CHAPTER-II
TOPOGRAPHY OF THE STUDY AREA

Nandurbar is a District in Maharashtra state in western India. The District was formed on 1st July 1998 when Dhule District was divided. Nandurbar town is the district headquarters. Nandurbar district is located in North western side of Maharashtra state. It is bounded to the south and south-east by Dhule district, to the west and north by the state of Gujarat, to the north and north-east by the state of Madhya Pradesh. The northern boundary of the district is defined by the great Narmada River (Map-1, 2).

1) Location:

Nandurbar district is located between $21^0 23'$ and $22^0 47'$ north latitude and $74^0 19'$ and $73^0 50'$ east longitude.

2) Area:

The district is subdivided into six talukas, viz., Akkalkuwa, Shahada, Akrani Mahal which is also known as Dhadgaon, Nandurbar, Taloda and Navapur. The total area of the Nandurbar district is 5034 sq. kms. The forest in the district cover an area of 3465.79 sq. km., mostly in Dhadgaon, Akkalkuwa, Taloda and Navapur talukas.

3) Configuration of Nandurbar District:

Nandurbar district is divided into the Natural physiographic regions viz.,

i) The Tapi (Tapti) valley,
ii) The Satpura region,
iii) The region of dykes and residual hills of the Sahyadri hills,
iv) Nawapur and western Nandurbar region.
i) The Tapi (Tapti) valley:

The vast fertile plain of the Tapi River is known as ‘Tapi-kath or ‘Tapi-Thadi’. The area is quite monotonous just enough to maintain a natural system of drainage. The Tapi River, one of the chief natural features, with its total course of 86,905 km. in the district flows in westerly direction. It receives many tributaries from southern as well as northern sides. These together form the most fertile central part of the district. The northern tributaries of the Tapi River are comparatively small in length due to the proximity of the high ranges of the Satpuras.

ii) The Satpura region:

Towards the north the central alluvial plain rises into a difficult and rugged country. It is covered by the Satpura ranges which is thickly wooded and inhabited by the aborigines. It is about 30 km. broad and extends in the talukas viz., Dhadgaon, Akkalkuwa, Taloda and Shahada.

Toranmal hill constitutes a special natural feature of the district. It is a tall hill with a height about 1,155m. and an area of 41.5 sq. km. It lies at 21° 52’ north latitude and 74° 34’ east longitudes. There is an ancient crater lake with 2.70km. It is 594.360 mt. in breadth. Its depth is reported to be 40 m. There is also a smaller lake a few meters away from the larger lake. The over flow from both the lakes rush in the valley known as ‘Sitakund’ or ‘Sitakhai’ by a cascade of about 152m. deep and straight. Towards the west of Toranmal hill, the Satpura breaks into two ranges of hills. These ranges enclose an irregular table-land of about 50km. long and 25 km. broad. The tribal hamlets are scattered in this stretch of lands. Few hamlets are seen on the banks of the Narmada River which forms the inter-state
boundary of the district. The whole region is very rugged and ranges in height from 300 to 600 m. above mean sea level. The Ashtamba Dongar, associated with Ashwathama and hence held sacred, is one of the highest peaks with a height of 1,325 mt.

iii) The region of Dykes and Residual Hills:

The ridges of the Sahyadri (Western Ghats) over the tract forming a horse – shoe - shaped starting south of Nawapur. This region includes the Southern part of Nandurbar district. It consists of residual hills and dykes of poor, dry and stony soils intervened by well watered valleys. The slopes along the ridges are precipititous. The ridges of Sahyadri (Western Ghats) reach the highest altitude of 782 mt. above mean sea level.

iv) Nawapur and western Nandurbar region:

The Sahyadri (Western Ghats) comes to an end in the north-east corner of this sub-region. It is full of steep hill ranges covered with forests interspersed with hamlets and village. The westerly aspect below the Sahyadrian scarps accounts for the higher rainfall of this area as compared to the rest of the district.

