Norm-IIa:

During this period, 10.5% (7550 TCD) of the new capacity created, got dispersed towards 9 non significant locations, which consequently attained a significant level of operation at the end of the period. Such locations were 3 in south zone, 5 in the central zone and one in the NE zone.

In the south zone, 2 such factories were located in Kolhapur district and one factory in Sangli district.

In the central zone, 2 factories were located in Pune district, one in Nasik district and 2 in Ahmednagar district.

One factory located in Osmanabad district of NE zone also expanded to enjoy a significant position. Till now all the factories in this zone were operating at a below average capacity.

This process of dispersion increased the total production capacity of these of factories by 74% over the previous capacity.
Norm-IIc:

The industry got dispersed away from 7 factories that enjoyed a significant position and maintained it, but had no share or less than proportionate share in the mean change. These factories were located 2 in south zone and 5 in central zone.

The capacity of these factories together increased only by 17.8% during this period. These factories were located, 2 in Kolhapur district, 3 in Ahmednagar and 2 Pune district.

Norm-IIId:

There were 3 locations in the state, 2 in south zone and one in NE zone, which did not exist in the year 1970-71 and enjoyed a significant position in 1980-81. The installed capacity dispersed towards these units amounted to 6700 TCD.

Norm-IIe:

The installed capacity of 42850 TCD (59.6%) was created in order to set up 35 small sized sugar factories in the state, out of which 17 were located in the NE zone, 13 in the central and 5 in south zone.
During this period the sugar industry in the NE zone acquired a sizeable proportions though it mainly consisted of small factories.

The normwise distribution of the installed capacity during 1970-80 suggests that the sugar industry, in this period experienced all round growth.

The significant factories further consolidated the position which led to concentration of capacity at these locations. At the same time a number of small factories upgraded their positions to significant level. Simultaneously, small sugar factories were setup in the relatively new areas of NE zone. This also implied a geographical dispersal of the sugar industry and this was the dominant feature of the new locational pattern that emerged at the end of the year 1980.

5.6.3 Period 1980-90:

The sugar industry continued to grow in size in the 80's also. By the end of the year 1989-90, the total installed capacity of the industry stood at 167302 TCD. This means new capacity of 36272 TCD was created during this decade, out of which almost 55% was located in the NE zone, 30% in the south zone and just about 15% in the central zone.
Spatial Concentration:

In this decade 17.6% of the installed capacity created during this period got concentrated in 7 factories, 3 in Kolhapur district and one each in Pune, Nasik, Ahmednagar and Dhule district. Thus these units were located, 3 each in south and central zone and one in NE zone respectively. The installed capacity of all the 7 factories registered a 45% increase over the base year capacity.

Spatial Dispersion:

Norm-IIa:

As per this dispersion norm, in this decade, the sugar industry was dispersed towards 9 locations, 2 in south zone, 6 in central zone and one in NE zone. The capacity dispersed towards these units was 6984 TCD. In the process of achieving a significant position, the capacity of these units increased by 63.4% during this period.

Norm-IIb:

For the first time in the 30 years, 5 private sugar factories in Ahmednagar district closed down during this period due to management and other problems. Efforts are being made to convert these factories into
cooperatives. But since they ceased to undertake crushing seasons for some years now, the installed capacity of these factories was deducted to obtain the net capacity created in the central zone during 1980-90.

**Norm-IIc:**

The industry got dispersed away from 18 factories 8 in south zone 9 in central zone and one in NE zone during this period. As per this dispersion norm these factories which were significant in the initial as well as terminal year had a less than proportionate share in the mean change. In fact, the installed capacity of these factories together increased only by 1.1% during this period.

**Norm-IIId:**

There were no factories that followed this dispersion norm during this period.

