PHYSICAL ENVIRONMENT

The attributes of the physical environment have their own individual significance in conditioning and development of rural areas. Of the physical factors, landform has many practical implications to land use, water resource development, engineering development and development of transport and communication system. Climate sets the broad pattern of biological activities and conditions use of many other natural resources. Further the water resources of an area are determined by rainfall in situ, evaporation and surface and sub-surface drainage. Soil is another resource that controls plant growth and it is one of the major and obvious features of agricultural development. Thus these components of the physical environment play directly and indirectly crucial role in the rural development process, and therefore, they have been discussed here.

RELIEF

Topographically this region can be said to be the country of plateaux, hills, ridges and valleys, presenting considerable relief. Generally, elevation increases from north towards south, from the area of older rocks to newer rocks. Major portion of the area lies between 300 m to600 m above mean sea level. Naharmau (643.3 m), the highest point in the region is located in the southwestern part of Sagar district. There are several peaks above 600 m on this plateau. The dominant features of the relief of this plateau are the five parallel valleys of the Dhasan, Bewas, Sonar, Kopra and Bamnar rivers, extending from south-west to north-east and separated by narrow hill chains. The hills of Lodhikheda (466 m), Gubra (417 m), and Pateria (429 m) are the offshoots of the Bhandar range in the southern part of Damoh district Plate1.2.

PHYSIOGRAPHY

Land surface is the area where human life is played and even the minute details of the land configuration have important bearings upon the occupancy of the land, settlement of human population and their movement, and through them, it has indirect but deep effects on all aspects of rural society and economy Plate1.3.
The Sagar-Damoh plateau, the region under study, includes two obvious landscapes. The Vindhyan ranges, overlooking the Narmada valley, are located on the southern margin of the region. Their offshoots, taking southwest-northeast direction, athwart Sagar district. North of the Vindhyan hills lies a wide expanse of lava landscape, covering a pre-Cretaceous surface. Its elevation range between 500 m and 600 m above mean see level. The erosion appears to have succeeded in carving out an extensive surface over a pile of lava.

For more description the region can be divided into following fine distinct regions:

1. The Northern Highlands.
2. The Southern Highlands.
3. The Dhasan-Bewas Uplands.
4. The Sonar Basin.
5. The Bearma Basin.

1. **The Northern Highlands**

   The northern highlands rise like a wall from the Sonar valley in the east. Locally known as the Barana hills, the central ridge is marked by several flat-topped hills and runs from southwest to northeast. The highest point of this range is Phuratal hills (525m). There are some small villages along the flat top of the range and on the banks of the streams. The rest of the area is covered with low forests designated as government reserves. The Bila and Dhasan rivers flow across this highland area, from north to south.

2. **The Southern Highlands**

   The southern highlands are lying at a general elevation of about 450 meters. The southern highlands are marked by the main line of hills on or along its southern and southeastern margins and more or less a continuous precipitous overlooking the Narmada and the Hiran valleys. North of the Narmada is the Vindhyan range. This range runs for about 200 Kms. Western half of the range, lying in the Sagar-Damoh plateau, is formed of soft trap rocks, which weather rather easily. The segment of the
Vindhyan range, which lies in the western part of the Damoh plateau, is locally known as the Bhander range. A ridge and valley type of topography appears to be developed here and this is called the Kaimur range. The tableland is sloping towards northeast of the Bhander range and northwest to the Kaimur range.

The southern highlands also extend a broad belt from southwest to northeast. The plateau is interspersed by ridge and spurs. The northeastern limits of these highlands are marked by the hills of Fatehpur (450 m), Satiria (479 m), Hindoria (457 m) and Jamunia (447 m), which appear to have been separated from the same range. In general the Vindhyan range slopes gently northwards confirming to the dip at the Vindhyan formation and that of the overlying trap rocks.

3. The Dhasan-Bewas Uplands

The Dhasan-Bewas upland runs from west to southeast. The western point of the Bina river valley- a segment of this upland near Rahatgarh town- is formed by a series of steeply rising hills, mostly from Pithora to Rahatgarh. These hills are over 533.40 m (1750ft.) above mean sea level and also serve as the watershed between the tributary of Bina and Jhimp rivers on the one hand and Dhasan on the other. The upper water of the Dhasan, Bewas, Sonar and its tributaries and the Bamner rivers reach to this basin.

