CHAPTER- II

GEOGRAPHICAL SETUP AND DEMOGRAPHIC CHARACTERISTICS

2.1 INTRODUCTION

Traditionally, Geography has been concerned with man-environment relationship and therefore, man and his activities on the earth surface have occupied an important place in the discipline. In view of this, geography is concerned to provide accurate orderly and rational description and interpretation of the variable character of the earth surface (Hartshorne, 1959.) For geographers, the study of spatial variation or location both in physical (relief, landforms, topography, drainage, temperature, rainfall, natural vegetation, soils, minerals, etc.) and human (ethnicity, religions, language, customs traditions, occupations, etc.) aspects is very essential. To identify cause and effect relationship is one of the main concern of geography in particular, such relationship form the connecting links between heterogeneous and otherwise unrelated phenomena, uniting them in the single study in particular. But we can give an entirely different orientation to a field if we focus the attention on the connecting links, rather than on the sum total of phenomena interconnected in areas (Hartshorne, 1959 p.120). The physical environmental conditions provide the base to geographers in studying the ground reality. In geography, we examine location, landforms, climate, natural vegetation, soils and minerals, their spatial distribution and utilization by mankind, which leads to the development of cultural landscape (Husain, 2007). Tribals and there development is also closely connected with various geographical phenomena conventional anthropology treated all people as tribes who were backward in one sense or in another, lived in the remote, inaccessible areas backward areas (Ahmad, 1999). This remoteness becomes barrier in the tribal development because it is hardly possible to provide infrastructural facility for the overall development of tribal people in general and in particular to
increase their educational, health and economic status. For example the literacy rate is low in hilly and forested area.

Hence it is very essential to take the review of geographical set up i.e. physiography, drainage, forest, climate, accessibility etc. as a base for further study.

In the present chapter an attempt is made to study geographical setup of study area, location, relief and slope, climate, drainage, forest, soils, minerals, demographic structure, occupational structure and transportation facility of the study area.

2.2 STUDY AREA

Dhule and Nandurbar districts are located at the northern tip of Maharashtra. Dhule and Nandurbar tribal districts are undertaken as the study area for present research work. The study area lies between 22°47' and 22°06' North latitude and 73°47' and 75°11' East longitude. It is highly concentrated with tribal population in the state. Dhule and Nandurbar were formerly known as West Khandesh region. It is surrounded by Madhya Pradesh state to its north, Jalgaon district to its east, Nashik district to its south and Gujarat state to its west. It is very interesting to note that the boundaries of study area are natural. The river Narmada forms the boundary in the western part of northern boarder of the study area. The south-west boundary runs along the Anear river and it follows Tapi up to Mudvad. Along the northern part of boundary Devomogra run parallel behaves like a contour re-entrant crossing. The Dhule district was bifurcated on 1st July 1998 into two separate districts now known as Dhule and Nandurbar.

The district Dhule is having an area of 8061 km which is further divided into four tahsils such as Sakari, Sindhkheda, Shirpur and Dhule. Nandurbar district occupies an area of 5055 km and comprises 6 tahsils such as Akkalkuwa, Akrani, Talode, Shahade, Nandurbar and Nawapur.

One of the problems while doing development planning of tribal region is boundaries delimited for administrative purpose. The district
boundary even more unrealistic in the hilly and the forested track of the mid Indian region where the tribes were highly concentrated.

2.2 PHYSIOGRAPHY

The study area is characterized by various physiographic features comprising the hill ranges, foot-hills, dykes, and plain area. These variations in the land are due to the geological complexity of the region and varied geomorphologic evolutions (Deshpande, 1971). In the study area several ranges of satpudas in the north and the sahyadri and their off shoots including several dykes in the west and south. The satpudas abroad belt of mountain land stretching in a wall like manner on the northern side of the Tapi, rise from the first range of this ridge behind ridge to the central ridge to a height of about 600 metres from sea level and the slope down rather steeply to wards the Narmada river. In the northern part of the study area there are several peaks, which are over 1000 m high such as the one of the east of the river khai rising to 1017 metres and the Tornamal rising to 1155m in the Tornamal plateau. In the southern part of the study area the height is of 1000 m. some peaks rising over 1200 metres (Boka Dongar 1208 m, two peaks lying east and west of Nandvan rising to heights of 1233 and 1200 m respectively and Astamba Dongar 1525m)

Geographically the district is divided into four parts such as:
1) The Satpuda region.
2) The Tapi valley.
3) The region of dykes and residual hills of the Sahyadri.
4) Nawapur and western Nandurbar region.

