CHAPTER II

GEO VIEW OF THE STUDY REGION

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2.1 Introduction:

Natural environment includes factors like relief, drainage, soils, climate, flora and fauna. Medical geography treats environment as a composite milieu within which human beings live and work. Environmental factors determine physical and mental health of human being. The agents, the hosts, the vectors and reservoirs which are so closely related to human diseases and hence to human health are parts of overall geographical environment (Mishra, 1970). Study of medical geography requires an introduction of geographical personality of the study region as it is related to the medical landscape.

It is, therefore an imperative need to unfold the physiographical salient features of the study region. Keeping in view an attempt has been made to systematically analyze the physical setting of the Jalgaon district.

2.2 Physiography:

Physiography plays an important role on landuse and productivity of land. Physiography also influences the presence and survival of other life forms including the organisms that cause diseases and hosts through which they reach the human body. Jalgaon district belongs to the Deccan Uplands of the Maharashtra State. It has distinguished characteristic from the rest of the upland districts due to its westward aspect. Tapi the major river of the district and its tributaries are flowing towards the west. On the other hand, in the rest of the upland of Maharashtra State the rivers are flowing towards the east. The landscape is typically that of the Deccan lavas with residual hill ranges and broad valleys, with trap dykes introducing a sharp local contrast as small chains of hillocks. Thus, Jalgaon district includes varied topographical features and landscapes. The district includes large hills covered with thick forest, stretches of
barren plain and bad land topography along the major river banks. From north to south the district can be divided into following three major physiographic divisions (Map 2.1).

1. The Satpudas
2. The Tapi trough, and
3. The Satmala-Ajanta range.

2.2.1 The Satpudas:

The Satpuda in general can be divided in two sections eastern and western Satpuda separated by a Burhanpur gap through which river Tapi flows in a NE-SW direction. Eastern section of western Satpuda mountain running in a east west direction through the northern part of the Jalgaon district. The Satpuda is a broad belt of mountain land, stretching with a steep slope along the north bank of the river Tapi. Another geomorphic characteristic feature of Satpuda in this region is concave in its plan if seen from southern side. The Chopda, Yawal and Raver tehsils of Jalgaon district mostly are located in the Satpuda hills. Satpudas form an asymmetrical upland with a general elevation of about 1000 mt and stand as a watershed between Narmada and Tapi. In the Satpuda mountain some important peaks that rise upper about 950 mt are, Pancha Pandu and Mondhiamal looking down on Yawal. Satpuda hills are rise abruptly above the plain from 200 to 700 m to the north of tehsil Chopda in a distance of 25 km and then rising like a scarp to 1000 m are covered with dense teak forests and mixed jungle. The upper Aner river separates the northern and southern ranges of Satpuda. The hills to the south of Aner rise to the level 950 m. Upper course of the river maintaining east-west direction marks the boundary between the States of Maharashtra and Madhya Pradesh.
2.2.1.1 Hatti hills:

In the north-eastern part of the Jalgaon district the Hatti hills are located which occupy a major area of the Muktainagar tehsil. These hills occupy location between the river Tapi in the north and river Purna in the south. The average altitude of this region is approximately 580 m. High relief, scarps, steep slopes and forest cover are observed in the hills.

2.2.2 The Tapi Trough:

Tapi is the largest west flowing river of Maharashtra. Tapi trough is well known rift system occurring between Satpuda range in the north and steep rising Satmala-Ajanta range to the south. The entire width of Tapi valley is hardly 60 km. and much lower average height as compared to the plateau of Maharashtra. The height of the valley decreases from east to west. From Jalgaon the height is about 244 m, the height decreases up to 187 m near Amalner in the district.

To the north of river Tapi short and swift flowing tributaries from Satpuda mountain which are perpendicular and almost parallel to each other have developed piedmont plain. These right bank tributaries of Tapi are more active in erosional work and are responsible for dissecting narrow piedmont zones. The piedmont plain is wider in the eastern part and becomes narrow in the west in the district. Another major characteristic feature developed because of steep slopes along the northern bank of river Tapi have given rise to gulllying and has resulted in badland topography. Badland topography is largely observed in the area of Jalgaon and Yawal tehsil. Due to the development of ravines large area along the Tapi river is not suitable for agricultural practices.
To the south of river Tapi, basins of river Purna, Vaghur, Girna and Bori are developed from east to west in the Jalgaon district. Purna-Vaghur basin is lying towards the south east of the district. The Vaghur has special characteristic feature that it has carved out a wide basin. Bhogvati is another small tributary of Tapi flowing through this region. These rivers has helped in extending the Tapi plain on the left bank towards east of the district. Some subdued spurs and hills act as lateral water divides. Consequently the southern part of Vaghur and Bhogvati rivers is undulating in nature. The basins of Bori and Girna in western part of the district are developed by deposition of silt material due to the erosion of surrounding high rugged lands.

