CHAPTER - II
GEOGRAPHICAL PROFILE

2.1 INTRODUCTION

The physiography of the district is influenced by geological complexities, which ultimately affects the economic activities of the people (Deshpande, 1971). The physiographic profile of the district has been understood with the help of generalized information about the relief features, drainage patterns, geology, climate, soil, general land use and cropping patterns. Forgoing discussion is based on secondary information and supported by field survey, which gives the broad picture of the study region.

2.2 LOCATION AND EXTENT

Ahmadnagar district is selected for the study purpose. It is situated partly in the upper Godavari basin and partly in the Bhima basin occupying a somewhat central position in the Maharashtra state. It lies between 18° 2’ and 19° 9’ north latitude and 73° 9’ and 75° 5’ east longitude. It is surrounded by Nashik and Aurangabad districts to the north, Beed and Osmanabad districts to the east, Solapur and Pune districts to the south and Pune and Thane districts to the west. Topographically the district can be divided into three parts i.e. the Sahyadri ranges, plateau region and Bhima, Godavari basins.

2.3 GEOLOGY AND MINERALS

The entire district is covered by basaltic lava flows erupted during the late Cretaceous-Eocene period, which are popularly known as the ‘Deccan Traps’. These lava flows are sometimes associated with intertrappen beds such as lime stones, sand stones, clay shale’s, red bole beds and porous ash. The intertrappean beds or red boles are supposed to be the product of sub-aerial processes, which may have been operative during the intervals between eruptions (Jog et. al., 2002).
The lava flows are almost horizontal in disposition but local gentle tilting, undulations and minor flexures are sometimes seen. But for these, no major faulting or folding is seen in the area. The basalts are generally covered by a thin mantle of black soil of recent origin. Other recent deposits such as river alluvium, sands, grovels, silts and calcareous concretions, known as Kankar are also found in the river basins (Census, 1991). The thickness of basalt is higher in north-western part of the district, while its goes on decreasing towards the east and south. Expect for building stone, there are no minerals found in the district (Kadam, 1984). Trap rocks are generally not much economically useful and important minerals. However, being hard, dense and durable, they are extensively used as building material and road metal.

2.4 PHYSIOGRAPHY

The district has an immense variety in case of relief, which includes hills, plateaux and plains of basin (Fig. 2.1). The north-western region of the district is adjacent to the Western Ghats. It includes the area of the Akole tahsil and some part of the Sangamner tahsil. The district lies in drought-prone zone. The district as a whole is an elevated tableland of the Deccan which has a general slope from west to east. The western part of Akole tahsil is the highest part of the district and indeed of the Deccan, having average height about 800 meters above the sea level.

The plain of Shevgaon which lies to the extreme east of the district is below 450 meter from the sea level (Gazetteer of Ahmadnagar District, 2003). There are many plateau at various levels has occupied the maximum area of the district. One plateau merges into the other often through sharp-crested ridges. Topographically the district can be divided into three parts.

2.4.1 THE WESTERN HILLY REGION

This region is consist of the Sahyadri hill range in the north-west and its three eastward offshoots namely the Kalsubai-Adula range in the north, the Baleshwar range in the middle and the Harishchandragad range in the south.
Source: Survey of India, District Planning Map of Ahmadnagar
Kalsubai with a height of 1646 meters is the highest peak in the Maharashtra state.

The Sahyadri Mountains form a continuous natural boundary between the Thane and Ahmadnagar districts, for a distance of about 60 km. The mountainous Sahyadrian region is bounded by many isolated peaks ranging somewhat north-west to south-easterly trend. The hills Harishchandragad (1424 meter), Ratangad (1297 meter) and Kulung (1470 meter) as well as the AjubaDongar (1375 meter) are the highest peaks of Sahyadri located within the district. But the district concerns mainly with the ranges of Kalsubai-Adula, Baleshwar and Harishchandragad.

I. Kalsubai-Adula Range

The Kalsubai range branching off at Kulang, which is the northernmost of the three spurs and for some 32 km., forms the continuous boundary between the Ahmadnagar and Nashik districts. Kalsubai (1646 meter) is the highest peak of Maharashtra exists in this range. Other two smaller spurs which run in south-easterly direction, enclosing the valley of Adula river branch off near Bitangad and Patta. Further north, the Kalsubai range takes a south-eastern direction, running parallel with the first-mentioned spur and enclosing the valley of Mahalungi. After running through the southern part of Sinnar tahsil of Nashik district, this range enters in the district about 13 km. north to the Sangamner town and further passing course of 25 km. ends somewhat abruptly with the hill of Dudheshvar with 838 meter from the sea level (Gazetteers, 2003). Another Adula range branching from Kalsubai range near Patta peak and run southward direction, having average height of 900 meter. This range ends about 2 km. northwards of the Sangamner. The river Adula has formed its valley at the foot of this range.

II. Baleshwar Range

This range is the second largest spur of Sahyadri, branching off at Ratangad 11 km. south-east of Kulang and runs in the Akola and Sangamner tahsil. This range is forming the watershed between river Pravara to the north and river Mula to the south.
III. Harishchandragad Range

This is the longest range in the district, which leaves the Sahyadris at Harishchandragad. This range has formed the watershed between the Godavari and Bhima rivers. This Harishchandragad range runs eastward about 25 km. and then it turns towards the south-east direction and enters in Parner tahsil. The summits of the hills here widen into the plateau of Kanhur at Parner tahsil, having average height of 850 meters above the sea level. This range has forms the boundary between Ahmadnagar and Pune district. The range near village Jamgaon in Parner the flat-topped ridge shoots to the north-east to form a watershed line between the tributaries of the Godavari and those of the Bhima. The main ridge continues further south-east with widening summits and gradually spread, known as Balaghat that extends far into the districts of Marathwada region, the western corner only lying within the district. The length of the hills from the main line of the Sahyadris to the Balaghat is about 200 km. Another branch of this range leaving Kanhur plateau crosses the north-eastern corner of the Shrigonda and enters in the Karjat tahsil.

2.4.2 THE CENTRAL PLATEAU REGION

The larger part of the district in between Baleshwar and Harishchandragad ranges. From Akole in the north-west to Jamkhed in the south-east is the plateau region. It includes mainly the Akole Plateau, the Ahmadnagar Plateau and the Jamkhed Plateau. The western zone of Balaghat plateau consists of upper section of Pravara-Mula system along with source areas of Sina river of Bhima basin (Jog S. R. and et al, 2002).The Plateaux in general, have an elevation of over 600 meters.

2.4.3 THE NORTHERN AND SOUTHERN PLAIN REGIONS

There are the river basins in between the plateaux. There are two main basins, the Bhima basin in the south, which includes Ghod and Sina basin and the Godavari basin in the north, which includes the Pravara and Mula basin. In general these basins have an elevation in between 500 and 600 meters.
2.5 DRAINAGE PATTERN

The drainage of Ahmadnagar district belongs to two major river basins, the Godavari basin in the north and the Bhima basin in the south (Fig. 2.2). Apart from these major rivers, number of sub-tributaries has drained the district. Rivers like Adula, Mhalungi, Pravara, Mula, Dhora to the north while Kukadi, Ghod, Sina to the south are important one. The watershed line is the great spur of the Sahyadris which branches off at Harishchandragad and stretches completely across the district from west to east direction.