4. The Sonar Basin

The Sonar Basin, which is upland, runs from southwest to northeast. This basin is on the eastern extremity. The Sonar valley constitutes a belt across the north-central part of Damoh district. Lying between the scarps of the southern and northern segments of the Vindhyan range, it is some 80 km long and 32 to 40 km wide. The elevation of the Sonar basin is 335 m above mean sea level. The Sonar basin is also most fertile and hence is densely settled.

5. The Bearma Basin

The Bearma basin runs from southern highlands and parallel to the Sonar river for a distance of about 193 km. It confluences with the Sonar river in the northeastern part. It is a tributary of the Sonar river. It is not
as plain as the Sonar basin is. The Bearma river has dissected the southern highlands like Sonar basin, which provides habitat for the tribal people. However, it contains fertile soils.

**DRAINAGE**

Drainage or river pattern plays very significant role in the development in general and rural development in particular in the Sagar-Damoh plateau. Drainage pattern of this region influences the human activities particularly agricultural potential of the region and the development of transport network.

The most interesting characteristics of the drainage of the plateau is that though the Narmada flows within 15 km of its southern boundary, it forms largely a catchment area of the Yamuna drainage system. The main rivers of the Sagar-Damoh plateau are the Bina, Dhasan, Bewas, Sonar, Bearma and Bamnar. These rivers flow towards north and northeastern and eventually drain their waters into either Betwa in the north or in the Ken in the east **Plate1.4**.

**The Bina River**

The Bina river rises several kilometres to the south of the region and enters in Sagar district near the village Mahuna. On the southwest, river Bina forms the boundary between Sagar and Vidisha district. Near Rahatgarh it makes a waterfall of 15.2m, which is locally famous for a picnic spot, 16 km to the west of the town. After flowing 95 km. in district Sagar, the Bina river joins river Betwa downwards; but the Betwa does not pass through Sagar district.

**The Dhasan River**

This river rises from 'brackish' hill of Raisen district. This river flows first towards south and then towards northeast. It springs from just south of the Sagar district. It forms a boundary line between Sagar and Lalitpur district. Dhasan river joins the river Betwa near Jiguni. The main tributary of this river are-Bila, Tarme, Narker, Narosa, and Ursukhani.
The Sonar River

This river rises in the low hills in the southwest of Sagar district. Flowing in a northeastern direction and traversing Sagar and Damoh districts, it touches Rehli and Garhakota towns in Sagar district and Sitanagar, Narsinghgarh and Hatta in Damoh district. The Sonar river has formed valley called havelli in Damoh district. It is fertile black soil plain forming the principle wheat-growing tract of the district. Then it joins the Ken river beyond the northeastern boundary of the district. Its total length is 1867 km. However, when the Bearma joins it, the river increases its width. The riverbed is more or less stony. The maximum width of the river reaches to 320 meters except near the junction of the Bearma. The principal tributaries are the Kopra and the Bearma on the right bank and the Bewas on the left. The Sonar basin is one of the densely settled parts of this region.

The Kopra

The Kopra river rises from low hills "gourjhama "located in center of Rehli tehsil of Sagar district and flows about 67 km in Damoh district out of total length of 97 km. It is the tributary of the Sonar river and joins it 1.5 km below Sitanagar in Damoh district.

The Bearms

The Bearma river rises from Rehli tehsil and flows from southwest to northeast in a tortuous course into the Damoh region. It flows mostly between rocky chips and its valley is not extensive at any point. During the last part of its length river makes the boundary between Damoh and Panna districts. It joins the Sonar river on the northeastern boundary. Slope over this distance is 213 meters or nearly six feet in a mile. Its flow during the rainy season, therefore, becomes rather swift. Its greatest width is about 320 meters at the Mahuna village, about 3 km upward from its junction with the Sonar.
The principal tributaries of the Bearma are the Guraiya, Sun and Padri on the right bank and the Bamnar and the Kathera nala on the left. For the size and shape of main river, these tributaries have shaped the main characteristics. The Guraiya rises from near the Tendukheda and joins the Bearma of Nohta-Jabera Nala a tributary, which drains the Jabera valley is said to have been a great lake in the historical past. The Sun nala rises from the Bekal plateau of Jabalpur and joins the Bearma near Ghatera. Water of these rivers are mostly used for irrigation.

