CHAPTER II

REGION

1.0 INTRODUCTION
1.2 PHYSIOGRAPHY OF THE KONKAN
1.3 GEOLOGY
1.4 DRAINAGE
1.5 CLIMATE
1.6 RAIN FALL
1.7 TEMPERATURE
1.8 HUMIDITY
1.9 SOIL
2.0 LATERITIC SOIL
2.1 COASTAL ALLUVIAL SOIL
2.2 CLAY LOAM AND COURSE SHALLOW SOILS
2.3 REGIONAL CHARACTERS AT KONKAN
2.4 AGRICULTURAL CHARACTERISTICS
2.5 ECOLOGICAL DIVISIONS OF KONKAN AGRICULTURE
2.6 OCCUPATIONAL CHARACTERISTICS
2.7 TRANSPORTATION AND COMMUNICATION
1.0 INTRODUCTION:

1.1 Maharashtra is the third largest state in respect of area and population and forms a major part of the peninsular India the coast on its western side measuring about 720 km. With considering the natural conditions the state is divided into three natural divisions. They are the coastal lowland of Konkan, the Sahyadris and the Deccan plateau. The Konkan coastal strip lies to the west of Sahyadris and comprises five districts of Maharashtra state viz. Greater Bombay, Thane, Raigad, Ratnagiri and Sindhudurg. The Sindhudurg district is the southern part of the previous Ratnagiri district. It was not in existence before 1981 census. Bombay is the island which is a detached section of the Konkan coastal strip from the main land by the Thane creek, Whereas Thane district lies on the North. Raigad lies on the Central and Ratnagiri and Sindhurg districts lie on the South along the coastal strip.

1.2.0 PHYSIOGRAPHY OF THE KONKAN:

1.2.1 According to tradition, the Konkan coastal land is the western littoral belt between the Damanganga river
on the north and Terekhol river in the south. The coastal area is more rugged in the south than in the north and is characterised by hilly topography; a number of spurs originating from Sahyadri range of hills on the east and cutting across the entire region. The western part of sahyadri drops abruptly giving rise to setup escarpments followed by low hillocks and subdued ridges with intervening valleys merging into Arabian sea giving rise to strip of rocky and rugged coast in the west. A number of narrow valleys running from the East to West constitute the drainage system of this region. Heavy rainfall and steep slope causes severe soil erosion. A number of small and rapidly flowing rivers and streams run from the Sahyadri ranges and join the Arabian Sea. In brief, there is uneven topography which consists of transverse ridges of the Sahyadris having medium to low heights, isolated hills, low-lying plateaus, narrow river valleys (Fig. No. 2.1).

1.2.2 There are three distinctive longitudinal sections of the Konkan:

i) The coastal belt which is often rocky and broken by small bays and creeks and fringed with islands.

ii) The middle belt, longitudinal ranges, valleys.

iii) Foot hills of the sahyadris.
The submerged forests near Bombay city suggest that the sea level rose on the Konkan coast in the past. Here the coast is much broken and bays and creeks are wider. North of the vaibhav river the shores are flat and marshy near Dahanu. Long sandy spits are found to run into muddy shallows.

1.2.3 Further inland low coastal ranges alternating with longitudinal valleys and broad plateau characterise the landscape of the middle belt. The extrem south near Malvan, Kaladgi, sandstones are in abundance. In the middle belt there are the laterite low flat topped hills and further inland there are uncovered hills having height of 60 to 100 meters.

1.2.4 The above mentioned physiography has influenced the settlements, harbours and net sown area of the Konkan region (Fig. No. 2.2). Generally in the hilly region settlements tend to locate either on the top of the hills or at the bottom of the hills. In Konkan region the settlements are mainly located in the valleys and along the coast. Due to the favourable topography that is headlands, creeks and estuaries, most of the harbours are developed along the coast of South Konkan. Whereas due to the uneven and undulating topography, land available for cultivation (i.e. Net sown area) is limited in the region.

1.3.0 GEOLOGY:

The geological structure of a region plays
This fig is to be clarified at the time of Viva voce.
important role in location of industries. The industrial units remain dependent on geological resources for part of their raw materials and power supplies. Iron and steel industry is an example as it is almost entirely based on iron ore and mineral coal both of these being provided by a geological horizon of a region.