4) Climate:

The climate of Nandurbar district is generally Hot and Dry. As the rest of India Nandurbar district has three distinct seasons:

1) Summer from March to Mid June.

2) Monsoon from Mid June to October.

3) Winter from November to February.
The climatic factors that appear to be of greatest importance are: a) Rainfall and Humidity, b) Temperature, c) Winds.

**Rainfall and Humidity:**

The Average annual rainfall in Nandurbar district is 823.00 mm. It is heavier in the hilly ranges of Sahyadri extended in the western part of the district and also in Satpura ranges. In Nawapur taluka the bulky annual rainfall is received during the south-west monsoon. July is the wettest month of the year. In the post-monsoon season some rainfall is received mostly as thunder-showers. The heaviest rein-fall in 24 hours recorded at Nawapur was 324.6 mm. on 26th July, 1896. On an average there are about 42 rainy days in a year. The humidity is above 70% except monsoon season. In summer it is only 20-25% in the afternoons.

**Temperature:**

The heat during the summer is intense and scorching. From the latter half of February, temperature increases steadily till May. May is the hottest month of the year with 38°C daily maximum temperature and the mean daily minimum at 25°C. Winters are mildly cold but dry.

**Winds:**

Winds, in general, are light to moderate. But they are strengthened in force in summer and monsoon periods. Winds are mainly south-westerly to westerly during the south-west monsoon season. In the post-monsoon, they are light and variable in directions in the mornings and north-easterly to easterly in the afternoon. In winter and summer seasons they are generally from south-west directions to north-west.
5) Soils:

On the basis of depth, texture and colour, the soil of the district are grouped into three categories viz., light soil, medium soil and deep black soils. Along the banks of Tapi River and its tributaries soil type is black cotton soil. It is enriched by lime, iron, magnesia and alkalies. In the northern part of the district the soil varies from dark brown to yellowish brown of lighter type on the hill slopes, with clayey deep soil of the Tapi River valley to its south.

Medium soils are mostly located in the southern and central zones of the district below the Tapi River valley in Nawapur. The soil varies from dark brown to dark reddish brown in colour.

6) General vegetation:

The forests of Nandurbar district are tropical, dry deciduous type wherein the Teak (*Tectona grandis* L.) is the predominant species. The vegetation varies with changes in altitude, aspect and rainfall. As these factors are variable, various subtypes of forest are met with in the region. The different subtypes merge gradually into one another but occasionally are sharply defined where there is a sudden change in aspect or altitude. In general, the dominating plants from Nandurbar district are *Terminalia tomentosa*, *Boswellia serrata*, *Hardwickia binata*, *Tectona grandis*, *Termalalia arjuna*, *Tamarandus indica*, *Delbergia latifolia*, *Butea frondosa*, *Gymnosporia montana*, *Acacia chundra*, *Acacia catechu*, *Terminalia bekerja*, *Zizyphus jujuba*, *Azadirachta indica*, *Salmalia malbaricum*, *Madhuca indica*, *Phyllanthus emblica*, *Woodfordia floribanda*, *Vitex negundo*, *Eagle mormelos*, *Sterculi aurens*, *Eugenia jambolana*, *Anogeissus latifolia*, *Holorrhoena antidysenterica*, *Anogeissus latifolia*, *Bambusa bamboo*, *Ablizzia lebbek*, *Cassia fistula*, *Combretum ovulifolia*, *Ficus heterophylla*, *Wrightia*
Atina, Anthocephalus cadamba, Diospyros melanoxylon, Pongamia pinnata, Lannea coromandelica, etc.

Aquatic Angiosperms:

The number of aquatic plants which inhabit water of streams, rivers, ponds and dams are *Ceratophyllum demersum, Ipomoea aquatic, Ottelia alismoides, Hydrilla verticillata, Vallisneria spiralis, Nymphaea nauchali, Nymphaea pubescens, Limnophila indica*, Species of *Najas, Potamogeton, Zannichellia etc.* (Source: Patil, 2003)