CHAPTER-II
PHYSICAL AND CULTURAL SETING OF
THE STUDY AREA

2.1 Introduction
2.2 Location of the Study Area
2.3 Historical Background
2.4 Physiographic of the Study Area
2.5 River System
  Purna River
2.6 Climate
2.7 Density of Population
  2.7.1 Sex Ratio
  2.7.2 Literacy Rates
2.8 Soil
2.9 Landuse
  2.9.1 Forest Area
  2.9.2 Natural Forest Resources
  2.10.3 Land which is not available for farming
  2.10.4 The Land that was not planted
    (Other than waste land)
  2.10.5 Total Waste Land
  2.10.6 Area Suitable for Plantation
2.10 Irrigation
2.11 Transportation
2.12 Industries
  Reference
CHAPTER-II
PHYSICAL AND CULTURAL SETING OF THE STUDY AREA

2.1 Introduction
In the first chapter we have studied concept and definition of settlement. We also have studied nature of settlement geography, definition and selection of area study. Objectives of research, hypothesis, review of literature, chapter scheme all these things we have studied earlier. In the second chapter we will study natural and cultural components.

2.2 Location of the Study Area
Akola district is located on the banks of Purna river and it is situated in the north part of Maharashtra. Akola is the administrative centre of the district. This district is located under Amravati administrative region.

Latitude expansion of Akola district is 20°17'N 21°16' and horizontal extension is 76°7'E 77°4'E. Amravati district is located on the East and North side of the Akola district. Washim district is located on the South while Buldhana district is on west side of this district. Purna is the main river in this district while Katepurna, Morna, Mun, Man, Uma, Pus are the tributaries.

Akola district has 5428.84 sq.k.m. total area. According to 2011 census Akola district has 1094165 rural population. Density of rural population per sq.k.m. is 201.54. These are Telhara, Akot, Balapur, Akola, Murtijapur, Patur and Barshi Takli. There are total 986 rural settlements. Out of these total settlements 101 are located in Telhara taluka, 180 under Akot, 98 under Balapur, 190 Akola, 163 Murtijapur, 95 Patur while Barshi Takli has 159 rural settlements.

2.3 Historical Background
Akola is a district located in Vidarbha. It was ruled by Nizam Shah of Hyderabad province. Under British rule in 19th century it was included under Berar province. There is a reference that Nagpur’s Bhosale and British troops fought a war at Akot in Akola district.
AKOLA DISTRICT
LOCATION

Map 2.1

Source : Geological Survey of India
Map 2.2
Source: Geological Survey of India
There is a legend behind the name of a city accordingly there also is a legend for this city also. There used to a Rajput person called Akot Singh who was a Sardar. There is a reference in the history that this person may have established this city it is also named after him Akola.

Akola district is located on the North East side of Maharashtra. This district used to be a part of Madhya Pradesh but was included under Mumbai province in 1956 and with declaration of Maharashtra State in 1960, Akola also was declared as an independent district. This district is located under Amravati administrative region. On 1st July 1998 Akola district was separated and Akola and Washim 2 new districts were created. There is 1 Municipal Corporation and 5 Municipality and 7 Panchayat Samitis in this district.

2.4 Physiographic of the Study Area

Akola district is based on the Deccan plateau therefore, it is fully made of Basalt rocks. This rock is filled in cross structure before 4 to 8 crore years. There was a Volcaswo at that time in Maharashtra which laid to the eruption of Lava on the land creating. Substrate of Basalt rocks. Number of eruptions created basalt rocks landscape. We can found mountains in the north side of the study area.

There is some part of Satpuda mountain range in the study area. They are called as Gavilgad Mountain. Center part of Akola district is plain and some range of Ajanta mountains can be found in Patur taluka. In middle North side of the district biggest river of Akola, Purna river is flowing in the West directing meeting Tapi river.

Akola district is a part of Deccan plateau therefore, its average height is 286 M. Physiographic structure of the study area is divided under 3 types they are as follows.