1.3.1 Geologically, the Konkan coastal land is a platform of marine denudation raised to form a narrow plain. The Archean and the Cuddapan formations are found only in the Sindhudurg district, while the entire northern Konkan is occupied by lava flows referred to as 'Deccan Traps'. The Archean basement complex consisting of unclassified crystalline, gneisses and schists occur in the South Ratnagiri district while differential magma outpourings, consisting of rhyolites, Precambrian rocks which are exposed are observed in Sindhudurg district.

1.4 DRAINAGE:

The drainage pattern of the Konkan is mostly parallel. All the rivers of the region are short, varying in length from 49 Km. to 155 Km. and emerge from the eastern escarpment and run parallel westwards to meet the Arabian sea forming broad creeks. Each of them has a small individual catchment area. All these rivers are fast flowing and seasonal. These rivers form a longitudinal profile.
The notable rivers of the Konkan are the Vaitarna, Ulhas (Thane district), the Patalganga, Kundalika, Amba, Savitri, Ghod, Kal (Raigad district), the Shastri, Vasishti, Jagbudi ( Ratnagiri district) and the Terekhol (Sindhudurga district). Amongst them the Vaitarna and Ulhas are the largest rivers which drain the North Konkan. These rivers mostly flow from hilly areas. Hence they are not useful for navigation.

1.4.1 Some of the Konkan rivers have provided good sites for hydro-electricity generating station viz. those at Bhivpuri, Bhira and Khopoli. Bhivpuri is situated on high altitudes of Sahyadris in the basin of Pej river in Karjat taluka, Bhira on Kundalika river in Mangaon taluka and Khopoli on Khopoli river in Khalapur taluka.

1.5.0 CLIMATE :

The Konkan region has humid to sub-humid climate from June to January and warm climate from February to May. The region is characterised by the late rains (around 50 mm.) received during November and December. The region has three seasons viz. (i) summer from March to May, (ii) rainy season from June to October, (iii) Winter season from November to February. For agricultural purposes, summer or hot weather season is early kharif period and the winter is rabi season.
1.6.0 RAINFALL :

Rainfall in the region is mainly due to South-West monsoon; winter rains from North-East monsoon are negligible or absent. Although the rainfall is spread over from middle or last peak of May to November, the important months of rainfall are only four i.e. June to September and 97% of the rainfall is received during these months. The maximum rainfall (33.37%) and also the maximum intensity (49.4 mm/hr) are noticed in the month of July. The variability of the South-West monsoon is 25 percent. The total rainfall ranges from 3800 mm. to 5,000 mm. in that region. The total number of rainy days varies from 91 and 101 between June and September and there are intermittent dry spells ranging from 7 to 21 days. The maximum dry spells are observed in the month of September followed by June.

1.7.0 TEMPERATURE :

The average maximum temperature of the zone ranges from 32.8° to 40.7°. While the average minimum temperature varies between 17.7° and 17.1°. The seasonal variation though not very high, is, however, more pronounced in the eastern parts of the Zone on the hill and slopes.

1.7.1 The mean daily temperature is above 20°c throughout the year. The month of May is generally the
hottest, recording the mean maximum temperature around 39°C. High humidity associated with warm temperatures from April to October render the weather unfavourable in the absence of wind. Temperature begins to fall with the onset of the South-West monsoon in June. The day temperature drops by about 4-5°C after May till August. The diurnal variation in temperature is usually small during April to October (less than 7°C) due to marine influence. It, however, increases (10° to 11°C) during November to March under the influence of the dry winds.

1.8.0 HUMIDITY :

During the rainy season the relative humidity is as high as 90 to 98 percent. It is least during the winter afternoon when it may come down to 40 percent at many places.

1.9.0 SOIL :

The predominant parent material for soil formation is basalt, granites and gneisses in the area represented by the zone. The typical climate and topographic situation led to the formation of laterite from the basalt which is observed to be underlying the laterite. The coastal soils are represented by coastal saline and coastal alluvial deposits. The soils in the hills of West are represented by coarse shallow soils (Fig. No. 2.3).
Fig. 2-3

THE KONKAN REGION

SOIL TYPES

Lateritic Soil
Clay loam and course sandy soils
Coastal Alluvial Soil

N

Km. 20 0 20 Km.
2.0 LATERITIC SOIL:

These soils cover an area of about 7,95,900 ha. On account of forest vegetation, rainfall and high humid climate the laterite and lateritic soils are formed. These soils are sandy, clay loam to clay in texture. There is wide variation in the content of clay and sand while silt content is almost similar in different soils.