1) THE SATPUDA REGION

The satpuda hills maintaining east west direction run through the northern part of the study area. In the western extreme they appear as broken hills around Rajpipala in the eastern part of Bharoch district of Gujarat. The Akarni and Akkalkuwa tahsil of Nandurbar district mostly located in satpuda hills. The satpuda range divided in two parts such as
western satpuda and eastern satpuda. In the western satpuda most part attain height around 1000m though highest peak. Astamba dongar rises to the level 1398 m. Tornamal a plateau now being developed as a tourist centre has an altitude of 1000 m (Jog et al, 2002). The region is located in the north of Tapi river. The whole length of the rich alluvial plain of Tapi is bounded by steep southern face of the satpudas belt of mountain land about 30 km broad. The satpuda has very steep slope facing and declines gently in altitude towards north. Khat and Uda river occupy the northern slopes of the Nandurbar district. The Babasiraj hills form a chain of broken hills merging into Tornamal plateau. The range of first rise also converges with these hills in Tornamal plateau. The width of satpuda in this part of the country is ground 40 km. Mathwar hills from beyond Narmada channel also are considered as a part of satpuda hills. To the east of Tornamal the range moves in SE, NW direction up to sendhwa beyond which it maintains roughly WE orientation. The western satpuda can be considered as terminating into a Barhanpur gap in the form a sirgarh hills. From Tornamal to senhwa the hills are known as Barwani hills whereas the eastern part is called a sirgarh hills. The northern portion of these hills falls into M.P area and only a small part of it is within Maharashtra. The upper the Aner river satpudas the northern and southern ranges. The hills to the south of Aner rise to the level 950m. Upper course of the river maintaining E-W direction marks the boundary between Maharashtra and Madhya Pradesh. To the east of the Barhanpur gap satpudas comprise of Gavilgarh hills in the south, kalibhati hills in the north in the south, kalibhati hills in the north and Betul highlands in between. Gavilgarh range is also known as Melghats. Chihaldara one of the famous hill stations of melghats is located in this part. Further eastwards most of satpudas comprise of Betul, Chindwara and seoni plateau. In its extreme eastern part we have mikal range. However, only a small portion of maikal range in its southern most part forms the boundary of Maharashtra (Jog et al, 2002). The hilly areas are inhabited.
The population of the area lives scattered in tiny hamlets. The people are mostly tribal and belong to be groups of Bhils, Dhanka, Gamit, Kohka, Nikda and others. They are mostly shifting cultivators practicing Jhum cultivation in the forest-cleared slopes collection of forest products also provides significant tribal income. Forest grazing of livestock hunting and fishing are other subsidiary source if income (Arunachalam, 1967)

2) THE TAPI VALLEY

Tapi is the largest west flowing river of Maharashtra. The central Tapi valley region has fairly recent alluvium developed on the bed of laeustrine origin. The northern part of the district has dark brown to yellow wish brown soils of lighter type on the hill slopes with clayey deep soils of the Tapi and Panjhara river valley comes the belt of medium deep soils mostly with interception of medium and shallower soils in scattered patches. Below the Panjhara valley in the southern part of the district lies the area of shallow to medium soils as per local relief conditions.

In the Nandurbar tahsil one finds numerous dykes dominating the topography of the region and guiding the local drainage lines. Auden (1949) has reported a number of basalt flows of varying thickness from Bhusaval location. Unusual development of sand dune formation along the Tapi channel has been reported from Nandurbar, Shahade and Talode tahsils. In the study are Shirpur, Shahade, Talode and Akkalkuwa by headquarters are situated by there tributary a few kilometers away from the main river of Tapi. There are some important large villages situated on the north bank of Tapi River.

3) REGION OF DYKES AND RESIDUAL HILLS

Dykes and hills comprise the southern part of Nandurbar and Sindhkhede and whole of Sakri and Dhule tahsils. This region constitutes of residual hills and dykes of poor dry and stony intervened by well watered valleys of the eastward trending upper courses of streams. Soils and intense agricultural activity depend on cannel and well irrigation sources. Kharif, Bajara, Cotton and Groundnut are also crop widely
grown. In the irrigation valley especially in the Panjara valley, sugarcane, cotton and wheat are raised. In the western section with the above crops, ragi and little grams are also grown.

