

CHAPTER V

INFLUENCE OF PHYSICAL FACTORS ON TURAL SETTLEMENTS

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CHAPTER V

INFLUENCE OF PHYSICAL FACTORS ON RURAL SETTLEMENTS

5.1 INTRODUCTION

Physical factors are important for the purpose of settlement because physiography, soil type, climate and water availability is most important for settlement which determines the nature and types of rural houses, climate has a dominating effect upon the types of house and building material. Amount of rainfall direction of wind, sunny sides of the region are the important factors which control the architecture and plans of rural dwellings.

The physical landscape is the fundamental base for the development of various economic activities. It affects the origin and development of settlement. The physical aspects such as physiography, Drainage, climate, relief, topography, vegetation, soil type, water table etc. these are factors affecting on the site and location of rural settlement, types and pattern, rural house type and building material, population size and spacing of rural settlement

Drainage is one of the most important components of physical environment which affect agriculture directly or indirectly (Chouhan, 1987). It also affects on the location, patterns and internal structure of settlement. An availability of water depends on the nature of drainage system and climate.

Soil is a significant physical aspect affecting on agriculture and the structure of houses. Often the choice of the farming system will be limited or at least indicated by particular soil conditions (Gilchrist, 1971). Soil plays a significant role in the economy of a region. Soil constitutes the physical base for any agricultural activity. Farming is a business and good soil is a part of the farmer's stock in trade (Singh and Dhillon, 1987).

In the present study region large variation in the physiography, Topography, drainage, soil, climate which affect on rural settlement. So that, the need of studies the physical factor affecting on the rural settlement.

5.2 PHYSIOGRAPHY AND RURAL SETTLEMENT

By virtue of inhabitation of settlements on the earth surface, topography or physiography is a significant factor which greatly affect on the all aspects of settlements. Nevertheless settlement is a result of physiographic expression of the geographical region. The elements of physiography are having grate influence on the type, pattern and shape of settlement. The physiographic elements like topography, relief, slope, soil are significant in determining the site and location of settlements. Climatic factors are equally responsible for fashion of settlement. Rainfall, temperature, wind blowing direction etc. determine the site, situation and structure of houses, building material etc.

In the study region it seems that physiography is having grate impact on rural settlement. About 49.38 % area comes under the zone of high hills, whereas 44.69% area falls in pediment or foot hills zone and 5.93% geographical area bearing river valley or low land. Basically settlements are inversely proportional to the relief or height of the land.

High Hills and Settlement

Panhala tahsil bearing about 49.30 percent area witch is zone of high hills or hilly rugged area. Here it is regarded the relief of above 2600 feet or almost above 750 m above mean sea level. In the study region it is found that very few settlements have situated on this relief that is mere 11 rural settlements with Panhala head quarter on the Panhala fort. This type of land mostly undulating and highly rugged relief with modest and high hills of the off-shoots of Sahyadri ranges. The Wadi Ratnagiri, Jyotiba, Panhala Fort, Masai Plateau, Waghjai hills are the main high hill ranges.

The settlements situated on the high hill ranges show grate impact of the relief in terms of the climatic extremes that is high rainfall, high wind velocity, abundant sunshine, etc. Most of these settlements are situated lee-side avoiding grate velocity of wind and volley of prevailing rainfall. Most of these settlements are sprinkled besides Panhala headquarter and Wadi-Ratnagiri a Jyotiba Shrine. In these villages building material used is thatched walls, tiles

for the roof and wooden pillar for the support. Use of locally available material that is stone, soil, grass, wood is abundantly used. The house are not multy story. Roof of the dwellings are tilted, tapering allowing rapid drainage of rainwater. The housing structure is very simple with one room some time two dividing sitting room with low height wall. Kitchen I mostly attached or a part of bed room which is called as 'majghar'. Kitchenette is with 'Chullha' or stove in which mostly fire woods are used. Most of the houses don't have good air ventilation resulting suffocation during preparation of food. People mostly engage with their agriculture land ironically which is insufficient and insatiable even for cultivator. Being a high relief, soil is very shallow and infertile. Despite of high rainfall, water scarcity through out the year is clamped over these settlements. It is therefore, agriculture produces is very limited. However, they may have some livestock but it is insufficient to cater the farmer's needs. Thus the life at the high hills is in all terms an ordeal.