2.2.3 The Satmala-Ajanta range:

The Satmala-Ajanta range demarcates the southern boundary of the Tapi basin as well of Jalgaon district. The world famous Ajanta caves of Buddhist period are found here. Therefore, the Ajanta range is named after these famous caves. The Ajanta range acts as a water divide of the drainage system of Arabian Sea and Bay of Bengal. Ajanta-Satmala range derived from Sahyadri mountain in the name of Chandor hills. The main Chandor hills near Manmad separated by a gap in the east which is known as Satmala-Ajanta range.

The northern slope of Ajanta range has very steep rise from 150 to 600 m. The Ajanta range separates waters of Girna-Waghur catchment of Tapi basin from that of Purna catchment of Godavari basin. The basal slope of this scarp and swift flowing small rivers leads to the formation of badland topography because of intensive gully action. Such badland topography is identified in the southern part of Chalisgaon tehsil. Another
example of dissected pediment having badland topography is in the Jamner tehsil along the river Waghur and its tributaries.

2.3 Drainage:

The drainage pattern in the study region is dendrite in nature. As the slope determines the drainage pattern of any region, the structural influence is observed on the drainage pattern of the district. Tapi river has the influences of structural control, especially in the mountainous region in the north. Drainage pattern of the study region is shown in the map no. 2.2. The drainage pattern in the district can be divided in to two parts.

i. Drainage pattern to the north of river Tapi-Purna

ii. Drainage pattern to the south of river Tapi-Purna

2.3.1 Drainage pattern to the north of river Tapi-Purna:

Tapi river enters in the district having the course north to south in the north-eastern part of the district. After flowing for a short distance of nearly 30 km to the south Tapi changes its course on the confluence of Tapi-Purna and flows to east-west direction. Tapi river has total length of 720 km out of which 120 km length of course is shared in the district. The Satpuda upland area of this region have special feature offered by the river Aner. River Aner is an example of joint control. Aner river flows along the northern boundary of the district in Yawal tehsil in the east-west direction and ultimately takes the southward turn to meet the Tapi on the western boundary of Yawal tehsil. Other subsequent streams like Gul, Hadkal, Mor, Suki and the Bhoker etc. are having the direction of their course from north to south. There are number of perennial springs and perennial upper course of subsequent streams are observed in this region including the long course of river Aner.
2.3.2 Drainage pattern to the south of river Tapi-Purna:

In contrast to the drainage in the northern area of Tapi-Purna the drainage in the southern area is well marked by long and meandering rivers with extensive catchments areas. All these subsequent rivers in fact cover approximately three-fourth of the area of the district.

The drainage in this part shows a well marked dendrite pattern. The Ajanta hills in the south together with its many northward diminishing spurs have influenced the direction of the courses of streams. In this upper part of the streams, the direction of flow of the streams is from south-west to north-east, until they gradually change their courses and become south-north. This is very true with major tributaries like the Girna and Waghur. River Bhogavati having short length originates from a meeting place of a lateral spur on the one hand and minor spur issued from Ajanta hills on the other. Probably because of the large catchments area of subsequent, some of the areas in the basins of perennial rivers have become favorable area from the point of view of irrigation. In the western part of the district Bori and Panjhara are the two important rivers flowing from south joining in the northern part to the Tapi.

2.4 Climate:

Climate has a great influence on human activities. It affects on the life style of the population and efficiency of work. Man has made great progress in the field of artificial irrigation, but the food production is still controlled by the climatic condition of any region.

Since the study region lies far away from the sea coast, it experiences continental type of climate. It is the Tropical monsoon climate with four distinct seasons namely…
i. Monsoon season extending from June to September.
ii. Retreating monsoon season extending from October to November.
iii. Winter season - December to February.
iv. Summer season – March to May.

2.4.1 Rainfall:

If the rains are good, people have access to more and greater variety of foods. On the other hand when there are droughts and floods people may suffer from shortage of food. The study region receives rain mainly from south-west monsoon, which begins in the middle of June and lasts till the end of September. Bulk of the rainfall, however, is received during the months of the July and August.

On the basis of distribution of rainfall, Jalgaon district can be divided into three sub-regions. (i) Moderate rainfall (more than 800 mm) receiving region in the northern and south eastern parts of the district. (ii) Low rainfall (700 mm to 800 mm) in the extensive eastern and southern parts of the district. (iii) Very low rainfall (less than 700 mm) in the western part of the district.

2.4.2 Temperature:

Heat strains produce a number of health problems. Heat Syndrome, heat exhaustion, heat stroke are the most common occurrence. Since the region lies away from the coast and has relatively low altitude, summer temperature is very high. The period extending from February to May is the hottest part of the year, with the mean daily maximum temperatures at 40.7°C and the mean daily minimum at 25.8°C. Hot dry winds blow during the months of April and May when the maximum temperature go above 45°C on some days. Due to onset of the south-west monsoon in
June the temperature appreciably drops and the weather becomes pleasant. January is the coldest month with the mean daily minimum temperature of 11.9°C and the mean daily maximum of 29.8°C. Cold waves which pass over North India sometimes affect the region. Some time the minimum temperature drop down to about 8°C to 9°C.