These soils are found in the entire Ratnagiri and Sindhudurg districts except in Mandangad taluka. They have low phosphorus and potash content. These soils are poor in lime and organic material. The depth of soil varies from 1 to 3 feet. These soils are recognised by different names in the Konkan.

2.1.0 COASTAL ALLUVIAL SOIL:

These soils occur all along the west coast of the region. The alluvium is mostly derived from trap and the soils are impregnated with salts to varying degree according to their location with respect to sea. These soils are very significant from the view point of agricultural and horticultural development. Especially garden crops like coconut, arecanut. But the Konkan region has very small proportion of this soil, i.e. 20% of the total soil covered of the Konkan region is occupied by these soils. These soils are reddish grey in colour and developed on flatland. Formation of these soils are either
from the trap rock or from the laterites. Their fertility varies with the proportion of clay in them. Depth of the soil is more than 1.5 meter. These soils are found all along the coast from Terekhol in the South to Daman in the North.

2.1.1 CLAY LOAM AND COARSE SHALLOW SOILS:

These soils are also derived from deccan trap and occupy the mountainous terrains in the West. According to topographic situation these soils vary in depth from a few centimeters on steep slopes to more than one meter in valleys. The soils are low in base status and neutral to slightly acidic in reaction. In general these soils are sandy loam in texture and do not contain any free calcium carbonate. These soils are poor in fertility.

2.1.2 For Konkan region this group of soils are important. The characteristics of the soil vary from place to place due to local topography and geological formation. Industrial development, particularly agro industries, is primarily dependent upon the industrial crops and not upon the food crops. Hence though the soils have limited scope of extensive and intensive agriculture in the Konkan region, poor soils cover along the coast and hilly region offer scope for development in fruit farming due to favourable climatic factors. Poor soils and climate is favourable for the growth of coconut, arecanut along the
coast and mango, cocum, cashewnut, pineapple, Jak fruit. Therefore, inspite of poor soil cover industrial growth has potential hopes in the Konkan region due to fruit farming.

2.3.0 REGIONAL CHARACTERS OF KONKAN :

Uptil now we discussed the physiography, Geology, climate, drainage, and soils of the region. But from the viewpoint of comprehensive study of population geography with physical aspects as its bases, it is worth to take a review of the regional characteristics of the Konkan. Because these regional characteristics directly and indirectly influence the population geography of the region (on distribution, growth, occupation pattern, sex ratio, migration etc).

2.4.0 AGRICULTURAL CHARACTERISTICS :

Agriculture is an important base of occupation structure. Here we deal with only negative and positive aspects of agriculture and agricultural characteristics of the Konkan.

Though the population density (234 persons per sq. km.) of the Konkan region is low, the land available for cultivation is also low (i.e. 26.3 percent of total geographical area of the Konkan). Due to this small and uneconomic land holding which is predominant in the
region, the lack of technical knowledge and lack of incentives agriculturists in Konkan have been able to adopt new methods of cultivation of paddy.

2.4.1 Konkan region has a limited scope for increasing area under agriculture, due to topography and inadequate irrigation facilities. All these aspects hinder the agricultural development in the Konkan region, and thereby lessen the population carrying capacity of land. Nevertheless due to the following aspects agricultural development may take place in the region in near future:

1. Soil climate complex is suitable for tree crop and fruit culture. If this favourable factor is systematically exploited along with industrialisation and development of better road transport: fruit growing is bound to expand and thereby the Konkan region could become the highest prominent fruit producing region in India.

2. The region is suitable for growing medicinal plants. Therefore, for its large cultivation, investigation should be made.