**Norm-IIe:**

Approximately 80% of the new capacity was created during this period in order to set up small factories, so 23 factories were setup in 1980-90, out which 5 were located in south zone, 4 in the central zone and 14 were located in the NE zone.
Out of the 14 factories set up in the NE zone, 5 were located in Vidarbha, 7 in Marathwada and 2 in Khandesh. Thus though the sugar factories were initially restricted to Marathwada and Khandesh, now have spread in all parts of NE zone.

We can draw following conclusions based on the factorywise analysis of changes in the locational pattern during 1960-90 (Table 5.6 to 5.10 a,b,c give factory-wise details of concentration and dispersal).

1. The process of dispersion is evident from the distribution of the installed capacity in the given period. But the nature and extent of dispersion varies in the three zones during the reference period.

2. In the south and central zones, the dispersion process takes various forms. Apart from the dispersion towards new locations, significant or small, dispersal towards non-significant factories that takes them to significant levels is a prominent feature in the south and central zone. A factory wise analysis of norms of dispersion reveals a two pronged strategy specially in the south zone. New factories are set up and small factories are expanded to a significant level.
simultaneously. In due course the small factories are again expanded to significant capacity.

However there is a pre-condition to this kind of a continuous expansion - assured and continuous cane supply in accordance with the expanded capacity should come from the area around the factory.

3. The above condition has set the constraint on the expansion pattern of the sugar industry in the NE zone. Given the pattern of cane cultivation, sugar industry in the NE zone has most of the time sought new location rather than expansion of the existing plants. Barring a few exceptions this holds true for the thirty years, analysis, we have carried out in this chapter.

However, this voluminous growth of sugar industry, with the underlying assumption of assured cane supply is not an indicator of the health of the sugar industry. Next chapter will deal with the problems of sugar industry.
### TABLE 5.1.A

Increase in the installed capacity of sugar factories in Maharashtra (TCD): 1960-90

