

## **CHAPTER - II**

### **PHYSICAL PROFILE OF THE STUDY REGION**

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## CHAPTER II

### PHYSICAL PROFILE OF THE STUDY REGIONS

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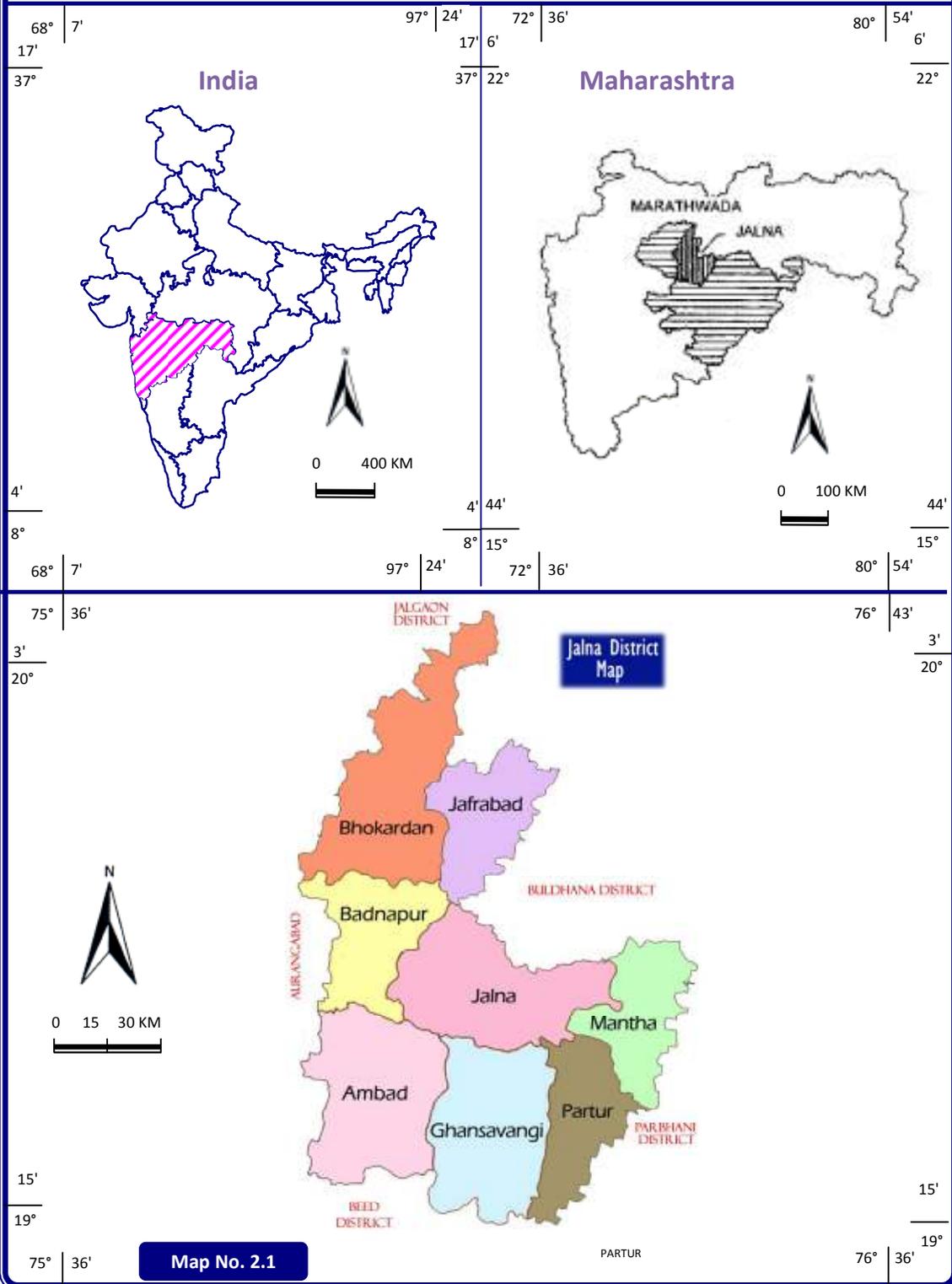
#### **2.1 Introduction :-**

In the first chapter we have studied meaning of settlement geography, significance of settlement geography study area, Aims and Objectives, Hypothesis, Database and Methodology, Reviews of literature and chapter scheme. In this chapter we are studied introduction location and boundaries, historical background, Physiography, Geology, Drainage, climate, soil and natural vegetation.

#### **2.2 Location and boundaries:-**

Jalna district is formed in 1<sup>st</sup> may 1981 derived from Aurangabad district. It is located in the central part of Maharashtra state in marathwada region. Geographical location of the district is 19<sup>0</sup>-15' to 20<sup>0</sup>-32' north latitudes and 75<sup>0</sup>-36' to 76<sup>0</sup>-45' East longitudes. The north –south extension of this district is 150 kms and east –west stretch of the district is 110 kms the shape of Jalna district is just like crescent. It is bounded by Parbhani in East on the west Aurangabad on the south by Beed. District on the north by Jalgaon district (Map 2.1)

## Location and Boundaries in Jalna District.



As per 2011 census the Geographical area of the district is 7612.40 Sq.kms and proportion as compared to Maharashtra state is about 2.47% out of the total geographical area 7577.90sq. kms (99.53%) Rural and 34.559 kms (0.45%) in urban according to 2011 census there were 971 villages in Jalna district there are 780 Grampanchayat and Eight Panchayat Samities in Jalna district in 2011 total population was 1959046 out of the total population nearly 1011473 were male population and 947573 population were female population in the study region. The district ranks 21<sup>st</sup> and 5<sup>th</sup> in the state and Marathwada respectively. In terms of population.

The area included in the district in for the administrative purpose distributed over the two subdivisions. Jalna, Badnapur, Bhokardan, Jafrabad tahsils are included in administrative sub division of Jalna. While partur, Ambad, Ghansawangi and Mantha Tahsils are included in administrative division of partur. At present there are Eight tahsils in Jalna district i.e. Jalna, Badnapur, Bhokardan, Jafrabad, Partur, Ambad, Ghansawangi and Mantha tahsils are included in study area. The Jalna city is situated on the banks of Kundalika river (at latitude 19<sup>0</sup> 50'-4" North and longitude 75<sup>0</sup> – 56' – 15" East) is the premier commercial center of the marathwada region. Jafrabad the head quarters of the tahsil of the same name is situated at the confluence of the khelna and purna rivers in the latitudes 20<sup>0</sup> – 11' – 35" north longitude and 76<sup>0</sup> – 3' – 35" East. Ambad situated between a ridge of hills in 19<sup>0</sup> – 35' – 15" North latitude and 75<sup>0</sup> – 50' -17" East longitude is the head quarters of the tahsil of the same name. Bhokardan is the principal town of the tahsil of the same name settled along the right bank of the khelna river a tributary of the purna is situated between latitude 20<sup>0</sup> -16' North and longitude 75<sup>0</sup> -46' – 56" east.