4) NAVAPUR AND WESTERN NANDURBAR REGION

This region with a westerly aspects below the sahyadri scarps, is fall of steep hill ranges covered with forest broken and there surrounding area some Bhils hamlets. The sahyadri come to an end in the north-east corner of this sub-region and though they form a noticeable feature from the plain lands to the east. In this region accounts for the highest rainfall of this area (1342 mm ) as compared to the rest of the district. In the kharif season rice, tur and jawar are sown in mixtures; after dry season rice is harvested. Ragi (locally name know as Nagali) is a fourth crop of this region. In Rabi season irrigated and unirrigated area wheat are grown.

2.4 GEOLOGY

The geology is an important of physical environment for understanding the physical and economical characteristics of the area. The geological formations in the descending order of their antiquity are as follows alluvium, Deccan basalt and bagh beds. The oldest geological formations are the bagh beds in the north-western part of the study area. They are conspicuously exposed on the banks of the Devagana and its tributaries, along which sections of great thickness are seen. In the study area the hills east of the river are entirely composed of sandstone, with shale beds appearing at places near the summits. The sandstones are hardened and frequently cut up by dykes and large irregular intrusions of trap.

A major part of the study area is occupied by Deccan traps. These volcanic lava flows are spread out in the from the horizontal sheets or beds. Country to the general rule in the case of the trap hills, the ridges lying west of Tornmal are rarely flat topped and frequently extremely, craggy. The exfoliation is a characteristic feature of weathering in trap.
The alluvium along the Tapi thins out weathering in trap. The soil derived from the trap is black cotton soil and is very fertile as it is rich in lime, magnesia, iron and alkalis (Gazetteer of Dhule District, 1974)

2.5 DRAINAGE

1) NARMADA

The river Narmada forms the boundary for about 70 km on the western part of the northern border of the study area. The Narmada forming the northern boundary of the state in study area flows west in a deep gorge separated from the Tapi valley to its south by the Akrani hills, a part of the Satpudas. The Narmada valley is inaccessible and life rarely cut off by its flanking scarps. The river receives a number of tributary streams draining in the northern slops of the satpudas and making their way through steep and narrow winding valley through the hills. The chief tributaries of the Narmada from east to west are as the Jhakul, the Udaï, the Khai, the Sambar and Devganga.

2) TAPI

Tapi is the main river which has about 100 km length in the study area. Almost through out its entire course within the districts, Tapi banks raise high and bear. During the range the floods of river bed setting with force along the outer banks and carrying sand and graver, deposit them at the point where the course of river changes. In the dry session when the water is low this sand heaps act as damps.

The tributary streams of the Tapi may be broadly divided into three groups; viz. i) the northern tributaries draining the southern slops of the satpudas ii) the southern tributaries which rise in the eastern face of the sahyadri and their spurs and have long easterly courses before they turn northwards to join the Tapi and iii) other southern tributaries draining the western and northern slops of the sahyadri. Among the northern tributaries Aner, Arunavati, Gomai, Vaki are the noteworthy river. Bori, Panjara, Kan, Burai, Amravati, Muduri, Bhad are the main southern tributaries and Nagan, Nesu, Kordi, etc are other southern tributaries.
2.6 CLIMATE

Climate is one of the major components of physical environment which influences strongly almost all the aspects of man’s life. The climates of the study area dry except during the south-west monsoon season. The cold season from December to February is followed by the hot season from March to May. The south-west mansoon season, which follows there after lasts till September, October and November constitute the post monsoon season.

2.6.1 RAINFALL

The rainfall is an important element of climate, the nature and distribution of these, determine various activities of man. The records of rainfall in the Dhule and Nandurbar districts the average rainfall 674.0 mm (26.53”) the rainfall is heavier in the hilly regions of the Western Ghats and the satpudas ranges. Navapur near the western border has an annual rainfall of 1097.1mm (43.19’). The rainfall during the south-west monsoon constitutes about 88 per cent of the annual rainfall, July being the rainiest month. Some rainfall is received mostly as thunders showers in the post monsoon season. There are variations in the rainfall from year to year.

