CHAPTER II

PHYSICAL PERSONALITY

AND

ECONOMIC BACKGROUND
Chapter II

PHYSICAL PERSONALITY AND ECONOMIC BACKGROUND

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Chapter II
PHYSICAL PERSONALITY AND ECONOMIC
BACKGROUND OF THE STUDY REGION

2.1 INTRODUCTION:

Food, clothes and shelter are basic needs of the man. In respect of the physical environment man has developed his shelter. India is the country of villages. Study area is mainly rural in nature because about 72.16 percent population stays in the rural area. Physiography plays an important role in the distribution of population. Which factors are responsible for the uneven distribution, growth of population and density? That is why, it is important to study the physical personality of the study area. Physical and economic factors affect on the population. Among these, physical factor plays an important role in the distribution and growth of population. We can say that cultural and economic factors are determined by physical factors.

2.2 LOCATION AND EXTENT:

The study area is triangular in shape. The study area is located in the northern part of the Maharashtra state. It occupied over an area of 8063.11 sq. kms. It is extended from 20°38’ N to 21°39’ N latitudes and from 73°50’ E to 75°13’ E longitudes (Fig. No. 2.1). The study area is bordered by the districts, Jalgaon to the east, Nasik to the south, Gujarat state and Nandurbar district to the west. Satpura ranges presented to the north of the study area. Because of the ‘Satpura’ ranges Dhule district is separated from Madhya Pradesh state, while ‘Satmala’ ranges separate the district from western Maharashtra. Dhule district contributes 2.62 percent total geographical area of the Maharashtra state. As per the 2011 Census,
the population of Dhule district is 2048784. The density of population is 254 persons per sq. km.

DHULE DISTRICT: LOCATION AND EXTENT

Fig.No.2.1
Dhule district is well connected by road transportation. Dhule the district headquarter lies on the junction of National Highway No. 3 and 6. National Highway No. 3 connecting to Mumbai and Agra, while National Highway No. 6 connecting to Surat and Nagpur. It means that the district headquarter is well linked with National highways to four major directions. Tehsils and major large villages are connected to district headquarter by metalled road. Two branches of railway line passing through the district i.e. Chalisgaon - Dhule branch and Surat – Bhusawal branch.

Dhule district with it’s headquarter at Dhule includes 4 tehsils, namely Dhule, Sakri, Shirpur and Shindkhede. Dhule is the only district in the state having such less number of tehsils except Mumbai city and Mumbai Suburban district. As per the 2011 Census, Dhule district has a total 679 villages. These villages are distributed in four tehsils (Table No. 2.1). Sakri is the largest tehsil in respect of area and number of villages. The total area of Sakri tehsil is 2416.11 sq. km. and number of total villages are 225, while Shindkhede is smallest tehsil in respect of area and numbers of villages also. The area of Shindkhede tehsil is 1300.53 sq. km. and number of villages are 141. In the district Kusumbe, Mukati, Songir, Morane, Fagane, Shirud, Kapadane, Pimpalner, Sakri, Dusane, Nijampur, Dahiwel, Kasare, Mhasadi, Shindkhede, Betawad, Chimthane, Boradi, Thalner, Sangavi are the major very large villages. In the district about 72.16 percent people live in the rural settlements while 27.84 percent people live in urban settlements. Agriculture is the basic occupation of the people in the study region.
Table No.2.1
TEHSILWISE NUMBER OF RURAL AND URBAN SETTLEMENTS

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tehsils</th>
<th>Settlements</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>1.</td>
<td>Dhule</td>
<td>163</td>
<td>01</td>
</tr>
<tr>
<td>2.</td>
<td>Sakri</td>
<td>225</td>
<td>02</td>
</tr>
<tr>
<td>3.</td>
<td>Shirpur</td>
<td>145</td>
<td>01</td>
</tr>
<tr>
<td>4.</td>
<td>Shindkhede</td>
<td>141</td>
<td>01</td>
</tr>
<tr>
<td><strong>District</strong></td>
<td><strong>674</strong></td>
<td><strong>05</strong></td>
<td><strong>679</strong></td>
</tr>
</tbody>
</table>

Source: Census of India, 2011.

2.3 GEOLOGY:

Geologically the region is homogeneous. Deccan trap covers almost the study region. The Tapi valley proper and the valley of her tributaries are covered by the alluvium. The alluvium layers are much thicker and wider on the west while they thin out on the east (Fig. 2.2).