Pediment or Foot Hills and Settlement

Slope and flanks of almost all high hills is the region of pediment. Pediment or foot hills region quite suitable or the settlement. At the eastern side of the study region however, noticed some sporadic hills of moderate or low height approximate 540 to 600m from msl. Most of the southern part of the study region which comprises pediment or piedmont zone of the Panhala, Jyotiba, eastern flank of Masai plateau, come under this region. Some 44.69% area is considered in this division in the study area. In the range of 2200 to 2600 feet that is 650 to 750 m above mean sea level only 11 settlements have been marked which are moderately developed. It is however, astonishing that despite of the quite suitable site and location there is avoidance to these sites. It may be caused by the dearth of fertile soil and lack of water availability. Houses are more or less same as occur on the high hills. The villages are mostly at random in their patterns. The life style of the residents is almost an agrarian. The farmers may have their own agriculture land near by their settlements but since most of the land is bearing rugged, undulating topography agriculture practice is quite hard. More over soil is coarse and

reddish it is therefore, less fertile. Water availability is also less due to steep slope. Farmers have to do subsidiary practices such as dairy farming, poultry farming, small shops, etc.

River Valley or Low Lands and Settlement

Most of the area under this category in study region comes towards the north eastern part of the tahsil. Some 5.93% of area regarded as river valley or low land in the study region. Warna river valley is major zone of this category. Warna River flows from west to east have made an alluvial plain on its southern bank due to their depositional work. In spite of the Warna river basin there are very small area under the basin of Dhamani, Kumbhi and Kasari Rivers. Actually southern half of the tahsil is occupied and configuring by the dissected land forms of these river drainage networks.

Majority of the rural settlements of Panhala tahsil is concentrated in this region. In all 108 out of 130 villages are inhabited in the river valley of low land. It is obvious that river valleys ensure the steady water supply and rich fertile soil for the agriculture. The topographical region is almost plain uninterrupted very suitable for the intensive agriculture practice. It is therefore, each rural settlement is well developed. Basic infrastructure of road, electricity, water connection is sufficiently well developed. Each and every villages are connected with block headquarter and major commercial centre. The main agriculture crop is sugar cane which earns hard cash. This zone is concentrated with co-operative sugar factories; it is therefore role of each sugar factory is very significance in the developmental process of the villages which falls under their catchments area that supply sugar cane to the factory.

The houses constructed in villages are well mannered mostly constructed with cement concrete and bricks. It is found during the intense field work that considerable amount of houses have multy storey. Number of houses with more than one room is considerable; however, structure of houses is very simple arranged one room to the next with door arch but with no door. Most of the houses appended with court yard allotted to livestock at backdoor.

The residents of the villages are economically rather sound than that of villagers living in highlands and at foot hills. The intensive agriculture practice has made each farmer economically sound. The principal crop is sugar cane which has high economical returns.

Table: 5.1 Height-Wise Distributions of Villages in Different Blocks.

Class of Height in ft	Name of block				
	Kodoli	Panhala	Kotholi	Bajarbhogaon	Kale
<2200	14	9	22	31	32
2200-2600	1	9	1	-	-
2600-3000	-	8	-	-	-
>3000	-	3	-	-	-
Total	15	29	23	31	32

Source: Based on SOI toposheets and statistical analysis.