### **2.3 Historical Background :-**

It was the 27 district as Maharashtra and the 6<sup>th</sup> district of Aurangabad region created on 1<sup>st</sup> may 1981. There was long standing demand a 300 years old dream for creation jalna as on independent district in the Marathwada which was fulfilled recently in the year 1981. A meeting of the state cabinet was held at Aurangabad 23<sup>rd</sup> and 24<sup>th</sup> January 1981 and it was decided that on the auspicious day of 1<sup>st</sup> may 1981<sup>1</sup>. The Maharashtra day Jalna would be one more district in the state of Maharashtra and in the region of Aurangabad In newly found district Jalna five tahsil are included fourth tahsil viz. Jalna, Ambad, Jafrabad and Bhokardan were carved out from Aurangabad district on its bifurcation and included in new district while tahasil of partur was carved out from parbhani district and included in it.

The city Jalna and the headquarter of newly formed Jalna district is situated on the confluence of kundlika and sina rivers. It was known as Hirwali in the anclent days. There are difference regions on how the city got the name Jalna swami Chakradhara who founded mahanubhav panth and his residence as this place for some times. In lila charitra of mahanubhav there is a mention of this place was known till the end of yadav rule in 1300 AD. The place as known as “Hirwali” According “Haquiquat Nama” “Jalarai” was the chief ruler of the Hirawali.

Even though the lost of battle fought against him Hirwali was named as Jalna after him. It was a tiny village around the temple mumabadevi.<sup>2</sup>

Traditions aseribes the foundation of the town as for back as the time of Rama, the hero of Remayana whos consort sita is

supposed to have resided here. The local people still point out the place where Rama's place stood. It was then known as Janakpur subsequently at the desire of the wealthy muhammedan marchant who is said to have been a great benefactor of the place. The name was change to Jalna from his occupation of jalna or weaver.<sup>3</sup>

#### **2.4 Physiography:-**

Physiography is one of the parameter of physical environment and its impact on patterns and density of agriculture is immense<sup>4</sup>. The study of the influence of environment upon the nature and distribution of crops and livestock is of prime importance in agricultural geography nature with its physical characterstics provides a host of possibilities for agriculture and agro- based industries different areas. The district may be broadly divided into the following physiographic regions.

##### **1) River Basin**

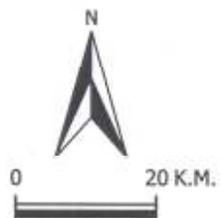
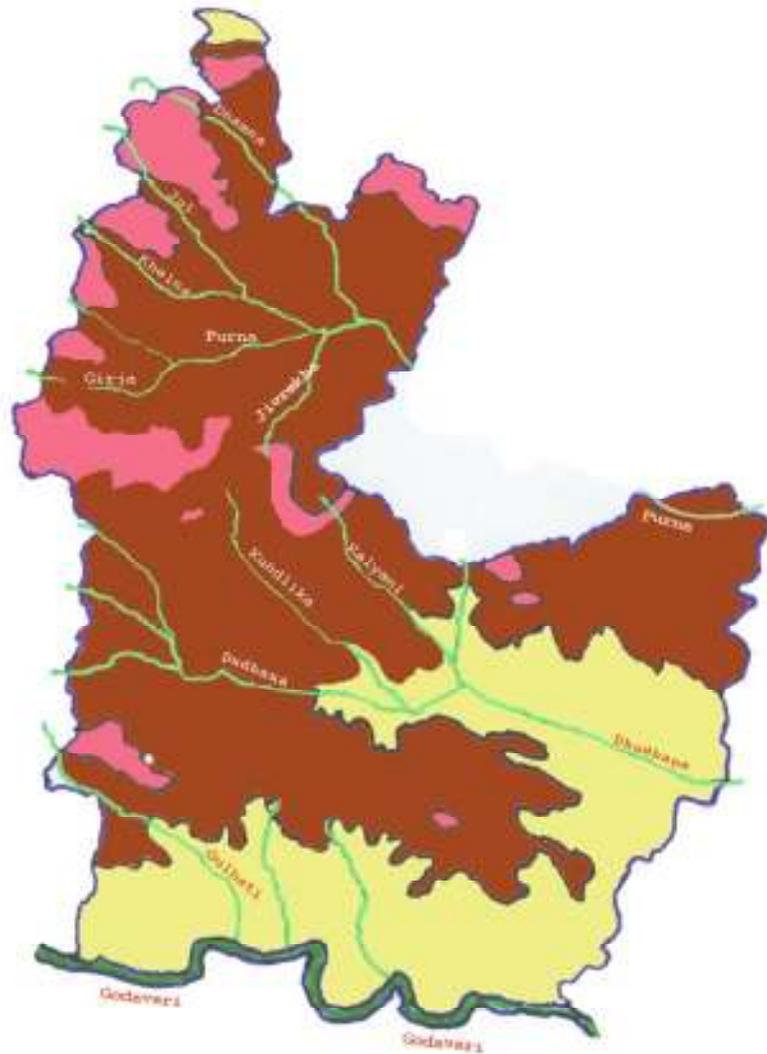
##### **2) The northern piedmont slopes**

##### **3) The Ajanta plateau**

##### **1) River Basin:-**

Godavari river is main river in this area River Godavari flowing in the southern part of district. This river comprises the relatively low-lying area to the west and south of the Ajantha plateau. The river Godavari and its tributaries have formed this basin. Thus river basin is found in southern part of Ambad and Partur tahsil. River Dudhna and its tributaries have formed river basin in Jalna and Partur Tahsils while river Purna and its tributaries have formed river basin in Bhokardan Mantha and Jafrabad Tahsil.

## Physiography In Jalna District



Map 2.2

### Index

Hight in Mtr.

|        |            |
|--------|------------|
| Yellow | 150 to 400 |
| Brown  | 450 to 600 |
| Pink   | 600 to 900 |

## **2) The northern piedmont slopes :-**

The region sloping away northwards from the Ajantha satmala ranges stretches from the environs of nagad in the northern east of kannad. In the west through the whole of soygaon tahsil to a small portion of Bhokardn tahsil which formed a saliens extending north west wards between Jalgaon and Buldhana district on the piedmont slopes the soil is mostly poor.

The main range of Jalna hill with branches of from the satmala range runs west- east for a length of 100 kms. There are not leading peaks in this range. The small peacks includes the wills of Jalna partur and Ambad having narrow ridges with flat tops that stretch eastward and gradudly sink into the plain. The slope of the land towards south and the average elevation above sea level is found as 534 meters.

