CHAPTER II
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CHAPTER II
INTRODUCING THE REGION

2.1 LOCATION AND BOUNDARIES :-

The district of Solapur is situated on the South east fringes of Maharashtra state, lies in the entire of large plain 1800 feet above mean sea level. The Solapur district lies entirely in Bhima-Sina-Man basin upto the border of Karnataka. At present it is located between 17°10' north latitudes to 18°32' north latitudes and 74°42' to 76°15' east longitudes. The east-west extension of Solapur district is 200 Kms. and north-south stretch of Solapur district is 150 Kms. It is surrounded by Ahmednagar and Osmanabad district in the north Osmanabad district and Andhra Pradesh in the east, Sangli district and Karnataka state in the South and Satara and Poona districts towards the west. (Map 2.1)

Solapur city, the district Head-quarter is at a distance of about 450 Kms. from Mumbai, the state Head-quarters on the main rail link of central railway connecting Mumbai, Chennai and Poona, the divisional headquarter is also on the same link between Solapur and Mumbai and is at a distance of about 260 Kms. from Solapur.

Shape of Solapur district resembles a flying eagle. At present, the area of Solapur district is 14844.6 sq. Kms. and its proportion as
compared with the Maharashtra state area is about 4.82 percent. The proportion of the Solapur district in the Pune division is 20 percent.

There are eleven talukas in the Solapur district. North Solapur, South Solapur, Mohol, Madha and Pandharpur talukas are situated in the central region. Talukas such as Malshiras, Karmala and Barsi cover-up the portion from east to west in the north part of the district. Talukas viz. Sangola, Mangalweda and Akkalkot cover-up the portion from east to west in southern part of the district. Formerly Barsi was the biggest taluka (1630 sq. Kms.). Now, amongst eleven talukas Karmala is the biggest by area about 1609.7 Sq.Km. and other extreme the north Solapur is the smallest taluka (736.3 sq. Km.) in the district.

2.2 HISTORICAL BACKGROUND AND TERRITORIAL CHANGES:

Philosophically, the name of district head quarter ‘Solapur’ suggest an abode constituted by sixteen villages [socio-economic review district statistical abstract 1962-63 and 1963-64 page-2]. History of this city and near by region can be traced earlier to the third or fourth century i.e. about the period of Andhrabharitya (Aurangabad region) dynasty.

History of Solapur city and its nearly region was not clear till fourteenth century, when it came under the muslim control.
It appears that in subsequent centuries the region under went aceassional change overs of control between Afghans, Bahamani and Adilshah Kingdom. Territorially, it became constituent part of Bijapur district till eighteenth century. There after it came under control of Maratha empire, after defeat of the Nizam at Kharda. Till battle of Ashti in 1818 A.D. the region was under Maratha empire. Therefore, it became a part of Ahmadnagar district as a subcollectorate in 1830 A.D.

The district of Solapur was formed in year 1838 and consisted of Solapur, Barsi, Mohol, Madha, Karmala, Indirippargi and Muddebihal sub-divisions. This district was abolished in 1864 and reconstituted in year 1864 with the sub-divisions of Barsi, Solapur, Mohal, Madha, Karmala, Pandharpur and Sangola. Karmala was transferred from Ahmednagar, Mahol from Poona and Pandharpur, Sangola and Malshiras from Satara district during 1875. These were major changes in the district or talukas boundaries during the years 1891 to 1941. Consequent upon merger of former Indian states, two villages of Jamkhindi, 21 villages of Jath state, 13 villages and one town from Kurundwad state, 13 villages from Miraj (sr.) state, three villages from Miraj (jr.) state, 28 villages and one town from Sangli state and a part of Akkalkot and Mangalweda were formed in
1949; Then Solapur taluka was split into two talukas viz. North Solapur and South Solapur.

In 1950, fifty three inclave villages were transferred from Hyderabad state and included in Solapur district in exchange of twelve enclave villages belonging to this district transferred to Osmanabad and Gulbarga districts. During 1950, one village from Indi taluka of Bijapur district was also added to Mangelweda taluka of Solapur district. With recognition of states in 1956, Solapur district was a part of Bombay state. Since 1st May 1960, it forms a part of Maharashtra state of Indian union.