2.5.1 GODAVARI RIVER

The Godavari River is the most celebrated river of the whole of peninsular India. It is not only the largest river system in Maharashtra but also in the southern India, which is also known as ‘South-Ganga’. It rises at Trimbakeshwar, one of the twelve Jyotirlingas, in the Nasik district on the eastern slope of the Sahyadris. It flows towards eastern direction and after passing the town of Nashik, it receives sub-tributaries like Banganga and the Kadva from the north and the Darna from the south side. After a course of about 100 km. it forms a considerable stream and it enters in the district near village Wadgaon in the Kopargaon tahsil. Thereafter it flows towards south-east direction through rich alluvial plains and forms an almost continuous natural boundary between Ahmadnagar and Aurangabad district. The river has a length of about 200 km. within the districts. The major tributaries of the Godavari are the Pravara and the Dhora.

The upper Godavari can be identified as the area till it receives Pravara-Mula system as its right bank tributary. Pravara is the last tributary of Godavari basin having its source in the Western Ghats region. The middle Godavari may be identified from Pravara Confluence till river Manjra empties itself into Godavari. At the village of Toka it receives combined water of the Pravara and the Mula rivers along the right bank.
A few km. downstream, the river Shivana and Ganda join it from the left bank and the Dhora from the right bank, lastly 3 km. east of the Mungi village in Shevgaon tahsil, where Godavari River left the district and enters in the Marathwada region. The bed of the river is generally sandy, but in many places bands of rock crop up and lie across its course, damming the stream into large pools upstream and forming rapids downstream. The banks of river are steep and eroded by gullies. It drains the larger part of the district, including the tahsils like Akole, Sangamner, Kopargaon, Shrirampur, Rahata, Rahuri, Nevasa, Shevgaon, the northern half of Parner, and parts of Nagar.

I. Pravara River

The Pravara River is one of the important tributaries of the river Godavari. It originates in eastern slopes of the Sahyadris between Kulang and Ratangad ranges in the Akole tahsil. It flows towards eastern direction between Kalasubai and Baleshwar ranges with the rocky sinuous course of 20 km. having waterfall of 60 meters at village Randha. After flowing across the mountainous part river enters in plateau region of Akole tahsil. As it passes the town of Akole, it receives a discharge of Adula and Mahalungi along the left banks. Further, it runs the easterly course and passing through the low cultivated area of Sangamner and Rahuri. Lastly it meets the Godavari at the village Toka in Nevasa tahsil. It has a length of about 200 km. within the district. The Mula, Adula and Mahalungi are important tributaries of the Pravara River.

The Pravara has immensely benefited the district with its irrigation system which has converted a large part of the district in to one of the most prosperous and productive tracts in the state.

II. Mula River

The river Mula is the major tributary of Pravara. It originates in the ranges of Sahyadri between Ratangad and Harishchandragad. It flows parallel to the river Pravara about 32 km. and draining the southern part of Kotul valley of Akole tahsil. The river is incised in a deep valley from its source and steep
valley sides. Form the Kotul village it flows towards the south direction, meandering the foot of Baleshwar hills. Then it flows through the south-west part of Sangamner tahsil and follows an easterly course between Sangamner and Parner tahsils. Thereafter it runs in a deep bed between rocky eroded hills on the north and the table land of Vasunda on the south. Then it takes sudden turn and flows towards the north-east direction and enters plains at village Baragaon Nandur, which is 7 km. south-west from the Rahuri tahsil, where the Mula Dam is constructed. Passing across the plain in the same direction for another 30 km. and joins the river Pravara at the village Pachegaon in Nevasa tahsil.

The total distance from its source to its meeting with the Pravara is about 145 km. The water of the Mula is mostly used for irrigation purposes. It drains the larger part of the district, including the tahsils like Akole, Sangamner, Parner, Rahuri and Nevasa.

III. Adula River

The Adula is the sub-tributary of the river Pravara. It rises in the north of Akole on the slopes of Patta and Mahakali ranges. Then it flows towards east covering the distance of 25 km. passing from narrow Samsherpur valley. Finally it turns towards south and meets to the Pravara, 5 km. west of the Sangamner town. Though, the Adula is only 40 km. in length, during the rainy season is subject to sudden and rapid floods. It has a perennial flow and near the Samsherpur town, where the bed is flat and rocky, the water is much used for direct irrigation.

IV. Mahalungi River

The Mahalungi is also a tributary of river Pravara. It rises along the southern and eastern slopes of Patta and Aundha ranges of Sahyadri. After a journey of 5-6 km. it passes east into the Sinnar tahsil of Nasik district, here flowing to the north and generally parallel to the river Adula. It re-enters in the districts after taking a bend to the south and still following the course parallel to the Adula. At last it joins to the river Pravara at the town of Sangamner. The
Mahalungi like the Adula is about 40 km. in length. Its water is not much used for irrigation as the stream disappears from the surface soon after the close of the rainy season.

2.5.2 DHORA RIVER

The Dhora River is the tributary of Godavari. It raises on Harishchandragad hill slopes, east of the Ahmadnagar city. It runs north-east direction and draining the part of Shevgaon and Nevasa tahsil. It meets the right bank of Godavari about 7 km. west near the town of Paithan of Aurangabad district. Its total length is about 60 km.

2.5.3 BHIMA RIVER

Next to the Godavari, Bhima is also one of the major rivers of the district. It covers the whole of the southern portion of the district. The Bhima rises close to Bhimashankar in Pune district and enters in Ahmadnagar district near Sangavi Dumale village in Shrigonda tahsil. Thereafter it flows towards south-east direction about 60 km. and forms a continuous natural boundary in between Ahmadnagar and Pune districts. Further Bhima run along the western boundary of Solapur district.

It drains the larger part of the district, including the greater part of the Parner, Nagar, Shrigonda, Karjat and Jamkhed tahsils. The banks of the river are generally low and the bed is generally sandy crossed at a few places by rocky barriers. The chief tributaries of the Bhima are the Ghod and the Sina.

I. Ghod River

The Ghod is one of the main tributary of the river Bhima. It originates on the slopes of the Sahyadris in the Junnar tahsil of Pune district. It flows in a south-easterly direction for about 80 km. within the district and forms the boundary between the Pune and Ahmadnagar districts.

Near the town of Shirur, it receives on its left bank the Kukdi, a stream of about the same size, and further down its volume is increased by the waters of the river Hanga, the largest of the numerous streams which convey to it the
The Ghod joins into the Bhima near the village Sanavi Dumala of Shrigonda tahsil, where the Bhima begins to form the south-western boundary of the district.