## **3) Ajanta plateau :-**

The western edge of the Ajanta plateau flaking the shivana basin and contacting. The Ellora caves (verul) may be considered as forming the ellora range branching of southwards from the main Ajanta range just to the east of the satmala hills. The Ajanta plateau region is found in Bhokardan and Jafrabad tahsils. Considering Ajanta plateau as a whole the soils generally increase in depth and Fertility eastwards and accordingly the proportion of the cropped area under jowar increased while the bajara decrease.(Map 2.2)

## **2.5 Geology :**

In the study area no systematic geological work has been carried out. The information presented here is based on the short dealing with ground water and local geology. The district is monotonously covered by the basaltic lava flow called Deccan

Trap. The lava flows are called trap because of the step like or terraced of their out-crops the term being of scandinavian origin. The lava flows are indicative of a great volcanic activity. The geological sequence in the district is as follows.

Alluvium - - - - recent to subrecent

Deccan Trap – cretaceous – Eocene

Deccan trap – the lava flows consist of massive and vesicular flows for the purpose convenience these two can be further divided in to the following.

Massive trap- hard with or without amygdules porphyritic or non porphyritic soft with or without amygdules porphyritic or non-porphyritic. The porphyritic texture of a flow is exhibited by the presence of phenocrysts commonly of feldspar and rarely of pyroxene of pyroxene set in a dense ground mass. The phenocrysts of Feldspar path shaped and usually have serrate outline where as the phenocrysts of pyroxenes are some what acicular and have smooth outline. The phenocrysts of feldspar usually measure about 10 mm and that of pyroxenes about 2 mm in length.

The massive basalt is the dark gray to black rock having very fine to medium grained texture it is hard and compact. The sculptors have very carefully avoided the massive trap flows while carving the caves at Ellora and Ajanta.<sup>5</sup>

## **2.6 Drainage pattern:-**

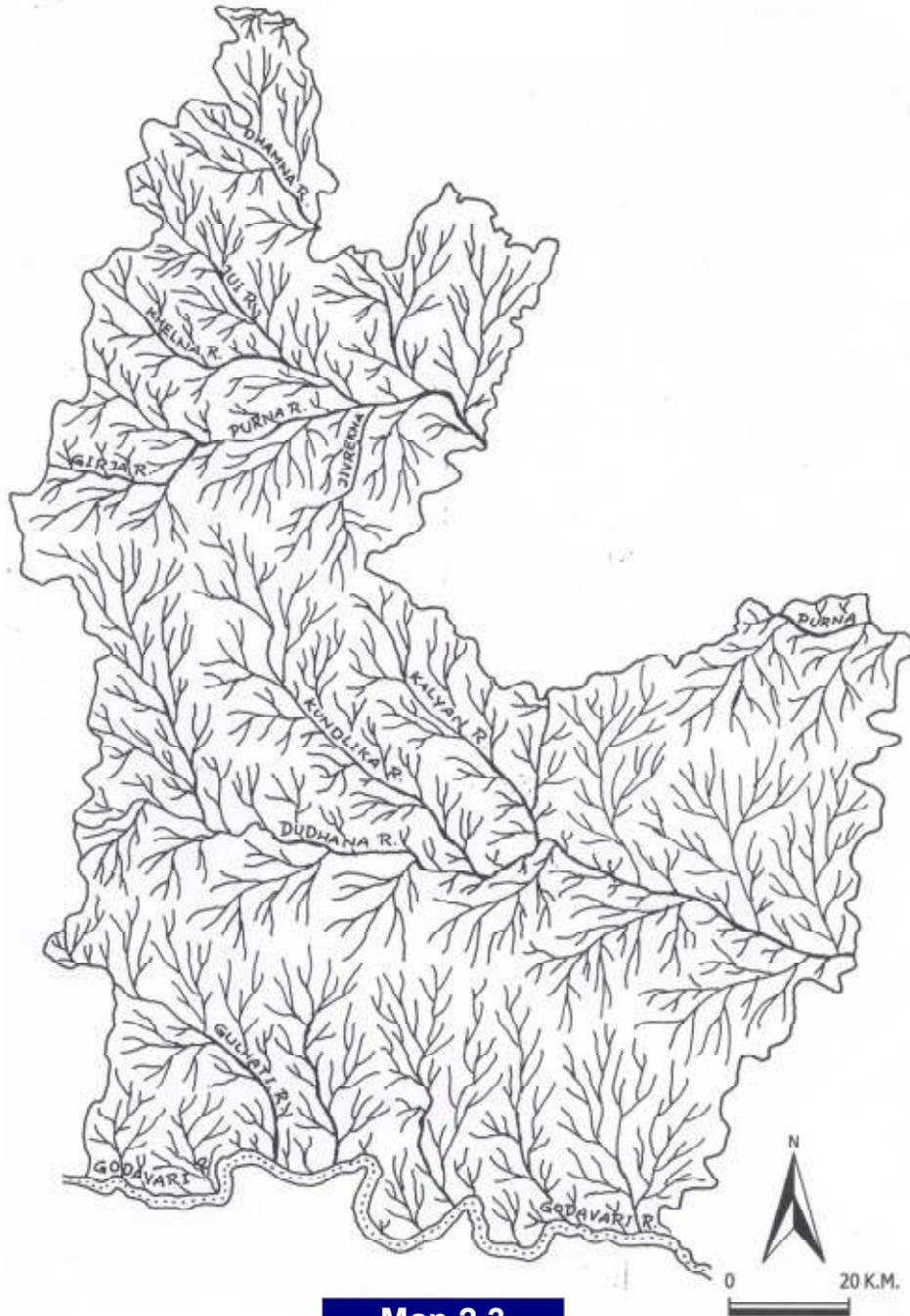
Drainage is the most important factors in the environment for the human being without drainage any human not live on the earth so drainage is included surface as well as underground water flow. It is the result as a combination of numerous factors

including climate particularly, precipitation, insulation, humidity, cloudiness, wind force and direction structure and type of rocks vegetation, soil and human utilization human obstruction to natural water flow such as roads railways dams and reservoirs also change its nature. However drainage is one of the most important components of physical environmental which affect agriculture directly and indirectly<sup>6</sup>, Ground water influents becomes the base flow that maintains the flow of streams in fair weather when we speak of surface water we mean stream flow regardless of its source<sup>7</sup>. Therefore surface water is by far the most important means for providing substantial irrigation which stabilizes and improves agro- economic life in an area that has otherwise plenty of land potential because of uncertainty in the flow of source water it is probable that any attempt to improve agricultural techniques and land use planning without combating the problem with the help of shallow and deep water table is found to be absorptive map 2.3 indicates that Jalna district has dendritic drainage pattern.