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Zone/District/No.</th>
<th>Factory</th>
<th>60-61</th>
<th>70-71</th>
<th>80-81</th>
<th>89-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Bhogavati Parite</td>
<td></td>
<td>1000</td>
<td>1250</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>02.</td>
<td>Chatrapati Shahu</td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>03.</td>
<td>Datta Arsule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>04.</td>
<td>Datta Shirol</td>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td>05.</td>
<td>Daulat</td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td>06.</td>
<td>Dudh-Vedh</td>
<td></td>
<td></td>
<td>1500</td>
<td>3500</td>
<td>3500</td>
</tr>
<tr>
<td>07.</td>
<td>Gadhinglaj</td>
<td></td>
<td></td>
<td>1250</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>08.</td>
<td>Kumbhi Kasari</td>
<td></td>
<td></td>
<td>1000</td>
<td>1750</td>
<td>3000</td>
</tr>
<tr>
<td>09.</td>
<td>Panchganga</td>
<td></td>
<td>1016</td>
<td>2600</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>10.</td>
<td>Warana</td>
<td></td>
<td>1016</td>
<td>2000</td>
<td>2000</td>
<td>3000</td>
</tr>
<tr>
<td>11.</td>
<td>Chh.Rajaram</td>
<td></td>
<td>1700</td>
<td>2200</td>
<td>2200</td>
<td>2500</td>
</tr>
<tr>
<td><strong>Dist:</strong> Sangli.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Manganga</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>13.</td>
<td>H.K.Ahir</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>14.</td>
<td>Mahakali</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>16.</td>
<td>Vasantdada Sahakari</td>
<td></td>
<td>1016</td>
<td>3500</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>17.</td>
<td>Vishwas</td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>18.</td>
<td>Yashwant Khanapur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>District</td>
<td>City</td>
<td>Code 1</td>
<td>Code 2</td>
<td>Code 3</td>
<td>Code 4</td>
</tr>
<tr>
<td>---</td>
<td>---------------</td>
<td>------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>19</td>
<td>B. Desai</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Krishna</td>
<td></td>
<td>1000</td>
<td>2600</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>21</td>
<td>Sahyadri</td>
<td></td>
<td></td>
<td></td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td></td>
<td><strong>Central Zone:</strong></td>
<td>Dist: Satara (N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Ajinkyatara</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>23</td>
<td>Satara</td>
<td></td>
<td></td>
<td>1250</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td>24</td>
<td>Shriram P’tan</td>
<td></td>
<td>800</td>
<td>1200</td>
<td>1200</td>
<td>1300</td>
</tr>
<tr>
<td>25</td>
<td>New Phaltan Private</td>
<td></td>
<td>800</td>
<td>1300</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td></td>
<td><strong>Dist: Pune</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Bhima Patas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>27</td>
<td>Chhatrapati(B’nagar)</td>
<td></td>
<td>800</td>
<td>1250</td>
<td>1800</td>
<td>1800</td>
</tr>
<tr>
<td>28</td>
<td>Malegaon</td>
<td></td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td>29</td>
<td>Someshwar</td>
<td></td>
<td></td>
<td>1016</td>
<td>1016</td>
<td>1016</td>
</tr>
<tr>
<td>30</td>
<td>Vighnahr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>31</td>
<td>Yashwant Theur</td>
<td></td>
<td></td>
<td>1250</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>32</td>
<td>Walchand</td>
<td></td>
<td>1400</td>
<td>1750</td>
<td>1750</td>
<td>1750</td>
</tr>
<tr>
<td></td>
<td><strong>Dist: Solapur</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Bhima Takli</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>34</td>
<td>Bhogawati Vairag</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>35</td>
<td>Shankar</td>
<td></td>
<td></td>
<td>800</td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>36</td>
<td>Siddheshwar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>37</td>
<td>Vithal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>38</td>
<td>SMSM Patil</td>
<td></td>
<td></td>
<td>1750</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td>39</td>
<td>Brima Pvt.</td>
<td></td>
<td>1000</td>
<td>1300</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td>40</td>
<td>Saswad Mali Pvt.</td>
<td></td>
<td>1016</td>
<td>1016</td>
<td>1016</td>
<td>1016</td>
</tr>
<tr>
<td>Dist : Ahmednagar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41. Ashok</td>
<td>1016</td>
<td>1500</td>
<td>2600</td>
<td>2600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42. Dnyaneshwar</td>
<td></td>
<td></td>
<td>1250</td>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43. Ganesh</td>
<td>1000</td>
<td>1000</td>
<td>1750</td>
<td>2300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. Jagdamba</td>
<td></td>
<td></td>
<td>800</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45. Kopargaon</td>
<td>1000</td>
<td>1750</td>
<td>2200</td>
<td>2200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. Mula</td>
<td></td>
<td></td>
<td>1250</td>
<td>1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47. Farner</td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Vikhe Patil (Pravara)</td>
<td>1000</td>
<td>2200</td>
<td>4000</td>
<td>4000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. Rahuri</td>
<td>1000</td>
<td>2600</td>
<td>3250</td>
<td>3250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50. Sangamner</td>
<td></td>
<td>800</td>
<td>1250</td>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51. Sanjivani</td>
<td></td>
<td>1000</td>
<td>1800</td>
<td>2100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. Shrigonda</td>
<td></td>
<td></td>
<td>1250</td>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53. Vridheshwar</td>
<td></td>
<td></td>
<td>800</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. Belapur</td>
<td>1000</td>
<td>1500</td>
<td>1500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Changdeo</td>
<td>850</td>
<td>850</td>
<td>850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56. Godavari (Laxmiwadi)</td>
<td>1016</td>
<td>1016</td>
<td>1016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. Godavari (Sakhavadi)</td>
<td>1016</td>
<td>1016</td>
<td>1016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>58. Maharashtra Sugar</td>
<td>1000</td>
<td>1700</td>