2.3 **PHYSIOGRAPHY** :-

Physiography is one of the dominant parameter of physical environment and its impact on patterns and density of agriculture is immense. The study of the influence of environment upon the nature and the distribution of crop and livestock is of prime importance in agricultural geography. Nature with its physical characteristics provides a host of possible for agriculture in different areas.

Area of the district Solapur, Which falls on eastern side of the main Sahyadri range and most of it at even elevation of about 550 meters (1700 to 1800 feet) above mean sea level. It is more or less like a plateau region except.
There is no important hill system in the district. Only in the north of Barsi taluka several spur of Balaghat range pass south for a few miles. Of these, the chief is the Barsighat about fourteen miles east of Barsi tahsil\textsuperscript{3}. There are also scattered hills in Karmala, Madha and Malshiras talukas. Hilly portion is found in west of Madha and southwest of Malshiras and Karmala talukas.

The central Karmala and central Madha have two small hills named as ‘Vaghoba’ and ‘Bodaki’ respectively. The heights of these hills are 600 and 650 Mts. respectively. Southern part of Sangola is like covered by hills. The phaltan range runs from west part of the Malshiras taluka to southern side of the Sangola taluka; locally it is called as Mahadeo range. The Ramling hill spreads from north-west to south-east of Barsi taluka. The low table land and small separate hills in Karmala and Madha talukas act as the watershed between Bhima river and Sina river.

Beside this area happens to lie in the basins of rivers Bhima, Nira, Man and Sina. Bhima basin is found in the talukas of Malshiras, Pandharpur, Madha, and south Solapur, while Sina basin in the talukas of Karmala, Mohol, Madha and south Solapur. These river basins plays an important role in the agricultural development of the district. These rivers provides fertile soil and lot of water to the agriculture.
Except these features, remaining area of the district looks like a table land. Generally, the shape of this district narrows down to the southeastern part (Map No. 2.2). The slope of the district is towards south-east because main river flows from north-west to south-east across the district. (Map No. 2.2)

2.2 DRAINAGE :-

Drainage is a comprehensive expression in geography. It includes surface as well as underground flow of water. It is the result of a combination of numerous factors including climate particularly precipitation, insolation, humidity, cloudiness, windforce and direction, structure and type of rocks, vegetation, soil and human utilization. Human obstructions to natural flow such as roads, railways, dams and reservoirs also change its nature. However, drainage is one of the most important component of physical environment which affects agriculture directly and indirectly.

The Solapur district is drained by five major rivers viz. Bhima, Nira, Sina, Man and Bhogawati (Map No. 2.3). Among them Bhima and Sina are the most important rivers from the viewpoint of agricultural produce.

The Bhima rises in the Sahyadries at Bhima Shankar in Khed taluka of Pune. Bhima is main river passing through this district which is herself a main tributary to river Krishna. Bhima river runs
from south-east of the Pune district and enters into Solapur district near the Jinti village of Karmala taluka. It flows through Malshiras, Madha, Pandharpur and south Solapur talukas. Its course in the Solapur district is of 288 Kms. long\(^5\).

This river has changed the agricultural structure of Malshiras, Madha, Pandharpur, Moha, Mangalwedha and some parts of Karmala talukas. After all it is the effect of Ujani project which is constructed on Bhima river. Due to this river the standard of living of the above mentioned talukas also increased to a greater extent. Pandharpur city-Varanasi of south is situated on the winding banks of this river at about 70 Kilometers from Solapur.

Sina is another river, which flows towards south-east in the district. This river originates from ‘Torna’ village in Ahmadnagar district and enters the Solapur district near Aljapur village of the Karmala taluka. It has 180 Kms. course in the Solapur district\(^6\). It flows through Karmala, Madha, Mohol and South-Solapur talukas of the Solapur district. This river meets to Bhima river near Kural village near Solapur.

Nira is the third important river of the Solapur district. It is right bank tributary of the Bhima river. It’s source is in the Bhor taluka of the Poona district. It flows from north-east through Poona district and enters the Solapur district near Akluj village of Malshiras taluka.
It runs only 48 Kms. in Solapur district across Malshiras taluka only. It joins the Bhima river near the village Sangam on the border of Malshiras taluka.

The Man is the fourth major river of the Solapur district. It is also a tributary of Bhima river. It originates in the Man taluka of Satara district and enters in the Solapur district in the northern part of Sangola taluka and flows eastward draining Sangola taluka and part of Pandharpur and Mangalweda talukas. It drains for 80 Kms. stretch of Solapur district. The river joins the Bhima river at Sarkoli village of Pandharpur taluka.

Bhogawati is the fifth major river of the Solapur district. It originates in the Ramling hills in Barshi taluka. It drains through South-east part of the Solapur district. It runs for 64 Kms. in Barshi and Mohol talukas of the Solapur district. It meets Sina near Mohol.

For large part of the year the rivers are fordable, except for occasional pools of water found in the Bhima river during summer. During the south-west monsoon the smaller streams and the Bhima river are flooded by heavy falls in the Sahyadries. The greater part of Malshiras taluka is drained by the river Nira which is the right bank feeder of the Bhima. Sangola, part of Mangalweda and Pandharpur are drained by the Man river. Man and Sina are almost dry in the summer season. River Bhogavati is also dry in summer season.
2.5 **CLIMATE** :-

In a large measure, climate determines where man may live and thrive, what crops he may raise? What type of home he may appropriated build? What sort of clothing he may wear? and what pests and diseases he must combat? The potential crop producing capability of a given area is dependent mainly on the exiting climate factors exert mainly a regional influence on plant life, the differences in the behaviour of a crop or a group of crops over extensive area, as in a given state or a group of states, may be considered as due primarily to differences in climate rather than soil conditions. It is obvious that climate dictates the range of crops which a country can economically produce. This in turn sets the range of commodities which that country must import if it wishes its people to live a full life in the modern sense. The success or failure of the cropping season is determined by the intensity of the climatic factors. The three most important factors of climate from the stand point of plant response are temperature, water supply and light and they may be treated as primary determinants of crop growth.

The climate elements and their effects on plant growth are far more complex than its appears. In the field, the plant is never
subjected to a single variable at any given time, but has to interact with an almost infinite number of combination of the elements\textsuperscript{11}.

Climate plays an important role in affecting the characteristics of agricultural economy in a region. It can influence the choice of farming system either indirectly through its impact on soil formation, or directly through such as length of the growing season, the occurrence of frost and the availability of water for crop growth\textsuperscript{12}.

The climate of the Solapur district is on the whole agreeable and characterised by general dryness is the major part of the year climatically there are three season in the district namely summer, rainy and winter. The summer season starts from March to May, rainy season from June to October and the winter season from November to the end of the February.

Generally climate is dry and healthy during the winter and tends to become chilly during rainy season. Particularly in winter, it is refreshing with bright Sun shine. In the summer season the dust storm and hot winds are experienced. The temperature also rises up to 45\textdegree c.

There are a number of important elements of the climatic condition. They are as follows.
(A) **Temperature**

In the geographical distribution of crops, temperature determines the limits north and south of the equator within which particular crops grow, rainfall and atmospheric humidity determine the distribution of plants within particular zones. Without suitable temperature conditions germination of seeds and growth of plants are retarded. The temperature regulates all the chemical and physical processes of plant metabolism. The metabolic processes begin at a certain minimum temperature and increase with rise of temperature until they reach a maximum at a temperature called the optimum. Further, with rise in the temperature above the optimum level the metabolic activity is showed down until it ceases at a temperature called the maximum. Each species has its own minimum and maximum beyond which its life activity ceases. Each crop plant needs a certain number of effective heat units for germination, growth, stalking, maturity and ripening. This is called the thermal constant and varies from crop to crop. The temperature above the minimum is, therefore, effective in furthering the growth of a plant towards maturity and ripening. The crucial air temperature is $16^0 c$ at which plant grow. Ideal temperature conditions for crop production are between $18.3^0 c$ and $23.9^0 c$. 
### TABLE NO 2.1
Mean Daily Maximum and Minimum Temperature in °c at Solapur and Jeur centres.