### **1) Godavari :-**

The Godavari forms nearly the entire southern boundary of the district for about the 100 kms. And separates the districts from Beed district. It flows through Ambad tahsil. Its principal tributaries are Dudhana and Galhati flow from the central part of the district. This is main river in the district as well as in the region of Marathwada and it is one of the main rivers in the Maharashtra state.

## Drainage Pattern In Jalna District



Map 2.3

## **2) Dudhana :-**

The largest tributary of the Purna is the Dudhana which is nearly as long as the main river up to the confluence point. The Dudhana rivers rise above the kankar village on the northern slopes of the easterly trending of shoot of the Ellora range forming the divided between this stream and the sukana and flows some 15 kilometers to the north of Aurangabad city. This rivers flows through partur, Jalna and Ambad Tahsil for a distance of about 126 kilometers after and initial irregular winding course it turns and flows in the south easterly direction as for as akola. At somthana above akola the river is crossed by an eastern dam providing the storage for the upper Dudhaha project. After akola is flows more southerly passing Badnapur and is joined by the sukana at sadeswangi. The Dudhana has a further long course in Parbhani district before in joins Purna.

## **3) Purna :-**

The purna river rises in the Ajanta range about 8 km northeast of the satmala hill above mehur village at the highest of about 775 meters and has the longest course of any river with in the the district. It flows through Bhokardan and Jafrabad tahsils for a distance 93 kilometers.

## **4) Musa :-**

River Musa rises east of the Ambad hill and flows southwards for a distance of about 17 kilometers towards the Godavari and join at Jogonaladevi.

## **5) Girija :-**

The Girija river is the longest tributary of the Pruna in the district on the right bank this river rises on the eastern slopes of the

Ellora range to the west of Takali. It flows through Bhokardan tahsils for a distance of about 23 kilometers.

**6) Galhati :-**

The Galhati rises in the satmala range and flows by pachod Burung in a southeasterly direction to join the Godavari at Chincholi. The eastern dam of the Galhati project is build across this river downstream of Baraswadi village. It flows through Ambad tahsil for a distance of about 34 kilometers.

**7) Khelna :-**

The head stream of the khelna lie with in a short distance of those of the charna in the Ajanta range. This river flows through Bhokardan and Jafrabad tahsil for a distance of about 41 kilometers.

**8) Dhamana:-**

The Dhamana rivers in the lagina hill in the Ajanta range and flows nearly southwards past vadhona, Dhamangaon and is joined by the Raighol at takali after which it flows in a southeasterly direction containing the trend of this tributary from a point about a kilometer and half upstream of Dhamangaon to a point about 3 kilometer downstream of Takali. The river forms the district boundary beyond which it flows the outside the district. It flows through Bhokardan and Jafrabad tahsil for a distance of about 50 kilometers.

**9) Kundalika :-**

The kundalika river rises further east from Dudhna Girija divide but well back on the north indicating a retract of the divide here. After an initial course in a south- westerly direction up to

Ghanewadi it change into a southeasterly course passing through Jalna town. Kundlika river flows through Jalna tahsil for a distance of about 50 kilometers. Dam was constructed near Ghanewadi which provides water to Jalna city.

**10) Sukana:-**

The sukana rises to the west of the course of lahuki above the kolthan village and has an initial course parallel to the Rahuri river sukana flows through Jafrabad and Jalna tahsil.

**11) Jui :-**

The Jui an important tributary of khelha rises above undangaon and after passing by that village has fairly long southerly and southeasterly course and Joins the khelna gone 5 kilometers below Assay. It flow through Bhokardan tahsil for a distance of 30 kilometers jui project is constructed on this river (Map 2.2)

**12) Lahuki :-**

The lahuki river is a small stream rising near the source of the Dudhna on the southern slopes of the divide separating the two and flows the southeast ward past the Dudhna and Roshangaon to join in the Dudhna a little north of the sukna confluence with the latter. It flows through Jalna district tahsil for a distance of about 20 kilometers.

**13) Jivrekha :-**

The Jivrekha is the right bank tributary of the Purna Rising above Zongaon. It flows at first in north easterly course as for as Akola. After Akola it turns and flows in more northerly course passing by Tembhorni and joins the Purna a little upstream of the

khelna confluence. The eastern dam forming the head works of the Jivrekha project is located about a 2 kilometers above Akola.

#### **14) Kalyani :-**

The kalyani river rises on the same divide further eastward above would village and flow southward up to pirkalyan where it turns to flow southeastwards. Two left bank tributaries the Gandhi and Girija join this river. This river flows through Jalna district for distance of about 32 Kilometer. Most of the rivers of Jalna district become dry in summer season. Even they are dry in winter season also Government should have construct Kolhapur type Bandhara over this river so that plenty of water will be available to the agriculture.

#### **2.7 Climate :-**

Climate is important Factors in human life. Climate decides where man live and thrive what occupation they may be do. Types of clothing what he may. Rat what disease he must combat<sup>8</sup>. The climate impact each and every activity of human being. Since climatic factors exert mainly a regional influence of plant life the difference in the behavior on a crop or a group of Crops over extensive area as in a given states or a group of state may be considered as due primarily to difference in climate rather than soil conditions<sup>9</sup>.

It is obvious that climate dictates the range of crops which a country can economically produce. This is turn set the range of commodities which that country must important is it wishes its people to live a full life in the modern sense<sup>10</sup>. It is obvious that Climatic dictates the range of crops which a country be economically produce. The success or failure of the cropping

seasons determined by the intensity of the climatic factors. The three most important factors of climate from the stand point of plant response are temperature water supply and light and they may metered as primary determinant of crop growth.<sup>11</sup> Climate plays an important role in affecting characteristics of distribution of population in a country or a region. It can influence the choice of occupation either indirectly through its impact on soil formation or directly through such as the length of the growing season the occurrence of frost and the availability of water for crops growth<sup>12</sup>.

The Climate of Jalna district is hot and dry except rainy Season. The Climate of study region is pleasant during the greater part of the year. The Climate year may be divided into four short seasons. The cold season from December to February is followed by the hot season from March to May the period from June to September constitutes the south west monsoon season. October to November forms the post monsoon season. Following are the factors of Climate

#### **A) Temperature :-**

There are uneven changes in temperature from year to year. The temperature conditions have been for less erratic from time period. However great annual ranges may be highly significant in different zones giving rise two or more cropping season for this and reason especially in jalna district different crops raised in different season without suitable temperature conditions germination of seeds and growth of plants are retarded. Temperature regulates all the chemical and physical processes of plant metabolism. The metabolic processes begin at a certain minimum temperature and increase with rise of temperature until

they reach maximum at a temperature called the optimum further with rise in temperature above the level the metabolic activity slowed down until it ceases at a temperature called the maximum. Each species has its own minimum and maximum beyond which its life activity ceases<sup>13</sup>.