II. Sina River

Sina is the tributary of Bhima, which rises along the Harishchandragad-Balaghat range near Jeur, which is 16 km. to the north-east of Ahmadnagar city. The town of Ahmadnagar is situated on the left bank of the river. After crossing the city it takes a south-easterly course about 65 km. and forms the boundary between the Ahmadnagar and Beed districts.

Sina meets Bhima almost at the boundary between Maharashtra and Karnataka. Leaving the district boundary it enters in the Sholapur district, at the end it falls into the Bhima river near south of Solapur City. The banks of the Sina are low and cultivated and its bed is generally sandy. After heavy rain its stream is somewhat rapid, but the surface flow ceases in the hot months.

2.6 DISTRIBUTION OF SOILS

The soils of study region can broadly classified into three groups such as, black or kali, red or tambat and barad or gray including pandhari or white. These soils are sub-divided into many more kinds with different names in different parts of the district (Fig 2.3).

2.6.1 BLACK OR KALI

It is also known as regur or black cotton soil. It is formed through weathering of basalts under tropical semi-arid climatic conditions, characterized by heavy clay, dark black in color, having high moisture holding capacity. It is very sticky during the rains and full of cracks in the summer season. Black soil is very suitable for crops like Cotton, Wheat, Jawar and Sugarcane.
2.6.2 CLAY LOAM OR KHALGA

It is easier to work than the black cotton soil. It is medium black in color, sticky in nature, having comparatively less water retaining capacity. It is compact and slippery during the rains while full of cracks in the hot weather.

2.6.3 SANDY LOAM OR LIGHT SOIL

It is also known as ‘Chopan’, which is very close to white variety. It is characterized by less water retaining capacity and less sticky in nature.

2.6.4 RED SOIL

It is formed through the residual weathering of the basalts in the tropical humid climate. It is red in color, mainly found in western hilly areas of the Akole tahsil. It is usually deeper on the slopes than on the levels.

2.6.5 MURUM OR GRAVELLY AND OF KHADKAL OR STONY SOIL

This type of soil is very unevenly distributed all over the district. There are many tracts of murum or gravelly and of khadkal or stony land. It is identified as poor, infertile, shallow and easily worked soil, which exists in low plateaus of hard barren land, bare ridges or uplands and near the hills of the study region (Gazetteer of Ahmadnagar District, 2003). The plains in Kopargaon and Shrirampur tahsils have comparatively a good depth of soil. Along the Pravara and Godavari rivers wide tracts of deep rich lands are found, on the other hand the soils in the Mula river valley are comparatively lighter.

In the Adula valley, there is a good deal of fertile land bordering the river banks. Fertile black soil is also observed in the western part of Sangamner tahsil along the banks of the Pravara and Mula river basins. Another best soil is found in the Dhora river basin and occasionally low patches near the hills. Further up in the hilly areas to the west of Akole, red soil derived by residual weathering of the basalts in a tropical humid climate have been observed. Here, the soil thickness in the entire tahsil is very thin except on the banks of the Pravara.
AHMADNAGAR DISTRICT
DISTRIBUTION OF SOIL

Legend

Soil Type

Vertisols → Deep Black Soil
Inceptisols → Medium Black Soil
Ultisols → Shallow Black Soil

Source: Survey of India, District Planning Map of Ahmadnagar

Fig. 2.3
In the Shrigonda, Karjat and Jamkhed tahsil land is generally very poor with some exceptions of good light soil near Karjat, Koregaon and other places. Along the Bhima valley in the south and south-west are found heavy deep soils. In the Parner tahsil the soil is not very deep but it is with good mixture of lime. The fertile soils are thus, mainly observed in the belts along the rivers in the northern part of the tahsil, whereas the southern tahsils are dominated with courser material and low fertility status.

2.7 CLIMATE

The climate of the district is generally hot and dry, especially hot in summer and dryness except during the south-west monsoon season. The district mostly lies in the rain shadow to the east of the Sahyadris. The north western part of the district is exceptionally humid as it is located in the Western Ghats. The cold season in the district commences from December and ends in the month of February. The period from March to the first week of June is the hot season. It is followed by the southwest monsoon season which lasts till the end of September; October and November constitute the post-monsoon or the retreating south-west monsoon season. (Gazetteer, 2006)

The study of climate includes the study of the rainfall, temperature, humidity, cloudiness, wind direction and velocity.

2.7.1 DISTRIBUTION OF RAINFALL

Rainfall, its regime, amount and variability is the dominant natural factors that affect basically the life and economy of the people (Gadgil, 2002). Records of rainfall in the district are available for 47 to 83 years, which gives us the details of the rainfall for the district as a whole.

The distribution of rainfall is very uneven in the study region during 2011 (Table 2.1 and Fig. 2.4). The average annual rainfall in the district is 578.8 mm. the western part of Akole tahsil gets good rainfall, further it is gradually decreases towards the east, but from the line roughly north-south in the central parts of the district the rainfall again gradually increases towards
the eastern part of the district. September is the rainiest month and about 77 per cent of the annual rainfall in the district is received during the south-west monsoon season in the district.

As per IMD reports, the situation that annual rainfall at different stations from the district is less than 80 per cent of the normal for 2 to 3 consecutive years, is common. Thus, mostly the entire district is characterized by drought conditions (Khemnar, 2002). The tahsil-wise distribution of rainfall is very uneven in the district (Fig. 2.5). However on the basis of average rainfall in 2011, the district can be divided into three zones as follows.

Table 2.1
Ahmadnagar District: Tahsil-Wise Average Rainfall Distribution and No. of Rainy Days (2011)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahsil</th>
<th>No. of Rainy Days</th>
<th>*Rainfall (mm)</th>
<th>Average Annual Rainfall (%)</th>
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<tr>
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<td>30</td>
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<td>2</td>
<td>Sangamner</td>
<td>29</td>
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<td>3.5</td>
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<td>28</td>
<td>455</td>
<td>6.7</td>
</tr>
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<td>Rahata</td>
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</tr>
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<td>636</td>
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<td></td>
<td>Average</td>
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<td>488</td>
<td></td>
</tr>
</tbody>
</table>

Source: District Agriculture Development Officer, Z.P., Ahmadnagar

*www.ahmadnagar.gov.in
Fig. 2.4

Source: Survey of India, District Planning Map of Ahmadnagar
I. **High Rainfall Zone (Above 600mm)**

Especially the south-eastern part of the district receives annual rainfall above 600 mm. Highest annual rainfall is observed in Shevgaon tahsil (741 mm), followed by Jamkhed, Shrirampur and Pathardi tahsil i.e. 712 mm, 636 mm, 614 mm respectively. Tahsils in this zone indicates high average annual rainfall as compared to the district average.

II. **Moderate Rainfall Zone (500 mm- 600 mm)**

This zone comprises with the medium rainfall between 500 mm. to 600 mm. It includes tahsil like Akole (500 mm), which is located the western hilly portion and Rahuri (589 mm) in the central portion of the district. It is identified that tahsils in this zone indicates average annual rainfall is moderate and also above the district average.