**Bewas River**

This river rises from siyarmau hill of Raisen district, and flows southwest to north east. This river flows mid part of in Sagar district. In north of Banda, from a garz, this river turn to Damoh in east and near of Narsingarh, it joins the river Sonar. Bewas river flows in 148 km.

**Lakes and Tanks**

The Sagar lake is the only natural lake in the study region. It is believed to be constructed by Lakha Banjara in 11th century. Apart from its influence on the location and build up of the town, the lake is of great importance for local people. They use it for washing and bathing commonly and it serves as a means of recreation, such as boating. It is also used for lotus and Singhara plantation.

Well are the man sources of water supply in the trap region of the western part of the Sagar-Damoh plateau. Normally wells are 8 to 20 feet deep. East of Patharia-Garhakota road recharge of water in wells is comparatively high. Availability of ground water in the western and southern part of the Sagar district is limited. The number of wells in this plateau is 61267 in year 2003-04. In study region wells are mostly used for bathing, washing, drinking, and irrigation. In year 2003-04 129.41 thousand hectares are irrigated by wells.

Tanks and reservoirs of smaller size are available in other parts of the region. In study region different types of tank have seen. In year 2003-
04, the number of medium tanks is only 6, which by 15.36 thousand hectare area are irrigated of the plateau. The number of other tanks is 79 in year 20003-04, which by 13.81 thousand hectare area are irrigated of plateau. There are no big tanks in this area.

**SOILS**

In the development of any rural region, soils have great value. Soil is an integral part of land surface. On average, the thick topsoil constitutes 15 to 20 cm. From the viewpoint of agriculture, the major functions of soil are to provide mechanical support to plants, to dissolve and supply the required nutrients and water for plants growth. These functions depend on physical, chemical and biological characteristics of soils. It is strange that no any systematic study of physical and chemical properties of soils of this region has been carried out yet. Consequently, very few properties are known about the regional soils Plate1.5. 

**Classification of Soils**

Medium black soils are wide spread in the region. But in certain parts of the region other soils are also found. Among them, mixed red and black soils are worth mentioning. Soils of the region are classified as follows.

1. Medium black soils,
2. Mixed red and black soils,
3. Hilly, Stony and sandy soils.

1. **Medium Black Soils**

This soil is spread on most part of Sagar-Damoh plateau. These soils are neither deep nor suitable for most of crops, specially wheat, jawar, groundnut and sugarcane. Some patches have high fertile soil. These soils are found on comparatively undulating surface of the plateau. Large tracts of these soils are in the Dhasan basin, Bewas basin and in the western part of southern highlands (i.e. Rahatgarh, Jaisinagar, Kesli, Deori, Sagar and Banda blocks). Characteristics of these soils differ
considerably from one place to another in this region and are controlled mostly by the local topography and the underlying rocks. These soils are lighter in texture and are dark brown in colour. The problem of erosion occurs in the medium black soil.

This soil group may be subdivided by their local names. These are –

(a) Mund I and Mund II
(b) Mar and Kabar
(c) Rathoya, Rayion, Patarua.

(a) Mund I and Mund II

This is most common soil in alluvial valleys. It has great influence in the black soil. It is inferior in Mar and Kabar. These are black cotton type soil with calcium carbonate layer and are clayey friable retentive of moisture stick with developed cracks. The percentage of salt is 15 to 25 per cent, silt is 25 to 35 and clay is 35 to 50 percent. A variety of crops can be grown on them even without irrigation facilities. Mund soil occurs on extensive part of Khurai plain. Mund I is dark in colour, is typical wheat soil with good depth. Mund II contains a larger proportion of sand and gravel. It is a shallow soil and does not grow wheat continuously, but jowar, gram and other leguminous crops may be taken in rotation. It is a good kharif land. However, in case of scanty rainfall, this fine soil seems capable of producing fair crops.