It is also known as the crucial limit. Ideal temperature conditions for crop production for crop production are between 18.3<sup>0</sup>c and 23.9<sup>0</sup>c for the agricultural geographical two of the best indicators of regional differences in temperature correctly available or derived are i) length of the growing season and II) accumulated temperature above the maximum for plant growth<sup>14</sup>. Geographical 16<sup>0</sup>c to 25<sup>0</sup>c. Temperature are good for human life. In this temperature efficiency of mans is very good. Therefore, temperature effected to settlement pattern and occupation of man. In Jalna district there is no meteorological observatory in the district but it is located at Chikalthan and the records of this observatory may be taken as representative of the meteorologically conditions prevailing in the district in general.

Cold weather commences by about the end of November when temperature began to fall rapidly. December is the coldest month of the year with the mean daily maximum temperature at 28.72<sup>0</sup>c and the mean daily minimum at temperature 13<sup>0</sup> c in the cold season the district is sometimes.

Affected by the cold waves in association with the eastward passage of western disturbances across north India when the minimum temperature made drop down to about 2<sup>0</sup>c to 4<sup>0</sup>c from the beginning of the month of march there is a rapid rise in the both day and night temperatures.

May is the hottest month of the year with mean daily maximum temperature 43.0<sup>0</sup>c and mean daily minimum temperature 24-4<sup>0</sup> c during the hot season. The heat is often intense and the dry temperature on individual days may rise about 45<sup>0</sup>c. There is relief from the heat on some days when thunder showers occur during the afternoon.

With the advance of the southwest monsoon into the district by the second week of June there is an appreciable drop in both the day and night temperatures and the weather is pleasant with the withdrawal of monsoon by about the end of September the day temperature increase a little and a secondary maximum in day temperature is recorded in October but night temperature decrease progressively after the withdrawal of the monsoon. After October both day and night temperatures steadily decrease.

## **ii) Rainfall:-**

Rainfall is the important parameter for the human being and plant growing farming enterprises types or system in the world. It is the single dominant weather elements influencing the intensity and location of farming system and farmers choice of enterprises. It also becomes a climate hazard to farming when it is characterized with scantiness, concentration intensity. Variability and unreliability it is all the more important in the minimal regions where average or normal rainfall is generally necessary for successful crop production. In such area the system of crops production must be correlated less to the moisture factors<sup>15</sup>.

Above more than 84 percent of annual rainfall on the study is received during the southwest monsoon season the rainless month being July. July gets the heaviest rainfall from southwest

monsoon winds. The southwest monsoon is the pivot around which almost the entire farm life and economy.

Swings rainfall has control and for this reason is a seasonal rhythm of conditions influencing the patterns of land use<sup>16</sup>. The record of the rainfall in the district is available for the period ranging from 1980 to 2010 the details of the mean annual rainfall and rainfall co-efficient of variation is given in table no 2.1

**Table 2.1**  
**Mean annual rainfall and co-Efficient of rainfall variability in**  
**Jalna district 1980 to 2010**

| <b>Sr. No.</b> | <b>Name of the Tahsil</b> | <b>Mean annual rainfall in M.M</b> | <b>Co-efficient Variability in %</b> |
|----------------|---------------------------|------------------------------------|--------------------------------------|
| 1              | Jalna                     | 710.60                             | 22.10                                |
| 2              | Ambad                     | 706.50                             | 24.80                                |
| 3              | Bhokardan                 | 685.77                             | 26.14                                |
| 4              | Jafrabad                  | 670.18                             | 23.10                                |
| 5              | Partur                    | 693.35                             | 28.83                                |
| 6              | Ghansawangi               | 696.45                             | 27.75                                |
| 7              | Badnapur                  | 690.30                             | 25.14                                |
| 8              | Mantha                    | 691.19                             | 29.30                                |
| 9              | Jalna District            | 693.04                             | 25.89                                |

Source computed by the author

The mean annual rainfall in the region varies from 670 mm to 710.60 mm. generally rainfall decreases from central part of the district towards north side and it increase to the southern side.

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

$$\text{Co-efficient of rainfall variability} = \frac{s}{\bar{x}} \times 100$$

s = The Standard deviation

Where  $\bar{x}$  = The mean of the rainfall during 30 years

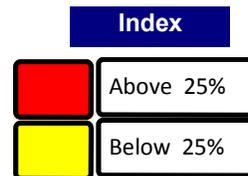
It will be seen from table 2.1 that co-efficient of rainfall variability ranges from 22.10% to 29.30 in study region. It was highest in Mantha tahsil where as lowest variability was found in Jalna tahsil during the period of investigation. Map 2.4 indicates that Jalna and Jafarabad comes under Jurisdiction of below 25% variability where as above 25% variability was found in Bhokardan, Ghansawangi, Partur and Mantha tahsil and Badnapur. (Map 2.4 & 2.5)