**Ahmadnagar District: Tahsil-wise Rainfall Distribution and No. of Rainy Days (2011)**

**Fig.2.5**
III. Low Rainfall Zone (Below 500mm)

The most northern, central and southern part of the district receives rainfall of about 500 mm. or less than 500 mm. The most northern part of the district comprising the tahsils like Kopargaon (455 mm), Sangamner (240 mm) and Rahata (395 mm) falls in this category. Another central and southern part of the district is most erratic; therefore tahsils in this zone also receive scanty rainfall. Tahsils like Nagar (374 mm), Parner (368 mm), Nevasa (474 mm) in central part and Shrigonda (316 mm) and Karjat (413 mm) in southern part of the district falls in this zone. All these tahsils receives low rainfall as compared to average annual rainfall of the district (488 mm).

2.7.2 RAINY DAYS (2011)

The monthly average of the number of rainy days (Days with 2.5 mm or more rainfall in 24 hrs ending at 8:00 am) is depicted in table 2.1 and Fig 2.5. On an average there are 35 rainy days in the year in the district. It is observed that the number of rainy days in the district varies between 25 and 43 in 2011. Shevgaon tahsil shows the highest no. of rainy days (43), followed by Jamkhed (40), Parner (36), Rahuri (35), Rahata (33), Nevasa (34), Nagar (30), Shrigonda (30), Pathardi (29), Sangamner (29), Kopargaon (28), and Shrirampur (28) tahsil. The lowest number of rainy days has found in Karjat tashil (25 Days).

The pattern of rainy days roughly follows the pattern of annual rainfall, suggesting that occurrence of more rain is mainly because of the correspondingly large no. of rainy days. It is identified that no. of rainy days varies between 28 and 43 in the tahsils of high rainfall zone (600 mm and above) whereas the no. of rainy days varies between 25 and 36 in the tahsils of low rainfall zone (below 500 mm).

The value of ‘r’ is 0.54 and coefficient of determination ‘r^2’ is 29.16 per cent, which indicates that there is positive but not much correlation between the no. of rainy days and rainfall in 2011.
2.7.3 TEMPERATURE AND HUMIDITY

Temperature is one of the most important elements of climate, which is affecting on other elements like as rainfall, humidity, clouds and wind speed etc. In Ahmadnagar district, the meteorological observatory was functioning from 1891. The records of this observatory may be taken as representative of the climatic conditions prevailing over the district. On the basis of the temperature and humidity, the year is generally divided into four seasons.

I. Summer Season (March to May)

II. Rainy Season or South-west Monsoon Season (June to September)

III. Post Monsoon or Retreating Monsoon Season (October to November)

IV. Winter Season (December to February)

I. Summer Season (March to May)

In the summer season, from March to the first week of June the day temperature is continuously increases, but the night’s remains comparatively cool. May is the hottest month of the year with the mean daily maximum temperature at 38.9°C and the mean daily minimum temperature at 22.4°C. The daily maximum temperature occasionally rises up to 43°C or 44°C. During this season the average relative humidity is around 20 to 40 per cent, which is lowest as compared to other seasons.

II. Rainy Season or South-west Monsoon Season (June to September)

With the arrival of south-west monsoon season, there is an appreciable drop in temperatures and climate becomes temperate and pleasant. With the withdrawal of the monsoon increase in day temperatures while decrease in night temperatures. The mean daily maximum temperature is 28.7°C and the mean daily minimum temperature at 21.2°C (Census, 2001). The intensity of rainfall is highest in the month of July. About 77 per cent of annual rainfall in the district is received during the south-west monsoon period. During this period, average relative humidity is between 60 to 80 per cent.
III. Post Monsoon or Retreating Monsoon Season (October to November)

In this period, slightly increase is found in day temperatures and a secondary maximum in day temperatures are recorded in the month of October. However the night temperatures decrease steadily after the withdrawal of the monsoon. During the post monsoon period, the mean daily maximum temperature is 29.2°C while mean daily minimum temperature is 17.6°C (Census, 2001).

The south-west monsoon is considered to end early in the October, thereafter in the post monsoon season average relative humidity decreases rapidly and it is around 60 per cent.

IV. Winter Season (December to February)

In winter season, from middle of November both day and night temperature decreases rapidly. December is the coldest month of the year with the mean daily maximum temperature is 28.5°C and mean daily minimum at 11.7°C. During the winter season, the district is sometimes affected by cold waves in association with the passage of western disturbances across north India. Therefore the minimum temperature in the district sometimes drops to 2° or 3° C.

Table 2.2 and Fig. 2.6 show monthly average temperature, rainfall, range, humidity and wind speed in the district. The annual maximum and minimum temperature is about 31.8°C and 17.9°C respectively. Highest average maximum temperature is recorded in the month of May (38°C) and lowest in the month of December (28°C) in 2011. Average minimum temperature is lowest in the month of December (11°C) while highest temperature in the months of May and June i.e. 23°C.

Generally both the maximum and minimum temperature is highest in the month of May and Lowest in the Month of December. On the other word May is hottest and December is coldest month of the year. It is found that average maximum and minimum temperature at lower level in the months from December to February and at higher level in the remaining months of the year.
The average annual temperature of the study area is 24.9°C. The average annual temperature varies from 19.5°C in the month of December to 30.5°C in the month of May in the year 2011. There is gradual increase in average temperature from December to May while declining trend in average temperature from May to December, except the month of October.

Table 2.2

Monthly Average Temperature, Rainfall, Humidity and Wind Speed in Ahmadnagar District (2011)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Month</th>
<th>Maximum Temp. (°C)</th>
<th>Minimum Temp. (°C)</th>
<th>Mean Temp. (°C)</th>
<th>Range of Temp. (°C)</th>
<th>Rainfall (mm)</th>
<th>Humidity (%)</th>
<th>Wind Speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>January</td>
<td>29</td>
<td>10</td>
<td>19.5</td>
<td>19</td>
<td>0</td>
<td>55</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>February</td>
<td>32</td>
<td>12</td>
<td>22</td>
<td>20</td>
<td>0</td>
<td>47</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>March</td>
<td>36</td>
<td>16</td>
<td>26</td>
<td>20</td>
<td>0</td>
<td>38</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>April</td>
<td>38</td>
<td>21</td>
<td>29.5</td>
<td>17</td>
<td>0</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>May</td>
<td>38</td>
<td>23</td>
<td>30.5</td>
<td>15</td>
<td>0</td>
<td>43</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>June</td>
<td>33</td>
<td>23</td>
<td>28</td>
<td>10</td>
<td>60.7</td>
<td>67</td>
<td>14</td>
</tr>
<tr>
<td>7</td>
<td>July</td>
<td>29</td>
<td>22</td>
<td>25.5</td>
<td>7</td>
<td>159.5</td>
<td>80</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>August</td>
<td>28</td>
<td>22</td>
<td>25</td>
<td>6</td>
<td>151</td>
<td>82</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>September</td>
<td>29</td>
<td>21</td>
<td>25</td>
<td>8</td>
<td>76.7</td>
<td>78</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>October</td>
<td>32</td>
<td>19</td>
<td>25.5</td>
<td>13</td>
<td>40.4</td>
<td>64</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>November</td>
<td>30</td>
<td>15</td>
<td>22.5</td>
<td>15</td>
<td>0</td>
<td>60</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>December</td>
<td>28</td>
<td>11</td>
<td>19.5</td>
<td>17</td>
<td>0</td>
<td>58</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>31.8</td>
<td>17.9</td>
<td>24.9</td>
<td>13.9</td>
<td>40.7</td>
<td>59</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Source: 1) www.imd.gov.in
         2) www.ahmadnagar.gov.in
         3) www.myweather2.com,
2.7.4 RANGE