1) The Hilly Region (>400 m)

Generally, 669 Sq.k.m. area is included under study area. An average height of this area is 400 M. above the sea level far north side of Gavilgad mountains some part and most of the area of Balapur is included of under study area. Some part of Ajanta Mountains which is
located on the south side also is included under study area. It is 12.33% part of the study area.

2) The Plateau Region (301 to 400 m)

It includes 3075 S.K.M. of the total geographical area of the study region. It includes average height of 300 to 400 meters above mean sea level. It extends throughout the study area where hilly and low land areas are exception.

In the Southern and Eastern part of Murtijapur, Patur, Barshi Takli there are isolated hills on the plateau in the southern parts hills known as Ajanta hills. (Fig. No.  )

3) The Low Land Region (<300 m)

It includes 1684 S.K.M. area of study region. It is 31.02% area of total study region. It is low land area Southern part of Lohara and Akot as well as the whole of Akola taluka, Balapur and Northern part of Murtijapur is included under low land area.

2.5 River System

Almost all of the rivers on Deccan plateau are channels. But according to physiographical structure on the South there is hill range of Ajanta hills and on the north side there are hills of Gavilgad. Purna river is flowing between north and south and is an assistant of Tapi river. It is flowing on the west side. Tributaries of Purna river are flowing on North to South or South to North meeting Purna river.

2.5.1 Purna River

It is a main river under study area. It original at Pokharni village in Gavilgad hills ranges of Betul district of Madhya Pradesh river submerges to Tapi river at Changdev in Jalgaon district. This river is 334 Km. long and passes 100 km. in the study region. It enters in North East part of Murtijapur taluka of Akola district. It enters in Akola district through Amravati district. It passes through East to West in Akola district entering Buldhana district.
Map 2.3
Source: Geological Survey of India

(23)


Tributaries of Purna River

1) Katepurna

On the elevation of 320 metres, the Kate Purna river rises on the northern slopes of Ajanta ranges East of Barshi Takli. It flows mainly north in and non perennial channel. It merges main river on the left bank of village Batori. It passes 100 km. in the district. Lower part of this river's course turn sharp bands west wards and north wards. Banks of this river mostly liable to flooding.

2) Uma

This river Uma originates at the extreme southern parts of Murtijapur tehsil near the village Poho and flows towards northern side from the source itself the river is perennial. It passes straight in its source and braided at certain sections. At many points this river is crossed by fords. Kate Purna river joins Purna river at Durgared village almost 100 Km. at up stream journey.

For 10 Kms. this river is flowing sub-parallel to the main river. This river had low banks throughout and its channel is narrow therefore, it causes flooding during the rainy season. Uma river flows entirely in Akola district. It has length of 60 Km. This river is perennial flowing included under a god region of water.

3) Pedhi

This river rises in Melghat of Amravati district. In the beginning it passes towards south and later turns towards West and later joins the Purna river near Kolsar village. It is lower source this river is perennial and it had the banks like a main river. It passes almost for 12 Km. in the district.

4) Morna

This river rises near Shirpur village of Washim district. It passes through the flat and open area. It passes through the large village of Medhi on the edge of plateau. Further this river passes through the ghats and later enter the Sainghat plains. Here, the Purna-Akola-Khandwa railway line follow the river end sticks. Almost for four times it crosses the river.
The river flows through a gentle sloping land with perennial channel on its descending down. On the down side of Akola district it is joined by the tributary, Inrupa. In its lower course, the river had developed meanders at larger extent and it developed a sub-parallel course for almost 20 Km. villages Andhura. This river is 113 Km. long.

5) Mun

The river Mun rises in the Northern Ajanta scarps. It is beated in Chikhali tehsil of Buldhana district and flows in the east direction through the Ghatbori forest further to enter in Akola district. Mun makes excellent meanders and of ox bow lakes is wide play its immediate are highly quelled. Its tributary Uttavli and Vaishwamitri meets to Mun in the region. It passes specifically through the Balapur tehsil. On the left bank Mun joins river Purna near the village of Khajikhed. This river forms a boundary for some distance between Buldhana and Akola district.