2.6.2 TEMPERATURE

The mean daily maximum temperature at 40.70 C (105.3 F) and the mean daily minimum at 25.80 C (78.40 F) hot, dry winds blow during April and May and the heat is intense with the maximum temperature is above 450 C (113.00 F) on some days. Thunder showers occur during the afternoons and bring welcome relief from the heat some time. With the onset of the south-west monsoon by about the second week of June there is an appreciable drop in day temp and the weather is pleasant in the south-west monsoon season. By about the beginning of October when the south-west mansoon with draws, day temperature begins to rise and a secondary maximum temperature during time it reaches in October. The night temperature however, steadily decreases. From November, both day and
night temperature eastern drop rapidly till January, which is the coldest month with the mean daily maximum temperature at 30.3°C (86.5°F) and the mean daily minimum at 16.2°C (61.2°F) during the cold season, cold waves which some times affect the district in association with western disturbances which pass across the North India the minimum may from down to about 8°C to 9°C (46.4°F to 48.2°F).

2.6.3 HUMIDITY

Except during the south-west monsoon season when the humidity is above to 70 per cent. The air is rather dry over the study region during the rest of the year. The district part of the year is the summer season when the relative humidity is only 20 to 25 per cent in the afternoons

2.6.4 CLOUDINESS

During the south-west monsoon season the skies are heavily clouded and the remaining rest of the year skies are mostly clear.

2.6.5 WINDS

Winds are generally light to moderate in summer and monsoon seasons. During southwest monsoon season, they are moving south-westerly to westerly.

2.7 SOILS

The study area represents undulating topography with low hillock except for the central fairly flat and broad Tapi valley. The soils are derived from deccan trap rocks in the southern region whereas in the northern region it is from the sedimentary formation of the satpuda ranges. The central Tapi valley region has fairly recent alluvium developed on the bed of laeustrine origin. The northern part of the district has dark brown to yellowish brown soils of lighter type on the hill slopes with clayey deep soils of the Tapi valley to its south. Tapi and Panjhra river valley is a belt of medium belt of soil. South of Panjhra valleys shallow to medium soils are found.
Light Soils

Light soils are largely found in the northern and southern-central part of Tapi valley of study area. In general, these types of soils are partly alkaline in reaction. They are light loams to clay loams in texture and sub-angular blocky to angular block in structure. In this type of soils organic matter and nitrogen are very low. In general they are low in fertility and require judicious supply of manures and fertilizers.

Medium Soils

Medium soils are predominantly located in the southern and central parts of the study area below the Tapi River valley. Medium soils are dark brown to dark reddish brown in colour with fairly good drainage. In this type of soils, they are loamy to clay loam in texture, blocky in structure and alkaline in reaction. These soils are poor in nitrogen, organic matter and phosphate contents and therefore require adequate doses of the same for having a good harvest.

Deep Soils

Deep soils are mostly found in the Tapi and Panjhra valleys. They are dark to very grey brown in colour. They are sub-angular blocky to angular in structure and sandy clay loam to clayey in texture. In general, they are deficient in nitrogen and organic matter contents and need manures and fertilizers to supply the same.

2.8  FOREST RESOURCES

It is generally found that the tribals are mostly concentrated in rough and tough physiographic conditions. There is a strong correlation between the tribals and forest distribution. Higher is the proportion of area of under forest, higher is the tribal population. As the tribal economy mostly depends on the forest where from they collect fruits, leaves, roots and do hunting for their existence. If the forest produce is very inadequate that causes the malnutrition to the tribal population. The forest cover in the study area 13150 sq km in 2001. The forest is divided in to northern and western divisions. The forest includes thick high forests, thick coppice
forests, Hill forest, Anjan forests, miscellaneous forest and Pasture lands. Apta, Avla, Aal, Anjan, Babhul. Bamboo, Bel, Vad, Bawa or Bawla, Behda, Ber, Charoli, Dhavda, Hivar, Jambhul, Tamarind, Katsavar, Kadhas, Khair, Kahu, Kusum, Mango, Moha, Neem, Pangaha, Pimpal, Rohin, Salai, Shirus, Ain, Sawar, Shisam, Teak, Tivas, Maharuk or Varul, Palas, etc are found in the study area. From this forest many minor forest products are produced and the most important one is the flower of the *Moha* tree (*Madhuca latifolia*), which is largely used in manufacturing of liquor. Rosha (*Cymbopogon martini*) grass oil is another important product and gum, myrobalans and charoli are among the other minor forest produce found in the study area (Gazetteer of Dhule District, 1974).