It is observed that annual range of temperature is 13.9 °C in 2011. Range of temperature is highest in the months of February (20°C) and March (20°C), whereas it is lowest in the month of August (6°C). It is found that range of temperature is lower in monsoon and summer season while higher in winter season.

2.7.5 HUMIDITY

As the typical feature of semi-arid climate, dryness prevails throughout the year except the south-west monsoon period. The air is generally dry during the months from February to May and particularly in the noontime average relative humidity is around 20 per cent. During the south-west monsoon period it is between 60 to 80 per cent and afterwards decreases rapidly in the post monsoon season.

![Monthly Average Temperatures, Range and Rainfall in Ahmadnagar District (2011)](image)

Fig. 2.6
2.7.6 CLOUDINESS

Skies are generally heavily clouded to overcast during the south-west monsoon season while in the post monsoon season proportion of cloudiness goes on decreases. Skies are generally clear or lightly clouded during the rest of the year.

2.7.7 WINDS

Winds are generally light to moderate in force with some strengthening during the south-west monsoon season. In the south-west monsoon season wind direction is from south-west to north-west.

In the post-monsoon season winds blow from the north-west and north are common in the mornings, while in the afternoons the winds blow from directions between north and east. In the cold season winds are variable in directions, winds between north-west and south-west being more common. In the summer season northerly to north-westerly winds are more common, but by May westerly’s also begin to blow in the afternoons.

2.8 STATUS OF LANDHOLDING (2010-11)

The size of landholding or its ownership is a very important variable to assess the economic status of a family or household in rural areas. In most agro based economics, the landless and nearly landless population from the core of the rural poverty. Landholding size is possibly the more useful factor to act as a discriminator of rural household’s economic status than any other socio-economic indication.

2.8.1 AVERAGE LAND HOLDING IN THE DISTRICT COMPARED TO MAHARASHTRA STATE

Table 2.3 and Fig. 2.7 shows average landholding size in the Ahmadnagar district and the Maharashtra state. It is found that the average landholding in the district is about 1.32 hectares per cultivating household, which is lower as compared to the state average landholdings of 1.44 hectares.
However, size class-wise average landholdings indicates somewhat similar pattern of landholding in the district as compared to the state of Maharashtra.

2.8.2 OPERATIONAL LANDHOLDING IN THE DISTRICT

Table 2.3 and Fig. 2.8 show the percentage distribution of number of households by size class (in hectare) of operational holdings in 2010-11. As per the number of land holders under different categories, 52.05 per cent households are marginal landholders (below 1.0 hectare) and are holding 19.86 per cent of the total land in the district as a whole.

Table 2.3
Number and Area of Operational Holding by Size Group, 2010-11

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Size of Holding (in ha.)</th>
<th>AHMADNAGAR</th>
<th>MAHARASHTRA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Holdings</td>
<td>Average size of holding (ha) Area/ Holdings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Area</td>
</tr>
<tr>
<td>1</td>
<td>MARGINAL (Below 1.0)</td>
<td>52.05</td>
<td>19.86</td>
</tr>
<tr>
<td>2</td>
<td>SMALL (1.0-1.99)</td>
<td>29.57</td>
<td>31.78</td>
</tr>
<tr>
<td>3</td>
<td>SEMIMEDIUM (2.0-3.99)</td>
<td>14.38</td>
<td>29.04</td>
</tr>
<tr>
<td>4</td>
<td>MEDIUM (4.0-9.99)</td>
<td>3.7</td>
<td>15.57</td>
</tr>
<tr>
<td>5</td>
<td>LARGE (10.0 and Above)</td>
<td>0.3</td>
<td>3.75</td>
</tr>
<tr>
<td></td>
<td>ALL CLASSES</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Agricultural Census, 2010-11.
Maharashtra: Average size of Holdings, 2010-11

Ahmadnagar: Average size of Holdings, 2010-11

Fig. 2.7
About 29.57 per cent landholders are small holdings (1.0-1.99 hectare), which acquired about 31.78 per cent of the total land. In semi-medium (2.0-3.99 hectare) categories, 14.38 per cent cultivator’s occupied about 29.04 per cent operational land, while in medium (4.0-9.99 hectare) categories, about 3.7 per cent landholders are occupied about 15.57 per cent land. Remaining only 0.3 per cent of large (10.0 and above) landholders are possessing 3.75 per cent land. It is found that, marginal and small size of holding, these two categories together constitute about 81.62 per cent landholders possessing 51.64 per cent land in the district, whereas 4.0 per cent landholders constituted medium (4.0-9.99 hectare) and large (10.0 and above) size of landholding. They are holding 19.32 per cent of land that means merely 4.0 per cent of the landholders holding one fifth of landholdings.

As per the Agricultural Census, the highest percentages of holdings or number of cultivators are found in Ahmadnagar District (6.98 per cent), while lowest in Gadchiroli district (0.98 per cent) in 2010-11.

2.8.3 TAHSIL-WISE AVERAGE LANDHOLDING (2010-11)

Table 2.4 and Fig. 2.8 revealed that the tahsil-wise average landholding in Ahmadnagar district. It is identified that, the lowest average landholding is found in Rahuri (1.11 hectare) tahsil, which is mostly irrigated and sugar cane growing area of the district. Whereas, the highest average land holding is observed in Jamkhed tahsil with (1.61 hectares) per cultivating household, which is one of the drought prone tahsil of the district. Tahsil like Kopargaon (1.32 hectares), Sangamner (1.27 hectares), Shrirampur (1.26 hectares), Nevasa (1.24 hectares), Shrigonda (1.24 hectares), Shevgaon (1.24 hectares), Rahata (1.21 hectares), Pathardi (1.20 hectares) Rahuri (1.11 hectares), shows average landholding is below the district average Whereas Akole (1.53 hectares), Jamkhed (1.61 hectares), Karjat (1.51 hectares), Parner (1.41 hectares) and Nagar (1.35 hectares) tahsil shows average landholding size is above the district average (1.32 hectares).
It is found that highly fertile, irrigated and more productive land having higher is the land value and lower is the landholding. On the other hand, drought prone tahsils, which are having comparatively poor and less fertile land, less irrigation facilities and less productivity of land leads to lower is the land value and higher is the landholding.