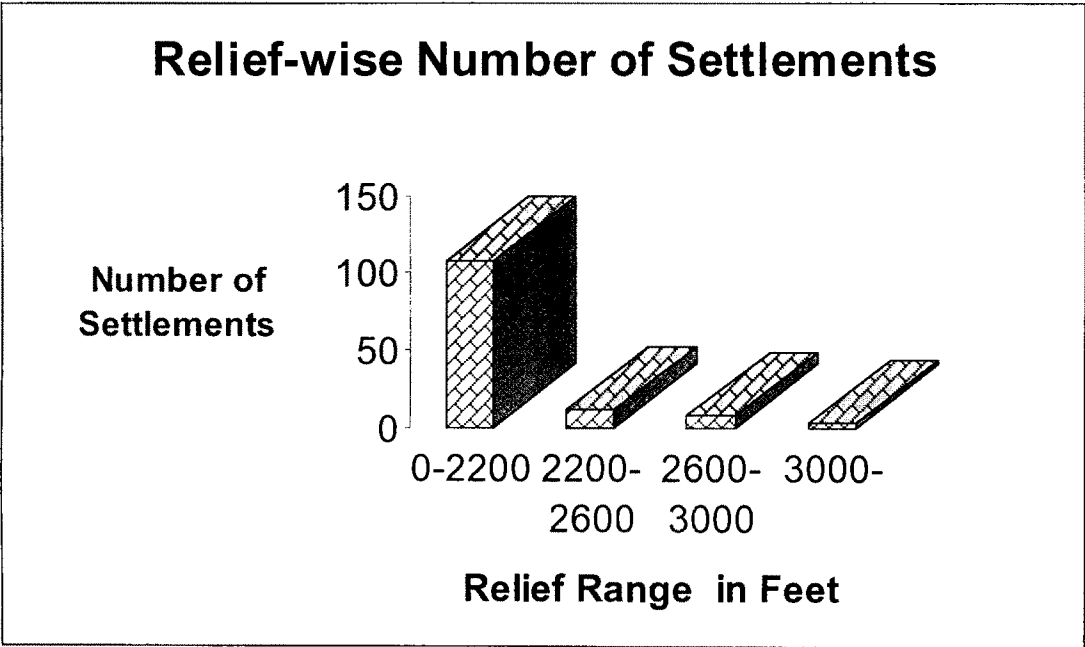


Figure: 5.1 Relief-wise Numbers of Settlements.

5.3 SOIL AND RURAL SETTLEMENTS

Soil is an important factor plays resulting role in the determination of the settlement. In this regard the variation of soil in the study region is focused. On the basis of the physiography the Panhala tahsil can be divided into three broad soil zones like, the western hilly part, with heavy rainfall with reddish, lateratic coarse and shallow soils, the moderately high tract of pediment zone bearing very thin layer of reddish brown stony soil and river valleys with tract of brownish and deep black fertile soil. It is therefore obvious that as discussed above the distribution of settlements are varied according to the distribution of soil. Soil fertility therefore, is directly proportional to the density of the population so the settlements.

5.4 DRAINAGE AND RURAL SETTLEMENT

The major river valley in the tahsil is Warana River, apart from this the Kasari, Kumbhi and Dhamani are the most significant river basin of the region. The length of the river Warana is 130 km but it traverses 13.6 km only in Panhala Tahsil and then enters into the Hatkanangale Tahsil. The river Warana confines a natural boundary of Panhala Tahsil from the north direction separating Sangli district. Warana River has contributed fine fertile sediment to the northern part of the tahsil in the form of the flood plain and the sediment valley. In all terms this area of the tahsil has become most fertile so most populous in the form of compact and centralized settlements.

The Kasari and Kumbhi are the major tributaries of the Panchaganga river. Kasari rises near the village of Gajapur and flows south-east upto Dhangarwadi in the Kolhapur district. The stream is wide in its course so receives more waters from a large source region lying between watersheds of the Vishalgad range in the north and the Waghajai in the south. Just above Bhogaon the river receives another important southern tributary called Mangari; below Bhogaon it develops into a wide alluvial plain in which the river has developed meanders. This is the longest river in the Panhala tahsil

covers 35.2 km of the length from west to east. This river has formed comparatively plain elongated narrow strip of the land which has significant numbers of settlements.