An interesting feature in the topography of the study region is the presence of dykes, which is running almost parallel to each other. Nearly in a west – south – west to east – north – east direction to the south of the Tapi river. The area of their dominance is Sakri and Dhule tehsils. A very large dyke about 80 km. in length runs parallel to the course of the Panjhara on its northern side and is responsible for the course of the river.
2.4 PHYSIOGRAPHY:

Study region represents varied topographical features and landscape. Most part of the Sakri and Dhule tehsils is occupied by Dhanora and Galana hills. Kondaibari and Lalingbari are major ghats in the study region. Bijasan Ghat is the major ghat to the north-east of the study region. Central and eastern parts of the study region are occupied by fertile plain of the river Tapi.

2.4.1 Relief:

Study region can be divided into three parts (Fig. 2.3).

(A) The northern mountainous region of the Satpura.
(B) The central fertile valley region drained by the river Tapi.
(C) The southern hilly region.
(A) **The Northern Mountainous Region of the Satpuras:**

Northern part of the study region is covered by the Satpura ranges. The Satpura ranges are standing in a wall like manner and running from east to west directions. The ranges are covered by the northern part of the Shirpur tehsil. These ranges are parallel to each other and lie over -behind the other. The Satpura is cut-up at places by the tributaries of the river Tapi. The southern slopes of the mountain ranges are quite steep at the foot, which lies the alluvial piedmont plain formed by the streams which meet the river Tapi.

(B) **The Central Fertile Valley Region Drained by the River Tapi:**

This region is spread over Satpura to the north while Satmala ranges in the south. The central part of the region is occupied by the extensive plain which is formed by the river Tapi and her tributaries. In general, the slope of the region is westward. This region has fairly recent alluvium developed on the bed of laeustrine origin. It is vast alluvial plain broken by ravine and gully erosion. The height of this plain is not exceed than 150 meters.

(C) **The Southern Hilly Region:**

Southwestern part of the study region is occupied by the offshoots of the Sahyadri ranges i.e. Galana and Dhanora hills. The altitude of this region is in between 600 to 1200 meters. These ranges run from west to east directions. In the study region, these hills are barren with flat plateau tops. The height of these hills is gradually decreases towards the east.
DHULE DISTRICT: RELIEF

INDEX (Height in Metres)
- Less than 300
- 300 - 600
- 600 - 1200

Fig. No. 2.3
View of Satpura Mountain

View of Dhanora Hills
2.4.2 Drainage:

The study region is well drained by the river Tapi and her tributaries. River Tapi emerges near Behranpur in Madhya Pradesh and falls into the Gulf of Cambay about 20 km west to Surat. River Tapi is the west flowing river. Tapi river being shallow and recipient of many perennial tributaries, gets heavy and quick floods periodically, which not only discourages human concentration on its banks but also erodes both the banks heavily. The river banks are characterized by gully erosion and badland development at several places. The upper course of the river Tapi is narrow, but it widens as many tributaries may be divided into two groups (Fig. 2.4).

2.4.2 – A: The Northern Tributaries:

These tributaries are draining the southern slope of the Satpuras, though the tributaries are small in size. Most of them are perennial in some cases, especially during summer, the beds of the river looks dry, but the water flows below the ground. The major perennial tributaries in this group are the Aner, the Arunavati.

Fig. No. 2.4
Aner:

Aner is the right bank tributary of river Tapi. It rises in the Satpura ranges. In the upper course, it flows in southward direction. Then it takes westerly course and forms boundary between Jalgaon district and Madhya Pradesh state. After a long westerly course outside the district, it forms the boundary between Dhule and Jalgaon districts. River Aner meets Tapi near Piloda village of Shirpur Tahasil.

Arunavati:

The Arunavati rises in the inner Satpura ranges. It flows in general southwest direction. Arunavati joins the Tapi near the village Vanaval. Titwa, Gul, Chondi and Ambad are the tributaries of river Arunavati.

In addition to above mentioned Kordi Nadi, Lendi Nadi are the right side tributaries within the district.

2.4.2 – B: The Southern Tributaries:

Most of the river tributaries in this zone are rises in the eastern slope of Western Ghat and therefore, there is an assured supply of water throughout the year. These tributaries flow through narrow and deep gorges and therefore, the flood water seldom spreads out of their channel. The chief tributaries in this group are the Bori, the Kan, the Panjhara, the Burai and the Amaravati.

Bori:

The river Bori rises in the southern slope of the Galna hills. Very small part of this river is going through the study region. River Bori flow eastward in study region.
Panjhara:

This is the most important left bank tributary of Tapi in the study region. It rises from northern slope of Satmala ranges, offshoots of Sahyadri. It has a fairly long easterly course hemmed in by the long dyke referred to already in its north. About 8 kms below Dhule, where there is major gap in the dyke, the river abruptly turns northward and flows towards the Tapi. It joins to Tapi near the village Mudawad. Total length of the river Panjhara is 136 kms. Kan is an important left bank tributary of Panjhara.

Burai:

This left bank tributary of Tapi takes its source from north of the Kondaibari pass in Dhanora hills.

River Tapi
2.5 SOILS:

The soils are derived from Deccan trap rocks in the southern region whereas in the northern region it is from the sedimentary formation of the Satpura ranges. For a better understanding of the distribution of human settlements it is necessary to study the distribution of soil types. On the basis of depth, texture and colour soils of the study region can broadly be classified into three major types. The variation in morphological factors within the study region gave birth to different types of soils. The soils of study region are divisible into three major types (Fig. 2.5)

(1) Deep Black Cotton soil
(2) Medium Black soil
(3) Coarse Shallow soil
2.5.1 Deep Black Cotton Soil:

These soils occur in a narrow strip of land around 3 km on both the sides of the river Tapi and her major tributaries. The local name for it is ‘Bharikali’. The soil is deep black in colour and highly fertile, which generally supports excellent vegetation growth. The average depth of the soil in this region does not exceed 3 meters. This soil has a tendency to develop deep cracks in summer and tends to be waterlogged in the rainy season.

2.5.2 Medium Black Soil:

A major part of Tapi basin is covered by this type of soil. It is found in the plain and also the undulating areas of the southern zone and along the rivers and streams in extensive patches. The soil is
fertile. It is granular to sub-granular and loamy to clayey in structure.

2.5.3 Coarse Shallow Soil:

This type of soil is confined only to the hilly areas. The slope and foot hills of the Shirpur ranges, Galana hills and Dhanora hills are covered by these soils. These soils are formed of the disintegrated basaltic rock. These rocks produce ‘Murum’ as a result of disintegration which ultimately produces soils of varying depth, colour and texture. These soils are often very gravelly and at places are mixed with gravels.

Agriculture in Hilly and coarse Soil Area

2.6 CLIMATE:

Climate of any region affect on the human concentration in the particular area. The climate of the study region is generally dry except during the southwest monsoon season. In the study area year may be divided into four seasons. These are,
(1) The Cold Season (December to February)

(2) The Hot Season (March to May)

(3) Monsoon Season (June to September)

(4) Post Monsoon Season (October and November)

2.6.1 Temperature:

The mean monthly maximum and minimum temperature at Dhule are given the following table (Table No. 2.2).

Table No. 2.2

MONTHLY MAXIMUM AND MINIMUM TEMPERATURE
(°C) AT DHULE

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Months</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Maximum</td>
</tr>
<tr>
<td>1.</td>
<td>January</td>
<td>30.1</td>
</tr>
<tr>
<td>2.</td>
<td>February</td>
<td>32.4</td>
</tr>
<tr>
<td>3.</td>
<td>March</td>
<td>37.1</td>
</tr>
<tr>
<td>4.</td>
<td>April</td>
<td>40.5</td>
</tr>
<tr>
<td>5.</td>
<td>May</td>
<td>41.6</td>
</tr>
<tr>
<td>6.</td>
<td>June</td>
<td>37.2</td>
</tr>
<tr>
<td>7.</td>
<td>July</td>
<td>32.8</td>
</tr>
<tr>
<td>8.</td>
<td>August</td>
<td>31.2</td>
</tr>
<tr>
<td>9.</td>
<td>September</td>
<td>32.7</td>
</tr>
<tr>
<td>10.</td>
<td>October</td>
<td>34.2</td>
</tr>
<tr>
<td>11.</td>
<td>November</td>
<td>32.2</td>
</tr>
<tr>
<td>12.</td>
<td>December</td>
<td>30.1</td>
</tr>
<tr>
<td>Annual</td>
<td></td>
<td>34.3</td>
</tr>
</tbody>
</table>

Source: Observatory, College of Agriculture, Dhule.
In the month of March to May is the hottest period of the year. Near about from the latter half of the month February, temperature increases steadily. In the month of May maximum average temperature is $40.7^0\text{C}$ and minimum average temperature is $25.8^0\text{C}$. In the month of April and May hot dry winds blow over the land, it is helpful for intense heat. Some days temperature goes above $45^0\text{C}$. With the presence of south-west monsoon there is drop in the temperature. January is the coldest month with the mean daily minimum temperature of $11.9^0\text{C}$ and mean daily maximum temperature of $29.8^0\text{C}$. Sometimes the cold waves over northern India affect the region and minimum temperature may drop upto $8^0\text{C}$ to $9^0\text{C}$ (Fig. No. 2.6).
2.6.2 Rainfall:

The distribution of the rainfall over the study region is uneven (Table 2.3)

Table No. 2.3

TEHSILWISE MONTHLY AND ANNUAL RAINFALL (IN MM)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Months</th>
<th>Dhule</th>
<th>Sakri</th>
<th>Shirpur</th>
<th>Shindkhede</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>January</td>
<td>5.0</td>
<td>4.6</td>
<td>3.4</td>
<td>3.7</td>
</tr>
<tr>
<td>2.</td>
<td>February</td>
<td>1.5</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>3.</td>
<td>March</td>
<td>2.7</td>
<td>3.0</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>4.</td>
<td>April</td>
<td>1.5</td>
<td>3.0</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>5.</td>
<td>May</td>
<td>10.5</td>
<td>10.8</td>
<td>9.6</td>
<td>6.0</td>
</tr>
<tr>
<td>6.</td>
<td>June</td>
<td>128.1</td>
<td>110.0</td>
<td>121.9</td>
<td>122.7</td>
</tr>
<tr>
<td>7.</td>
<td>July</td>
<td>147.7</td>
<td>127.7</td>
<td>206.2</td>
<td>156.2</td>
</tr>
<tr>
<td>8.</td>
<td>August</td>
<td>114.7</td>
<td>83.7</td>
<td>141.5</td>
<td>114.9</td>
</tr>
<tr>
<td>9.</td>
<td>September</td>
<td>127.6</td>
<td>103.6</td>
<td>121.2</td>
<td>98.6</td>
</tr>
<tr>
<td>10.</td>
<td>October</td>
<td>41.2</td>
<td>40.9</td>
<td>34.7</td>
<td>33.5</td>
</tr>
<tr>
<td>11.</td>
<td>November</td>
<td>19.9</td>
<td>20.1</td>
<td>12.0</td>
<td>15.6</td>
</tr>
<tr>
<td>12.</td>
<td>December</td>
<td>4.7</td>
<td>5.4</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>605.1</td>
<td>514.1</td>
<td>658.3</td>
<td>558.3</td>
</tr>
</tbody>
</table>

Source: Observatory, College of Agriculture, Dhule.

Study area comes under the ‘Drought prone zone’. Study area receives rain mainly from southwest monsoon which begins in the middle of the June and last till the end of September. The average annual rainfall in the district is 583.9 mm. The amount of rainfall is very high in the month of July. In the western part of the study
region receives high amount of rainfall. It decreases towards eastward of the study region. About 88 percent rainfall is received from southwest monsoon, while remaining is in the form of thunder showers in the post monsoon season (Fig. No. 2.6).

![Dhule District: Temperature and Rainfall](image)

**Fig. No. 2.6**

**2.6.3 Humidity:**

In the period of southwest monsoon the humidity is above 70 percent. During the rest of the year air is rather dry. The driest part
of the year is summer season when the relative humidity is only 20 to 25 percent in the afternoon (Table No. 2.4).

Table No. 2.4

MONTHLY RELATIVE HUMIDITY (%) AT DHULE

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Months</th>
<th>Humidity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Morning</td>
<td>Evening</td>
<td>Mean</td>
</tr>
<tr>
<td>1.</td>
<td>January</td>
<td>71</td>
<td>31</td>
<td>51.0</td>
</tr>
<tr>
<td>2.</td>
<td>February</td>
<td>59</td>
<td>24</td>
<td>41.5</td>
</tr>
<tr>
<td>3.</td>
<td>March</td>
<td>48</td>
<td>20</td>
<td>34.0</td>
</tr>
<tr>
<td>4.</td>
<td>April</td>
<td>46</td>
<td>19</td>
<td>32.5</td>
</tr>
<tr>
<td>5.</td>
<td>May</td>
<td>56</td>
<td>24</td>
<td>40.0</td>
</tr>
<tr>
<td>6.</td>
<td>June</td>
<td>73</td>
<td>43</td>
<td>63.0</td>
</tr>
<tr>
<td>7.</td>
<td>July</td>
<td>83</td>
<td>59</td>
<td>71.0</td>
</tr>
<tr>
<td>8.</td>
<td>August</td>
<td>86</td>
<td>65</td>
<td>75.5</td>
</tr>
<tr>
<td>9.</td>
<td>September</td>
<td>85</td>
<td>56</td>
<td>70.5</td>
</tr>
<tr>
<td>10.</td>
<td>October</td>
<td>77</td>
<td>36</td>
<td>56.5</td>
</tr>
<tr>
<td>11.</td>
<td>November</td>
<td>72</td>
<td>31</td>
<td>51.5</td>
</tr>
<tr>
<td>12.</td>
<td>December</td>
<td>73</td>
<td>31</td>
<td>52.0</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>69</td>
<td>37</td>
<td>53.0</td>
</tr>
</tbody>
</table>

Source: Observatory, College of Agriculture, Dhule.
2.7 NATURAL VEGETATION:

In the study region the seasonal rainfall and the nature of the soils provide a variety of vegetation ranging from grasses and thorny trees to deciduous trees. Distribution of natural vegetation is governed by physiography. In the northeastern mountainous region, extensive area is under forest. ‘Teak’ is the important commercial variety of wood. Other trees like Dhawada, Shisam, Khair, Tendu, Palas, Anjan, Bamboo are observed in this region. Due to the high rate of deforestation the thick forest cover over the Satpura ranges are rapidly becoming ruin. The density of trees is decreasing rapidly day by day. In the Satpura hilly region there are small pockets of area under forests. The south-central part of the study region, which receives scanty rainfall, has extensive area under scrubs and grasses (Fig. No. 2.7). Remaining parts of the district is predominantly used for cultivation. The tress such as Neem, Babhul, Bor, Hivar, Chinch, Pimple, Mango are found in the scattered manner all over the study region.
2.8 ECONOMIC BACKGROUND:

Social and economic factors play an important role in the development of settlements. So these factors are as important as physical factors. The settlements are products of interaction between physical and socio-economic factors. These factors determine the settlement features such as types of dwellings, their architectural styles, alignment of roads and lanes. The regional variations of size, spacing, form and function of settlements are dependent to a considerable extent on the sequential changes in morphology and the social and economic structure of the society.

In the economic factors nature of economy, land utilization, transport network etc. have direct bearing on growth, distribution, size and pattern of settlements in any region. Social factors such as distribution of population in general and tribal and scheduled caste population in particular also influence nature of settlements and their patterns.

Physical factors affect on the location and extent of settlements but socio-economic factors affect on the internal development of settlements.

2.8.1 General Landuse:

“Land is the basic resource of human society, its utilization shows a reciprocal relationship between the prevailing ecological conditions of a particular region and man.” (Mandal, 1982)

With the help of landuse and agricultural set-up of the study area, socio-economic condition of a region can be expressed. Availability of land is the basic need of the location of settlements. “Landuse means surface utilization of all develop and vacant land for a specific point of a given time and space.” (Mandal, 1982).
Landuse and agricultural set-up of any place varies according to the variation in the spatial distribution of landforms, rainfall, drainage system, availability of minerals and the location of human habitations and transportation. The spatial differentiation of these elements affect on the agricultural set up and character of landuse. In the study region proportion of landuses for different purposes is in the table number 2.5 and Fig.No.2.8.

Table No. 2.5

LAND USES OF STUDY REGION, 2011-12

(Figures in % to total geographical area)

<table>
<thead>
<tr>
<th>Tehsils</th>
<th>Dhule</th>
<th>Sakri</th>
<th>Shirpur</th>
<th>Shindkhede</th>
<th>Dist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total geographical area in Hectares</td>
<td>198825</td>
<td>244110</td>
<td>159397</td>
<td>130613</td>
<td>732945</td>
</tr>
<tr>
<td>Area under forest</td>
<td>27.34</td>
<td>30.18</td>
<td>40.75</td>
<td>12.16</td>
<td>28.50</td>
</tr>
<tr>
<td>Area under cultivation</td>
<td>51.35</td>
<td>54.07</td>
<td>36.47</td>
<td>75.22</td>
<td>53.28</td>
</tr>
<tr>
<td>Area not available for cultivation</td>
<td>6.36</td>
<td>4.72</td>
<td>10.01</td>
<td>2.36</td>
<td>5.89</td>
</tr>
<tr>
<td>Fallow land</td>
<td>7.27</td>
<td>9.13</td>
<td>Nil</td>
<td>2.31</td>
<td>5.42</td>
</tr>
<tr>
<td>Area not cultivated other than fallow</td>
<td>7.68</td>
<td>1.90</td>
<td>12.77</td>
<td>7.95</td>
<td>6.91</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

2.8.1 A Area Under Forest:

Forestry is an important activity in inaccessible hilly areas. Forest provides fuel and building material. Variations in areas under forest, therefore, have considerable importance in the study of settlements of a region.

In the study region proportion of area under forests was 28.5 percent in 2011-12 to the total geographical area. The distribution of forest over study region is uneven. Tehsilwise proportion varies from 12.16 percent to 40.75 percent. The 40.75 percent area under forest was in the Shirpur tehsil, where it is 12.16 percent in the Shindkhede tehsil. The area under forest in the Dhule tehsil was 27.34 percent and it is 30.18 percent in the Sakri tehsil. The lowest
proportion of forest was found in Shindkhede tehsil due to the maximum utilization of land under cultivation by the farmers (Fig. 2.8).

2.8.1 B Area under Cultivation:

In the study region large proportion of land is used under cultivation. The proportion of land under cultivation to the total geographical area for the study region was 53.28 percent in 2011-12. It shows the dominance of agriculture in the economy of the study region. Tehsilwise proportion of area under cultivation to the total geographical area was Dhule – 51.35 percent, Sakri – 54.07 percent, Shirpur – 36.47 percent, Shindkhede – 75.22 percent in 2011-12. The highest proportion was in Shindkhede tehsil and lowest proportion was in Shirpur tehsil (Fig. No. 2.8).

2.8.1 C– Area Not Available for Cultivation:

The proportion of land not available for cultivation to the total geographical area in the study region was 5.89 percent in 2011-12. The highest proportion of such land was in the Shirpur tehsil, i.e. 10.01 percent, while it is only 2.36 percent in the Shindkhede tehsil. The contribution of such land in the Dhule and Sakri tehsils was 6.36 percent and 4.72 percent respectively (Fig. No. 2.8).

2.8.1 D – Area Under Fallow Land:

The fallow land consists current fallow and left fallow. The proportion of fallow land to the total geographical area in the study region was 5.42 percent in 2011-12. The highest proportion of fallow land was 9.13 percent in the Sakri, while it is 7.27 percent in
Dhule and 2.31 percent in Shindkhede tehsil. There is no fallow land in Shirpur tehsil (Fig. No. 2.8).

2.8.1 E – Area Not Cultivated Other than Fallow Land:

Some land of the study region is not used for cultivation; it is other than fallow land. The proportion of this land was 6.91 percent in 2011-12 to the total geographical area of the study region. The tehsilwise proportion of this land was Dhule – 7.68 percent, Sakri – 1.90 percent, Shirpur – 12.77 percent, Shindkhede – 7.95 percent. The highest proportion was in the Shindkhede tehsil while it is lowest in the Sakri tehsil (Fig. No. 2.8).

2.8.2 – Area Under Irrigation:

The study region comes under the rain shadow zone and draught prone area. The amount of average rainfall was 928.7 mm in the year 2006. The study region receives low to moderate rainfall, irrigation facilities are necessary for the development of agriculture. The proportion of net irrigated area to net sown area was 10.48 percent in the year 2011-12. The tehsilwise proportion of irrigation to net sown area was Dhule -8.15 percent, Sakri – 9.37 percent, Shirpur – 19.07 percent and Shindkhede – 7.34 percent (Fig. No. 2.9, A). The highest proportion was in the Shirpur tehsil, while it is lowest in the Shindkhede tehsil. The proportion of irrigated area to net sown area in the year 2000-01 was shown in the table No. 2.6.
Table No. 2.6

PROPORTION OF IRRIGATED AREA TO NET SOWN AREA, 2011-12

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Tehsils</th>
<th>Net sown area</th>
<th>Net irrigated area</th>
<th>% to net sown area</th>
<th>% of area under well irrigation</th>
<th>% of area under surface irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>In Hectares</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Dhule</td>
<td>106038</td>
<td>8639</td>
<td>08.15</td>
<td>82.15</td>
<td>17.85</td>
</tr>
<tr>
<td>2.</td>
<td>Sakri</td>
<td>113173</td>
<td>10609</td>
<td>09.37</td>
<td>78.44</td>
<td>21.56</td>
</tr>
<tr>
<td>3.</td>
<td>Shirpur</td>
<td>080193</td>
<td>15292</td>
<td>19.07</td>
<td>87.66</td>
<td>12.34</td>
</tr>
<tr>
<td>4.</td>
<td>Shindkhede</td>
<td>100140</td>
<td>07352</td>
<td>07.34</td>
<td>84.89</td>
<td>15.11</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>399544</td>
<td>41892</td>
<td>10.48</td>
<td>83.68</td>
<td>16.32</td>
</tr>
</tbody>
</table>


In the study region well irrigation is important, proportion of well irrigation was 83.68 percent in the year 2011-12 (Fig. No. 2.9, B), while the proportion of surface irrigation is 16.32 percent in the year 2011-12 (Fig. No. 2.9, C).
2.8.3 – Cropping Pattern:

Cropping pattern denotes the proportion of agricultural land under different crops at a point of time. According to Bagchi (1974) “The study of cropping pattern is the most important aspect in the agricultural geography for the rural planner.” Geographical situation is a key factor to impact on cropping pattern after which the socio-economic situation is responsible to change in cropping pattern. So cropping pattern in any region is the result of physical, social and economic factors. In the study region 51 percent area was under food crops in the year 2011-12. The main food crops in the region are rice, wheat, jowar, bajara and pulses. Table No. 2.7 shows the proportion of area under different crops to total gross cropped area in the year 2011-12.
Table No. 2.7
PROPORTION OF AREA UNDER DIFFERENT CROPS TO TOTAL
Gross Cropped Area, 2006-07
(Figures in % to total gross cropped area)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tehsils</th>
<th>Dhule</th>
<th>Sakri</th>
<th>Shirpur</th>
<th>Shindkhede</th>
<th>Dist.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gross Cropped Area in Hect.</td>
<td>110359</td>
<td>133334</td>
<td>51833</td>
<td>98147</td>
<td>393673</td>
</tr>
<tr>
<td>1.</td>
<td>Rice</td>
<td>00.04</td>
<td>05.62</td>
<td>00.48</td>
<td>Nil</td>
<td>01.98</td>
</tr>
<tr>
<td>2.</td>
<td>Wheat</td>
<td>02.30</td>
<td>03.91</td>
<td>01.22</td>
<td>00.99</td>
<td>02.39</td>
</tr>
<tr>
<td>3.</td>
<td>Jowar</td>
<td>16.40</td>
<td>02.88</td>
<td>09.28</td>
<td>09.00</td>
<td>08.84</td>
</tr>
<tr>
<td>5.</td>
<td>Corn</td>
<td>04.18</td>
<td>13.49</td>
<td>00.52</td>
<td>00.49</td>
<td>05.93</td>
</tr>
<tr>
<td>6.</td>
<td>Pulses</td>
<td>07.63</td>
<td>12.45</td>
<td>17.21</td>
<td>13.73</td>
<td>12.04</td>
</tr>
<tr>
<td>7.</td>
<td>Sugarcane</td>
<td>00.24</td>
<td>01.02</td>
<td>04.72</td>
<td>00.16</td>
<td>01.08</td>
</tr>
<tr>
<td>8.</td>
<td>Groundnut</td>
<td>04.22</td>
<td>17.12</td>
<td>02.08</td>
<td>03.87</td>
<td>08.22</td>
</tr>
<tr>
<td>9.</td>
<td>Cotton</td>
<td>35.76</td>
<td>02.25</td>
<td>49.54</td>
<td>50.67</td>
<td>29.55</td>
</tr>
</tbody>
</table>


2.8.3 A – Rice:

Area under rice was mainly confined in the Sakri tehsil. Proportion of rice in Sakri tehsil was 5.62 percent in the year 2006-07. Rice is not cultivated in the Shindkhede tehsil. The proportion of rice in Dhule and Shirpur tehsil was very less i.e. 0.04 percent and 0.48 percent respectively (Fig. No. 2.10, A).
2.8.3 B – Wheat:

Wheat is the rabbi crop. It occupies 2.39 percent of the gross cropped area. It is important crop in the study region. Tehsilwise proportion of wheat was Dhule – 2.30 percent, Sakri – 3.91 percent, Shirpur – 1.22 percent and Shindkhede – 0.99 percent to gross cropped area in the year 2006-07 (Fig. No. 2.10, B).

2.8.3 C – Jowar:

Jowar is the important food crop in the study region. It occupies 8.84 percent of the gross cropped area. The proportion of Dhule tehsil was the highest in the study region. It was 16.40 percent in the year 2006-07. The proportions of other tehsils were Sakri – 2.88 percent, Shirpur – 9.28 percent, Shindkhede – 9.0 percent. The lowest proportion was in the Sakri tehsil (Fig. No. 2.10, C).

2.8.3 D – Bajara:

Bajara is the prominent food crop of the study region. It occupies highest proportion in all the food crops. The study region comes under the drought prone region. Farmers choose such crop because bajara is able to face scarcity of rainfall. Bajara occupies 25.75 percent area of the gross cropped area. Tehsilwise proportion of bajara was Dhule – 28.49 percent, Sakri – 33.21 percent, Shirpur – 12.17 percent and Shindkhede – 19.39 percent in the year 2006-07 (Fig. No. 2.11, A).