3. Slopes on barren and undulating hills could be used for cashew, coconut and other fruit tree cultivation.

4. Spices could be grown in existing arecanut gardens as intercrop.
5. The climate of the region is suitable for the rubber and citronella cultivation. Hence with the improvement in irrigation facilities their cultivation could be undertaken on a large scale. Due to the undulating topography and low soil fertility in the Konkan there is very low proportion of net sown area to the total geographical area, and only the flat alluvial and fertile plains which are narrow, are suited for the development of agriculture and horticulture in the Konkan.

2.4.2 Rice is the principal crop of Konkan which is taken as a single crop in the north-Konkan and as a double crop in the south Konkan. Pulses are taken in the winter season, Ragi is another crop of the region.

2.4.3 Konkan has a notable variation in the physical setting which is reflected in its diversified fruit farming activity. Bananas and chikoo are taken in the North Konkan, whereas Alphanso mango and cashewnut are grown in the South-Konkan especially in Ratnagiri and Sindhudurg district, coconut is grown all along the coast. Due to favourable soil climatic conditions and typical physiography, Ratnagiri and Sindhudurg districts have a higher status in fruit farming. These two districts show less development in cereal farming than the other two districts, but more in fruit farming. Thus it can be seen
that the present cropping pattern is a weak base for agricultural development in the region.

2.4.4 Irrigation is the life line of agriculture. But the Konkan region has a very poor status in irrigation facilities. The irrigation of Konkan agriculture is partly of small sized private canals and partly of wells. Within the Konkan 3.23 percent of the total net sown area is under irrigation and it is very less than the average of Maharashtra i.e. 8.83 percent. but this percentage varies within the Konkan districts. (See Table No. 2.1).

TABLE NO. 2.1

IRRIGATION IN THE KONKAN REGION, 1982
(Fig. in hectares)

<table>
<thead>
<tr>
<th>District</th>
<th>Total net area irrigated (ha)</th>
<th>Total net area sown (ha)</th>
<th>Percentage of net irrigated area to the net sown area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thane</td>
<td>5,224</td>
<td>2,69,400</td>
<td>1.74</td>
</tr>
<tr>
<td>Raigad</td>
<td>10,562</td>
<td>1,83,100</td>
<td>5.76</td>
</tr>
<tr>
<td>Ratnagiri</td>
<td>10,410</td>
<td>3,57,600</td>
<td>2.9</td>
</tr>
<tr>
<td>Konkan</td>
<td>26,196</td>
<td>8,10,100</td>
<td>3.23</td>
</tr>
</tbody>
</table>

Source: Konkan Krishi Vidyapeeth, "status of Konkan."

The highest percentage of irrigated land is in Raigad district (5.76%) followed by Ratnagiri district.
with 2.90 percent irrigated land. Thane ranks third in percentage of irrigated land. Raigad district has three major irrigation projects viz.

i) KAL PROJECT:

This project is in Dolwahal village of Roha tahsil. It commands a cultivable area of 9,960 hectares. It is a boon to the development of Raigad district.

ii) AMBA VALLEY PROJECT:

This project is on the Amba river in Roha tahsil of Raigad district.

iii) RAJNALA PROJECT:

This project is in Karjat tahsil.

2.4.5 Apart from these in Raigad district Bhatsa, Wandri, Surya are the other projects of Thane district. Surya project provides irrigation to 12,676 hectares of land from the village of Dahanu and Palghar talukas of Thane district.

Canals, tanks and wells are other important sources of irrigation in the Konkan. Land under irrigation by different sources of the Konkan district is given below:
### TABLE NO. 2.2

**AREA IRRIGATED BY DIFFERENT SOURCES (IN HECTARES)**

<table>
<thead>
<tr>
<th>District</th>
<th>Canal Irrigation</th>
<th>Tank Irrigation</th>
<th>Well Irrigation</th>
<th>Natural perennial source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thane</td>
<td>157</td>
<td>693</td>
<td>4019</td>
<td>N.A</td>
</tr>
<tr>
<td>Raigad</td>
<td>3000</td>
<td>5119</td>
<td>2496</td>
<td>N.A</td>
</tr>
<tr>
<td>Ratnagiri</td>
<td>1792</td>
<td>1692</td>
<td>3903</td>
<td>3102</td>
</tr>
</tbody>
</table>


#### 2.5.0 ECOLOGICAL DIVISIONS OF KONKAN AGRICULTURE:

Considering the ecological aspect of agriculture, Konkan agriculture can be divided into following three main divisions:

1. Coastal - Breadth about 10-20 km. from sea coast.
2. Middle strip - This has a breadth of about 30-40 km.
3. Interior strip - Mountain and foot hills along the western part of Sahyadri.