### 2.9 DEMOGRAPHIC STRUCTURE

Demography is the science, which deals with the human population and is a fundamental approach to the understanding of human society (Singh, 1995). The study of population is by no means the domain of a single discipline. Along with population geography, other disciplines such as demography and population studies also deal with human population though in different manner. A study of population characteristics is an important aspect of development of human resource. In this context study of demographic characteristic of the region is important. Demography is concerned with the statistical analysis of population size, distribution and composition and with the components of variation and change, whereas population studies involve the interrelations of demographic variables with other systems of variables (Huaser, 1975). The population of any area or region is the outcome of its physical, socio-economic environment. In view of this, an attempt has been made here to analysis the growth, distribution of population, density, sex ratio, literacy rate, occupational structure, etc. the study is useful for understanding the situation of the study area.

The Dhule district was bifurcated in two districts of Dhule and Nandurbar on 1st July 1998. Both Dhule and Nandurbar districts are
having an area of 13097.34 sq km which is further divided into four tahsils such as Sakri, Sindhkhede, Shirpur and Dhule in Dhule district and six tahsils Akkalkuwa, Akrani, Talode, Shahade, Nandurbar and Nawapur these six tahsils in Nandurbar districts.

According to 2001 census the total population in the study area was 30,19,656 comprising 15,41,883 male and 14,77,773 female population. Which constitutes 3.05 per cent of the state population spread over 4.22 per cent of its area. It is observed from the Table 2.1 that the population in 2001 varied from a minimum of 1,28,531 in Talode tahsil of Nandurbar district to a maximum of 7,19,785 in Dhule tahsil of Dhule district

### TABLE 2.1

DEMOGRAPHIC STRUCTURE OF DHULE AND NANDURBAR DISTRICTS, 2001

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Tahsil</th>
<th>Area (Sq. Km)</th>
<th>Total Population</th>
<th>Population Density</th>
<th>Sex Ratio</th>
<th>Literacy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dhule</td>
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<td>719785</td>
<td>363</td>
<td>926</td>
<td>78.09</td>
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<td>150</td>
<td>970</td>
<td>61.69</td>
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<td>3</td>
<td>Nawapur</td>
<td>976.68</td>
<td>239507</td>
<td>245</td>
<td>994</td>
<td>52.72</td>
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<td>4</td>
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<td>294084</td>
<td>227</td>
<td>967</td>
<td>65.49</td>
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<td>5</td>
<td>Talode</td>
<td>343.2</td>
<td>128531</td>
<td>375</td>
<td>986</td>
<td>54.12</td>
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<tr>
<td>6</td>
<td>Akkalkuwa</td>
<td>868.37</td>
<td>177737</td>
<td>205</td>
<td>959</td>
<td>44.94</td>
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<td>7</td>
<td>Akrani</td>
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<td>136504</td>
<td>177</td>
<td>1008</td>
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<td>9</td>
<td>Shirpur</td>
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<td>143</td>
<td>954</td>
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<td>287517</td>
<td>221</td>
<td>950</td>
<td>74.00</td>
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<td><strong>3019656</strong></td>
<td><strong>230</strong></td>
<td><strong>958</strong></td>
<td><strong>64.87</strong></td>
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</tr>
</tbody>
</table>

Source: Districts Census Handbook, Dhule and Nandurbar, 2001

**Population Growth**

The population of the study area has been increased over the last two decades but the growth rate has been decreased due to migration and malnutrition that caused the death of tribal children in 0-6 age group. It
is found that in 1981-1991 the average growth rate in the study area was 23.68% and it has decreased to 19.08% in 1991-2001. In Akrani (53.14%) and Akkalkuwa (33.56%) tahsils the growth rate was very high but low in Sindhkhede tahsil (14.15%) in 1981-1991. In 1991-2001 Akrani, Akkalkuwa, Talode and Nawapur tahsils were with very high growth rate and in Sakri tahsils it was as low as 9.19% only.