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>MONTH</th>
<th>SOLAPUR</th>
<th></th>
<th>JEUR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean daily Maximum Temp °c</td>
<td>Mean daily Minimum Temp °c</td>
<td>Mean daily Maximum Temp °c</td>
<td>Mean daily Minimum Temp °c</td>
</tr>
<tr>
<td>1</td>
<td>January</td>
<td>30.4</td>
<td>15.3</td>
<td>30.6</td>
<td>13.4</td>
</tr>
<tr>
<td>2</td>
<td>February</td>
<td>33.2</td>
<td>17.1</td>
<td>33.6</td>
<td>14.7</td>
</tr>
<tr>
<td>3</td>
<td>March</td>
<td>36.8</td>
<td>20.8</td>
<td>36.9</td>
<td>18.4</td>
</tr>
<tr>
<td>4</td>
<td>April</td>
<td>39.3</td>
<td>24.2</td>
<td>38.9</td>
<td>22.8</td>
</tr>
<tr>
<td>5</td>
<td>May</td>
<td>39.9</td>
<td>25.1</td>
<td>39.7</td>
<td>24.2</td>
</tr>
<tr>
<td>6</td>
<td>June</td>
<td>34.7</td>
<td>23.3</td>
<td>34.9</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>July</td>
<td>31.3</td>
<td>22.3</td>
<td>31.3</td>
<td>21.8</td>
</tr>
<tr>
<td>8</td>
<td>August</td>
<td>31.2</td>
<td>21.8</td>
<td>30.7</td>
<td>21</td>
</tr>
<tr>
<td>9</td>
<td>September</td>
<td>31.1</td>
<td>21.6</td>
<td>31.4</td>
<td>20.9</td>
</tr>
<tr>
<td>10</td>
<td>October</td>
<td>32.1</td>
<td>20.4</td>
<td>31.8</td>
<td>19.6</td>
</tr>
<tr>
<td>11</td>
<td>November</td>
<td>30.4</td>
<td>17.2</td>
<td>30.9</td>
<td>15.1</td>
</tr>
<tr>
<td>12</td>
<td>December</td>
<td>29.3</td>
<td>14.8</td>
<td>30.1</td>
<td>12.9</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>33.3</td>
<td>20.3</td>
<td>33.4</td>
<td>19.0</td>
</tr>
</tbody>
</table>

**Source:** - Gazetteer of India, Maharashtra State Solapur District. pp. 32 and 32.
The temperature of the Solapur district recorded by two meteorological observatories, one is at Solapur and second is at Jeur. The data of Solapur station is available for a longer period. The records of both the observatories may be taken as fairly representative of the meteorological conditions in the district in general.

Generally, the temperature of the district is moderate and even except the hot months is March, April and May. The highest temperature is experienced in May and lowest in December. Mean daily maximum temperature is $39.9^0\text{c}$ in May and mean daily minimum temperature is $14.8^0\text{c}$ in December. which are experienced at Solapur centre. (Table2.1).

Winter season starts by the end of November, when temperature, especially night temperature begins to fall rapidly. December is the coldest month with mean daily maximum temperature at Solapur centre is $29.39^0\text{c}$ and mean daily minimum temperature records $14.8^0\text{c}$ at Solapur centre. The period from middle February to the end of May is one of the continuous increase of temperature. May is the hottest month with the mean daily maximum temperature $39.9^0\text{c}$ and mean daily minimum temperature $25.1^0\text{c}$.
The heat during the Summer season is intense and maximum temperature may sometime go upto about 44°C.

(B) **RAINFALL** :-

Rainfall is the dominant single weather element influencing the intensity and location of farming system and the farmers choice of enterprises. It is also becomes a climatic hazard to farming when it is characterised with scantiness, concentration intensity, variability and unreliability. The quantum of rainfall and the number of rainy days may be quite sufficient to meet the annual requirement of successful crop production, provided they are so naturally spread that rain is received at the time is required.

The entire district falls in rainshadow area. The Monsoon period in Solapur district covers the period from mid-June to end of September. There are two peaks in the rainfall pattern of the district. The first June-July and the second in September with a through in between.

The rainfall throughout the district is scanty and annual average is 577 for the district. The average rainfall is received from South-west as well as north-east monsoon.

The paucity of total amount of rainfall and large variations both in extent and the distribution in different years makes the agriculture almost a gamble on the rains. In the district quite a major part of the
Table No. 2.2
Mean annual rainfall and co-efficient of rainfall variability in Solapur district (1961 to 1992)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the taluka</th>
<th>Mean Annual rainfall in mm.</th>
<th>Co-efficient of rainfall variability in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North Solapur</td>
<td>722</td>
<td>30.65</td>
</tr>
<tr>
<td>2</td>
<td>Barsi</td>
<td>640</td>
<td>29.47</td>
</tr>
<tr>
<td>3</td>
<td>Akkalkot</td>
<td>724</td>
<td>30.65</td>
</tr>
<tr>
<td>4</td>
<td>South Solapur</td>
<td>723</td>
<td>30.66</td>
</tr>
<tr>
<td>5</td>
<td>Mohol</td>
<td>609</td>
<td>20.74</td>
</tr>
<tr>
<td>6</td>
<td>Mangalwedha</td>
<td>587</td>
<td>35.9</td>
</tr>
<tr>
<td>7</td>
<td>Pandharpur</td>
<td>712</td>
<td>35.8</td>
</tr>
<tr>
<td>8</td>
<td>Sangola</td>
<td>695</td>
<td>38.91</td>
</tr>
<tr>
<td>9</td>
<td>Malshiras</td>
<td>511</td>
<td>36.66</td>
</tr>
<tr>
<td>10</td>
<td>Karmala</td>
<td>595</td>
<td>29.58</td>
</tr>
<tr>
<td>11</td>
<td>Madha Solapur dist.</td>
<td>653</td>
<td>24.47</td>
</tr>
</tbody>
</table>

Source: - Complied by the Author.
SOLAPUR DISTRICT
MEAN ANNUAL RAINFALL
(1961 TO 1992)

MEAN ANNUAL RAINFALL IN m.m.

- Above -- 700
- 600 TO 700
- Below -- 600

MAP No. 2.4
rain is received during the four months and district receives a fall between 500 mm and 700 mm. Entire rain (95 percent) is due to the south-west monsoon winds. The south-west monsoon commences by about the first week of June and the rains continue till about the beginning of October. Heaviest rain of the year usually occurs in July.

The south west monsoon is the pivot around which almost the entire farm life and economy swings. Rainfall has a definite periodicity due to monsoonal control, and for this reason there is a seasonal rhythm of condition influencing the patterns of landuse17.

The records of the rainfall in the district are available for the period ranging from 1960 to 1993. The details of the mean annual rainfall and co-efficient of rainfall variability from 1961 to 1992 are given in the table 2.2.

Table 2.2 shows us that mean annual rainfall of the district is 653 mm. The mean annual rainfall in the district varies from 511 mm. in Malshiras taluka to 724 mm. in the Akkalkot taluka of the district. Generally, the rainfall decreases towards the western part of the district (Map 2.4)

Broadly speaking the district can be divided into three rainfall zones- eastern zone, comprising Barsi, North Solapur, South
Solapur, and Akkalkot Talukas have comparatively fifty eight rainy days.

The central zone comprising Mohol, Mangalweda, eastern part of the Pandharpur and Madha talukas have comparatively forty nine rainy days and western zone comprising scanty area of Karmala, Sangola, Malshiras talukas and the western part of the Madha and Pandharpur have also comparatively thirty seven rainy days.\(^{18}\)

The co-efficient of rainfall variability is calculated by the following formula:-

Co-efficient of rainfall

\[
\text{Variability} = \frac{S}{X} \times 100
\]

Where \(S\) = The standard deviation

\(X\) = The Arithmetic mean of rainfall during the 32 years.

In general the variability is high where the rainfall is less\(^{19}\). It will be seen from table 2.2 that mean annual variability of rainfall in the district ranges between 20.74 and 38.91 percent in Mohol and Sangola respectively. In South and South-western part of the district variability of rainfall is 36 to 39 percent. Particularly Sangola, Malshiras and Pandharpur talukas have high percent of rainfall
SOLAPUR DISTRICT
CO-EFFICIENT OF RAINFALL VARIABILITY
(1961-93)
variability. North Solapur, Akkalkot, South Solapur, Madha, Karmala and Barsi have moderate rainfall variability i.e. 29 to 32 percent Mohal is having lowest rainfall variability i.e. 20.74 percent. (Map 2.5)

The analysis of rainfall data since 1953 indicated that not only there are variation in the total rainfall, but also the distribution of rainfall unevenly was spread over the monsoon seasons.

The district witness recurrent scarcity condition. The Paradasani committee (1960) after considering the data on rainfall, annewari and declaration of scarcity for 30 years ending 1957, recognised all talsils except some parts of Barsi tahsil and irrigated tract of Malshiras in Solapur district as drought prone area.

The Irrigation Committee (1962) had also recognised all the tahsils of the district; except Malshiras as drought prone. The Sukhathankar Committee (1973) after studying the erratic behaviour of rainfall pattern and the frequency of a large number of deficient weeks, recognised the entire district except areas served by the protective irrigation system, as drought prone. Now a days Ujani dam has changed the agricultural structure and intensity of drought in the talukas of Pandharapur, Malshiras, and some part of Mohol, Madha and Mangalweda talukas.
(C) HUMIDITY :-

According to Maharashtra Irrigation Commission report of 1961, the humidity is high during rainy season in this district.

In general the humidity is less in this district, as compared to the other districts of Poona division with a high altitude and situated too far away from the sea. Relative humidity is about 60 to 65 % in the monsoon period. In summer season relative humidity is about 20 to 25 % at the time of evening. From November to mid of the April the sky is clear over the entire district. In winter season relative humidity is about 30 to 35 % in the district.

(D) WINDS :-

Winds are moderate from May to August. In the monsoon season south- west monsoon winds comes from south- west and provides the rainfall to the various parts of the district. Some time thunderstorms occur in April and May and just before the onset of the monsoon.

Sunshine is another relevant climatic consideration in crop growth. On the whole is adequate warmth and bright sunshine almost throughout the year to provide ripening conditions for food and other crops.
2.6 SOILS :-

Soils constitute the physical basic of an agricultural enterprise and play a very important role in the agricultural economy of region. Differences in soil texture, drainage and fertility are of importance in explaining contrasts in agriculture\textsuperscript{24} unlike climate, soils should not be regarded as part of the natural endowment of an area. In fact, it is agriculture that modifies soils, excepting certain virgin soils which can retain their original characteristics. On the whole, soils constitute the physical base for any agricultural enterprise. Farming is a business and good soil is part of the farmer’s stock in trades good soils are good to the extent that man makes judicious use of them. Our standard of living which predominantly depends on agriculture is often determined by a combination of the physical, chemical and biological characteristics of the soils and crops and livestock raised on them\textsuperscript{25}. Soils provides essential material on which agricultural is based and therefore, any comprehensive survey of the geography of agriculture should include a fairly through treatment of soils. Even at the beginning of his work on political geography, Ratzel made a statement of great significance and insight “Jeder Staatist ein stück Menschheit” (Every nation is a bit of soil and humanity)\textsuperscript{26} (Quoted by Klages 1958). Crop growth is determined to a considerable extent by the amount of nutrients in soils. The three
nutrients, namely, Nitrogen, Phosphorus and potassium contribute to soil fertility.

The geographical foundation of soil prevailing in Solapur district is mainly of Deccan trap of volcanic origin. The soil is undertaken by partially decomposed basaltic rock, locally know as ‘Mrum’ which overlies parent material. On account of more or less complete absence of leading, the soils are base saturred, the exchangeable calcium being the predominant climet. The lime reserve is fairly high (3.5 to 10 p.c.). The soils exhibit varying degrees of erosion and truncated profile is a common occurrence. The soils in the district can be classified into four categories on the basis of depth and structure namely:

a) Very shallow soils with depth below 7.5 cm.
b) Shallow soils between 7.5 to 22.5 cm.
c) Medium deep soils between 22.5 to 90 cm.
d) Deep soils with depth more than 90 cm.

It is broadly estimated that out of the total cultivated area very shallow soils occupy about 10% shallow soils 20% medium deep soils 45% and deep soils 25% area.

Deep black and alluvial soils are found in the river valleys of Bhima, Nira, Sina, Man and Bhogavati. In Karmala taluka about 50% soil is black and the remaining is red and light. The medium black
soils are more clayey in texture. The lime nodules are seen mixed up in these medium soils. They also track heavily depending upon the depth and clay contents. These soils are quite fertile and produce excellent crops. Soils in Mangalweda taluka and part of south Solapur taluka are deep black however, some small tracts of fairly black clayed soil of fair depth are found along the banks of the rivers and in lowlying portion of the distract (Map 2.6)

The soil is generally light and moderate depth in north Solapur taluka. Deep black soil of richer quality is however, between Sina and Bhima rivers. In Pandharpur taluka the soil is generally poor and capable of producing mostly Jower, Bajara and Kardai. But along the Bhima river soil is better in Pandharpur taluka. The soil of Sangola taluka is poor and shallow. There are some patches of black soils in Sangola taluka.