Mund soil is found in the Bina valley, in the Jhilla area in the Dhasan upland and in the Bewas upland. In the Sonar valley, it is found in the Garhakota area. This soil is very good and becomes steadily poorer as the junction of the Sonar and Bearma rivers is approached.

B. Mar and Kabar

Mar is clayey soil, which is found in level area. It is first-rate fertile soil, with grey black in colour and of great depth. It is very retentive of moisture does not easily crack and can be ploughed for a long time after the rains. Wheat suffers from rust in the mar soil. It contains fine clay, 40 to 50 per cent, sand 12 to 15 percent and silt 28 to 40 percent. It
responses good for rabi crops than kharif crops and can be grown with leguminous crops in rotation.

This soil is uncommon and covers only one percentage of the cultivated area; it is found in western highland in the Pamakheri and Sagar area of Sagar tehsil and in the Bewas upland. It is also found in Banda and Rehli tehsils.

Kabar is black cotton soil and is first rating in fertility. In other words, it is highly productive soil. It differs from Mund and Mar is being composed of smaller particles and is therefore more sticky, when wet and hard when dry. It is mixed with red soil. It contains 10-12 percent sand, 40-60 percent clay and about 30 percent silt. This high percentage of clay makes Kabar rather plastic and cloddy. The moisture retaining capacity of this soil is so high that is bears a good crop of wheat or birra (wheat and gram mixture). These soils are found in Damoh tehsil, particularly in Batiagarh area.

C. Rathiya, Rayian and Patura

These soils are inferior type of black soil. It contains clay 20-30 percent, silt 8-10 percent, sand and boulders 20-40 percent. Rathiya is difficult soil to handle and ploughing becomes very difficult, if there is any delay. It is fine kharif land. These soils are found in the western highlands, Dhasan upland near the Sihora and Nariaoli area. In the southern highlands, it abounded in the Bearma valley.

Rayian is sandy black soil. It is well drained and grows kharif crops even in year of extravagant rainfall. Wide and deep cracks are formed when it dries. It is found in the western highlands on the Bewas upland in the Dhana and Jaisinagar areas and also found in the Sonar valley near Naharmau area.

Patura is an inferior kind of Mund, which has been washed away by drainage. It is black to similar black soils in colour. It is the best common soil and abundance in the hilly tracts. Paraura is found in the
northern highlands on Bearma hills in the Binaika and Shahgarh areas. In the western highlands, this soil is found in the Rehli tract, in the Sonar basin and in the Dhana area in the Bewas upland. It is also found in the tracts of the Vindhyan range.

2. Mixed Red and Black Soils

This soil group is sandy clayey, which is widely spread over the northwestern part of Shahgarh block. These soils are light in structure, sandy in texture non-calcareous in character and natural in reaction. However horizons of coarse grained and mixed with white gravels and red stones resting on parent rocks are found. These soils are suitable for kharif crops. It contains sand 47.81 percent, silt 3-10 percent clay 15 percent and phosphorus 7-8 percent. These soils are sallow and deficient in plant nutrients. For want of irrigation facilities only Kharif crops are grown over them. This type of soil is not very fertile, but it play an important part of grow kharif crops and oilseeds.

3. Hilly, Stony and Sandy Soils

This group of soils are found in hilly area and riverbanks. In local nomenclature these soils are called – Bhatura, Sihar Kachhar and Tari.

**Bhatura** is reddish in colour. It covers with cobblestones. It is not very fertile soil. Only inferior autumn crops like millets, oil seeds, kodo-kutki and sesame are grown on this soil. This soil is found in the northern highlands and in the southern parts of the western highlands.

**Sihar** is a yellowish in colour. It is sandy soil with a clay percentage of 20 to 30. It is very good and graded from coarse sand to fine clay, brought down by streams and is deposited along their banks. It is soft fine wash off from the Vindhyan sandstone hills. It is best soil for rice cultivation because it is free from stone. Sihar is alluvial and loamy in character. Sihar soil is found in the northern highland, far from the hill slop in the Hatta tehsil of Damoh district. It is also found in the southern highlands on the banks of Bearma.
Kachhar and Tasi is alluvial soil and is found on the banks of river. Sand and clay are found in varying amount in these soils.