2.5 Soils:

Like the climate, soil is another decisive physical factor which affects agriculture in the tropical belt. Loose and well drained soil is found to be suitable for agriculture activities. In Jalgaon district regur roomed from solidified lava e.g. basalt and its deposition in the form of alluvium in river valleys have created a favorable edaphic condition for successful agriculture activities. It is a general observation that because of volcanic origin of rocks the soils are rich in plant food leading to high yields of banana in this region.

It is observed that area covered by deep and medium black is approximately 80 percent of the total area of the Jalgaon district. A wide variation in clay and silt percentage is created by local condition. On the basis of depth, texture and colors, the soils of the region are grouped into three broad classes as under.

i. Deep black soil
ii. Medium black soil
iii. Coarse black soil

Map No. 2.3 depicts the distribution of soil types in the district. These three major types of soils have one thing common in them that is deficiency of Nitrogen. Application of chemical and Bio-fertilizers to meet this deficiency is necessary for a healthy growth of the agriculture. In the Jalgaon district and especially in the banana belt soil scope for expansion of banana cultivation in the belt as well as in the region. Only Nitrogenous fertilizers need to be applied to the soils.
Map No. 2.3
2.5 Natural Vegetation:

Vegetation cover plays an important role in the survival of human being and overall development. Vegetation cover keeps the atmospheric gases and heat balance. The relief features and amount of rainfall govern the distribution of area under vegetation. A large area adjoining the northern boundary in the Satpura mountain ranges is under dense deciduous forest cover. Here, the amount of rainfall is more than 800 mm. Teak is economically important variety. Almost everywhere, the deciduous forest is accompanied by degraded forestland with or without scrub. The patches of degraded forest and land with or without scrub are noticed at the fringes of the forest area of which prominent patches are observed in the northern part of the study region. The southern part of the region, which receives scanty rainfall, has extensive area under scrubs and grasses.

2.6 Transportation Network:

Foods are transported over long distances for several reasons: to feed densely populated areas that could not produce or acquire enough food locally, to provide in the regions which are affected by floods or droughts, to provide consumers with greater variety and to capitalize on the advantages of places in producing certain foods. Therefore, good transportation network of roads, railways etc. is necessary.

The Physiography of any region shows impact on the transportation network. It is clear from the Map No. 2.4 that, the northern mountainous region of the study region has very few metalled roads. However, in the southern plain region, there is good network of metalled and un-metalled roads. As per statistical abstract of the district total length available of all roads is 11,111 km till March 2011.
National highway No. 6 passes through the district having the total length of 140 km, main state highways length 96 km, and other state highways are 1198 km. Out of total 1519 villages in the district 1275 villages are connected with permanent roads, while 244 villages are connected with temporary roads, many of them are located in the hilly and remote areas of district.

Central and western railway routes pass through the district. Central railway route passes through the Raver, Bhusawal, Jalgaon, Pachora and Chalisgaon tehsils of the district while, western railway route passes through the Jalgaon, Dharangaon and Amalner tehsils of the study region. Altogether there is 350 km length of railway routes in the Jalgaon district.

Map No. 2.4
Resume:

The relationship between man and environment has always been a major concern of the subject geography and geographers. Environmental factors determine physical and mental health of human being. Physiography plays an important role in landuse and productivity of land. Jalgaon district belongs to the Deccan Uplands of the Maharashtra State. It has distinguished characteristic from the rest of the upland districts due to its westward aspect. The study region includes large hills in the northern part known as Satpuda mountains. It is covered with thick forest, stretches of barren plain and bad land topography along the major river banks. In the north-eastern part of district the Hatti hills are located in the Muktainager tehsil. Tapi trough is well known rift system occurring between Satpuda range on the north and steep rising Satmala-Ajanta range to the south. The Satmala-Ajanta range demarcates the southern boundary of the Tapi basin as well of Jalgaon district. The drainage pattern in the study region is dendrite in nature. Tapi is major river of the district flowing in the east-west direction. River Aner is an example of joint control. Aner river flows along the northern boundary of the district in Yawal tehsil. Other subsequent streams like Gul, Hadkal, Mor, Suki and the Bhoker etc. all are having the direction of their course from north to south. River like Girna, Waghur, Bori, Panjra are flowing from south joins the river Tapi in the north. Since the study region lies far away from the sea coast, it experiences continental type of climate. It is the Tropical monsoon climate. The study region receives rain mainly from south-west monsoon, begins in the middle of June and lasts till the end of September. Bulk of the rainfall, however, is received during the months of the July and August. The study region lies away from the coast and has relatively
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alluvium in river valleys have created a favorable edaphic condition for
successful agriculture activities. Deep black, medium black and coarse
black soils are generally observed in the study region. A large area
adjoining the northern boundary in the Satpura mountain ranges is under
dense deciduous forest cover. The southern part of the region, which
receives scanty rainfall, has extensive area under scrubs and grasses. In
the northern mountainous region of the study region has poor
transportation network. However, in the southern plain region, there is
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REFERENCES:


