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Chapter No. II
Physical And Socio-Economic Setting of
Latur District
Section – I
Physical Setting

2.1 Introduction

Broadly speaking, India is an agricultural country, and agriculture as well as its development is largely based on the determinant factors as physical environment, drainage, climate, soil and its types and water. These factors not only influence the agriculture in many ways but determine the types of crops, the timing of agricultural operations, the extent of risk and overall development of agriculture. Various aspects of farming systems are also influenced by the socio-economic factors. Notwithstanding all factors physical and socio-economic work together and bring results, or impact on overall growth. In the present chapter an attempt has been made to present a physical and socio-economic setting of the study region i.e historical background, location, landuse pattern, Irrigation, agriculture implements and population. The first section of this chapter deals with the physical setting of the study region and second section relates with the socio-economic setting of Latur district.

2.2 Brief History of the Region

So far as the history of the Latur district is considered it lies to the south-east of Maharashtra on the border of
Maharashtra and Karnataka state. Till 15 August 1982, it was a part of Osmanabad district. Latur which is the headquarter of the district is an ancient town and the home of Ratta or Rashtrakutas. Amonghvarsha-I, the king of Rashtrakutas is described as the lord of Lattalura. Lattalura i.e. Latur, the best town of Rashtrakutas who were considered as Lattalurapuradhsa. These Rattas of Saudhati emigrated from the town of Lattalura. Rashtrakuta, according to the history, seem to have originally belong to Lattalura.

According to the available references to this district since Puranas, Epics, Ramayana and Mahabharata, it was located in the Deccan which known as Dandakaranya. Records also shows that it was included in the empire of Ashoka, in the historical times. After the region of Ashoka, Satvahna rose to power and his capital in the region was Pratishthana which is Paithan in Aurangabad district. It is also said that during the region of Satvahna the district was a prosperous hub. There was, a family of Saka rulling over the territory in which Latur district was comprised Saka family was contemporary of the vakataka of Vidharbha and the early Rashtrakuta of Kuntala. History of the district also shows that the Chalukya and the Yadvas of Deogiri ruled over the territory i.e Latur district. In the beginning of 14th centaury in 1317, the kingdom of Yadavas passed into hands of the Sultan of Delhi. The territory of Latur district for the first time passed into the hands of Mohammedins. From 1351 to 1318 dynasty of Bahamanis ruled the territory after which it came under the rule of Adilshah. In 1724 A.D.,
after a century of direct rule of Mughals, Latur district passed under the Nizam of Hyderabad sovereignty. (Encyclopedia of Marathi)

The district was temporarily ceded to British government in 1853 but later reverted to Hyderabad state in 1860, with its headquarter Naldurga, known as Naldurga district. In 1904 Naldurga district was abolished and a new district of Osmanabad was carved out with headquarter at Osmanabad in 1905, headquarters of Ausa tahsil was shifted to Latur which was named as Latur tahsil.

Osmanabad region had the biggest area among the Marathwada region under the Nizam’s own estate called 'sarf-e-khas' and it was merged with government area under the 'sarf-e-khas' (merger regulation) in the year 1949. In the same year all the jagirs were abolished and put under direct government administration, consequently, in 1950 all the tahsils and their boundaries were reconstituted. Two new tahsils with headquarters at Ausa and Omerga and a new Mahal with headquarter at Bhoom were created. In 1950 again 11 enclave villages were transferred from Solapur. With the reorganization of states, Later it became a part of Bombay state in 1956. Three tahsils viz. Ahmadpur, Nilanga and Udgir were transferred from neighboring Bidar district (Karnataka) to Obsmanabad. In 1969 Bombay state was divided into Maharashtra and Gujrat states and Osmanabd became an integral part of Maharashtra. Due to administrative reason Osmanabad disctrict bifurcated into two district on 16th August 1982. Eastern tahsils of Osmanabad as Latur, Ahmadpur, Udgir, Nilanga and Ausa
LATUR DISTRICT - CHANGES IN NUMBER OF TAHSILS
16th August 1982

15th August 1992

23rd June 1999

Figure No. 2.1
LOCATION MAP
LATUR DISTRICT

Figure No.2.2 (A)
are included in new district i.e Latur. With the headquarter at Latur. Later on, Ahmedpur, Udgir and Nilanga tahsils were divided on 15th August 1992 and two new tahsils carved out namely Chakur and Renapur. In 1999 once again the tahsils Udgir, Nilanga and Ahmedpur and three new tahsils formed i.e. Deoni, Shirur Anantpal and Jalkot. This newly formed Latur district has 10 tahsils, 10 towns and 850 villages including 53 villages transferred from Ambejogai tahsil of Beed district. Notwithstanding, the total villages are 946 as same villages which are granted by Latur district administration (Cencus of L.D. 2001) It accounts for 2.89 percent of the area of the state and 2.15 percent population of the state.

2.3 Location

So far as the location of the Latur district is considered it lies between 17°.52’ and 18°50’ North latitudes, 76°12’ and 77°18’ East longitudes. It is surrounded by Beed and Parbhani in the north, Nanded district in the north east, Karnataka state in the south east and Osmanabad district in the North West. The total area covered by Latur district is 7372 (7371.9) sq.km According to the census 2001 the total population of Latur district is 2078237. It accounts for 2.39 percent of the area of the state and 2.15 percent population of the state.

2.4 Relief

Relief, definitely, influences the economic activities of a particular concerning region through the elevation ruggedness and slope. The relief varies from place to place. The variations in it are due to the geological complexity of
RELIEF
LATUR DISTRICT

HEIGHTS IN METER

- Above 600
- 500 - 600
- Below 500

Figure No. 2.3
the region and varied geomorphological evolutions. Notwithstanding, the relief of the district can best be appreciated against the background of its geology.

Relief of the district is divided into two parts first the Balaghat plateau second the North eastern region. The major part of the district lies on the Balaghat plateau which is narrow and high in the North-west but broader and lower in the south-east. The interfluves between the streams are rocky with poor stony soils. Region is moistened by Manjara and its tributaries i.e. Tawarja, Terna and Gharni. The other division of relief is the North eastern region which comprises the northern parts of Ahmedpur and Udgir tahsils in Manar, Tiru and Lendi drainage areas. This region slopes towards east. The Terna is rugged and the soils are generally shallow with a depth of less than 9 inches. The North-eastern region is drained by Manar, Tiru and Lendi. It is observed that the eastern and some of the southern part of Latur tahsil, central and south part of Shirur Anatpal tahsil, central and eastern part of Nilanga tahsil, western part of Udgir and Chakur tahsils, besides entire area of Ahmedpur & Jalkot comprise in the entire area of 500 to 600 meter. Height in the north and central part of Ahmedpur is observed less than 500 meter.

2.5 Drainage

So far as the drainage pattern of Latur district is considered it is very well developed and geared to the base level of the Manjra which has mastered all the river source of the study region, Major parts of the study region is drained by Manjara and its tributaries belonging to the
DRAINAGE PATTERN

LATUR DISTRICT

Figure No. 2.4
The Godavari drainage system. The manjara and its tributaries i.e Terna, the Tawarja and Gharni drain the Balaghat plateau region whereas its three other tributaries, the Manar, the Tiru and Lendi drain the north eastern area of the plateau.

**Manjara**

The Manjara river rises above Gaurwadi near the northern edge of the Balaghat plateau in Beed district and flows in South easterly direction towards Osmanabad district. It forms the district boundary for the greater part of its easter course, barring a few deviations of the boundary some to the north and some to the south of the river. Where the Rena river joins the Manjara, the later turns south continuing the direction of this tributary and after Halki flows in a south-Easterly course as far as Chinchaundi within the district, after which it forms the State boundary as a Aurad Shahjani. Here it turns, and enter into the Karnataka State.

**Tawarja**

The chief right bank tributaries of Manjara are the Tawarja and the Terna. The Tawarja river, about 50 kilometers long, rises near Murud railway station and has a general easterly course till joins the Manjara near Seoni village.

**Terna**

The Terna river, over 150 kilometers, in length from the source to its confluence with the Manjara, has the longest course of all the rivers lying entirely with the District. The Terna project consists of an earthen dam, on the river Terna near the village of Tail, South of Dhoki, with only one canal on the right bank on account of the law relief
of the adjoining divies, the dam has to be very long and of low height giving to a storage covering a wide area but of shallow depth.

**Gharni:**

A part from the Rena, which has only a small part of its lower most course within the District, the Gharni is the only river of some size flowing as a left bank tributary of the Manjara draining the Balaghat plateau. The Gharni river about 4 kilometers long rises three kilometers north of Wadval Rajura and flows southwards passing by Wadval-Rajura, Gharani, Nalegaon all situated on the western bank to join the Manjara river near Jawalga.

The Gharni project consists of an earthen dam 2.136 meters long of a maximum height of 15 meters, across the Gharani river near Wadval village with both left and right bank canals each of 24 kilometers in length irrigating about 2800 hectares area.

**Manar**

The Manar, the northern most river of the district rising the north-easterly slopes of the Balaghat plateau near Dharmapuri in Beed district flows in north-easterly courses along 40 kilometers within this district. It continues in this direction into Nanded district as far as Kandhar after which it flows in an easterly or South-Easterly direction to join the Manjara.

**Tiru:**

The tiru river on the eastern edge of the plateau near Chakur and has course of about 56 kilometers within the
district flowing generally eastwards to join the Lendi at Kharka in Nanded district.

**Lendi:**

The Lendi river rises similarly on the edge of the plateau near Udgir further east and has only a small course within the district. It is joined by the Tiru at Kharka in Nanded district and flows past Degloor also in Nanded district before it joins the Manjara river.

**Deoni**

Among the smaller left bank tributaries of the Manjara may be mentioned the Deoni with a course of about 20 kilometers within the district on the south bank of this river is situated the Deoni village, famous for its breed of cattle bearing its name.

**2.6 Climate**

Generally speaking the climate of Latur district is dry. There are four seasons in a year. The winter season is from December to the middle of the February which is followed by hot season which continues to the end of May. The southwest monsoon season is from June to September, and October-November constitute the post monsoon season.