## Rainfall Variability In Jalna District

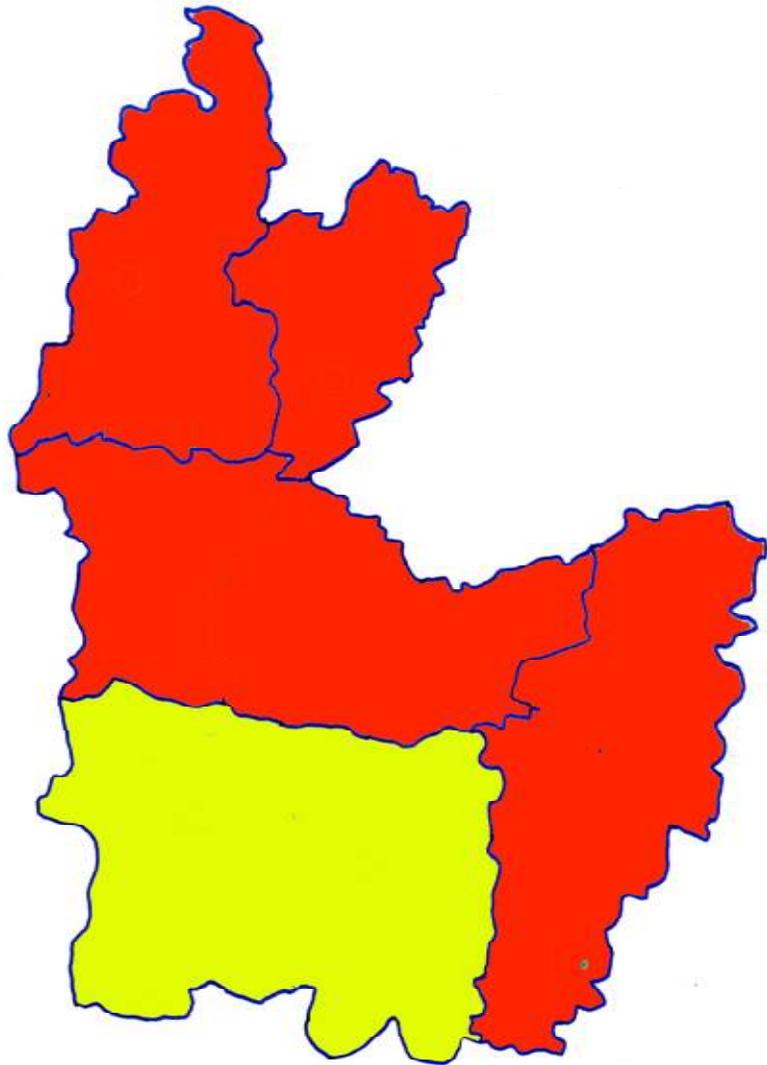
1980-81 to 2010-11



**Map 2.4**

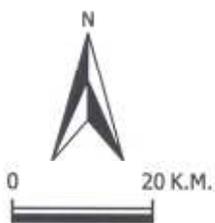


## Agro Climate Zone of Jalna District



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|  |                        |
|--|------------------------|
|  | Assured Rainfall       |
|  | Scarcity Rainfall Zone |



Map 2.5

### **III. Other Weather Phenomena :**

#### **a) Humidity:-**

Except during the southwest monsoon season when the relative humidity are high and the air is generally dry over the entire study region. The summer monsoons are the driest when the relative humidity are generally between 20% to 25% in the afternoons.

#### **b) Cloudiness:-**

During the southwest monsoon the skies are generally heavily clouded or overcast. In the rest of the year of the year the skies are mostly clear.

#### **c) Winds:-**

Winds are generally light of moderate with increase in speed during the latter half of the hot season and in the monsoon season. The wind blows predominantly from direction west and north during the hot season. They are mostly from directions between southwest and northwest during the southwest monsoon season. The blow mostly from the direction between northeast and southeast during the rest of year.

#### **iv) Special weather phenomena:-**

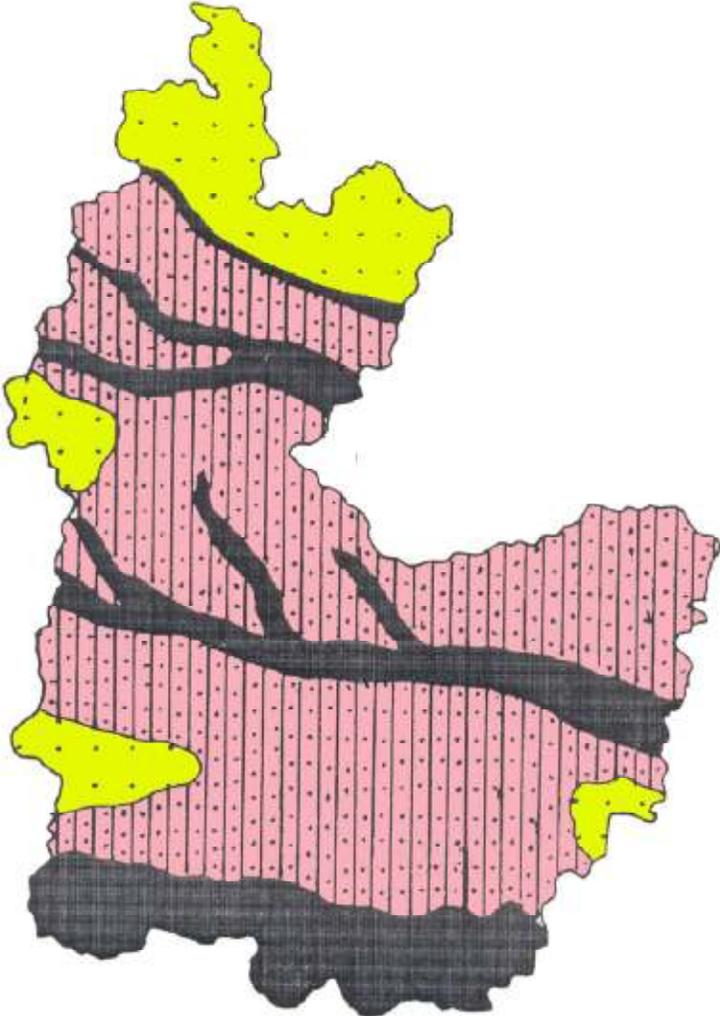
Thunderstorms occur in all months of the year they occur more frequently during April to June and from September to October Dust Storm occurs sometimes during summer afternoon in the study region.

### **2.8 Soils :-**

Unlike climate soil should not be regarded as part of the natural endowment of an area in fact it is agriculture that modified

soils excepting certain virgin soils which can retain their original characteristics on the whole soils constitute the physical base for any agricultural enterprise Farming is a business and good soil is part of the farmers stock in trade. Good soils are good to the extent that man makes judicious use of them our standard of living which predominantly depends on agricultural is often determined by the combination of Physical, Chemical and Biological, Characteristics of the soil and crops and livestock raised in them. Thus soils endowed with yield good results. Great civilization have almost invariably flourished on good soils the alluvium in particular soils provide essential material on which agriculture is based and therefore any comprehensive survey of the geography of agricultural should include fairly thorough treatment of soils. Even at the beginning of his work on political geography ratzel made a statement of great significance and in sight “Jeder staalist an stuck menschhiet (every nation is a bit of soil and humidity) (Quoted by klages 1958)<sup>17</sup> Therefore no students of civilization can afford to forget even for an in stant the crucial impotence of soils. These are the source of partically the entire stock of the mans food clothing and we even increasing list of other needs so much so that man gets nearly all of his food from the soils less that one percent of what be eats being fish<sup>18</sup> of the long list of natures gift to man productive soils and water are the most basic of human life<sup>19</sup>. The topper upper layer of soil has an average thickness of between 15 and 20 cm depending upon local conditions.