Each of these divisions can be further divided into major farming situations and at micro-level many groups can be formed on the basis of soils, rainfall,
2.5.1 SOCIO-ECONOMIC CHARACTERISTICS – LANDHOLDING PATTERN:

The region has total population of 69.49 lakhs excluding that of greater Bombay. Out of which 55.8 per cent working population depends upon agriculture directly. The data available revealed that the 43.9 per cent working force is categorised as cultivators while only 11.9 per cent of working force are agricultural labourers. The percentage of the agricultural labourers to the total population is low. (only 4 per cent). This phenomenon is explained by the migration of the rural population to big cities, particularly to Bombay and Thane district in search of jobs since agriculture has become most uneconomical and the Konkan as such remained unindustrialised and neglected over a large span of time in the past. At the same time land-holdings in the Konkan region are very less.

2.5.2 The Table No. 2.3 indicates the percentage of land operation holdings in Konkan. The data reveal that the operational holdings in Konkan vary from 2 to 50 hectares, however, the percentage of the area below 2 hectares is with 64.61 per cent to the total population. 15.07 per cent of the total land is under this category. This indicates that the majority of the farming community
falls under small and marginal farmers.

**TABLE NO. 2.3**

**OPERATIONAL HOLDINGS IN KONKAN 1983**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Land Holding Class</th>
<th>Percent Population</th>
<th>Percent land in class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Less than 2.0</td>
<td>64.61</td>
<td>15.07</td>
</tr>
<tr>
<td>2</td>
<td>2.0 - 4.0</td>
<td>16.22</td>
<td>17.59</td>
</tr>
<tr>
<td>3</td>
<td>4.0 - 10.0</td>
<td>14.17</td>
<td>32.81</td>
</tr>
<tr>
<td>4</td>
<td>10.0 - 20.0</td>
<td>3.81</td>
<td>10.59</td>
</tr>
<tr>
<td>5</td>
<td>20.0 - 30.0</td>
<td>0.68</td>
<td>6.13</td>
</tr>
<tr>
<td>6</td>
<td>30.0 - 40.0</td>
<td>0.21</td>
<td>2.75</td>
</tr>
<tr>
<td>7</td>
<td>40.0 - 50.0</td>
<td>0.08</td>
<td>1.34</td>
</tr>
<tr>
<td>8</td>
<td>50.0 and above</td>
<td>0.10</td>
<td>4.72</td>
</tr>
</tbody>
</table>

**SOURCE -** Production plan for Konkan 1988 by Krishi Vidyapeeth Dapoli.

**2.6.0 OCCUPATIONAL CHARACTERISTICS:**

From the viewpoint of occupational structure as an important base for the development of the region we shall discuss it in more detail in a separate chapter later on. Here we deal with very few aspects of the occupation structure of Konkan in short.

**2.6.1** The table No. 2.4 shows the classification of
<table>
<thead>
<tr>
<th>Occupations</th>
<th>Ratnagiri 1971</th>
<th>Raigad 1971</th>
<th>Thane 1971</th>
<th>Konkan as a whole in% 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population(Total)</td>
<td>11,90,600</td>
<td>21,11,311</td>
<td>12,63,003</td>
<td>14,86,452</td>
</tr>
<tr>
<td>Total Non-workers</td>
<td>64.98</td>
<td>59.5</td>
<td>64.12</td>
<td>58.2</td>
</tr>
<tr>
<td>Total workers</td>
<td>35.02</td>
<td>40.5</td>
<td>37.74</td>
<td>41.75</td>
</tr>
<tr>
<td>1) Cultivators</td>
<td>69.44</td>
<td>65.5</td>
<td>56.48</td>
<td>52.0</td>
</tr>
<tr>
<td>2) Agril. Labour</td>
<td>11.00</td>
<td>8.2</td>
<td>18.76</td>
<td>14.2</td>
</tr>
<tr>
<td>3) Quarrying, mining, Hunting, Livestock Fishing, Forestry, Plantation orchards and allied activities</td>
<td>3.51</td>
<td>-</td>
<td>4.33</td>
<td>-</td>
</tr>
<tr>
<td>4) Household indu.</td>
<td>1.64</td>
<td>-</td>
<td>1.49</td>
<td>-</td>
</tr>
<tr>
<td>5) Manufacturing other than household industry</td>
<td>2.38</td>
<td>1.7</td>
<td>4.40</td>
<td>1.9</td>
</tr>
<tr>
<td>6) Construction</td>
<td>1.06</td>
<td>N.A.</td>
<td>1.72</td>
<td>N.A.</td>
</tr>
<tr>
<td>7) Trade &amp; Commerce</td>
<td>3.22</td>
<td>N.A.</td>
<td>4.23</td>
<td>N.A.</td>
</tr>
<tr>
<td>8) Transport, storage and communication</td>
<td>1.56</td>
<td>N.A.</td>
<td>1.89</td>
<td>N.A.</td>
</tr>
<tr>
<td>9) Other services</td>
<td>6.19</td>
<td>24.6</td>
<td>6.70</td>
<td>31.9</td>
</tr>
</tbody>
</table>