2.8.3 E – Corn:

Corn is an important crop in Sakri tehsil. The highest proportion of corn was 13.49 percent in Sakri tehsil very low proportion of corn was in the Shirpur and Shindkhede tehsils. The proportion of such
tehsil was 0.52 percent and 0.49 percent respectively. The proportion of study region was 5.93 percent in the year 2006-07 (Fig. No. 2.11,B).
2.8.3 F – Pulses:

Pulses have an important place in the crops of study region. Pulses like mug, gram, black gram, tur, kulith, udid occupied 12.04 percent area. The share of pulses is the highest in Shirpur tehsil. The proportion of pulses in Shirpur tehsil was 17.21 percent. Tehsilwise proportion was Dhule – 7.63 percent, Sakri – 12.45 percent, Shindkhede – 13.73 percent in the year 2006-07 (Fig. No. 2.11, C).
2.8.3 G – Sugarcane:

The area under sugarcane in the study region is not significant. The lowest proportion of sugarcane was found to the total gross cropped area. The percentage of sugarcane was 1.08. Sugarcane is the cash crop. The proportion of Shirpur tehsil is highest. It was 4.72 percent (Fig. No. 2.12, A).

2.8.3 H – Ground-nut:

Ground-nut is important oil-seed. Ground-nut is taken in both seasons. The major ground-nut producing tehsil was Sakri due to the coarse shallow soil. This soil is useful for the growth of groundnut and it is spread over the extensive part of Sakri tehsil. The proportion of Sakri tehsil was 17.12 percent. Tehsils like Dhule, Shirpur, Shindkhede contribute 4.22 percent, 2.08 percent, 3.87 percent area respectively. The proportion of study region was 8.22 percent in the year 2006-07 (Fig. No. 2.12, B).

2.8.3 I – Cotton:

Cotton is the foremost cash crop of the study region. It was grown in 29.95 percent of area in 2006-07. Cotton is not only foremost cash crop but it ranks first in all crops of the region. The highest percentage of area was in the Shindkhede tehsil having 50.67 percent. The proportion of Shirpur tehsil was 49.54 percent. Near about 50 percent of area was under cotton in Shirpur and Shindkhede tehsils. In such tehsils both banks of the river Tapi having ‘Deep Black Cotton soil’ (Fig. No. 2.12, C).
2.9 – TRANSPORTATION:

Transportation is one of the important factors influencing on the pattern, size and distribution of settlements. Study region is well linked by road transportation, railway transportation also available but waterways and airways are absolutely insignificant (Fig. No. 2.13).
2.9.1 – Roadways:

Roadways is the major way of transport in the study region. Mumbai-Agra National Highway going through Dhule-Shindkhede-Shirpur tehsils. Surat-Nagpur National Highway connected to Sakri and Dhule tehsils. Dhule, the headquarter of study region situated at the crossing point of both national highways. Almost all villages in the study region are linked by ‘kaccha’ or ‘pacca’ roads. Out of the total villages up to March 2007, 96 percent villages are connected by permanent roads and 4 percent villages are connected by seasonal roads.

2.9.2 – Railways:

In the study region two railway routes are available. Surat-Bhusawal Western Railway route goes through the Shindkhede tehsil. It is single lane broad guage route. The electrification of this route is completed, but work of double lane is going on. Another Dhule-Chalisgaon Central Railway route is going through Dhule tehsil. It is single lane broad guage railway route.

2.10 – Tourism:

Tourism is the emerging economic industry in 21st century. People went to go away from the work place. They want to visit till stations, Beaches, Pilgrims Centers, Wild Life Adventure natural scenery and dams. In the district lot of potential is available for tourism.

2.10.1 – Tourist Place:

Tourist places includes forts, pilgrims, dams in the district these are may tourist places.
a) **Pilgrim Centers:**

In the district pilgrim centers like Dhaner Amali – Khankrao Maharaj, Nagai-Nagai Devi, Balsane – Jain Temple, Dhule – Ekvira Shirpur – Balaji, Mhasdi – Dhandai, Boris – Satiaai are of public interest pilgrim centers. In these centers there are annual fair, people visit in a large number. At the time of annual fairs people from different parts of Maharashtra are gathered for their cultural activities. Fig.No.214.

![Ekvira Devi Temple](image)
b) Dams:
In the areas of dams people visited for natural scenery to observed different types of birds, flowers and enjoy the boating. Tourist stays there for the healthy climate, free from hustle and bustle. In the district dams like Wadi-Shewadi, Malangaon, Nakane, Sonwad, Latipada, Gondur, Kobrakhadak, Akkalpada and Dedargaon are public interested. (Fig.2.14.)
c) **Forts:**

Forts are the guard stones of history. In the district 04 forts like Laling, Songir, Thalner and Bhamer are the evidences of history of study area. (Fig.2.14) People visited to the forts for knowing the history of his past.

Gender park and Shirpur park are the most popular park in the district.
Laling Fort

Songir Fort
Fig. No.2.14
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