# Jalna District Soil Type



## INDEX

|   |                   |
|---|-------------------|
|  | Deep Black Soil   |
|  | Medium Black Soil |
|  | Shallow Soil      |



Map 2.6

The main factor that has influenced the development of soil in Jalna district is the conducting and hilly to Topography. Different types of soils are found in the study in the study region deep black soils (more than 36" depth ) cover about 10.62% portion of the Jalna district while medium black soils (Between 9" to 36") covers 59.79% portion of the study area. About 29.66% portion of the district is covered by coarse and shallow (below 9") soils. The soils of Jalna district is black cotton. Soil is derived from the trap volcanic rock and is rich in plant food. It is soil of regur formed by the weathering of the trap rock. The soil varies consider apply in texture and depth and can be classified as light medium and heavy soil formed as a result of their location. The soils along the river basins are deep black and very fertile. The geological formation of the soil can be stated as 1) middle traps of deccan temitory 2) older alluvial deposits of Godavari 3) modern alluvial deposits of Godavari and others rivers forming upper layer. The plant nutrients such as lime magnesia's iron and alkalies are available in black soil on which dry crops such as cotton flourish well. It swells and becomes sticky on watering while develops cracks on drying. The black soil is found in Ambad and Partur tahsil are very shallow where as coarse soil are observed in Jalna, Bhokardan and some parts of Partur and Ambad tahsils. Since the black soil retains moisture for pertly long time crops such as cotton sugarcane, Jowar, Bajara pulses etc. are grown in comparatively medium shallow black soils and coarse soil. The soils of the study area are more suitable for the agriculture development (map 2.6)

## **2.9 Natural Vegetation:-**

Vegetation of some sort of the other is the natural covering of the land surface of the earth. Even so called deserts have their

vegetation through it may be scanty and inconspicuous<sup>20</sup>. Natural vegetation is important from the view point of rainfall distribution and the fertility of the soil. It also checks the soils resources to the greater extend. It also keeps the environmental balance forest provides wood for making farm implements.

Jalna district has limited area under forest the forests are scattered all over the district in small patches they fall in the southern dry deciduous forest types. These forests have thorny shrubs with barren and rocky patches scattered all over. On the whole the forests in the district are of an interior type. Sandalwood is found in valleys at foothills in Bhokardan and Jalna tahsil wood obtained from the forest is mostly used for making coal and agricultural implements other forest products include Karans, Bhagwat, and Tarwad and honey etc.

**Table no 2.2**  
**Tahsil wise change in forest area in Jalna district 1980-85 to 2005-10**

| <b>Sr. No.</b> | <b>Name of the Tahsil</b> | <b>1980-85 area under forest 00 hector</b> | <b>Area under 2005-10 forest % areas in hector %</b> |
|----------------|---------------------------|--|--|
| 1              | Jalna                     | 19   | 0.99   |
| 2              | Ambad                     | 06   | 0.26   |
| 3              | Bhokardan                 | 19   | 1.50   |
| 4              | Jafrabad                  | 02   | 0.27   |
| 5              | Partur                    | 02   | 0.13   |
| 6              | Mantha                    | -  | -  |
| 7              | Badnapur                  | -  | -  |
| 8              | Ghansawangi               | -  | -  |
| Total district |                           | 48   | 0.62   |

**Source** – computed by the Author

### Area Under Forest in Jalna District 1980-1985



Map 2.7 A

#### INDEX

|  |             |
|--|-------------|
|  | Below 0.60% |
|  | Above 0.60% |

### Change in Forest Area of Jalna District

2005 to 2010



0 15 30 KM



Map 2.7 B

#### INDEX

|   |              |
|---|--------------|
|  | 0% No Change |
|  | 0% to -0.2%  |
|  | 0% to 0.4%   |

## **2.10 Agricultural system in the district**

Farming is the main economic activity of the people living in the district. The production of crops is mainly dependent on the soil types. A Climatic condition and the economic condition of a farmer and the system of farming etc. The district leads in the dairy production of the Marathwada region. It has the best feeding of cattle in the region which is known as Deoni breed it is recognized as its home brand. The cattle are reared by cultivation or by the gavalis or by the herders who go to the fodder areas or the forest areas in the district with cattle. The good quality of gross or fodder is available mainly in rainy season and in winter months. There is a shortage of fodder in summer. Its Prices 90 high in this season and the number of people sale their cattle in the market due to shortage of fodder or due to high rates of fodder or and land of water supply.

“Agricultural crops are influenced by varicose factor such as ecological technological and institutional (1966)<sup>21</sup> the ecological factors determine the broad pattern of agricultural land use. But these technological and institution factors determine the actual use of land.

The Technological and institutional factors have boroughs drastic shifts in the cropping practices. There are number of crops which are useful as the food of cattle in the district in kharif period hybrid jowar, Bajara, Tur, mung, uded, til, Cotton, groundnut Produced where as in the rabbi period Jowar, wheat, pulses are cultivated sugarcane and bananas are crops which are cultivated throughout the year. In the irrigated areas groundnuts and sunflower are grown vegetables and fruits are grown in the irrigated areas or in the areas of a plenty of required water of the district In the northern part of district mostly kharif and rabbi crops

are produced. Thus there is the cultivated area of food crops like jowar wheat, Bajara and that of non food crops like cotton Sugarcane etc Jowar especially shalu Jowar is cultivated in Jalna, Ambad, Badnapur, Partur and Ghansawangi talukas. Bajara is produced mainly in Jafrabad and Bhokardan. The cotton is mainly produced in the talukas of all in district cotton is major cash crops in the study region. The farmer pay attention to agriculture sowing hybrid seeds manure are chemical fertilizers they also follow government policy Towards the development of agriculture.

**Table 2.3**  
**Population (2011)**

| Sr. No. | Tahsil         | Population                         | Population density |
|---------|----------------|------------------------------------|--------------------|
| 1       | Bhokardan      | T-311303<br>R-286887<br>U-24416    | 258                |
| 2       | Jafrabad       | T-163120<br>R-163120<br>U-0        | 221                |
| 3       | Badnapur       | T-153772<br>R-153772<br>U-0        | 194                |
| 4       | Jalna          | T-519018<br>R-233441<br>U-285577   | 455                |
| 5       | Ambad          | T-255709<br>R-224156<br>U-31553    | 233                |
| 6       | Ghansawangi    | T-211108<br>R-211108<br>U-0        | 188                |
| 7       | Partur         | T-177589<br>R-141706<br>U-35883    | 233                |
| 8       | Mantha         | T-167427<br>R-167427<br>U-0        | 215                |
| 9       | Total district | T-1959046<br>R-1581617<br>U-377429 | 257                |