**Source:** District Census Handbook of Thane, Raigad and Ratnagiri district (1971-81)
occupational groups as in the 1971 and 1981 census. The table shows that agriculture is the most important occupation of this region. During 1971 population engaged in agriculture was 67.89 per cent. But in 1981 it decreased upto 55.8 per cent. Within the region there is also variation in percentage of population engaged in agriculture in Thane, Raigad and Ratnagiri districts. Although agriculture is the predominant occupation of the Konkan, Thane district shows a remarkable change in the agriculture sector as compared to the other two districts. Such changing occupation structure from primary to secondary and tertiary activities is found in Thane district.

2.6.2 Another important characteristic of the occupations of the Konkan is that the number of workers engaged in household industry is decreasing due to the impact of factory industries and small scale industries which attracts the workers of the household industries where incentive has been given since the Independence.

2.6.3 During the period 1971-81 the occupation categories have been changed and census formed a new category which was known as marginal workers as well as census did not consider construction, trade, transport separately, they grouped all these activities under the category of other workers.
2.6.4 For better economic development of this region the above mentioned occupation structure should be diversified by using the local resources of the region like agriculture, mineral, forests, fisheries, horticulture by processing the products into the end products through the industries in the region itself.

2.7.0 TRANSPORTATION AND COMMUNICATION :

Transportation is one of the vital factors in the process of development of the region. But undulating and uneven topography of the region has checked the rapid development and smooth flow of transport and communication. Therefore, it may be said that Konkan is backward tract not because of lack of resources but because it is not adequately served with well developed transport and communication lines. Neither in the pre-independence period nor in the period of planning, have the Raigad and Ratnagiri districts received much attention towards the development of transportation and communication facilities. On the other hand, due to the vicinity of Bombay, Thane district has fairly developed transport and communication facilities.

Road transport is familiar from historic times in the Konkan. Present situation regarding the road length in the Konkan according to surface type and different classes is shown in table No. 2.5.
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Different classes</th>
<th>Thane</th>
<th>Raigad</th>
<th>Ratnagiri</th>
<th>Konkan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>National Railways</td>
<td>229</td>
<td>209</td>
<td>299</td>
<td>737</td>
</tr>
<tr>
<td>2</td>
<td>State Highways</td>
<td>455</td>
<td>369</td>
<td>611</td>
<td>1435</td>
</tr>
<tr>
<td>3</td>
<td>Major District Roads</td>
<td>615</td>
<td>408</td>
<td>946</td>
<td>1969</td>
</tr>
<tr>
<td>4</td>
<td>Other District Roads</td>
<td>612</td>
<td>645</td>
<td>1114</td>
<td>2371</td>
</tr>
<tr>
<td>5</td>
<td>Village Roads</td>
<td>1622</td>
<td>2434</td>
<td>2820</td>
<td>6876</td>
</tr>
<tr>
<td>6</td>
<td>Grand Total</td>
<td>3553</td>
<td>4065</td>
<td>5790</td>
<td>13388</td>
</tr>
</tbody>
</table>

**ROADS ACCORDING TO SURFACE TYPES**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Surface type</th>
<th>Thane</th>
<th>Raigad</th>
<th>Ratnagiri</th>
<th>Konkan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cement-concrete Roads</td>
<td>37</td>
<td>67</td>
<td>226</td>
<td>330</td>
</tr>
<tr>
<td>2</td>
<td>Block Toped Roads</td>
<td>906</td>
<td>779</td>
<td>1033</td>
<td>2718</td>
</tr>
<tr>
<td>3</td>
<td>water bound Macadam Road</td>
<td>1641</td>
<td>816</td>
<td>1855</td>
<td>4312</td>
</tr>
<tr>
<td>4</td>
<td>Unsurface Roads</td>
<td>949</td>
<td>2403</td>
<td>2676</td>
<td>6028</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>3533</td>
<td>4065</td>
<td>5790</td>
<td>13388</td>
</tr>
</tbody>
</table>
2.7.1 Road density of the Konkan region (44.8 km/100 sq.km) is quite high as compared to the Maharashtra state (28.8 km/100 sq. km.). Mainly because of high density of village roads (about 40 to 60% of the roads in the region are village roads) which are not pliable through out the year. About 737 km. of national highways pass through the Konkan. National Highway No. 3 (Bombay-Agra), National Highway No. 8 (Bombay-Ahmedabad), National Highway NO. 4 (Bombay-Pune-Bengalore) and Bombay-Konkan-Goa National Highway No. 17 pass through the Konkan (Fig. No. 2.4). It is fortunate in having good length of National Highway of 2.47 km/100 sq. km. It is better than the state figure (0.93 km per 100 sq. km.). The total length of the state Highway are 1,435 km. Those state Highways which connect the talukas have number of curves and ups and downs. besides there are about 1,969 km. of major district roads, 2,371 km of other district roads and 6,876 km. of village roads which connect the largest number of villages, talukas and district places. During the rainy season transport by village roads becomes difficult. However, development of road transport is still more required for infrastructural improvement for the development of industries of the region.
2.7.2 At present there is not a single railway line passing through the Ratnagiri and Sindhudurg districts. Raigad district has only 131.37 km. of railway length in which 111.08 km. is broad-gauge and 20.29 km. is narrow-gauge. Thane district is fairly provided with a railway length of about 212 km. of broad-gauge (Table No. 2.6).

**TABLE NO. 2.6**

**RAILWAY LENGTH IN KONKAN (1980)**

<table>
<thead>
<tr>
<th>Type of Line</th>
<th>Thane</th>
<th>Raigad</th>
<th>Ratnagiri</th>
<th>Konkan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad gauge</td>
<td>212</td>
<td>111.08</td>
<td>NIL</td>
<td>323.08</td>
</tr>
<tr>
<td>Meter gauge</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Narrow gauge</td>
<td>NIL</td>
<td>20.29</td>
<td>NIL</td>
<td>20.29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>212</td>
<td>131.37</td>
<td>NIL</td>
<td>343.37</td>
</tr>
</tbody>
</table>

The first railway line of India started in 1853 between Bombay and Thane. Railway network in Thane district is developed mainly due to vicinity of Bombay, because all the trains running between Bombay and Pune, Ahmedabad, Delhi, Calcutta, Madras pass through the Thane district.

2.7.3 In 1962 the total length of railway line in Konkan region was 318 km. And it reveals that between 1962 and 1981 the length of the railway remains almost unchanged.
2.7.4 By 1918 the project of Diva-Dasgaon-Ratnagiri-Mangalore was examined. And since 1981 the issue was taken up by the Legislative Councils, Municipalities and other authorities (Fig. No. 2.5). At present upto Apta, railway line is constructed recently. But Apta onwards especially in Raigad and Ratnagiri districts, topography of the region seems to be a great barrier due to high hills, deep valleys and undulating land in the construction of railway network. (In region) Passenger traffic is seasonal and non-availability of large amounts of raw materials, goods for the export with some exception of agro-products and fruits, may also affect the construction of the railway.