The right bank tributaries going Purna from the North are comparatively hills torrents draining the foot hill of slopes. Nagzari, Gomti, Widruba and Shahnur are most important tributaries in the Melghat. The tributaries which are left bank are more important than the right one and the main river itself. The flow of the river passes classes to the Northern scarf slopes than to southern one.

2.6 Climate

Climate is most important thing of physical environment. It affects agriculture (1967). It impacts house types and building materials.

Climate also is reflected in the habits of consumers. It thus, affects on the prospect of various types of industries of consumer goods. (Estall and Buchman 1980) Climatic factors are responsible for the success or failure off the crops. Three most important factors of climate form the standpoint of plant response are temperature water supply and light. (Hildregth 1941).
Except the South West monsoon the climate of this region is dry. Considered climate condition of this region, the year may be divided into 4 seasons.

Hot summer is characterized climate of Akola district. There is a general dryness throughout the year. From middle of November to the end of February this period constitutes the winter season. From March to June it is summer season. Monsoon season is to be followed till the end of September. October and November constitute the post monsoon seasons. There are a number of important elements of the climatic conditions they are as follows.

Table 2.1 : Monthly Mean Daily Maximum and Minimum Temperature of Akola District (2013-14)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Months</th>
<th>Mean daily Max. Temperature</th>
<th>Mean daily Minimum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>January</td>
<td>21.1</td>
<td>12.0</td>
</tr>
<tr>
<td>2</td>
<td>February</td>
<td>24.3</td>
<td>14.4</td>
</tr>
<tr>
<td>3</td>
<td>March</td>
<td>28.4</td>
<td>18.9</td>
</tr>
<tr>
<td>4</td>
<td>April</td>
<td>37.7</td>
<td>23.9</td>
</tr>
<tr>
<td>5</td>
<td>May</td>
<td>35.2</td>
<td>27.5</td>
</tr>
<tr>
<td>6</td>
<td>June</td>
<td>31.8</td>
<td>25.8</td>
</tr>
<tr>
<td>7</td>
<td>July</td>
<td>27.9</td>
<td>23.7</td>
</tr>
<tr>
<td>8</td>
<td>August</td>
<td>27</td>
<td>23.2</td>
</tr>
<tr>
<td>9</td>
<td>September</td>
<td>27.4</td>
<td>22.8</td>
</tr>
<tr>
<td>10</td>
<td>October</td>
<td>26.9</td>
<td>19.4</td>
</tr>
<tr>
<td>11</td>
<td>November</td>
<td>23.4</td>
<td>14.7</td>
</tr>
<tr>
<td>12</td>
<td>December</td>
<td>21.4</td>
<td>11.9</td>
</tr>
<tr>
<td></td>
<td><strong>Annual</strong></td>
<td><strong>27.29</strong></td>
<td><strong>19.85</strong></td>
</tr>
</tbody>
</table>

Source: Metrological Centre Akola – https://en.climate-date.org/location/2815/Akola

The metrological observations in the district of Akola and the data from the observatory can be taken as representative of the metrological conditions obtained in the district in general. After
February temperature rise rapidly till May. It is the hottest month of the year. In the month of May mean daily maximum temperature of Akola is 35.2°C and the mean daily minimum temperature is 27.5°C. The heat in the summer season is intense during the day and the nights are comparatively tolerable.

During the hot summer season from the month of April to June an average temperature each day rises between 42°C to 44°C. Thunder showers give some relief from heat sometimes in the afternoon. The South West Monsoon arrived in the district by mid June. There is comfortable drop in the temperature and weather becomes pleasant. After the conclusion of monsoon the day temperature increases generally and a secondary, maximum is day and temperature is reached in September. However, night temperature deceases progressively after October.

From September till January both day and night temperature both decreases rapidly. January is the coldest month of the year. The mean daily maximum temperature is 12.0°C in the year of western disturbances which moves across the North India in the winter months. At this time cold wave affect and night temperature go down about 3°C to 4°C.