Table 2.4
Ahmadnagar District: Tahsil-wise Number, Area of Holdings and Average size of Holding (2010-11)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahsil</th>
<th>Total Holdings Number</th>
<th>Area in (ha)</th>
<th>Total Holdings</th>
<th>Area %</th>
<th>Average size of holding (ha) Area/ Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Akole</td>
<td>61620</td>
<td>94363</td>
<td>6.44</td>
<td>7.50</td>
<td>1.53</td>
</tr>
<tr>
<td>2</td>
<td>Sangamner</td>
<td>91408</td>
<td>116475</td>
<td>9.56</td>
<td>9.26</td>
<td>1.27</td>
</tr>
<tr>
<td>3</td>
<td>Kopargaon</td>
<td>44670</td>
<td>58805</td>
<td>4.67</td>
<td>4.67</td>
<td>1.32</td>
</tr>
<tr>
<td>4</td>
<td>Rahate</td>
<td>46436</td>
<td>56396</td>
<td>4.86</td>
<td>4.48</td>
<td>1.21</td>
</tr>
<tr>
<td>5</td>
<td>Shrirampur</td>
<td>35116</td>
<td>44164</td>
<td>3.67</td>
<td>3.51</td>
<td>1.26</td>
</tr>
<tr>
<td>6</td>
<td>Nevasa</td>
<td>86699</td>
<td>107370</td>
<td>9.07</td>
<td>8.53</td>
<td>1.24</td>
</tr>
<tr>
<td>7</td>
<td>Shevgaon</td>
<td>66752</td>
<td>82653</td>
<td>6.98</td>
<td>6.57</td>
<td>1.24</td>
</tr>
<tr>
<td>8</td>
<td>Pathardi</td>
<td>77199</td>
<td>92423</td>
<td>8.07</td>
<td>7.34</td>
<td>1.20</td>
</tr>
<tr>
<td>9</td>
<td>Nagar</td>
<td>77212</td>
<td>104542</td>
<td>8.08</td>
<td>8.31</td>
<td>1.35</td>
</tr>
<tr>
<td>10</td>
<td>Rahuri</td>
<td>62871</td>
<td>69559</td>
<td>6.58</td>
<td>5.53</td>
<td>1.11</td>
</tr>
<tr>
<td>11</td>
<td>Parner</td>
<td>92919</td>
<td>131020</td>
<td>9.72</td>
<td>10.41</td>
<td>1.41</td>
</tr>
<tr>
<td>12</td>
<td>Shrigonda</td>
<td>95520</td>
<td>118534</td>
<td>9.99</td>
<td>9.42</td>
<td>1.24</td>
</tr>
<tr>
<td>13</td>
<td>Karjat</td>
<td>74423</td>
<td>112618</td>
<td>7.78</td>
<td>8.95</td>
<td>1.51</td>
</tr>
<tr>
<td>14</td>
<td>Jamkhed</td>
<td>43249</td>
<td>69423</td>
<td>4.52</td>
<td>5.52</td>
<td>1.61</td>
</tr>
<tr>
<td>All Classes</td>
<td>Dist. Total</td>
<td>956094</td>
<td>1258345</td>
<td>100.00</td>
<td>100.00</td>
<td>1.32</td>
</tr>
</tbody>
</table>

Source: Agricultural Census, 2010-11
2.9 GENERAL LAND USE PATTERN

Land use patterns and changes therein are significant aspect of geographic studies (Shinde, 1974). The land use pattern is different from region to region and place to place. The present pattern of land use is a result of long continued operation of the whole range of environmental factors but modified by socio-economic and historical elements (Shafi, 1956). Land uses and production are exceedingly complex, being determined by several inter-related factors, like the environmental, the socio-economic and also the historical background of the land use (Anderson, 1969). Land use is a result of combinations of both natural genesis and human influences which have been brought to bear unit in the past and of those which are still active in the present (Vink, 1975). Land use is the surface utilization of all developed and vacant lands on a specific point at a given time and space (Foreman, 1968). The nature and intensity of land use is closely related to the technology adopted by man (Patil, 2002).
Table 2.5
Land Use Patterns in Ahmadnagar District: 2011-12

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>AHMADNAGAR DISTRICT</th>
<th>MAHARASHTRA STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Area in Hectares</td>
<td>Area in %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Area Under Forest</td>
<td>145063</td>
<td>8.33</td>
</tr>
<tr>
<td>2</td>
<td>Area not available for Cultivation</td>
<td>152365</td>
<td>8.75</td>
</tr>
<tr>
<td>3</td>
<td>Other Uncultivated Land</td>
<td>107098</td>
<td>6.15</td>
</tr>
<tr>
<td>4</td>
<td>Fallow Land</td>
<td>125637</td>
<td>7.22</td>
</tr>
<tr>
<td>5</td>
<td>Net Sown Area</td>
<td>1211108</td>
<td>69.55</td>
</tr>
<tr>
<td>6</td>
<td>Total Geographical Area</td>
<td>1741271</td>
<td>100</td>
</tr>
</tbody>
</table>

**Source:**
1) Socio-Economic Review and Statistical Abstract of Ahmadnagar, 2000-01
The socio-economic changes that have profound influence on land use pattern. It is an ideal index for looking at the economic progress of rural area (Singh, 1974). It is one of the most important resources for human being therefore it is necessary to put land for right use according to its capability and type. Fertile land should be used for agricultural purposes whereas infertile land should be used for non-agricultural purposes. Thus, land use classification helps the planner to make rational land use planning. Land use study is much useful for land use planning because increasing population increases the demand on land for non-agricultural purposes may be met without reduction in farm land. Therefore to focus attention towards planning a better land use (Das, 1972). The analysis of general land use pattern is very much useful for further investigation of socio-economic reality in the study area.

Table 2.5 reveals the land use patterns in Maharashtra and Ahmadnagar district during 2011-12. The Ahmadnagar district occupies 1667788 hectares of geographical area, which is about 5.42 per cent of the total geographical area of the state during the 2011-12. The area under forests accounts 7.89 per cent of the geographical area which is very much less than that of the state’s average (16.96 per cent). The land unavailable for cultivation comprises 10.10 per cent area against the state average of 10.34 per cent, while the other uncultivated land excluding fallow occupies 2.03 per cent area against the state average (7.84 per cent). The fallow land occupies 11.88 per cent against the state average of 8.27 per cent. The net sown area covers 68.11 per cent of the geographical area which is higher than the state average (56.59 per cent) during the 2011-12.

2.9.1 AREA UNDER FOREST

Forest land includes all land classified as a forest under any legal enactment dealing with forests or administered as forests, whether state owned or private, whether wooded or simply maintained as a forest land. The Ahmadnagar district represents the ‘Southern Tropical Dry Deciduous’ type of forests. They are scattered in sheltered pockets of spurs and valleys and are
distributed mainly in Akole, Rahuri, Parner, Shrigonda, Karjat and Nagar tahsil.