**CLIMATE**

Climate is one of the most important forces of natural environment. It directly or indirectly affects all aspects of human life. It influences the demand and supply of food, clothing and housing. The amount and nature of food availability is influenced by climate. At the same time, crops to be grown and season and method of farming etc are determined by the climatic conditions. It also determines the consumption behaviour of the people.

The Sagar-Damoh plateau is located in the heart of Indian subcontinent and it is situated in the tropical latitude. The climate of this area is not very much different from the climate of the Kooper of which this area is part. The tropic of the Cancer passes through the northern part of this region. Therefore, temperature does not become extremely low even in winters. The year may be divided into three distinct seasons: (1) Summer Season – March to June; (2) Rainy Season – June to September; and (3) Winter season – October to February.

The temperature in summer season is high and weather is dry with weak wind. Days are very hot and nights remain somewhat cool. However, there is a marked difference between maximum and minimum daily temperatures. Cold and dry climate is main characteristics of winter season. In winter season temperature is very low and January is the coldest month of the year. Rainy season is characterized by rainfall and high temperature. About 90 percent of the total rainfall is received in rainy season. Months of July and August are the peak monsoon months of the year in this plateau. As a result of this there are only two cropping seasons: rabi and kharif.
### Temperature

<table>
<thead>
<tr>
<th>Months</th>
<th>Sagar</th>
<th>Damoh</th>
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<tbody>
<tr>
<td></td>
<td>Mean Max.</td>
<td>Mean Min.</td>
</tr>
<tr>
<td>January</td>
<td>24.8</td>
<td>11.4</td>
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<tr>
<td>February</td>
<td>27</td>
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</tr>
<tr>
<td>March</td>
<td>32.6</td>
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<td>April</td>
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<td>26.3</td>
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<tr>
<td>June</td>
<td>36.9</td>
<td>25.6</td>
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<tr>
<td>July</td>
<td>29.9</td>
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<td>14.7</td>
</tr>
<tr>
<td>December</td>
<td>24.9</td>
<td>11.7</td>
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</tbody>
</table>

**Source**: District Gazetteer of Sagar and Damoh districts.

It is most important element of climate. It is because it keeps the climatic cycle moving. The month of January is coldest month of the year with an average monthly temperature of 18.1°C at Sagar and 11.5°C at Damoh district. From January the curve of mean monthly temperature shows a gradual rising trend till February. In the month of March temperature, rises suddenly due to the northward march of the Sun. May-June-July record high temperature. Average monthly temperature of May reaches to 33.3°C at Sagar and of 30.3°C in July at Damoh (Table 1.1).

The coming of monsoon and assemblage of clouds by the mid June bring day temperature down but the night. Once again after the month of August temperature shows a tendency to rise and this is clear from **Plate 1.6**. In the month of October and November, the mean temperature comes to 26°C and 15°C respectively. In the month of December, the mean temperature is 18.3°C at Sagar district and 13.9°C at Damoh district.

The month of January is the coldest by daytime and the month of December is coldest by nighttime, both the day and night temperature rises progressively from January to May. Half of December and first half of January from the coolest part of the year. Winter is more severe in the
northern part of this region, while not weather season is more intensive the south. March is the month of very little cloudiness, which facilitates uninterrupted rotation and radiation. After March range of daily minimum and maximum temperatures decreases and reaches to the lowest value in August. Days become less warm and nights are lesser cool by dense cloud.

Thus we can say that the different type condition of temperature is always presented in this plateau.

II. Wind Direction

Wind moistly depends on atmospheric pressure. In this region during March to May very important changes in movement and direction of wind. In the whole parts of the region blow hot and dry wind. These winds locally called ‘Loo’. During the month of December to February blow cold wind. While the wind direction during the summer month this south to west and in winter months this wind direction is north to south-east and in rainy season the wind direction is south west to north west.

Wind velocity remains high through the year with small number of windless days. The lowest wind velocity is 11.1 Km per hour in November and December. The highest mean winds velocity is 20.8 Km. Per hour in the month of June and July. Mostly in the rainy season thunderstorms disturbs the weather and in the month of May dust storms disturb the weather. November and December are free from storms.