**Table 2.2 : Talukawise Rainfall in Akola District (2013-14)**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Season/ Tahsil</th>
<th>June to September</th>
<th>October to November</th>
<th>December to February</th>
<th>March to May</th>
<th>Annual Rainfall M.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rainfall</td>
<td>%</td>
<td>Rainfall</td>
<td>%</td>
<td>Rainfall</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>Telhara</td>
<td>1084</td>
<td>90.93</td>
<td>51</td>
<td>4.27</td>
<td>39</td>
</tr>
<tr>
<td>2</td>
<td>Akot</td>
<td>783</td>
<td>90.62</td>
<td>60</td>
<td>6.94</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>Balapur</td>
<td>757</td>
<td>89.05</td>
<td>60</td>
<td>7.05</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>Akola</td>
<td>788</td>
<td>76.36</td>
<td>41</td>
<td>4.54</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>Murtijapur</td>
<td>921</td>
<td>88.21</td>
<td>57</td>
<td>5.45</td>
<td>59</td>
</tr>
<tr>
<td>6</td>
<td>Patur</td>
<td>1088</td>
<td>90.21</td>
<td>106</td>
<td>8.78</td>
<td>05</td>
</tr>
<tr>
<td>7</td>
<td>Barshi Takli</td>
<td>966</td>
<td>89.94</td>
<td>54</td>
<td>5.02</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Region</td>
<td>912.42</td>
<td>89.55</td>
<td>61.28</td>
<td>6.01</td>
<td>30.57</td>
</tr>
</tbody>
</table>

Source : Socio-Economic Review 2013-14
From June to September it’s a rainy season here, the study region received heavy rain. S. Patial distribution of seasonal rainfall of the study region for the year of 2013.

The use of the rainfall is limited agriculture due to its concentration for a few months. If it is well distributed the rainfall may be sufficient. This rain is received at the time when it was deoperated needed. The concentration of the rainfall in certain period reduces its usefulness.

Table No. 2.2 reveals that the region received 89.55% rainfall during the period of South West monsoon. Rest of 10.45% rainfall is received in the remaining period. Patur is the highest raining area in the region and that’s followed by Telhara and Barshi Takli.

**Humidity**

Generally the air in the district is dry except south west monsoon when the humidity is between 60 to 80%. During the summer months the relative humidity is even less than 20% in the afternoons on many days.

**2.7 Population**

Total area of Akola district is 5428.84 S.km. The population density Sq.km is 201.54 persons. It we study the study region based on each Taluka we can found Telhara taluka is the most densely populated taluka with 240.9 people. Patur has 167.78 that is least dense populated in the study area. Northern part of the study area is populated while the southern region of Ajanta hills is least populated. Northern regions like Patur, Akot, Akola, Balapur are populated. There is a good rainfall here, main river valley is located here, transportation is comfortable. This is industrialized area with high civil facilities leads to the density of population. On the southern side of the study area therefore Patur, Barshi Takli, Murtijapur taluka’s. There are located on the Ajanta hill ranges. Its land is rough, there is less rainfall, transportation is not proper therefore, this area is least populated.
Table 2.3 : Talukawise Total Rural Population, Area, Density, Sex Ratio, Literacy and Rural Settlement in Akola District (2013-14)

<table>
<thead>
<tr>
<th>Sr</th>
<th>Taluka</th>
<th>Total Rural Population</th>
<th>Total Area</th>
<th>Population Density</th>
<th>Male-Female Percentage</th>
<th>Literacy Rate</th>
<th>Number of Rural Settlements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Telhara</td>
<td>151373</td>
<td>628.32</td>
<td>240.91</td>
<td>944</td>
<td>74.13</td>
<td>101</td>
</tr>
<tr>
<td>2</td>
<td>Akot</td>
<td>162903</td>
<td>812.84</td>
<td>200.41</td>
<td>947</td>
<td>76.41</td>
<td>180</td>
</tr>
<tr>
<td>3</td>
<td>Balapur</td>
<td>144818</td>
<td>688.33</td>
<td>210.39</td>
<td>945</td>
<td>76.19</td>
<td>98</td>
</tr>
<tr>
<td>4</td>
<td>Akola</td>
<td>233718</td>
<td>1036.66</td>
<td>225.45</td>
<td>937</td>
<td>78.60</td>
<td>190</td>
</tr>
<tr>
<td>5</td>
<td>Murtijapur</td>
<td>134355</td>
<td>789.43</td>
<td>170.19</td>
<td>936</td>
<td>78.30</td>
<td>163</td>
</tr>
<tr>
<td>6</td>
<td>Patur</td>
<td>117635</td>
<td>701.1</td>
<td>167.78</td>
<td>935</td>
<td>73.03</td>
<td>95</td>
</tr>
<tr>
<td>7</td>
<td>Barshi Takli</td>
<td>149363</td>
<td>772.16</td>
<td>193.43</td>
<td>935</td>
<td>73.14</td>
<td>159</td>
</tr>
<tr>
<td>8</td>
<td>Region</td>
<td>1094165</td>
<td>5428.84</td>
<td>201.54</td>
<td>940</td>
<td>75.33</td>
<td>986</td>
</tr>
</tbody>
</table>