Table 2.6 and fig. 2.9 represents the land use patterns in Ahmadnagar district during 2010-11. The area under forest occupies about 7.89 per cent of the total geographical area of the district during 2011-12. It clearly indicates that the proportion of area under forest is very much lower in the district as compared to the state of Maharashtra (16.96 per cent). The highest area under forest is observed in the Akole tahsil (27.72 per cent) followed by Rahuri (15.45 per cent), Parner (10.6 per cent), Shrigonda (9.48 per cent), Karjat (8.76 per cent), Nagar (8.76 per cent) and Jamkhed (4.31 per cent) tahsil (Table 2.6). The lowest area under forest is found in Sangamner tahsil with 0.84 per cent. It is surprising to note that forest cover is not at all available in the fertile and irrigated tahsils like Kopargaon, Rahata and Shrirampur. Hilly area, undulating topography, infertile soil and heavy rainfall all these factors leads to high proportion of area under forest exists in the Akole tahsil. It is the tribal tahsil, livelihood of the tribal societies mostly depends upon the forest resources so that high proportions of forest cover helpful to them, but there is need to provide alternative for them in near future.

The area under forest covers 8.33 per cent of the total geographical area during 2000-01, while 7.89 per cent during 2011-12. It indicates that significant decrease in the area under forest in the district. About 0.44 per cent decrease is found in forested area during the 2011-12 over 2000-01. It is because of the rapid growth of urbanization, industrialization and simultaneously development of infrastructural facilities in the district.

2.9.2 LAND NOT AVAILABLE FOR CULTIVATION

The land not available for cultivation includes land under non-agricultural uses, barren and uncultivable waste. About 10.10 per cent area of the district belongs to this category, which is slightly lower as compared to the state average (10.34 per cent).
The land not available for cultivation was highest in the Karjat tahsil (21.65 per cent), followed by Sangamner, Rahuri, Nevasa, Nagar, Akole, Shevgaon, Rahata, Kopargaon, Shrirampur, Parner, Shrigonda and Pathardi tahsil. The lowest per cent was recorded in the Jamkhed tahsil (2.74 per cent). Karjat tahsil denotes highest share in this category due to the geographically large area covered by elevated plateau region and drought affected land.

Land not available for cultivation is largely confined to the tahsils of north-western, central and southern part of the district, which are identified by hilly topography in the west, elevated plateau region and barren land in the central and southern portion, whereas its lower proportion confined to the tahsils having plain and fertile land which is suitable for agriculture. During the 2000-01 to 2011-12, the area under this category has increased about 1.35 per cent in the district as a whole. The development of infrastructural facilities like construction of road and railway networks, canals, reservoirs, urbanization and expansion of settlements, development of industries etc, leads to high proportion of land not available for cultivation in the study area.

2.9.3 OTHER UNCULTIVATED LAND (EXCLUDING FALLOW)

Other uncultivated land and cultivable waste excluding fallow included in this land use category. This category includes firstly, permanent pastures and other grazing land and secondly, land under miscellaneous tree crops. About 2.03 per cent area of the district belongs to this category, which is comparatively much lower to the state average (7.84 per cent) during the period of 2011-12.

The highest proportion of other uncultivated land is recorded in Sangamner tahsil (7.18 per cent), followed by Karjat and Kopargaon tahsil i.e. 5.73 per cent, 5.70 per cent respectively whereas lowest area under this category was found in Nevasa tahsil (0.09 per cent) of the district. Remaining tahsils like Shrirampur, Rahata, Shrigonda, Nagar, Rahuri, Jamkhed, Pathardi, Parner, Akole and Shevgaon tahsil recorded lower share of other uncultivated land. High share of this category confined with tahsils having undulating
topography, while lower share of this category confined with the plain and fertile area, development of irrigation facilities and use of modern techniques for farming. The district has identified with 4.12 per cent decrease in other uncultivated land excluding fallow, while Maharashtra state identified with not change at all from 2000-01 to 2011-12. However, land belongs to this category attributes larger potentiality for extension of agriculture and plantation in near future.

Table 2.6
Tahsil-Wise Land Use Pattern in Ahmadnagar District, 2010-11

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Tahsil</th>
<th>Total Geographical Area (Ha)</th>
<th>Area Under Forest %</th>
<th>Area not available for Cultivation %</th>
<th>Other Uncultivated Land %</th>
<th>Fallow Land %</th>
<th>Net Sown Area %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Akole</td>
<td>150400</td>
<td>27.72</td>
<td>8.74</td>
<td>0.39</td>
<td>2.35</td>
<td>60.79</td>
<td>100.00</td>
</tr>
<tr>
<td>2</td>
<td>Sangamner</td>
<td>135780</td>
<td>0.84</td>
<td>21.65</td>
<td>7.18</td>
<td>9.04</td>
<td>61.30</td>
<td>100.00</td>
</tr>
<tr>
<td>3</td>
<td>Kopargaon</td>
<td>70613</td>
<td>0.00</td>
<td>6.90</td>
<td>5.70</td>
<td>14.48</td>
<td>72.93</td>
<td>100.00</td>
</tr>
<tr>
<td>4</td>
<td>Rahata</td>
<td>68786</td>
<td>0.00</td>
<td>6.95</td>
<td>1.82</td>
<td>6.25</td>
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2.9.4 FALLOW LAND

This category includes two type’s i.e. current fallow and other than current fallow land. Fallow land is the land not used for cropping at the time of reporting. Fallow land further can be used for the cultivation. The fallow land occupies 11.88 per cent of the total geographical area which is higher than the state average of 8.27 per cent during 2011-12. The highest proportion of fallow land is found in Pathardi tahsil (49.88 per cent), followed by Jamkhed (31.95 per cent), Shrigonda (14.77 per cent), Kopargaon (14.48 per cent), Karjat (12.62 per cent), Rahuri (11.21 per cent), Shrirampur (9.97 per cent), Sangamner (9.04 per cent), Rahata (6.25 per cent), Parner (5.84 per cent), Nagar (3.78 per cent), Nevasa (2.97 per cent) and Akole (2.35 per cent) tahsil. The lowest fallow land is found in Shevgaon tahsil (1.50 per cent).

High proportion of fallow land is observed in the tahsils located in drought-prone areas of the northern most part, central, eastern, western, southern and south-eastern part of the district. While, lower proportion of fallow land is mostly observed in the agriculturally developed, highly mechanized and irrigated tahsils in the district. The district has identified with 4.66 per cent increase in fallow area from 2000-01 to 2.11-12, which is much higher than the 0.42 per cent increase of the state. It is because of the district mostly lies in drought prone zone and receives irregular rainfall also the rugged topography, poor soil, lack of irrigation facilities, lack of capital, traditional agricultural practices etc. are responsible for increase in fallow land.

2.9.5 NET SOWN AREA

Net sown area means, the total area sown with crops and orchards may be sown more than once in the same year but counted only once (Agricultural Census, 2001-02). The net sown area occupies about 68.11 per cent of the total geographical area of the district which is considerably larger than the other land uses and also larger than the state average of 56.59 per cent during 2011-12. The highest proportion of net sown area is observed in Shevgaon tahsil (89.23 per cent) while the lowest proportion is observed in Pathardi tahsil (38.83 per
cent). Tahsil like Rahata, Nevasa, Shrirampur, Kopargaon, Parner and Nagar shows higher share of net sown area whereas Akole, Sangamner, Rahuri, Shrigonda, Karjat and Jamkhed tahsil shows lower share of net sown area (Below 70 per cent). Shevgaon tahsil blessed with flat and fertile land with availability of irrigation facilities, mechanization in agriculture leads to highest share of net sown area in 2011-12. Pathardi tahsil characterized by scarcity of rainfall, lack of water supply, rugged topography and infertile soil, therefore most of the land put fallow and consequently it leads to lower proportion of net sown area. The noteworthy feature is that decrease in the net area sown corresponds to the increase in fallow lands in the region (Pawar, 1981).

The irrigation facility is available mostly in the tahsils of northern and eastern part of the district. Therefore the highest proportion of irrigated area as well as net sown area is observed in the Shrirampur, Rahata, Shevgaon, Nevasa and Kopargaon tahsil. Western hilly part of the district is facing the problem of lower proportion of net sown areas. The district has identified with 1.44 per cent decrease in net sown area, while Maharashtra state identified with 0.69 per cent decrease from 2000-01 to 2011-12. The decrease in the net sown area corresponds to the increase in fallow lands in the study area. Present investigation clearly reveals that the drought affected areas of the district identified with lower proportion of net sown areas whereas mostly irrigated areas identified with higher proportion of net sown area. Further thing is that with rise in population, rise in encroachment on fertile land.
AHMADNAGAR DISTRICT
GENERAL LAND USE PATTERN, 2011

Fig. 2.9
2.10 SUMMARY

In this chapter, an attempt is made to assess the geographical set up of the study area. The physiographic profile of the district has been studied with the help of generalized information about the relief features, drainage patterns, geology, climate, soil, land holding and general land use patterns. All these aspects reflect very sharp regional disparities in overall socio-economic development of the study area.

Ahmednagar district is selected for the study purpose. It is situated partly in the upper Godavari basin and partly in the Bhima basin occupying a somewhat central position in the Maharashtra state. The district has an immense variety in case of relief, which includes hills, plateaux and plains of basin. The north-western region of the district is adjacent to the Western Ghats. It includes the area of the Akole tahsil and some part of the Sangamner tahsil. The district lies in drought-prone zone. The district as a whole is an elevated tableland of the Deccan which has a general slope from west to east.

The drainage of Ahmednagar district belongs to two major river basins, the Godavari basin in the north and the Bhima basin in the south. Apart from these major rivers, number of sub-tributaries has drained the district. Rivers like Adula, Mhalungi, Pravara, Mula, Dhora to the north while Kukadi, Ghod, Sina to the south are important one. The soils of study region can broadly classified into three groups such as, black or kali, red or tambat and barad or gray including pandhari or white. The fertile soils are thus, mainly observed in the belts along the rivers in the northern part of the tahsil whereas the southern tahsil are dominated with courser material and low fertility status.

The climate of the district is generally hot and dry, especially hot in summer and dryness except during the south-west monsoon season. The district mostly lies in the rain shadow to the east of the Sahyadris. The north western part of the district is exceptionally humid as it is located in the Western Ghats. The distribution of rainfall is very uneven in the study region. The average annual rainfall in the district is 578.8 mm. The western part of Akole tahsil gets good rainfall, further it is gradually decreases towards the east, but from the
line roughly north-south in the central parts of the district the rainfall again gradually increases towards the eastern part of the district.

The pattern of rainy days roughly follows the pattern of annual rainfall, suggesting that occurrence of more rain is mainly because of the correspondingly large no. of rainy days. It is identified that no. of rainy days varies between 28 and 43 in the tahsils of high rainfall zone (600 mm and above) whereas the no. of rainy days varies between 25 and 36 in the tahsils of low rainfall zone (below 500 mm).

Temperature is one of the most important elements of climate, which effects on other elements like as rainfall, humidity, clouds and wind speed etc. The average annual temperature of the study area is 24.9°C. The average annual temperature varies from 19.5°C in the month of December to 30.5°C in the month of May in the year 2011. There is gradual increase in average temperature from December to May while declining trend in average temperature from May to December, except the month of October. As the typical feature of semi-arid climate, dryness prevails throughout the year except the south-west monsoon. The air is generally dry during the months from February to May and particularly in the noontime average relative humidity is around 20 per cent. During the south-west monsoon period it is between 60 to 80 per cent and afterwards decreases rapidly in the post monsoon season.

The size of landholding or its ownership is a very important variable to assess the economic status of a family. In most agro based economics, the landless and nearly landless population from the core of the rural poverty. Landholding size is possibly the more useful factor to act as a discriminator of rural household’s economic status than any other socio-economic indication.

As per the Agricultural Census of India, the highest percentage of holdings or number of cultivators is found in Ahmadnagar District (6.98 per cent), while lowest in Gadchiroli district (0.98 per cent) in 2010-11. It is found that, marginal and small size of holding, these two categories together constitute about 81.62 per cent landholders possessing 51.64 per cent land in
the district, whereas 4.0 per cent landholders constituted medium (4.0-9.99 hectare) and large (10.0 and above) size of landholding. They are holding 19.32 per cent of land that means merely 4.0 per cent of the landholders holding one fifth of landholdings.

It is identified that, the lowest average landholding is found in Rahuri (1.11 hectare) tahsil, which is mostly irrigated and sugar cane growing area of the district. Whereas, the highest average land holding is observed in Jamkhed tahsil with (1.61 hectares) per cultivating household, which is one of the drought prone tahsils in the study area

Land use is the surface utilization of all developed and vacant lands on a specific point at a given time and space. The socio-economic changes that have profound influence on land use pattern. It is an ideal index for looking at the economic progress of area. The land use patterns in the district show that it occupies 1667788 hectares of geographical area, which is about 5.42 per cent of the total geographical area of the state during the 2011-12. The area under forests accounts 7.89 per cent of the geographical area which is very much less than that of the state’s average (16.96 per cent). The land unavailable for cultivation comprises 10.10 per cent area against the state average of 10.34 per cent, while the other uncultivated land excluding fallow occupies 2.03 per cent area against the state average (7.84 per cent). The fallow land occupies 11.88 per cent against the state average of 8.27 per cent. The net sown area covers 68.11 per cent of the geographical area which is higher than the state average (56.59 per cent) during the 2011-12. Hence, It is one of the most important resources for human being therefore it is necessary to put land for right use according to its capability and type.
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