III. Rainfall

In the development of any region rainfall is dominant and fundamental elements of climate. This plateau receives rainfall mostly from western monsoon. Therefore it shows a decling trend while moving from west to south-east Monsoon reaches by the middle of June and July receive the highest rainfall of the year. The total annual rainfall varies from 104 cm. at Tejgarh of Damoh district to 133cm at Deori tehsil of Sagar district. Monsoon winds coming from south, westerly direction
strike the southern part of the Sagar plateau and Vindhyan ranges. They are receiving highest rainfall. In this region, Damoh -Sonar upland, which is located in the southeastern part of the plateau, receive high rainfall. On an average annual rainfall Sagar and Damoh district receive more than 110 cm.

**Regional Distribution of Rainfall**

Rainfall is determined selection and pattern of crops of cultivation. The rain also markedly influences the cropping intensity. In different month the rainfall have seen different while April month find very low rainfall than July Month find very high rainfall in study region. Rainfall decreases from south to north and from east to west. On an average Rehli, Banda, Harduamarar, Damoh, and Tejgarh received rainfall less than 120 cms., while Sagar, Khurai, Gadakota, Deori, Chandia nallah, Majgahan hansraj, Mala, Hatta, Jabera, receive more than this amount (Table 1.2).

**Table 1.2, Mean Monthly and Annual Rainfall-Sagar-Damoh Plateau**

<table>
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<tr>
<th>Station</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>April</th>
<th>May</th>
<th>June</th>
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<th>Nov</th>
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<td>0.61</td>
<td>0.61</td>
<td>12.7</td>
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<td>0.81</td>
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<td>0.79</td>
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<td>19.2</td>
<td>3.12</td>
<td>1.74</td>
<td>0.83</td>
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</tbody>
</table>

**Source:** District Gazetteer of Sagar and Damoh districts.
Distribution of Seasonal Rainfall

The main characteristics of rainfall in this plateau as well as in most part of the country is its concentration in one season. The chart show that from the month of January to May received low rainfall and July to September month received a high rainfall, but after the month of September rainfall is less marked in next month.(table 1.3)

Table 1.3- Seasonal Rainfall in Sagar- Damoh Plateau

<table>
<thead>
<tr>
<th>Station</th>
<th>Summer Season</th>
<th>Rainy Season</th>
<th>Winter Season</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Cm</td>
<td>%</td>
<td>Cm</td>
</tr>
<tr>
<td>Sagar</td>
<td>2.49</td>
<td>2.03</td>
<td>111.25</td>
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<tr>
<td>Khurai</td>
<td>1.88</td>
<td>1.6</td>
<td>110.8</td>
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<tr>
<td>Banda</td>
<td>2.52</td>
<td>2.3</td>
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<td>2.0</td>
<td>113.2</td>
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<td>2.76</td>
<td>2.1</td>
<td>120.5</td>
</tr>
<tr>
<td>Chandina nallah</td>
<td>1.44</td>
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<tr>
<td>Majgahan Hhansraj</td>
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<td>2.1</td>
<td>113.7</td>
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<tr>
<td><strong>Sagar District</strong></td>
<td><strong>2.43</strong></td>
<td><strong>2.0</strong></td>
<td><strong>111.2</strong></td>
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<tr>
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<td>1.8</td>
<td>106.1</td>
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<td><strong>2.0</strong></td>
<td><strong>108.1</strong></td>
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</tbody>
</table>

It is clear from the table that more than 90.1 percent of total rainfall comes in the rainy season at Sagar district and 90.2 percent at Damoh district. During in this season highest rainfall is recorded at Deori (120.5 cm.) In winter season 7.97 percent of total rainfall is received at Sagar district and 7.74 percent rainfall is received at Damoh district. During in this season highest rainfall is recorded at Garhakota (12.02 cm). In winter season rain comes from late, as well as returning monsoon. 2.43 percent of annual rainfall comes in the summer season at Sagar district and 2.45 percent rainfall comes in the summer season at Damoh district.
FOREST

Forest is invaluable wealth of any region. Forest plays an important role in process of development. The area under study is rich in forest. The proportion of are under forests to total area is 40.69%. Total area covered by forest is 564035 hectares out of which reserved forest is on 293686 hectares, protect forest on 27683 hectares and remaining is unclassed forest.