**TABLE 2.2**

GROWTH RATE OF POPULATION IN DHULE AND NANDURBAR DISTRICTS, 1981-2001

<table>
<thead>
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<td>18.41</td>
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<td>16.07</td>
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<td>262511</td>
<td>287517</td>
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<tr>
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<td><strong>2535715</strong></td>
<td><strong>3019656</strong></td>
<td><strong>23.68</strong></td>
<td><strong>19.08</strong></td>
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</tbody>
</table>


**Population Density**

Density of population is measured in terms of population per sq. km. area. The study of population density is an important aspect of population geography. Density is an expression of the ratio between population and land ratio. Density of population is useful in understanding the distribution over space. As per the 2001 census the total population of the study area was 30, 19,656 which spread over the 13097.34 sq. km area. The density of population was 230 persons per sq km, which is much below the state average density of 315 per sq. km. It is
observed that in the study area, there are wide variations in densities among various tahsils. It is found that Dhule (363 per. sq km) tahsil of Dhule district identified with highest density of population and Sakri (150 per. sq. km) tahsil of Dhule district is with lowest density of population in the study area. It is further found that the tahsils viz. Dhule, Talode, Shahade having highest density of population in comparisons to other tahsils due to the fertile land and good irrigation facilities there and some part of it is industrialized. The tahsils of Sakri, Nawapur, Nandurbar, Akrani, Akkalkuwa and Shirpur tahsils having low population density as compared to other tahsils as they are hilly, forest areas.

**Sex Ratio**

Sex ratio is defined as the number of females per 1000 males. It is one of the important social indices to measure the prevailing inequality between males and females and regional imbalances in the status of women. Sex ratio is an index of the socio-economic conditions prevailing in an area and is a useful tool for regional analysis. It is found that the average sex ratio in the study area was 958 in 2001. It is highest in the state average sex ratio 992. In the study area it ranges from a maximum of 1003 in Akrani tahsil of Nandurbar district and minimum of 926 Dhule tahsil in Dhule district in 2001. (Table 2.1)

**Literacy Rate**

According to the census of India 2001, a person who can both read and write with understanding in any language is to be taken as literate. Literacy reflects the socio-economic and cultural set-up of a nation, ethnic group or community. The main advantage of literacy is that it provides relatively more opportunities of employment. It is found that the average literacy rate of study area was 64.87 per cent which was comparatively lower than the state average (76.9%) in 2001. The overall literacy rate of study area varied from a minimum of 52.72% in Nawapur tahsils of Nandurbar district to a maximum 74.00% in Sindhkhede tahsil of Dhule district.
2.10 OCCUPATIONAL STRUCTURE

India has been an agricultural country since very long time. Traditional Indian economy is largely based on agricultural. Indian society also a predominantly an agrarian society near about 70 per cent people depend on agricultural. The occupation of an individual refers to his trade or profession or type of work. The occupational structure of a community is the product of various socio-spatial and economic factors. Occupational structure as significant aspect and mirror of population composition provides a true representation and ratio of the working and non-working population in an area. Its composition throws enough light on the socio-economic development and changes therein. The data pertaining to its spatial distribution, structure and growth in time have its own utility and role is policy-decision (Kohli and Kothari, 1996)

TABLE 2.3

OCCUPATIONAL STRUCTURE OF POPULATION IN DHULE AND NANDURBAR DISTRICTS, 2001

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Tahsils</th>
<th>Agricultural Sector</th>
<th>Non-Agricultural Sector</th>
<th>Work Participation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Akkalkuwa</td>
<td>86.54</td>
<td>13.46</td>
<td>41.41</td>
</tr>
<tr>
<td>2</td>
<td>Akrani</td>
<td>91.24</td>
<td>8.76</td>
<td>33.08</td>
</tr>
<tr>
<td>3</td>
<td>Talode</td>
<td>80.73</td>
<td>19.27</td>
<td>35.07</td>
</tr>
<tr>
<td>4</td>
<td>Shahade</td>
<td>76.61</td>
<td>23.39</td>
<td>31.75</td>
</tr>
<tr>
<td>5</td>
<td>Nandurbar</td>
<td>65.89</td>
<td>34.11</td>
<td>36.96</td>
</tr>
<tr>
<td>6</td>
<td>Nawapur</td>
<td>82.56</td>
<td>17.44</td>
<td>35.63</td>
</tr>
<tr>
<td>7</td>
<td>Shirpur</td>
<td>75.56</td>
<td>24.44</td>
<td>40.89</td>
</tr>
<tr>
<td>8</td>
<td>Sindhkhede</td>
<td>70.74</td>
<td>29.26</td>
<td>30.85</td>
</tr>
<tr>
<td>9</td>
<td>Sakri</td>
<td>84.32</td>
<td>15.68</td>
<td>24.23</td>
</tr>
<tr>
<td>10</td>
<td>Dhule</td>
<td>47.47</td>
<td>52.53</td>
<td>29.91</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>71.48</td>
<td>28.52</td>
<td>34.17</td>
</tr>
</tbody>
</table>