<td>2500</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dist : Nasik</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>59. Girna</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>60. Kadwa</td>
<td></td>
<td></td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>61. K.K. Wagh</td>
<td></td>
<td></td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>62. Nasik Palse</td>
<td></td>
<td></td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>63. Niphad</td>
<td></td>
<td>1000</td>
<td>2000</td>
<td>3500</td>
</tr>
<tr>
<td>64. Vasantraodada</td>
<td></td>
<td></td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>65. Rawalgaon Pvt.</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>66.</td>
<td>Panzarakaran</td>
<td>-</td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>67.</td>
<td>Sanjay</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>68.</td>
<td>Satpuda Tapi</td>
<td>-</td>
<td>-</td>
<td>2500</td>
</tr>
<tr>
<td>69.</td>
<td>Shirpur</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dist : Jalgaon</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70.</td>
<td>Belganga</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>71.</td>
<td>Madhukar</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>72.</td>
<td>Vasant Kasoda</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td><strong>Marathwada</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dist : Aurangabad</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>73.</td>
<td>Gangapur</td>
<td>1016</td>
<td>1016</td>
<td>1016</td>
</tr>
<tr>
<td>74.</td>
<td>Kannad</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>75.</td>
<td>Sant Eknath</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>76.</td>
<td>Siddheshwar</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>77.</td>
<td>Vinayak</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td><strong>Dist : Jalna</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>78.</td>
<td>Jalna</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>79.</td>
<td>Samarth</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dist : Beed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80.</td>
<td>Ambajogai</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>81.</td>
<td>Gajanan</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>82.</td>
<td>Jai Bhavani</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>83.</td>
<td>Kada</td>
<td>-</td>
<td>-</td>
<td>1250</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>Dist: Parbhani</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>Godavari (Dudhna)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>85</td>
<td>Marathwada</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>86</td>
<td>Purna</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Dist: Nanded</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Godavari (Manar)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>88</td>
<td>Kalambhar</td>
<td>-</td>
<td>1250</td>
<td>1250</td>
</tr>
<tr>
<td>89</td>
<td>Shankar</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Dist: Osmanabad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>Terna</td>
<td>-</td>
<td>1250</td>
<td>2200</td>
</tr>
<tr>
<td>91</td>
<td>Tuljabhavani</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dist: Latur</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>Killari</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>Jai Jawan Jai Kisan</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Manjara</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vidarbha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Jajamata</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dist: Yeotmal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Vasant</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dist: Akola</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Balaji</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dist: Amaravati</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Shetkari</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dist: Wardha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>Mahatma</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Location</td>
<td>Code</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>-----</td>
<td>---------------</td>
<td>------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>100</td>
<td>Shriram</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Dist: Bhandara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Wainganga</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>( n )</th>
<th>IC-70</th>
<th>IC-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td></td>
<td>Dudhved</td>
<td>1.030</td>
<td>2.141</td>
<td>1500</td>
<td>3500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Panchganga</td>
<td>1.786</td>
<td>2.569</td>
<td>2600</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sangli</td>
<td>2.405</td>
<td>1.605</td>
<td>3500</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Satara(s)</td>
<td>1.786</td>
<td>2.569</td>
<td>2600</td>
<td>5000</td>
</tr>
<tr>
<td>Central</td>
<td>Solapur</td>
<td>SMSM Akluj</td>
<td>1.202</td>
<td>1.338</td>
<td>1750</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td>A'Nagar</td>
<td>Ashok</td>
<td>1.030</td>
<td>1.177</td>
<td>1500</td>
<td>2600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prawara</td>
<td>1.512</td>
<td>1.927</td>
<td>2200</td>
<td>4000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15450</td>
<td>28100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>( n )</th>
<th>IC-80</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td></td>
<td>Shirol</td>
<td>1.190</td>
<td>1.322</td>
<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K.Kaswri</td>
<td>1.041</td>
<td>3.306</td>
<td>1750</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warna</td>
<td>1.190</td>
<td>2.645</td>
<td>2000</td>
<td>3000</td>
</tr>
<tr>
<td>Central</td>
<td>Pune</td>
<td>Malegaon</td>
<td>1.190</td>
<td>1.322</td>
<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td></td>
<td>Nasik</td>
<td>Niphad</td>
<td>1.190</td>
<td>3.968</td>
<td>2000</td>
<td>3500</td>
</tr>
<tr>
<td></td>
<td>A'Nagar</td>
<td>Ganesh</td>
<td>1.041</td>
<td>1.322</td>
<td>1750</td>
<td>2300</td>
</tr>
<tr>
<td></td>
<td>NE</td>
<td>Dhule</td>
<td>1.488</td>
<td>2.645</td>
<td>2500</td>
<td>3500</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14000</td>
<td>20300</td>
</tr>
</tbody>
</table>