The Kumbhi rises near Bavda and flows north-eastwards for about fifteen miles upto Kirwai it receives its important tributary Dhamani near Chaugalewadi. altogether Dhamani covers 12.9km in the tahsil. The stream has formed alluvium in its course. However, Kumbhi River runs very short distance in the tahsil that is only 10.1km.

Apart from the river drainage network in the tahsil there are considerable number of the natural tanks, weirs and lakes. By virtue of the source region of the most of the rivers provide ideal site for the K.T. Weirs i.e. that are Kolhapur Type weirs. It is therefore, these tanks and weirs which accumulate the water and make it available in the summer season for the agriculture (Map: 5.1).

Table: 5.2 Block wise Growth of the Rural Settlement (1971-2001).

Blocks	No. of Rural Settlement				Growth in Numbers		Growth in %	
	1971	1981	1991	2001	1981	1991	1981	1991
Kodoli	14	15	15	15	1	0	5.2	0
Panhala	22	27	29	29	5	2	26.3	22.2
Kotholi	19	22	23	23	3	1	15.7	11.1
Bajarbhogaon	24	30	31	31	6	1	31.5	11.1
Kale	23	27	32	32	4	5	21.0	55.5
Total	102	121	130	130	19	9	15.70	6.9

Source: Based on statistical analysis.

5.5 ROLE OF PHYSICAL FACTORS IN SELECTION OF SITE AND LOCATION FOR RURAL SETTLEMENTS

The analysis of sites of the settlements reflected their favorable or restrictive character. Several physical influences the choice of sites in the study area. The relative importance of one or the combined effect of various factors decides the location of rural settlements.

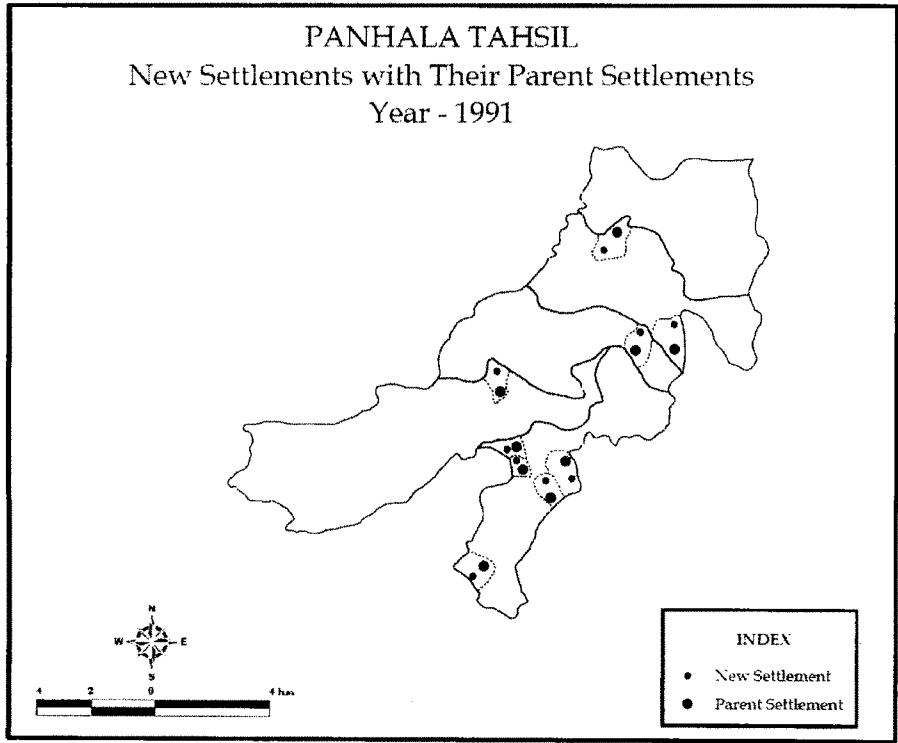
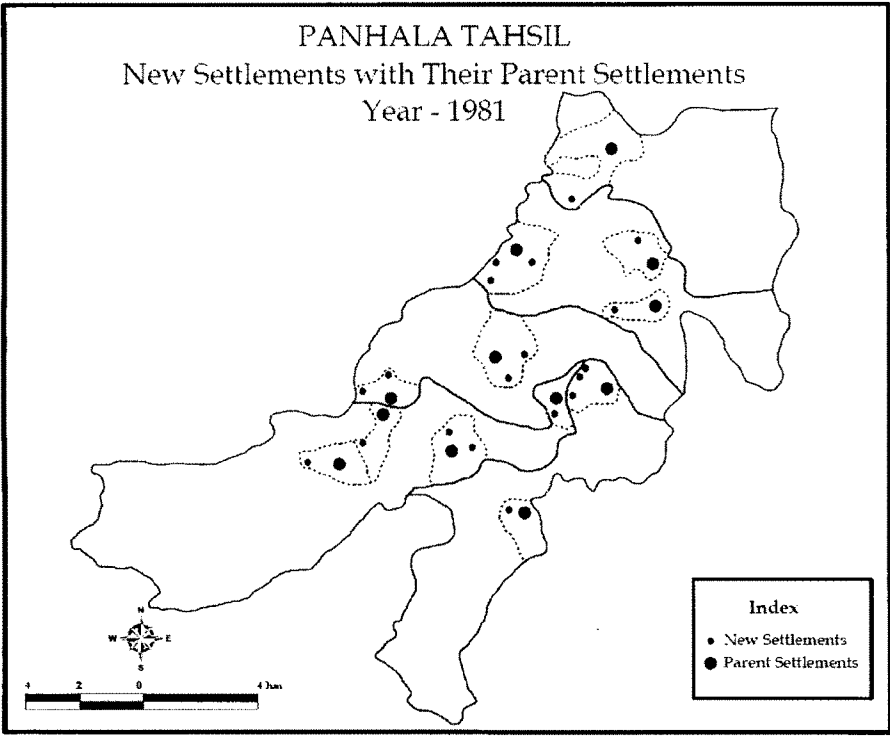
It is observed that the physical influence plays an important role in location and site of rural settlements. Settlements are generally built near the water bodies hence, in the study area most of the settlements have a site related to water bodies. The following are the sites commonly found occupied by the rural settlements which are related to water bodies.