2.7.5 The above discussion reveals that within the Konkan only Thane district has good communication by Railway with the adjoining districts and other states. Raigad district is little developed in railway communication while Ratnagiri and Sindhudurg districts are absolutely in a neglected state. Total length of railway line in Thane is 212 Km. This averages 2.27 km/100 sq.km. of areas while Raigad district has a railway length about 131.37 km. which averages 1.91 km/100 sq.km. of areas. These figures in comparison with state's 1.70 km./100 sq.km. areas are certainly promising. But for Konkan as a whole this average 1.18 km./100 sq.km. areas is definitely deficient. But it may be also worth
mention that if the railway network develops in the South Konkan, it will definitely increase the break bulk points. Because all the settlements of the region are located in the river valleys and along the coast. Due to this railway network will become uneconomic and time consuming. Therefore, we may say that construction of roads is more essential than that of railway for development in the south Konkan.

2.7.6 The region has got 720 km. of coast line and 48 minor ports (11 in Thane district, 18 in Raigad district and 19 in Ratnagiri and Sindhudurg district) including the intermediate port of Ratnagiri for the development of sea transport by steamer and by power driven boats. But all these ports are seasonal. The development of harbours mainly depend upon the type of coastline i.e. historically speaking almost every headland, creek or estuary provided limited safety for anchorage to the coastal vessels and therefore, many ports developed in them. The South-Konkan (Ratngiri and Raigad district) which presents the appearance of a 'ria' type of coast has comparatively numerous headlands and bays and the estuaries along the coast, due to which most of the ports (37 out of the 48 ports) are developed on the coastline of South Konkan only. Table No. 2.7 shows number of steamers and dhows at Vengurla and Vijaydurg port.
### TABLE NO. 2.7

**STEMERS AND DHOWS AT VENGURLA AND VIGAYDURGA GROUP PORTS - 1967 to 1969**

<table>
<thead>
<tr>
<th>Year</th>
<th>Vengurla group 5 ports</th>
<th>Vijaydurga Group 5 ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966 - 67</td>
<td>881</td>
<td>1395</td>
</tr>
<tr>
<td>1967 - 68</td>
<td>828</td>
<td>1432</td>
</tr>
<tr>
<td>1968 - 69</td>
<td>804</td>
<td>1460</td>
</tr>
</tbody>
</table>


2.7.7 Shriwardhan, Revdanda, Janjira, Harnai, Ratnagiri, Vijaydurg, Malvan and Vengurla are the important ports which are service centres for coastal shipping vessels that sail from Bombay southwards. However, coastal shipping is not developed in all the North-Konkan especially in Thane district mainly because of the effective competition by land (rail and road) services. Therefore, the Konkan ports are absolutely in neglected state.

2.7.8 The coastal trade includes fish, mango, salt, sand, wood, food grains and tiles. The only item that
figured in the foreign trade was minerals (1981), and that too from Redi alone. Out of total export (foreign and coastal) trade of all Vengurla group ports (Nos. 5) of 5.9 lakhs metric tonnes that year. Redi handled 5.6 lacks m. tonnes. Mango is another important product in export.

Coastal transportation is seasonal in the Konkan. During the Monsoon season coastal transportation is not possible due to turbulent, stormy sea and lack of deep protected harbours. If ports are developed with the modern amenities and loading and unloading facilities are made available, it will help to develop only passenger traffic and to move bulky raw materials along the Konkan coast. Therefore, development of the Konkan ports has to go a long way in developing the economy of the Konkan.

2.7.9 There is an air strip at Ratnagiri where loading facilities for craft are available. However, there is no regular air service at present and it is not useful for trade in Konkan. Besides this, there is not a single air port in the Konkan. In brief, at present although lack of good transport facilities is one of the drawbacks of the South and Central Konkan, water ways and roads are the major means in the South Konkan. However, it may be also worth mention that though in the South and Central Konkan in the absence of railway adequate road transport facilities, coastal steamer services are the only means of
communication; sea transport is time consuming, unfit for perishable commodities and responsible for increasing transport due to the increasing break bulk points. And, therefore, attention should be paid to the development of road network than that of sea transport.
REFERENCES


2) DESHPANDE C.D. : "Geography of Maharashtra" National Book trust, New Delhi, P. 167


   b) DESHPANDE C.D. : "Geography Section", Raigad District Gazetteer, Govt. of Maharashtra, Bombay, P. 12


6) ARUNACHALAM, B : op. cit P.44.