*During the period 1960-70, the process of concentration could not be traced as per the norms defined.*
### TABLE 5.7

Spatial Dispersion : Norm IIa \((0 < Bo < 1 \text{ & } Bt > 1)\)

**1960-70**

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>(Bo)</th>
<th>(Bt)</th>
<th>IC-60</th>
<th>IC-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td>P'Ganga</td>
<td>0.99</td>
<td>1.786</td>
<td>1016</td>
<td>2600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warna</td>
<td>0.99</td>
<td>1.374</td>
<td>1016</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>Sangli</td>
<td>Shetkari</td>
<td>0.99</td>
<td>2.405</td>
<td>1016</td>
<td>3500</td>
<td></td>
</tr>
<tr>
<td>Satara(s)</td>
<td>Krishna</td>
<td>0.974</td>
<td>1.786</td>
<td>1000</td>
<td>2600</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>Malegaon</td>
<td>0.974</td>
<td>1.030</td>
<td>1000</td>
<td>1500</td>
<td></td>
</tr>
<tr>
<td>A'Nagar</td>
<td>Kopargaon</td>
<td>0.974</td>
<td>1.202</td>
<td>1000</td>
<td>1750</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ashok</td>
<td>0.99</td>
<td>1.030</td>
<td>1016</td>
<td>1500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prawara</td>
<td>0.974</td>
<td>1.512</td>
<td>1000</td>
<td>2200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rahuri</td>
<td>0.974</td>
<td>1.786</td>
<td>1000</td>
<td>2400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Belapur</td>
<td>0.974</td>
<td>1.030</td>
<td>1000</td>
<td>1500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mah.Sugar</td>
<td>0.974</td>
<td>1.168</td>
<td>1000</td>
<td>1700</td>
<td></td>
</tr>
</tbody>
</table>

**Total**                                                | \(\ldots\) | \(\ldots\) | 11064  | 23450 |

Contd....
<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-70</th>
<th>IC-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>Kolhapur</td>
<td>Bhogavati</td>
<td>0.859</td>
<td>1.190</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K.Kasari</td>
<td>0.687</td>
<td>1.041</td>
<td>1000</td>
<td>1750</td>
</tr>
<tr>
<td>Sangli</td>
<td></td>
<td>R.B.Fatil</td>
<td>0.859</td>
<td>1.190</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td>Central</td>
<td>Pune</td>
<td>Chhatrapati</td>
<td>0.859</td>
<td>1.071</td>
<td>1250</td>
<td>1800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yeshwant</td>
<td>0.859</td>
<td>1.488</td>
<td>1250</td>
<td>2500</td>
</tr>
<tr>
<td>Nasik</td>
<td></td>
<td>Niphad</td>
<td>0.687</td>
<td>1.190</td>
<td>1000</td>
<td>2000</td>
</tr>
<tr>
<td>A’Nagar</td>
<td></td>
<td>Ganesh</td>
<td>0.687</td>
<td>1.041</td>
<td>1000</td>
<td>1750</td>
</tr>
<tr>
<td>NE</td>
<td>Osmanabad</td>
<td>Terna</td>
<td>0.687</td>
<td>1.309</td>
<td>1250</td>
<td>2200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10250</td>
<td>17800</td>
</tr>
</tbody>
</table>