Most of the forest area are spread on hills, between the river Dhasan, Bewas, Bearma and Sonar all flowing in a northeast direction in the eastern part of region. The forest zone of the region lies separated by the cultivated valley of the Sonar called 'Haveli'. The forest of Fatehpur (Hatta) is true dense forest found on the northwestern part of the plateau. On the southern plateau the cultivated tracts are along the Bearma and its tributaries. In region monsoon type forests are found. The forest of Sagar-Damoh plateau belongs to the Northern Tropical dry deciduous type of according to champion’s classification. According to the composition these are of two main types Plate1.7.

(i) Teak Forest

In this forest teak is main tree, which mainly used for timber. Teak grows well on the well-drained loam to sandy loam soil. The forests are of varied quality. The major teak forest belt are along the southeastern and mid part of the plateau and on the hill trap. In district Sagar teak forest found on the trap hills mostly in Rehli and Sagar tehsils, teak is seen descending all the way down the hill and establishing itself on the alluvium along large watercourses in the plain. In district Damoh teak forest found on the hill south of Tejgarh and south west of Tendukheda upto the southern boundary. Small patches of teak forest are also lie on the hill of the mid part of region. Good quality of teak is found near the
Mariadoh in Hatta tehsil or range, Chatpiparia and Magra in Damoh range and in Taradehi and Sigrampur range.

The most common species associated with good quality teak forest are - *tendu, seja, rohan, tinsa, koha, dhaura, lendia, harra, gular, mahua*.

*Bamboos are* mostly absent and lantna is found occasionally in south and mid part of plateau. On the slope of the hill the proportion of teak is less and it is associated with other species viz. *palas, bel, moyen or mowai, ghont, gunja, salai, barga, papra, khair, birra*, etc. In the medium and poor quality forest the drier species like *salai, gunja, achar, dhobin, kari, kullu*, etc increase in proportion.

The tree species of timber quality, occurring in the over wood with teak are *-sal, bija, haldu*, etc. Several trees, which have become important due to their use as matchwood, are few. Teak forest is the first to flush in summer, when the entire forest is leafless. The mature *teak* trees reach height of 40 to 60 feet, and a girth of 3 to 5 feet depending on the depth of the soil and fertility.

**(ii) Mixed Forests**

Mixed forest is seen in large parts of plateau. It is general type of forest. These types of forest situated on Vindhyan sandstone in Banda Tehsil, Khurai tehsil and over a large part of the Mohli block in the east of the Rehli tehsil. It is quite extensive in Fatehpur and occupies the hole of its length excluding the northern slope along the northern boundary and the Hathidol area. Other large area are around the cultivated tract of Taradehi and to the south and east of Tendukheda apart from area with favourable condition in Damoh, Sigrampur, and Sagoni range. The quality and density vary according to the depth of the soil and the degree of slope. The deeper soil in the large forest block of the Rehli and Deori range where the amount of rainfall is also higher than other parts, the trees grow upto a height of 60 feet.
The chief species are-seja, bija, tendu, dhaora, tinsa, jamun, amla, achar, ber, teak, palas, khair, etc. The medium quality mixed forest is more common on soil of medium depth and on very gradual slopes, away from the nalas. Some species of this quality are-ghont, ail, bharrati, karonda, etc. The poor quality types mixed forest are also common in this region like-teak, salai, kari, tendu, ghont, papra, khair etc. Commercially significant species found in these forests are bamboo, khair, salai and tendu. Tendu trees are important for its commercial value for providing leaves for 'bidi' manufacturing.
SAGAR-DAMOH PLATEAU

Plate No: 1.6

Index
- Red: Rainfall
- Blue: Temperature

Rainfall and Temperature Indexes

120 cm

110 cm

0 20 40 KM
SAGAR-DAMOH PLATEAU

Index
- Medium black soil
- Mixed red & black soil
- Hilly stony and sandy

Plate No. 1.5
SAGAR-DAMOH PLATEAU

- Bina upland
- Dhasan upland
- Northern Highlands
- Bewas upland
- Sonar & Kopra valley
- Western Highlands
- Bearma Basin
- Southern Highlands

Plate No. 1.3
SAGAR-DAMOH PLATEAU

Altitude in feet

- 1500’
- 1250’
- 1000’