**2.6.1 Temperature**

Temperature of the district is dry and arid, from the end of November temperature begins to fall rapidly and December is the coldest month of the year. The minimum temperature is about $21.6^0$ C (2001) occasionally the minimum temperature may fall to about $11.9^0$ C (2001). May and June are generally hottest months of the year the maximum temperature is about $40^0$ C.
**SEASONWISE DISTRIBUTION OF TEMPERATURE IN LATUR DISTRICT (2001)**

**Graph No. 2.1**

**SCALE**

1 cm = 5°C Temperature

<table>
<thead>
<tr>
<th>Season</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold</td>
<td>31.3</td>
<td>1.9</td>
</tr>
<tr>
<td>Hot</td>
<td>38.9</td>
<td>21.8</td>
</tr>
<tr>
<td>Rainy</td>
<td>31.1</td>
<td>17.1</td>
</tr>
</tbody>
</table>
So far as the temperature of the Latur district is considered table no. 2.1 shows that the maximum temperature of the Latur district is 31.30°C in cold, 38.90°C in hot and 31.10°C in rainy season. The mean minimum temperature is 11.90°C in cold, 21.80°C in hot and 17.10°C in rainy season.

Table no. 2.1

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Season</th>
<th>Mean Maximum</th>
<th>Mean Minimum</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cold</td>
<td>31.30</td>
<td>11.90</td>
<td>21.60</td>
</tr>
<tr>
<td>2</td>
<td>Hot</td>
<td>38.90</td>
<td>21.80</td>
<td>30.35</td>
</tr>
<tr>
<td>3</td>
<td>Rainy</td>
<td>31.10</td>
<td>17.10</td>
<td>24.10</td>
</tr>
</tbody>
</table>

Source: Socio-economic Statistical Abstract 2002

It has been experienced that with the onset of the south west monsoon there is an appreciable fall in temperature. From the end of monsoon there is a slight increase in day temperature whereas temperature falls at night.

2.6.2 Rainfall

As the rainfall of the study region is taken in view, the average annual rainfall is about 784.68 mm in the study region and its distribution is also uneven. About 84 percent of the annual rainfall in the study region is received from the South-West monsoon season and the rainest month is July in the year. Annual rainfall varies from year to year largely in the study region.
AVERAGE RAINFALL OF LATUR DISTRICT (2001)

SCALE
1 cm = 100 mm Rainfall

Graph No. 2.2
Table no. 2.2 clearly shows that there is a great variation in amount of rainfall. The rainfall varies from tahsil to tahsil in the study region.

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tahsils</th>
<th>Average rainfall (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latur</td>
<td>714.00</td>
</tr>
<tr>
<td>2</td>
<td>Ahmedpur</td>
<td>846.7</td>
</tr>
<tr>
<td>3</td>
<td>Udgir</td>
<td>902.8</td>
</tr>
<tr>
<td>4</td>
<td>Nilanga</td>
<td>711.7</td>
</tr>
<tr>
<td>5</td>
<td>Ausa</td>
<td>813.9</td>
</tr>
<tr>
<td>6</td>
<td>Renapur</td>
<td>713.7</td>
</tr>
<tr>
<td>7</td>
<td>Chakur</td>
<td>780.8</td>
</tr>
<tr>
<td>8</td>
<td>Jalkot</td>
<td>902.8</td>
</tr>
<tr>
<td>9</td>
<td>Shirur (A)</td>
<td>711.7</td>
</tr>
<tr>
<td>10</td>
<td>Deoni</td>
<td>902.8</td>
</tr>
</tbody>
</table>

Source: Socio-economic Statistical Abstract 2002

In the tahsils of Jalkot, Udgir & Deoni, the proportion of rainfall is above 950 mm. Notwithstanding, in the tahsils of Ahmedpur, Chakur and Ausa, the proportion of rainfall is between 750 to 850 mm furthermore, rest of the tahsils as Latur, Renapur, Nilanga and Shirur Anantpal, the proportion of rainfall is observed below 750 mm in the study region.

2.6.3 Humidity

The air is humid and the skies are generally clouded and overcast during the south west monsoon season. Rest of the year the air is dry and skies are clear or lightly clouded: Winds blow lightly but increase in the force during the latter half of summer and in the monsoon season. Thunderstorms
frequently occur in the summer and monsoon seasons, moreover dust storms take place in summer.

2.7 Soil

The soil is essentially derived from the trap rocks in Latur district which is classified into the following three groups:

i) Shallow Soils (0”-12”)
ii) Medium Soils (12”-24”)
iii) Deep Soils (above -24”)

The first group of soil i.e shallow soils are observed in the north-eastern part of the district, which are light brown to dark gray brown in color, loamy to clay loam in texture with granular to sub-angular block in structure. These soils tend to be alkaline in reaction. They are deficient in Nitrogen and organic application of the same with provisions of adequate water.

Medium soils patches are observed mainly near Nilanga and central portion of area district which is brown to dark brown in color clay loam light to clay texture and sub-angular blocky to blocky in structure. These soils are alkaline in reaction and have a fair amount of to phosphate but requires the application of Nitrogen and oraganic.