Contd.....
<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-80</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>Kolhapur</td>
<td>Daulat</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gadchilaj</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td>Central</td>
<td>Satara(N)</td>
<td>Satara</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>Solapur</td>
<td>Sidheshwar</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vithal</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td>A'Nagar</td>
<td>Dnyaneshwar</td>
<td>Dnyaneshwar</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>Sangamner</td>
<td>Sangamner</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>Shrigonda</td>
<td>Shrigonda</td>
<td>0.744</td>
<td>1.147</td>
<td>1250</td>
<td>2000</td>
</tr>
<tr>
<td>NE</td>
<td>A'bad</td>
<td>Gangapur</td>
<td>0.604</td>
<td>1.147</td>
<td>1016</td>
<td>2000</td>
</tr>
</tbody>
</table>

**Total** .. .. .. 11016 18000
### TABLE - 5.8

Spatial Dispersion : Norm IIc ($B_0 > 1$, $B_t > 1$, $n > 1$)

#### 1960-70

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>$B_0$</th>
<th>$B_t$</th>
<th>$n$</th>
<th>IC-60</th>
<th>IC-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td>Chatrapati</td>
<td>1.66</td>
<td>1.512</td>
<td>0.634</td>
<td>1700</td>
<td>2200</td>
<td></td>
</tr>
<tr>
<td>Central-Pune</td>
<td>Walchand</td>
<td>1.364</td>
<td>1.202</td>
<td>0.444</td>
<td>1400</td>
<td>1750</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3100</td>
<td>3950</td>
</tr>
</tbody>
</table>

#### 1970-80

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>$B_0$</th>
<th>$B_t$</th>
<th>$n$</th>
<th>IC-80</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td>Warna</td>
<td>1.374</td>
<td>1.190</td>
<td>0</td>
<td>2000</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chatrapati</td>
<td>1.512</td>
<td>1.309</td>
<td>0</td>
<td>2200</td>
<td>2200</td>
<td></td>
</tr>
<tr>
<td>Central-Pune</td>
<td>Malegaon</td>
<td>1.030</td>
<td>1.190</td>
<td>0.535</td>
<td>1500</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Walchand</td>
<td>1.202</td>
<td>1.041</td>
<td>0</td>
<td>1750</td>
<td>1750</td>
<td></td>
</tr>
<tr>
<td>A' Nagar</td>
<td>Kopargaon</td>
<td>1.202</td>
<td>1.309</td>
<td>0.482</td>
<td>1750</td>
<td>2200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rahuri</td>
<td>1.786</td>
<td>1.934</td>
<td>0.695</td>
<td>2600</td>
<td>3250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maharashtra</td>
<td>1.168</td>
<td>1.488</td>
<td>0.856</td>
<td>1700</td>
<td>2500</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13500</td>
<td>15900</td>
</tr>
</tbody>
</table>