Barsi taluka has the best soil in the district. In this taluka the richest land is found at the bottom of the slopes. The soil is generally black and fertile. The soil of Malshiras taluka is in general shallow and light in colour and retentative of moisture. Moreover, some part like Natepute, Malshiras, Piliv, Chandapuri, Salmukh, Mandaki, Bhalvani, Maloli etc have poor quality murrum soil. However fertile black soil of sufficient depth is found in the numerous valleys of Nira and Bhima in Malshiras talukas.
Larger portion of Madha taluka has generally shallow soil with varying depth and quality soils in the villages along the bank of the Sina in Madha taluka are mostly black and of great depth and excellent quality. In Akkalkot taluka soil is rich in the vicinity of the rivers Bhima and Sina. In other part soil is medium but it is fertile.

There are two divisional level soil conservation offices at Solapur and Phandharpur to supervise the soil conservation activities under Agricultural Department. The total area bunded up to the end of the third five year plan was 3.92 lakh hectares which increased to 8.68 lakh hectares during the annual plans 1992-93\textsuperscript{29}.

2.7 **NATURAL VEGETATION:**

Vegetation of some sort of the other, is the natural covering of the land surface of the earth. Even the so-called deserts have their vegetation, though it may be scanty and inconspicuous\textsuperscript{30}. Natural vegetation is important from the view point rainfall distribution and the fertility of the soil. It also check the soil erosion to the greater extent. It also keeps the environmental balance. It is also important to protect the wild animals. Forests also provides wood which is essential for the construction of houses and making farm implements.

The district has a limited area under forest. There are a few scrubs and scanty forest with patches in Barsi and Malshiras talukas. Only
### TABLE 2.3

**Talukewise change in forest area in Solapur district.**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Name of the taluka</th>
<th>1960-61</th>
<th>1990-91</th>
<th>Volume of change in % 1960-61/1990-91</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Area under forest</strong></td>
<td><strong>% to the total Geographical area.</strong></td>
<td><strong>Area under forest.</strong></td>
<td><strong>Percentage to the total geographical area.</strong></td>
</tr>
<tr>
<td>1</td>
<td>North Solapur</td>
<td>1411</td>
<td>2.11</td>
<td>1900</td>
</tr>
<tr>
<td>2</td>
<td>Barsi</td>
<td>2823</td>
<td>1.75</td>
<td>2200</td>
</tr>
<tr>
<td>3</td>
<td>Alkalkot</td>
<td>772</td>
<td>0.56</td>
<td>500</td>
</tr>
<tr>
<td>4</td>
<td>South Solapur</td>
<td>1939</td>
<td>1.64</td>
<td>1800</td>
</tr>
<tr>
<td>5</td>
<td>Mohol</td>
<td>3861</td>
<td>2.93</td>
<td>1900</td>
</tr>
<tr>
<td>6</td>
<td>Mangalweda</td>
<td>852</td>
<td>0.75</td>
<td>600</td>
</tr>
<tr>
<td>7</td>
<td>Pandharpur</td>
<td>1469</td>
<td>1.16</td>
<td>7300</td>
</tr>
<tr>
<td>8</td>
<td>Sangola</td>
<td>6874</td>
<td>4.26</td>
<td>7000</td>
</tr>
<tr>
<td>9</td>
<td>Malshiras</td>
<td>5819</td>
<td>3.66</td>
<td>6300</td>
</tr>
<tr>
<td>10</td>
<td>Karmala</td>
<td>6248</td>
<td>3.96</td>
<td>5900</td>
</tr>
<tr>
<td>11</td>
<td>Madha</td>
<td>2148</td>
<td>1.42</td>
<td>1900</td>
</tr>
<tr>
<td></td>
<td>Solapur district</td>
<td>34,216</td>
<td>2.31</td>
<td>37,300</td>
</tr>
</tbody>
</table>

**Source:** -(1) Socio-Economic Review and district statistical Abstract of Solapur district 1962-63 and 1992-93
dry thorny, dry deciduous and common scrubs type of vegetation have spread in the district. These vegetations do not carry much importance from the view point of economic development. Every taluka has forest cover but proportion of cover varies from one taluka to another taluka (Map 2.7).

Table 2.3 shows us that out of the total geographical area 2.31% area was under forest during 1960-61 in Solapur district. It was increased upto 2.51% in 1990-91. It is clear that there is only slight positive change from 1960-61 to 1990-91 i.e. 0.20 %. The area under forest varies from taluka to taluka. Table 2.3 shows us that highest area under forest was found in Sangola (4.26 %) followed by Karmala (3.96 %) and Malshiras (3.66 %) during 1960-61. The lowest area under forest was observed in Mangalweda taluka (0.76 %) in the year of 1960-61.

In 1990-91 the highest area under forest was found in Pandharapur (5.6%), followed by Sangola(4.39 %), Malshiras (3.92 %) and Karmala (3.7 %). The lowest area under forest was observed in Mangalweda (0.52%) in 1990-91. The talukas like Barsi, Akalkot, South Solapur, Mohol, Mangalweda, Karmala and Madha shows negative change in percent of the area under forest to the total geographical area from 1960-61 to 1990-91. On the other hand taluka viz. Pandharapur, North Solapur, Malshiras and Sangola shows
positive change in percent of the area under forest to the geographical area.

The common grasses like Bonjrut, Bhalekusal, Pavanya etc. are found in this district.

There is control of Forest Department and Revenue Department over the forest Dept. and Revenue Department over the forest area of the district. The forest products of Solapur district are fuel and grasses. The value of forest product was Rs 20,000/- in 1978-79 and Rs 40,000/- in 1992-93.

2.8 SUMMARY :-

We have seen location, historical background and territorial changes, physiography, Drainage, climate conditions, soils and Natural vegetation of the Solapur district, which are important factors for the development of agriculture.

(i) Physiography of the study region is simple. It is also known as Maharashtra plateau. Except some small hillocks and river basins majority part of the district comes under plateau region. Hilly tracts are not useful for the agricultural activities. They have rugged topography and steep slope. The region under study has a major eastern portion under flat topography. Hence, it supports to the high concentration of agricultural activities, while the western part of the district comes under hilly and rugged topography, it possesses the
low concentration of agricultural activities. Agricultural activities are highly concentrated in the river basins of Bhima, Nira, Man, Sina and Bhogavati.

(ii) Five rivers flow in the Solapur district. These rivers also influence agricultural structure. Bhima, Sina, Nira, Man and Bhogavati rivers provides water to the agriculture. Ujani project is constructed over Bhima river. This project provides water for irrigation to the crops of Malshiras. Madha, Pandharpur, Mohal, Mangalweda etc. talukas

Various lift irrigational schemes are also practical on the rivers of Sina, Man, Nira, Bhima and Bhogawati. These rivers have changed cropping pattern and cultural aspects of the district.

(iii) Agro-Climatically, the entire district except Akkalkot taluka falls in the shadow zone. Entire district except irrigated tract of Malshiras, Pandharpur, Madha comes under draught prone area. Most of the agriculture depends on monsoon rainfall. The south-west monsoon is the pivot around which almost the entire farm life and economy swings. The western part of Malshiras, most part of the Sangola, central part of Madha, North Karmala, Eastern part of the Barshi, western and south western part of Pandharpur talukas always gets moderate rainfall and suffers from water facilities in the month
of May. Therefore, agricultural development is very less in above mentioned areas.

(iv) Soil is an important factor for the development of agriculture. The region under study has black and loamy soil in eastern part and murmad soil in the western part. Only river basins have deep black soil which support to the agricultural development. Soils in all talukas of the district are having low percent of Nitrogen and Potash. Agriculture is developed in the region of deep and medium black soils, because they are having huge irrigational facilities.

(v) The total area under forest to the geographical area is only 2.51 percent. The forest are scattered and thorny. Their role in the rainfalls distribution is not important. The forest area should be increased to maintain environmental balance of the region.
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6. Govt. of Maharashtra (1977) Maharashtra State Gazetteers Solapur district p.8
22. Ibid p. 4
23. Ibid p. 4