Source : Socio-Economic Review 2013-14

Sex Ratio

There is an unequal sex ratio in the taluka’s of study area. According to 2011 Census there are 940 female behind every 1000 male in India while there 929 female behind every 1000 male. If we examine Akola district we can find that there are 940 female behind every 1000 male. Highest sex ratio is located in Akot district with 947 female. While Barshi Takli taluka has the least sex ratio of 935.

Literacy

A literate person is someone who can read and write and understand the matter of a language. According to 2011 census India’s literacy rate is 74.0% while Maharashtra Literacy rate is 82.34%. Akola district has the 75.33 literacy rate. It we compare it with Maharashtra it is 07.01% less. If we compare all the talukas of study region we can say that Murtijapur has highest literacy rate of 78.80% while Patur taluka has 73.03% literacy rate.

2.8 Soil

Soil in the study region is made up Basalt like objects. Land in the valley of Purna river and its tributaries is fertile. That is known as cottons regur soil. This soil is made up of limestone, magnesium, iron. These are nutritious things for farming. The PH value is between 8.35 to 8.88. Calcium level is 7 to 14% while biological components are 0.54 to 1.33%. Cotton and dry land crops are taken here.
Map 2.4

Source: Geological Survey of India
Land in the study area lies under basalt rock category. Its soil also is created from the same rock. But the quality and depth of the soil is different from place to place. Based on this difference there are 3 types of soil.

**Deep Black Soil**

Such type of soil can be found in Purna river valley and her tributaries like Morna, Katepurna, Mun, Vidhutha. In central and North part of Akola this type of soil can be found 62% soil of the study area is black soil. It has the depth of up to 8 meters.

This soil is useful for cotton, jwar, soyabean, tur crops. While at some places fruits and vegetables are produced.

**Medium Black Soil**

Such type of soil is black and deep available exact in between south of Purna river and Ajanta hills. It means it is available at large extent around south part of the study region. Primarily it includes Patur, Barshi Takli and Murtijapur tahsil of southern part.

It colour of this soil is legibly yellow and brownish. It has the depth of 0.30 to 1.5 meters and useful for jwar, groundnut and pulses.

**Shallow Black Cand**

9.33% area of the study region is covered with such type of soil. This soil can be found mainly in Patur, Barshitakli and Murtijapur. On the southern side in the Ajanta hills. Akot and Telhara are two such talukas, they are located around Gavilgad hills. This soil is rough and dry land.

**Natural Forest Resources**

There is not much forest area in the Akola district but 406 Skm. Area is known as reserve forest. On the southern side in Balapur and Barshi Takli Tehsil there is forest land. There are forest resources at some extent around the hills of Gavilgad. Natural resources are available at more or less extent across the district. Nectar, Teal, Bamboo, Acacia, Palas trees can be found here. Mango, coconut, bor, chinch etc. fruit trees also can be found here.
2.10 Landuse

The total area of study region is 8428.54 Sq.km. and 84.29% is plantation area. 1.13% of total area is suitable for plantation but kept as a waste land. 12.61% area is covered with jungle, settlement, transportation, business and plantation.

Forest Area

A total 6.9% land of the study area is covered with forest. Patur in the district is mostly covered with forest. Its 24.64% area is covered while Balaput taluka has least forest of 0.48%. The forest can be mostly found in Barsi Takli, Akola, Telhara, Murtijapur, Akot.

Land which is not available for farming

Land in the study region has been used for basic human needs and other purposes. It includes settlements, road, industrial area, railway, canal, dam, playgrounds etc. This land is known as not available for farming or crops.

This type of land is 4.58% of the total study region. Akola taluka has 9.66% while Barshi Takli 4.23%, Patur 4.2%, Murtijapur 3.88, Balapur 2.75%, Akot 2.31 and Telhara taluka has 2.5%.

Table 2.4: Talukawise Total Landuse in Akola District (2013-14)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Taluka</th>
<th>Total Area</th>
<th>Forest</th>
<th>Not available to agri</th>
<th>Uncultivable Land</th>
<th>Total Waste Land</th>
<th>Net Sown Area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Telhara</td>
<td>11.1</td>
<td>1.34</td>
<td>2.5</td>
<td>0.3</td>
<td>0.67</td>
<td>95.19</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Akot</td>
<td>14.76</td>
<td>0.87</td>
<td>2.31</td>
<td>0.37</td>
<td>2.33</td>
<td>94.12</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Balapur</td>
<td>12.21</td>
<td>0.48</td>
<td>2.75</td>
<td>0.15</td>
<td>3.87</td>
<td>92.75</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Akola</td>
<td>19.42</td>
<td>3.38</td>
<td>9.66</td>
<td>0.47</td>
<td>1.92</td>
<td>84.57</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Murtijapur</td>
<td>13.72</td>
<td>1.18</td>
<td>3.88</td>
<td>2.55</td>
<td>1.56</td>
<td>90.83</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>Patur</td>
<td>14.55</td>
<td>24.64</td>
<td>4.2</td>
<td>0.36</td>
<td>3.02</td>
<td>67.78</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>Barshi Takli</td>
<td>14.33</td>
<td>15.03</td>
<td>4.23</td>
<td>3.73</td>
<td>4.1</td>
<td>72.91</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Region</td>
<td>100</td>
<td>6.9</td>
<td>4.58</td>
<td>1.13</td>
<td>2.5</td>
<td>84.89</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Socio-Economic Review 2013-14

The Land that was not planted (Other than waste land)

1.13% area of total study area is know as other than the waste land but not planted. If we study such type of land we can find Barshi Takli taluka has highest 3.73% land. Murtijapur has 2.55%, Akot 0.37%, Patur 0.36%, Telhara 0.3%, Akola 0.47% and Balapur has very less land of such type that is 0.15%
Map 2.5
Source: Geological Survey of India
AKOLA
LAND USE - 2011

Forest
Land not available for farming
Land not planted in addition to wasteland
Total waste land
Net area

Graph 2.1

Source: Compiled by researcher
Total Waste Land

It is divided in 2 types current waste land and other waste land. Both the types land have been studied here. It covers 2.5% area of total study region. If we compare with the taluka level we can find that Barshi Takli has 4.1%, Balapur 3.87%, Patur 3.02%, Akot 2.33%, Akola 1.92%, Murtijapur 1.56% while less at Telhara Taluka with 0.67%.

Area Suitable for Plantation

84.89% of Akola district is plantation land. 52.62% area in the district is used for double plantation. Farming is main business off the district. 79% of the total population is involved in the farming. If we study all the talukas in study region we can conclude that Telhara with 95.19% has highest average plantation land. Akot has 94.12%, Balapur 92.75%, Murtijapur 90.83%, Akola 84.57%, Barshi Takli 72.91% while Patur has least plantation land of 67.78% in the study area.

Purna is the major river with her tributaries in the study region. Its valley is useful for double plantation. Crop format and income per hector in the farming is an indication of development. There is an impact of local, natural, social and economic factors on the crop factors. Various crops are produced in Akola district which included eatable and non-eatable crops. Pulses and dal is major crop while sugarcane, vegetable, fruit gardening pulses are eatable while cotton is non-eatable crop.

2.11 Irrigation

Irrigation is necessary and important factor for the production of agricultural products. Wells, billets, canals are the sources of irrigation in the study area. The surface irrigation in the district is 30.62% while wells and sprinkler are the sources of 69.33% irrigation. Akot is the most irrigated area in the study area with 46.46% while Barshi Takli has 1.33% least irrigation. Due to major projects 3645 hector of land is covered under irrigation. 15297 hector land is under study region is temporary and based on the seasons for irrigation.
Irrigation is helpful for the production of farming crops and development of market oriented center.

2.12 Transportation

Transportation facility is supposed to be the important factor for the development of market centre. Passengers and gods are transported through transportation sources. Road transportation is playing vital role for the internal transportation within the district itself. Roads in the year 2003-04 were 3767 Km. long in the district. It was increased in 2013-4 by 8050.99 Km. There are national highways. Main state transportation root, state highway, major district level highway root, rural root etc. transporting goods, passengers, businessmen, customers etc.

Table 2.5: Types and Length of Roads in Akola District (2003-04 to 2013-14)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Road Types</th>
<th>Length in Km.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2003-04</td>
<td>2013-14</td>
</tr>
<tr>
<td>1</td>
<td>National Highway</td>
<td>114</td>
<td>131.1</td>
</tr>
<tr>
<td>2</td>
<td>Major State Highway</td>
<td>-</td>
<td>45.6</td>
</tr>
<tr>
<td>3</td>
<td>State Highway</td>
<td>530</td>
<td>785.16</td>
</tr>
<tr>
<td>4</td>
<td>Major District Road</td>
<td>1681</td>
<td>2679.16</td>
</tr>
<tr>
<td>5</td>
<td>Other District Road</td>
<td>522</td>
<td>1868.79</td>
</tr>
<tr>
<td>6</td>
<td>Village Road</td>
<td>920</td>
<td>2541.28</td>
</tr>
<tr>
<td>Total Length</td>
<td></td>
<td>3767</td>
<td>8050.99</td>
</tr>
</tbody>
</table>

Source: Socio-economic Review 2013-14

In the 2003-2004 national highways was 114 Km. long it was increased by 131.10 km. in the 2013-14 while major state highways 2003-04 are absolute. These highways enhanced by 45.60 in 2013-14. In the year 2003-04 state highway is 530 km. long while in the year 2013-14 it 785.06 km. long with the growth of 255.06 km. Major roads of the study area are 1681 km. long in the year 2003-04 while there was a growth 998 Km. by the time 2013-14. It increased upto 2679.16 km. Other roads in the district are well build up. Compared 2003-04 it was increased from 1346.79 Km. to 1868.79 km. in the year 2013-14. Rural roads in the district are increased by 1621.28 Km. from the year 2003-04 to the 2013-14. Total enhanced road was

(36)
2541.28 Km. railway network is spread for 193 Km. across the district.

2.13 Industries

There are other business in the study area which are related with agriculture industry. Today, Akola is a developing city. Study area has a very good grain market, oil miss, dal (pulses) mill and is known for production of cotton. The IT sector also growing at a fast face.

Akola called cotton city is known for cotton production and is the largest cotton production district in India. The city is also famous for its pulses (dal), oil and textile mills. The city had all along been an important commercial and trading centre. The facility of goods transportation and communication system in the form of railway and roads in addition to the extension of the electric grid system and establishment of the Paras Thermal Station ensuring adequate electric industrial development of the city in recent years.

MIDC area under study region is covered under Special Economic Zone (SEZ). There are 9 MIDC (Maharashtra Industrial Development Corporation). There are 436 businesses under it. 1143.55 hector land has been acquired for this purpose from Akola, Balapur, Akot, Murtijapur, Telhara places. Beside this there are a number of business run on corporation basis in the district. Oil, plastic, fertilizers, cloth, steel pipe, plastic pipe, certain chemical production business are covered under MIDC and other commercials.

It shows that industrial development is good in the study region.
Reference

1) Census Handbook Akola District 1961 to 2001
2) Akola District Gazetteer (Govt. of Maharashtra), Mumbai, 1967
3) Socio-economic Review 2012-13 to 2013-14
10) google map india, Maharashtra, Akola map
13) www.akola.nic.co.in