Contd.....
<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>n</th>
<th>IC-80</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td>Bhogawati</td>
<td>1.190</td>
<td>1.147</td>
<td>0</td>
<td></td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>Dudhved</td>
<td>2.083</td>
<td>2.008</td>
<td>0</td>
<td></td>
<td>3500</td>
<td>3500</td>
</tr>
<tr>
<td></td>
<td>P'ganga</td>
<td>2.976</td>
<td>2.868</td>
<td>0</td>
<td></td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td>Chhatrapati</td>
<td>1.309</td>
<td>1.434</td>
<td>0.793</td>
<td></td>
<td>2200</td>
<td>2500</td>
</tr>
<tr>
<td>Sangli</td>
<td>Vasantdada</td>
<td>2.976</td>
<td>2.868</td>
<td>0</td>
<td></td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td>R.B.Patil</td>
<td>1.190</td>
<td>1.147</td>
<td>0</td>
<td></td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Satara(S)</td>
<td>Krishna</td>
<td>2.976</td>
<td>2.868</td>
<td>0</td>
<td></td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td>Sahyadri</td>
<td>1.309</td>
<td>1.262</td>
<td>0</td>
<td></td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td>Central-Pune</td>
<td>Chhatrapati</td>
<td>1.071</td>
<td>1.032</td>
<td>0</td>
<td></td>
<td>1800</td>
<td>1800</td>
</tr>
<tr>
<td>ral</td>
<td>Yashwant</td>
<td>1.488</td>
<td>1.434</td>
<td>0</td>
<td></td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td></td>
<td>Walchand</td>
<td>1.041</td>
<td>1.004</td>
<td>0</td>
<td></td>
<td>1750</td>
<td>1750</td>
</tr>
<tr>
<td>Solapur</td>
<td>SMSM</td>
<td>1.785</td>
<td>1.721</td>
<td>0</td>
<td></td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td>A'Nagar</td>
<td>Ashok</td>
<td>1.547</td>
<td>1.491</td>
<td>0</td>
<td></td>
<td>2600</td>
<td>2600</td>
</tr>
<tr>
<td></td>
<td>Kopargaon</td>
<td>1.309</td>
<td>1.434</td>
<td>0</td>
<td></td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td></td>
<td>Prawara</td>
<td>2.380</td>
<td>2.294</td>
<td>0</td>
<td></td>
<td>4000</td>
<td>4000</td>
</tr>
<tr>
<td></td>
<td>Rahuri</td>
<td>1.934</td>
<td>1.835</td>
<td>0</td>
<td></td>
<td>3200</td>
<td>3200</td>
</tr>
<tr>
<td></td>
<td>Sanjiwani</td>
<td>1.071</td>
<td>1.204</td>
<td>0.793</td>
<td></td>
<td>1800</td>
<td>2100</td>
</tr>
<tr>
<td>NE O'bad</td>
<td>Terna</td>
<td>1.309</td>
<td>1.262</td>
<td>0</td>
<td></td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>51950</strong></td>
<td><strong>52550</strong></td>
</tr>
</tbody>
</table>

194
TABLE - 5.9

Spatial Dispersion: Norm IID (Bo = 0, Bt > 1)

1960-70

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-60</th>
<th>IC-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>Kolhapur</td>
<td>Dudhved</td>
<td>0</td>
<td>1.030</td>
<td>0</td>
<td>1800</td>
</tr>
<tr>
<td>Cent-</td>
<td>Solapur</td>
<td>SMSM</td>
<td>0</td>
<td>1.202</td>
<td>0</td>
<td>1750</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>3500</td>
</tr>
</tbody>
</table>

1970-80

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-60</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>Kolhapur</td>
<td>Dattashirol</td>
<td>0</td>
<td>1.190</td>
<td>0</td>
<td>2000</td>
</tr>
<tr>
<td>Satara(S)</td>
<td>Sahyadri</td>
<td></td>
<td>0</td>
<td>1.309</td>
<td>0</td>
<td>2200</td>
</tr>
<tr>
<td>NE</td>
<td>Dhule</td>
<td>S.Tapi</td>
<td>0</td>
<td>1.488</td>
<td>0</td>
<td>2500</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>6700</td>
</tr>
</tbody>
</table>

1980-90

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-60</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NIL</td>
<td>NIL</td>
</tr>
</tbody>
</table>