## **2.11 Population distribution literacy and density in Jalna district**

According to the 2011 census the total population of jalna district is 1959046 having 1581617 rural population and 377429 urban population. Thus Jalna has 1.67% of state population over 2.47 percent of its area among the Eight tahsils of the district jalna tahsil (519018) is the most population and Badnapur tahsil (153772) the least other tahsils in order of their size of population are 1. Bhokardan (311303) 2. ambad (255709) 3. Ghansawangi (211108) (4) partur (177589) (5) (167427) and Jafrabad (163120) The percentage of rural population is above 80% (1581617) and urban population is below 20% (377429) Jalna district is twenty first in number according to Maharashtra population Jalna district is clearly one of the less urbanized district in the state Jalna district has 971 villages out of the total villages 13 are uninhabited villages Entire district region comes under drought prone area. Thus the rural population is distributed among 958 in habited villages of Eight tashils. The average number of inhabited villages per tahsil comes to above 192 in terms of geographical are according. For 29.97% of the total rural area is occupied in Jalna tahsil and jaffarabad tahsil is the smallest accounting for only 9.62 percent of total rural area. Table no 2.1 reveals that the district population distribution shows clearly. The distribution of population is unevenly. In terms of population and number of in habited villages. There are four towns in district. Jalna is largest populous town. In Jalna tahsil total population is 519018 cut of them rural population is 233441 and urban population is 285577. In Bhokardan tahsil total population is 311303 out of them rural population is 286887 and urban population is 24416 Ambad tahsil total population is

255709 out of them rural population 224156 and urban population is 31553 is in partur tahsil total population is 177589 out of them rural population. Population is 141706 and urban is 35883.

### **Tahsil wise density in jalna district**

Table No.2.1 reveals that tahsilwise density shows according to the census 2011. The highest density of population recorded in Jalna tahsil 455 and the lowest density of population is noticed in Ghansawangi tahsil 188 persons. In the Bhokardan tahsil density of population is 258 persons per sq. kms. and the Ambad and partur tahsils density of population is recorded 233 persons per sq. kms. Jafarabad tahsils density of population is recorded 221 persons per sq. kms. and Mantha tahils density of population is 215 persons per sq. km. (Map.2.2) Jalna tahsil shows highest density because jalna is district place city fifty percentage population of the jalna tahsils live in jalna city. The total district density is recorded 257 persons per sq. kms. urban density is very high and the rural density is very low. during the period of investigation this table shows the uneven distribution of density in the district.

### **Literacy of population :**

According to 2011 census in Jalna district 73.61% population was literate. In 1981 census total literate population of India 36.23% Maharashtra total literate population was 47.18% and Jalna district total literate population was only 30.49% It means that 43.12% population was increase in literacy from 1981 to 2011 in Jalna district because of government policies and people know about education each and every villages open high education schools and colleges and any other courses therefore the rate of literacy was increasing rapidly table 2.2 give clear picture of

literacy in jalna district total district literacy was observed 73.61% in 2011 it was increased in 2001 64.40% out of them rural literacy was recorded 71.09% and urban was 84.04% during the period of investigation.

**Table 2.4 Literacy in Jalna district -2011**

| Sr.No | Tahsil         | Literates%                      |                                |                                |
|-------|----------------|---------------------------------|--------------------------------|--------------------------------|
|       |                | Rural                           | Male %                         | Female%                        |
| 1     | Bhokardan      | T-72.64<br>R- 71.64'<br>U-83.29 | T-85.50<br>R- 85.06<br>U-90.58 | T-58.94<br>R- 57.55<br>U-75.46 |
| 2     | Jafrabad       | T-74.62<br>R- 74.62<br>U-0      | T-87.20<br>R- 87.20<br>U-0     | T-61.20<br>R- 61.20<br>U-0     |
| 3     | Jalna          | T-78.44<br>R- 70.78<br>U-84.61  | T-87.89<br>R- 83.97<br>U-91.05 | T-68.37<br>R- 56.74<br>U-77.74 |
| 4     | Badnapur       | T-72.21<br>R- 72.21<br>U-0      | T-85.67<br>R- 85.67<br>U-0     | T-57.87<br>R- 57.87<br>U-0     |
| 5     | Ambad          | T-71.83<br>R- 70.37<br>U-82.14  | T-83.91<br>R- 83.10<br>U-89.65 | T-59.13<br>R- 56.99<br>U-74.27 |
| 6     | Ghansawangi    | T-68.55<br>R- 68.55<br>U-0      | T-80.55<br>R- 80.55<br>U-0     | T-56.04<br>R- 56.04<br>U-0     |
| 7     | Partur         | T-71.61<br>R- 69.03<br>U-81.67  | T-82.93<br>R- 81.40<br>U-88.87 | T-59.69<br>R- 56.01<br>U-74.09 |
| 8     | Mantha         | T-71.78<br>R- 71.78<br>U-0      | T-84.48<br>R- 84.48<br>U-90.70 | T-58.33<br>R- 58.33<br>U-0     |
| 9     | Total District | T-73.61<br>R- 71.09<br>U-84.04  | T-85.25<br>R- 83.93<br>U-90.70 | T-61.28<br>R- 57.50<br>U-76.96 |

Reference census 2011

The male literacy of rural area was 83.93% and female literacy was noticed 57.50% where as urban area male literacy was recorded 90.70% and female literacy was 76.96% during the period 2011.

Jalna tahsil rural literacy was recorded 78.44% male literacy was recorded 87.89% and female rural literacy was noticed 68.37% in 2011 census. Urban literacy male was recorded 91.05% and female literacy was 77.74% in 2011 census and it was increased.

In Bhokardan tahsil total literacy was recorded 72.64% out of them rural literacy was 71.64% and urban literacy was 83.29% where as total male literacy was 85.50% and female literacy was 58.94% The urban male literacy was observed 90.58% and female urban literacy was 75.46% where as rural male literacy was 85.06% and female rural literacy was 57.55%.

In Jafarabad tahsil total literacy was 74.62% out of them rural literacy was 74.62% the male rural literacy was 87.20% and female rural literacy was 61.20% In Badnapur tahsil total literacy was 72.21% The male rural literacy was 85.67% and female rural literacy was 57.87% during the period of investigation.

While in Ambad tahsil total literacy was recorded 71.83% rural literacy was 70.37% and urban literacy was 82.14% out of them rural male literacy was recorded 83.10% and urban male literacy was 89.65% where as female rural literacy was 56.99% and urban female literacy was 74.27%.

In Ghansawangi tahsil total literacy was recorded 68.55% out of them rural literacy was 68.55% male literacy was recorded 80.55 and female literacy was noticed 56.04% during the period of investigation.

In Partur tahsil total literacy was recorded 71.61% out of them rural literacy was 69.03% and urban literacy was 81.67 in Partur tahsil male literacy was 82.93% rural literacy was 81.40%

and urban literacy was 88.87% and female rural literacy was - 56.01% and urban female literacy was 74.09%.

In Mantha tahsil total literacy was recorded 71.78% out of them rural literacy was 71.78% the male rural literacy was 84.48% and female rural literacy was 58.33% during the period of investigation. There are only Bhokardan Jalna Ambad and Partur have a urban centers.

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