Rivers have always attracted man since the ancient times. River bank site, stream site, or dam site are the favorable sites. In spite of these settlement site Tank site, Well site, Canal site are also favorable for the location of rural settlement

Physiography of the area plays an important role in determining the site and location of rural settlements. In the study area many settlements located near the Panhala fort and Massai plateau. This place is tourists place. In such a situation the existence of fort settlements was challenged by changed situation and many rural settlements were deserted. In the hilly areas hill top site, hill slope, foot hill, spur site are the important sites for the location of rural settlements.

5.6 PHYSICAL FACTORS AFFECTING ON THE TYPES OF RURAL SETTLEMENTS

There are physical factors affecting on the rural settlements types such as relief, fertility of soil, plains, drought, flood, valley, water table, climate, drainage texture etc. are affecting on rural settlement type. Cultural factors such as land use, land tenure, cropping pattern, nodal point, clan and caste system, social relationships and means of transportation are included, architectural styles, Agricultural development, income of the farmers



Map : 5.1

Settlements are generally built near water bodies. If they have to depend upon deep wells or rivers, they are generally compact. However, in areas where the water table is high and wells can be dug easily or where the drainage texture is dense, that is where surface streams are numerous, settlements can be built practically all over the region. In such case, therefore hamlets, semi-sprinkled, or semi-compact settlements more common than compact settlements. Sprinkled settlements are found on account of adverse physical conditions like the relatively rugged lands, adverse climatic condition, etc. Compact settlement is well adapted to the economic conditions of paddy cultivation. This type of agriculture periodically requires a large labor force for transplantation, irrigation and harvesting. Hence, both the farmers and the associated agricultural laborers tend to reside in the same nucleated settlement

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