195
<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-80</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>Kolhapur</td>
<td>K.Kasari</td>
<td>0</td>
<td>0.687</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>Sangli</td>
<td>RB Patil</td>
<td>0</td>
<td>0.859</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Central</td>
<td>Satara(S)</td>
<td>Satara</td>
<td>0</td>
<td>0.859</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Pune</td>
<td>Someshwar</td>
<td>0</td>
<td>0.698</td>
<td>0</td>
<td>1016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yashwant</td>
<td>0</td>
<td>0.859</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Solapur</td>
<td>Sankar</td>
<td>0</td>
<td>0.549</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Nasik</td>
<td>Niphad</td>
<td>0</td>
<td>0.687</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>A‘Nagar</td>
<td>Sangamner</td>
<td>0</td>
<td>0.549</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sanjiwani</td>
<td>0</td>
<td>0.687</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>NE</td>
<td>Dhule</td>
<td>Panjarkan</td>
<td>0</td>
<td>0.859</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Osmanabad</td>
<td>Terna</td>
<td>0</td>
<td>0.859</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Nanded</td>
<td>Kalamber</td>
<td>0</td>
<td>0.859</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>13116</td>
</tr>
</tbody>
</table>
TABLE - S.10b

Spatial Dispersion : Norm IIIe (Bo = 0, 0 < Bt < 1)

1970-80

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-70</th>
<th>IC-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kolhapur</td>
<td>Chh'pati</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Daulat</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gadchingalaj</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Sangli</td>
<td>Vishwas</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Satara(S)</td>
<td>B.Desai</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>Bhima</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Solapur</td>
<td>Bhima</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bhogawai</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sidheshwar</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vithal</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Nasik</td>
<td>Kadwa</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>K K Wgh</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nasik</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>A'Nagar</td>
<td>Dryaneshwar</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jagdamba</td>
<td>0</td>
<td>0.476</td>
<td>0</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mula</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shrigonda</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vridheshwar</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
</tbody>
</table>

Contd.....
<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-70</th>
<th>IC-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE</td>
<td>Jalgaon</td>
<td>Belganga</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Madhukar</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vasant</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>A'bad</td>
<td></td>
<td>Kannad</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eknath</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Siddheshwar</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vinayak</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Beed</td>
<td></td>
<td>Ambajogai</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jai Bhavani</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kada</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Latur</td>
<td></td>
<td>Shetkari</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Nanded</td>
<td></td>
<td>Godawari M</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Parbhani</td>
<td></td>
<td>Godavari D</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marathwada</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Purna</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Buldhana</td>
<td></td>
<td>Jijamata</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Yeotmal</td>
<td></td>
<td>Vasant</td>
<td>0</td>
<td>0.744</td>
<td>0</td>
<td>1250</td>
</tr>
</tbody>
</table>

| Total |       |            |    | 0 | 42850 |

198
**TABLE - 5.10c**

Spatial Dispersion: Norm Ile $\ (B_0 = 0, \ 0 < B_t < 1)$

1980-90

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-80</th>
<th>IC-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>Kolhapur</td>
<td>Datta A.</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>Sangli</td>
<td>HK Ahir</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mahakali</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manganga</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yashwant</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>Central</td>
<td>Satara(N)</td>
<td>Ajinkyatara</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Pune</td>
<td>Vighnahr</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Nasik</td>
<td>V'dada</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>A'Nagar</td>
<td>Parner</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td>NE</td>
<td>Dhule</td>
<td>Sanjay</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shirpur</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Jalna</td>
<td>Samarth</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jalna</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Beed</td>
<td>Gajanand</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Osmanabad</td>
<td>Tuljabhavani</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Latur</td>
<td>J.J.Kisan</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manjra</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td>Nanded</td>
<td>Shankar</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
</tr>
</tbody>
</table>

Contd........

199
<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Factory</th>
<th>Bo</th>
<th>Bt</th>
<th>IC-70</th>
<th>IC-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaravati</td>
<td>Shetkari</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Akola</td>
<td>Balaji</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Nagpur</td>
<td>Shriram</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Wardha</td>
<td>Mahatma</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Bhandara</td>
<td>V'ganga</td>
<td>0</td>
<td>0.717</td>
<td>0</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>0</td>
<td>28750</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>