Deep soils patches are located in some parts of Renapur, Latur, Ausa, Shirur Anantpal, Ahmedpur and Nilanga which are of block colour.
SOIL
LATUR DISTRICT

INDEX
Graph No. 2.5

Deep Soil
Medium Soil
Shallow Soil

N
0 15 30 Km

Graph No. 2.5
2.8 Forest Area

So far as the forest area of the district is considered it is distributed in 84 village accounting for 8.88 percent of the village in the district. The total area under forest is about 3462 hectares in the study region. The five tahsils i.e. Jalkot, Ahmedpur, Chakur, Shirur Anantpal and Ausa there is no forests. Rest tahsils have very small forest area, which is just 0.48 percent of the total area of the study region.

A study of table no. 2.3 shows that Renapur covers 1600 hectares forest area which is highest area. Whereas the lowest area under forest is covered by Latur tahsils which is just 88 hectares. In rest tahsils, Nilanga and Deoni tahsils have medium forest area. (i.e. 200 to 400 hectares) and tahsils as Udgir, Jalkot have very low forest area (i.e. below 200 hectares)

Table no. 2.3

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahsils</th>
<th>Area in '00' Hect.</th>
<th>Forest area in '00' Hect.</th>
<th>Percentage of the total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latur</td>
<td>943</td>
<td>01</td>
<td>0.10</td>
</tr>
<tr>
<td>2</td>
<td>Renapur</td>
<td>656</td>
<td>16</td>
<td>2.43</td>
</tr>
<tr>
<td>3</td>
<td>Ahmedpur</td>
<td>797</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>Jalkot</td>
<td>291</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>Chakur</td>
<td>683</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>6</td>
<td>Shirur (A)</td>
<td>333</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7</td>
<td>Ausa</td>
<td>1204</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>8</td>
<td>Nilanga</td>
<td>1077</td>
<td>03</td>
<td>0.27</td>
</tr>
<tr>
<td>9</td>
<td>Deoni</td>
<td>401</td>
<td>02</td>
<td>0.49</td>
</tr>
<tr>
<td>10</td>
<td>Udgir</td>
<td>772</td>
<td>01</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Source: Socio-economic Statistical Abstract 2002
FOREST AREA IN LATUR DISTRICT
(1901-2001)

Deoni 9%
Nilanga 13%
Ausa
Shirur (A) 0%
Chakur 0%
Jalkot 0%
Ahmedpur 0%
Renapur 70%

Graph No. 2.3
The forests covers the tress as scattered everywhere in the district. The forest produce have the variety of trees as Khair, Hiwar, Hankal, Arkoni, Apta, Babhul, Bor, Nim, Mango, Chinch, Jambul, Bel, Ghevda, Ghaipath, Kektar, Shevri, Subabhlul, Omber grass in plantation are the items of income to forest department in the study region.

Section – II
Socio-economic Setting of the Region

2.9 Introduction
An attempt has been made to study the physical determinants as location and boundaries, historical background, physiographic, drainage, climate, soil and natural vegetation which influence the irrigation and ultimately agricultural development of the study region in the previous section.

The present section deals with the numerous non-physical determinants i.e irrigation, landuse pattern, agricultural implements, population, transportation which influence the irrigation and the impact of irrigation on agriculture. These cultural resources are of vital importance for agricultural activities in any area, socio-economic elements along with their contaminative aspects, also influence the agricultural operation. (Khatri L.C., 1990).

An increasing appreciation by the geographers is that physical and non-physical factors i.e. socio-economic factors influence overall economic development and those factors
contributing to agricultural growth must also be thought in the same perspective. (Singh Jasbir & Dhillon, 2000).

The non-physical factors which determine the impact of irrigation on the agriculture of Latur district is considered here.

2.10 Irrigation

Broadly speaking India is an agricultural country. The agricultural production should be needed to increase to feed the rapid ever growing population. Rainfall is confined to a few months in a year and is erratic in both time and place. Furthermore, the dependence of agriculture on rain water renders cultivation precarious and there have been very serious draughts at times in the country causing severe famines which brought one in 1972. In this way, it was to face the menace of draught following the failure of monsoons that artificial system of irrigation were devised here from ancient time (Saksena R.S.1993). So far its history is concerned, it goes back to 400 B.C. or beyond and in other parts of the world it is equally old and is described, often in great detail, in ancient literature such as the Rigveda or the records of the ancient travelers and traders (Singh Jasbir & Dhillon S.S. 2000).

So far as the Vedas, the earliest sacred book of the Aryans, is considered, it mentioned the use of wells, canals and dams. In Rigveda four types of waters are mentioned viz-waters which comes from sky or rain water, those which flow in rivers and streams, those which are obtained by digging and those which come out from springs (Saksena R.S. 1993). Irrigation is essentially the artificial application
of water to overcome deficiencies in rainfall for growing crops. The importance of irrigation has many facets in the Indian economy. Its time honored usefulness as a means of augmentation agricultural production is well-known, apart from helping the success of new technology and modern scientific farming practices. Notwithstanding, irrigation is one of the most crucial inputs in the progress of agricultural development. (Joshi Amardeep Singh, 1987).

A backwardness of any region may be caused by physical factors such as terrain, climate, rainfall etc., however, irrigation in such cases helps a great deal in reducing the disparity. Some certain areas in the country are chronically draught prone. In the same way there are pockets of land which remained waterlogged for a long time. Therefore, land remains unfit for use of cultivation purposes. To shift from this to good cultivation irrigation is of crucial importance. With the help of it land can be made useful in draught-prone areas by moistening it. Draining water out of land can make a land useful in waterlogged areas.

**Irrigation In Latur District**

Latur district comes under the Godavari Marathwada irrigation development corporation Aurangabad region. The district includes the tahsils as Ahmedpur, Ausa, Chakur, Deoni, Jalkot, Latur, Nilanga, Shirur Anantpal, Renapur and Udgir. The total geographical area of Latur is 715700 hectares, out of which 696300 hectares are is plain table or cultivable which is 97.29 percent.
Table no. 2.4
Irrigated Area of Different Sources in District

<table>
<thead>
<tr>
<th>Sources</th>
<th>1985-86 Irrigated Area (Hector)</th>
<th>2000-01 Irrigated Area in (Hector)</th>
<th>Increase/Decrease in Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>7705</td>
<td>11086</td>
<td>+43.88</td>
</tr>
<tr>
<td>Wells</td>
<td>22654</td>
<td>34803</td>
<td>+53.62</td>
</tr>
<tr>
<td>Other</td>
<td>9320</td>
<td>4980</td>
<td>-0.46</td>
</tr>
<tr>
<td>Total</td>
<td>39679</td>
<td>50869</td>
<td>+28.20</td>
</tr>
</tbody>
</table>

Source: Socio-Economic review and district statistical abstract of Latur District 1985-86 and 2003-04

The total district is located in the basin of Godavari river. The major rivers of the district are Manjara and Manyad and Trena, Tawarja, Lendi and Tiru are tributaries, these all rivers are seasonal. The average rainfall of the district is about 455 m.m. to 755 m.m. As per the recommendation of Sukhatankar committee there are 50 draught affected villages in two tahsils i.e. Ahmedpur and Chakur in the study region.

A study of the above table clearly shows that 28.20 percent of the total irrigation has been developed in 1985-86 to 2000-2001 i.e. duration of fifteen years 43.88 percent irrigation has been developed in surface water, by the well irrigation 53.62 percent has been increased but by other means of irrigation, it decreased by 0.46 percent. Many projects in the district were incomplete. If these projects were completed, the irrigation might have been increased by double.

2.11 Classification of Land

So far as the classification of land for the country as a whole concerned it is not applicable to the area under study.
Latur district. It has an established subsistence agriculture like any other plain region of India, from the very beginning of its very occupancy. Crop constitutes a very dominating proportion among all land use type. The landuse pattern is completely different from that of British or American rural landscape of course, the principal of landuse that have evolved from mid-latitude experiences cannot be applied directly to tropics (Chang, J. 1968). Thus, the different socio-economic conditions, significant special dimensions of crop land with a diversified cropping pattern and very little room or pastural, grazing grass land, horticulture and natural woods lands are characteristics throughout the region.

### Table no. 2.5
#### Landuse Patterns of Latur District (2000-01)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Land Use classification</th>
<th>Area in Hectors</th>
<th>Percentage of the total area of the region</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Net area sown</td>
<td>614100</td>
<td>86.00</td>
</tr>
<tr>
<td>02</td>
<td>Land put to non agricultural use</td>
<td>16100</td>
<td>2.24</td>
</tr>
<tr>
<td>03</td>
<td>Current fallow land</td>
<td>28000</td>
<td>4.00</td>
</tr>
<tr>
<td>04</td>
<td>Forest</td>
<td>2300</td>
<td>0.32</td>
</tr>
<tr>
<td>05</td>
<td>Barren and uncultivated land</td>
<td>15700</td>
<td>2.19</td>
</tr>
<tr>
<td>06</td>
<td>Other Fallow land</td>
<td>12500</td>
<td>1.74</td>
</tr>
<tr>
<td>07</td>
<td>Land under mixed trees and groves</td>
<td>4800</td>
<td>0.67</td>
</tr>
<tr>
<td>08</td>
<td>Cultivable waste</td>
<td>9100</td>
<td>1.27</td>
</tr>
<tr>
<td>09</td>
<td>Permanent pasture and other grazing land</td>
<td>11600</td>
<td>2.00</td>
</tr>
<tr>
<td>10</td>
<td>Total area of the region</td>
<td>715700</td>
<td>100</td>
</tr>
<tr>
<td>11</td>
<td>Area sown more than once</td>
<td>77000</td>
<td>10.75</td>
</tr>
<tr>
<td>12</td>
<td>Total cropped area*</td>
<td>691100</td>
<td>96.56</td>
</tr>
<tr>
<td>13</td>
<td>Total cultivated area**</td>
<td>654600</td>
<td>91.46</td>
</tr>
<tr>
<td>14</td>
<td>Culturable area or cultivable area or agricultural land ***</td>
<td>670800</td>
<td>93.72</td>
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</tbody>
</table>

Source: Socio-economic abstract of Latur district 2000-01
* Total cropped area means net area sown and area sown more than once.

** Cultivated area means net sown and fallow land

*** Culturable area is made by adding the (forest area + groves and cultivable waste + fallow land + net area sown) or by subtracting the land not available for cultivation from the total area of the region.
LANDUSE PATTERN OF LATUR DISTRICT (2000-2001)

INDEX

- Net Area Sown
- Land put to non agricultural use
- Current Fallow Land
- Forest
- Barren and uncultivated land
- Other fallow land
- Land under mixed trees and groves
- Cultivable waste
- Permanent pasture and other grazing land

Graph No. 2.4
The utilization of land of the study region is determined by the nature of land having marked local variations in slope, distance from the settlements to the fields, security of crops, fertility of the soil, insured irrigation and availability of water which had made a great difference in the intensity of cropping near the settlement site and on the outskirts of towns and villages. Therefore, various physical sets of lands are responsive for the various physical sets of lands are responsible for the variation in the types of landuse.

So far as the general landuse of Latur district is considered, it has been categorized in the following nine-types.

i) Net area sown ii) Land put to non-agricultural use iii) Current fallow iv) Forest v) Barren and uncultivated land vi) Other fallow land vii) Land under mixed tress and groves viii) Cultivable waste land ix) Permanent pasture and other grazing land. The categories and areas covered by each of the uses have been shown in Table no. 2.5 and Graph no. 2.4.

Total cropped area means net area sown and area sown more than once

Cultivable are means net sown area and fallow land culturable area is made by adding (forest area + groves and cultivable waste + fallow land + net area sown) or by subtracting the land not available for cultivation from the total area of the region.

2.12 Population

The most important aspects of the demography are structure, composition and characteristics of the population.
In order to understand, analyze and assess the needs of men in any area, to improve his standards of living and to materialize his ambitions and aspirations, it is almost essential to study the nature, structure and composition, distribution and density, quality and trends of population in all its multiple manifestations. (Kothari, Sadhana 1999). The important aspect of population are population growth, population pressure on agricultural land, and literacy which are responsible for agricultural change in any agrarian society.

A comprehensive analysis of some important elements of population can be given as follows.

A) Population Growth

The population growth refers to the growth of the human population in a particular area during a specific period of time it may be positive or negative growth. The change in the rate of growth of population can be measured in terms of percentage or absolute numbers (Ghosh B.N. 1987). The growth of population in any area is an index of its economic development, social awakening and many other characteristics (Pearson T.A. & Harper F.A. 1945).

Here an attempt is made to present a brief review of the growth of population since 1901 in the study region.

B) The Growth of Population Since 1901

The actual rate of growth of population is calculated by dividing the difference between the populations of the two dates by the populations at the earlier date and multiplying it by 100. Thus
Where,

\[ Ar = \frac{Pn - Po}{Po} \times 100 \]

Where,

\( Ar = \) denotes rate of growth of population

\( Pn = \) denotes current year population

\( Po = \) denotes base year population.

Here, the last ten decades have been taken into consideration, which shows that the growth rate of population has a great significance for geographers, because it is quite obvious that population growth determines the level of economic development of the area. The data given below in table no. 2.6 reveals that the actual growth of population in Latur district during the period from 1901 to 2001

<table>
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<tr>
<th>Year</th>
<th>Population</th>
<th>Decadal Variation</th>
<th>Rate of variation %</th>
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<td>1901</td>
<td>423609</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1911</td>
<td>506549</td>
<td>+82940</td>
<td>+19.58</td>
</tr>
<tr>
<td>1921</td>
<td>479723</td>
<td>-26826</td>
<td>-5.30</td>
</tr>
<tr>
<td>1931</td>
<td>540019</td>
<td>+60296</td>
<td>+12.57</td>
</tr>
<tr>
<td>1941</td>
<td>600373</td>
<td>+60354</td>
<td>+11.18</td>
</tr>
<tr>
<td>1951</td>
<td>660823</td>
<td>+60450</td>
<td>+10.07</td>
</tr>
<tr>
<td>1961</td>
<td>818160</td>
<td>+157337</td>
<td>+23.81</td>
</tr>
<tr>
<td>1971</td>
<td>1048618</td>
<td>+230458</td>
<td>+28.17</td>
</tr>
<tr>
<td>1981</td>
<td>1292882</td>
<td>+244264</td>
<td>+23.29</td>
</tr>
<tr>
<td>1991</td>
<td>1676641</td>
<td>+383759</td>
<td>+29.68</td>
</tr>
<tr>
<td>2001</td>
<td>2078237</td>
<td>+401596</td>
<td>+23.94</td>
</tr>
</tbody>
</table>


The above table clearly shows that the year 1921 have shown a big divide line because prior to it, the region population decreased by 5.30 percent in the decade 1901 to
GROWTH OF POPULATION IN LATUR DISTRICT (1901-2001)

SCALE
1 cm = 2,00,000 Population

Graph No. 2.5
1921. But ever since (1921) there has been a district change in the trend of population growth. Decline in death rate (mortality) and slow decrease in birth rate i.e. fertility became responsible factors for the rapid growth of population since 1921 but a declining trend has been observed in growth rate in the last decade i.e. from 1991.

So far as the growth rate at tahsil level is considered it is varied from place to place. The most density populated tahsils in the east have shown higher rates of growth. Whereas the western tahsils of Renapur, Chakur do not have urban areas and have comparatively smaller growth of population.

2.13 Agricultural Implements

So far as the agricultural implements are considered tools and implements form an integral part of agricultural scene. The technological changes consisting the use of modern hand tools, animals drawn implements, tractors, thrashers and more economic patterns of farm management play a vital role in the selection of crops grown and decision making at the farm level. These changes help in improving the crop yields (Husain Majid 1996).

Relief and edaphic-climatic conditions largely control the use of agricultural implements and machinery in any area. In addition the quantum of irrigation available, the size of holdings the degree of intensiveness in farming the subsistence or commercial character of agriculture and the peasant way of life further determine the use of farm implements (Singh Jasbir and Dhillon S.S. (1994).
India is a sub-continent and a variety of indigenous implements are in use of different parts of the country for the last many centuries. Recently, some effective foreign implements has been introduced in many regions of the country. The Indian council of agricultural research has now established one research-cum testing and training centers in each state. Some of them have now been converted into regional centers or have been taken over by the state governments. The object is to improve the indigenous agricultural implements to design new implements and to test then the field upto the prototype level. After the implements have proved to be useful, the prototypes can be given to manufactures both in the public as well as in the private sectors and the implements can be sold through them to the farmers (Bhatt V.S. 1977). Therefore, the modern and suitable tools and implements are essential in the agricultural production and development.

The following table clearly shows the progress of farm machinery at tahsil level in the Latur district.

**Tale no. 2.7**

**Tahsil-wise progress of Farm Machinery in Latur District 1981 to 1997**

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<td>261</td>
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<td>1399</td>
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<td>41</td>
<td>5363</td>
<td>1243</td>
<td>2011</td>
<td>136</td>
<td>73</td>
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Source: Socio-economic abstract of Latur district 2000-01
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<td>1.99</td>
</tr>
</tbody>
</table>

Source: Computed by the Author

It clearly observed that most of the tahsils in the study region are trailing behind with their age-old traditional farm equipment. For the present study only few agricultural implements are considered, as wooden ploughs, iron ploughs electric pumps, oil engines and tractors.

The density of each agricultural implement or tool (per hectare) is calculated by using the following formula,

\[
\text{Density of agricultural implement} = \frac{\text{Total Number of any Implement}}{\text{Total Cropped Area}} \times 1000
\]

i) **Wooden Ploughs:**

It is one of the universally used agricultural implements which is primarily used in India also. It is mostly made up of wood e.g. Babool or kikar. The farmer who practice traditional pattern of farming still use these plough on small and medium operational holdings of soft alluvial soil and on small holdings of mountain slopes (Singh Jasbir and Dhillon S.S. 1994).

Table no. 2.7 indicates that wooden ploughs increased from 28946 to 33148 from 1981-1997. The highest density...
(17.00 per 1000 hectares) was found in Udgir tahsil whereas the lowest density (2.66 per 1000 hectares) was noticed in Ausa tahsil in 1981.

During the period of seventeen years from 1981 to 1997 a considerable change in density of wooden ploughs was observed. In 1997, the density of wooden ploughs below 5 per 1000 hectares was observed only in Latur and Ausa tahsils while the density 5 to 10 per 1000 hectares was found in Udgir, Ahmadpur, Nilanga and Renapur tahsils. The density of wooden ploughs above 10 per 1000 hectares was noticed in Ausa tahsil in 1997.

ii) Iron Ploughs

In 1981 the density of iron ploughs below 5 per 1000 hectare was found in Udgir and Ahmadpur tahsils while the density between 5 to 10 per 1000 hectares was noticed in Latur, Nilanga and Ausa tahsils.

In 1997, the density of iron ploughs below 5 per 1000 hectares was noticed in Latur, Ahmadpur, Udgir, Ausa, Renapur and Chakur tahsils while Nilanga tahsil was noticed density above 5 per 1000 hectares.

iii) Oil Engines

Mostly diesel oil is used in oil engines to generate the power for lifting the water from wells, rivers and tanks for the agriculture. Oil engines decreased by 2.67 times in the study region between 1981 and 1997. Since 1975, the electric power is used for pump to lift the water on large scale. Hence the use of oil engines decreased from 1975 in every tahsils in the district. All tahsils density of oil engines
was found in below 5 per 1000 hectares during the period of 1981 to 1997.

iv) Electric Pump

Electric pumps are useful to lift the water from wells, rivers, tanks etc. The number of electric pumps was 11554 in 1981. Every village in the district is electrified hence tendency of the people has increased to use the electric pumps. They save time and labour. Electric pumps are becoming more and more popular after 1985. The electric pumps increased by 17.26 times in seventeen years period from 1981. The increase is noticed in every tahsil.

In 1981, density of the electric pumps, below 2 per thousand hectares was found in Udgir tahsil. Whereas the density between 2 to 4 was observed in Latur and Ahmadpur tahsils. The density above 4 per thousand hectares was recorded in Ausa tahsil.