Source: Districts Census Handbook, Dhule and Nandurbar, 2001
Agricultural Sector

Agricultural sector comprises of cultivators and agricultural labourers. It is found that, in study area more than 71.48 per cent populations engaged in agricultural sector, which is their main occupation and the remaining 28.52 per cent are in non-agricultural sector in 2001. In the study area it ranges from a maximum of 91.24 per cent in Akrani tahsil of Nandurbar district and minimum of 47.47 per cent Dhule tahsil in Dhule district in 2001.

Non-Agricultural Sector

In the study area most of population engaged in agricultural sector only 28.52 per cent people engaged in non-agricultural sector in 2001. It is found that the Dhule (52.53%) tahsil in Dhule district identified highest rank and Akrani (8.76%) tahsil of Nandurbar district identified lowest rank of population engaged in non-agricultural sector in study area.

Work Participation Rate

Work participation is defined as the percentage of total main workers to the total population. It is observed that the average work participation rate of study area is 34.17 per cent in 2001. It is observed that the highest work participation rate was in Shirpur tahsil (40.89%) and lowest in Sakri tahsil (24.23%) in Dhule district.

2.11 TRANSPORTATION AND COMMUNICATION

Dhule and Nandurbar districts located in the northern part of Maharashtra. In the study area road, railway etc facility is available. The length of roads in the study area was 10,167 km in 2009. Out of this 3331 km, 6208 and 628 roads are under the control of public workers department, Zilla perished and Municipal Corporation respectively.
### TABLE 2.4

**ROAD NETWORK IN DHULE AND NANDURBAR DISTRICTS, 2009**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name</th>
<th>Total Road Length in Km</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>National Highway</td>
<td>340</td>
</tr>
<tr>
<td>2</td>
<td>State Highways</td>
<td>199</td>
</tr>
<tr>
<td>3</td>
<td>Other State Highways</td>
<td>1076</td>
</tr>
<tr>
<td>4</td>
<td>Major District Road</td>
<td>1872</td>
</tr>
<tr>
<td>5</td>
<td>Other District Road</td>
<td>1587</td>
</tr>
<tr>
<td>6</td>
<td>Village Road</td>
<td>4621</td>
</tr>
<tr>
<td>7</td>
<td>Other Road</td>
<td>472</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>10167</strong></td>
</tr>
</tbody>
</table>

Source: Socio-Economic Abstract Dhule and Nandurbar Districts, 2009

### 2.12 CONCLUSION

Dhule and Nandurbar district are located in the northern part of Maharashtra mainly dominated by tribal population. Satpudas ranges, in the north and the sahyadri and their off shoots including several dykes in the west and south. The region is well drained by rivers Naramada, Tapi and its tributary. The climates of the region generally dry except during the south-west monsoon season. The average rainfall in the district is 674 mm decrease from west to east and having moderate temperatures. In the study area the soils are light soils, medium soils and deep soils. The density of population is 230 per sq. km. above the 70 per cent population engaged in agricultural sector only in the study area.

### REFERENCES


LOCATION OF STUDY AREA:
DHULE AND NANDURBAR DISTRICTS

Fig. 2.1
DHULE AND NANDURBAR DISTRICTS
RELIEF

INDEX

Below 300
300 - 600
600 - 900
900 - 1200
Above 1200

Source: Survey of India, District Planning Map, Dhule and Nandurbar

Fig. 2.2
DHULE AND NANDURBAR DISTRICTS
ROCKS AND MINERALS

INDEX
- Basalts and Associated Lavas & Tuff
- Laterite
- Alluvium

Source: Survey of India, District Planning Map, Dhule and Nandurbar

Fig. 2.3
Fig. 2.4

Source: Survey of India, District Planning Map, Dhule and Nandurbar
Fig. 2.6

Source: Survey of India, District Planning Map, Dhule and Nandurbar