In 1997, density of electric pumps below 3 per 1000 hectares was found in Ahmadpur and Renapur tahsils while the density between 3 to 6 per 1000 hectares was noticed in Chakur tahsil. Whereas the tahsils Latur and Nilanga was noticed the density of electric pumps above six per thousand hectares.

v) Tractors

One of the main advantages of tractor is that it enable the various jobs on the farm such as ploughing, sowing and also it is useful for transportation. Unlike farm workers and their bullocks or camels or buffaloes or horses, the tractors do not tire. Moreover, the extra power, speed and persistence of the tractor enable the farmer to execute
farming operations rapidly and to work round the year to create favorable soil preparation conditions (Singh Jasbir and Dhillon S.S., 1994)

In 1981, Latur district had only 261 tractors, in 1997, the number rose to 1399. Only those farmers who own big land holdings can afford tractors.

Density of tractors per thousand hectares of cropped area below 0.05 was observed in Udgir and Ahmadpur tahsils in 1981. The density of tractors varies from 0.05 to 0.10 per thousand hectares was noticed in Ausa tahsil. While the density above 0.15 per thousand hectares was found in only Latur tahsil in 1981.

Low density of tractors per thousand hectares (below 0.20) was noticed in Ahmadpur and Chakur tahsils on the other hand, the medium density of tractors per thousand hectares (0.20 to 0.40) was found in Udgir, Nilanga, Ausa and Renapur tahsils in 1997. High density of tractors per thousand hectares (above 0.40) was noticed in Latur tahsil in 1997.

2.14 Transportation

So far as the modern agriculture development is considered transportation and communication play an important and crucial role. Transport facilities are nothing but linking facilities between the producer and the consumer. The transportation is essential in the supply of certain inputs to the products, to the markets and consuming areas. "A good networks of transport can promote the development of dairy and of fruits and vegetable crops." (O.H.K. Spate, 1967). The modern
cultivation depends on regular and timely supply of seeds, fertilizers, insecticides etc. The dimension of agriculture expansion have increased because of utilization of new inputs and their transport. The availability of transport and communication facilities can certainly develop industry, trade and commerce. Furthermore, each and every investment in economy and its success or failure depends at some extent on the transport sector.

In Latur district transportation facilities are available. Every tahsil is connected to Latur by roads. Both networks of railways and roadways are in a developing condition in the study region. Transportation network has been divided in two units.

i) Roadways

The district roadway’s length is 8979 km. despite of Nagarpalika roadways. All the villages and places have been connected to the Latur district. Latur and Udgir are two big towns and are well connected with roadways. The road which connects to Latur and Nanded districts forwards on to Mumbai (highway no. 3) and one another is connected to Bijapur, Tuljapur and Solapur. (Fig. no. 2.6)

ii) Railways

In comparison with roadways, the railways network is not so developed and noteworthy. There is single line broadguage of 116.00 km in the district, Hyderabad-Bidar-Parli-Aurangabad-Manmad railwasy crosses Latur. Another railway begins from Latur and on i.e Latur, Miraj, Kudwadi, Pandharpur which is narrow-gauge. On the auspicious occasions of kartiki and chaitri wari, a thousands of pilgrims
RAILWAY & ROADLINES
LATUR DISTRICT

INDEX

Figure No. 2.6
travel by this railway. Agricultural productions are also carried by this railway.

2.7 Summary

i) The total geographical area of Latur district is 715700 hectares, out of which 696300 hectares area is cultivable which is 97.29 percent. The study region is located in Godavari basin.

ii) Irrigation and its development is varied, in the duration of 15 years i.e 1985-86 to 2000-2001, 28.20 percent development is observed in total irrigation. The surface water is increased by 43.88 percent for the purpose of irrigation. Well irrigation is increased by 53.62 percent and other means of irrigation shows a decline of 28.20 percent in the study region.

iii) In the study region, 86.00 percent area is covered by net sown area, 2.24 percent area by land put to non-agricultural use, 4.00 percent by current fallow, 0.32 percent by forest land, 0.67 percent by mixed trees and groves, 1.27 percent by cultivable waste land and only 2.00 percent land is under permanent pasture and other grazing land.

iv) Population growth for 100 years shows a big divide in 1921 because prior to it, region population decreased by 5.30 percent in the decade 1901-1921. Since 1921 a growth trend has been observed but in last decade i.e 1991 to 2001 a decreasing trend in population growth is observed.

v) Agricultural implements increased in every tahsil from 1981 to 1997. Wooden ploughs increased by 4202,
electric pumps by 12862 and tractors 1138 from 1981 to 1997.

vi) The district roadways total length is 8979 despite of Nagarpalika roadways. All the places and villages have been well connected to the city Latur. The state highway of (Mumbai-Nanded) no. 3 crosses Latur district. Another road goes on to Bijapur.

vii) There is only one single line broad-gauge of railway for transportation purpose i.e Hyderabad-Manmad. The narrow-gauge which begins from Latur and on to Pandharpur.

This railways transportation helps to carry agricultural productions and traders and consumers for traveling purpose.
Reference


