CHAPTER VIII
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8.1 INTRODUCTION

The undulating nature of land exerts its impact more negative than the positive. Nature of land directly related with the regional development. The plane areas have seen development but hilly or mountainess areas are remain backward in all sense. The Kolhapur district is not free from hilly topography. The western eight tahsils avails more than 50 per cent area under hilly topography and both foot-hilly-and-low-land occupied less than 50 per cent area. The percentage of hilly land is higher in all tahsils but foot hilly and low land together occupied land is differ from one another. Inspite of several and repeated efforts made through member of planning schemes, so far to mitigate the influence of hilly topography still create several problems. Thus, a more systematic approach in practice to overcome the problem for hilly topography.

In the present work, it has been attempted to study the levels of rural development and planning in hilly area of Kolhapur district. The study is aimed to provide some guidelines and base for the planning and development of hilly area of Kolhapur district. Therefore, the objectives of the study include to identify the physical setting of the study area, the spatial distribution of rural settlements and their relationship with physical and cultural factors, evaluate the resources and their correlation with rural development and its planning in hilly area. The approach of integrated area development with the help of growth centres has been proved its importance in this study. As per the assessment of various aspects, various complex matters have arisen. The geographical characters show various problems at different levels. Therefore, it is intended to summarise the characteristics of problems and measures
thereupon to minimise the problems. The following findings from the study of rural hilly area of Kolhapur district have emerged.

8.2 CONCLUSION

Kolhapur district is one of the extreme southern most district of Maharashtra state. In the respect of topography, Western Ghat and its finger ranges covered vast portion of Kolhapur district. But for the present work, only eight tahsils have been selected on the criterion of hilly physiography. The western portion always enjoying high rainfall and this environmental condition is favourable for vegetation growth. The hilly lands with vegetation cover, which can be, restrict the agricultural activities. All the major rivers origin in the Sahyadrian and flowing eastward, the basins of these rivers are developed due to fertile soil, irrigation facilities and also applications of modern means. The landuse pattern reveals only 48.47 per cent land is under net sown area as well as it is highest in Gadhinglaj tahsil (87.99 %) and very less in Bavada tahsil (35.83 %). Whatever we concerned to Gadhinglaj tahsil, in recent past most of the land brought under cultivation, particularly the hilly slopes and plateaus laying under cultivation (plantation of cashew-nut) and irrigation development. But such efforts are not observed in other tahsils of the study area. The dominance of cereal crops that are oilseeds and sugarcane is observed. The economic weakness of the rural hilly area reveals from occupational structure. Mostly population of area engaged in primitive occupation i.e. more than 73 per cent and only 3 per cent in secondary occupations.

The settlement distribution in the respect of physiography has positive correlation. The increase in altitude decreases the number of settlements. The rigid topography, altitude, availability of water, sloppy land and soil thickness
are the key factors for the location of settlements. The low land topography provides suitable conditions for settlements. Therefore, more settlements are agglomerated in low land area (eastward) and these are big in size and also close to each other. The positive correlation also observed between drainage density and distribution of settlements. The drainage density of the area increasing from west to east. Therefore, the settlements are also increasing from west to east. The population density less than 50 and 50 to 200 persons per sq km is mostly observed western part along with Sahyadrian and its eastern sub-ranges. The nature of settlements in this area is scattered and small in size. The eastern portion has higher population density and shows less and with maximum number of settlements. Same correlation has been found in relation with road density and settlement distribution. The road density more than 0.25 km per sq km is more important because it avails nearly 584 settlements out of the total number of settlements of the study area. Such density of road mostly confined at central-eastern and eastern part.

The spatial pattern of settlements is identified by using the Hammond and Mcullugh technique. The computed ‘Rn’ values shows, there are clustered, uniform and random settlement pattern. There is the dominance of clustered pattern in the study area. Particularly, along the riverside, roadside and eastern part (low land area). Such settlement patterns indicate the population pressure on various available resources of central and eastern part of the study area.

The growth character of the settlements reveals most of the big settlements confined in the eastern and central part of the study area. The settlement growth has been taken place in these areas due to natural growth in population, pull migration, centres of sugarcane industry, tahsil headquarters and urban centres. The settlement growth of western and central western part is
controlled by the adverse physical condition, limited cultivable land and migration to other parts. The decadal growth rate i.e. less than 10 reveals positive increase in the total number of the settlements. The moderate to high growth rate shows negative increase in the there total number of settlements. The population growth rate is decreased in the study area. It reveals 21.74 per cent settlements shows moderate growth rate, 50.36 per cent settlements have low growth rate and 27.90 per cent settlements have low growth rate in the decade 1981-91, but in the next decade (1991-2001) there are high growth rate is 12.95 per cent settlements, 47.03 per cent settlements have moderate growth rate and 40.02 per cent settlements have low growth rate.

The over all resource inventories reveal, the study area is rich in various resource endowments. The resources i.e. bauxite, forest, climate, cultivable land, population, livestock, tourism and full of biomass are there. The study area is still not utilised its resources up to certain level and these are bauxite, forest, population, natural, cultural and social endowment in respect of tourism. Biomass can be used to over come on electricity shortage. The study area is very poor in the industrial sector. If these resources are utilised with sustainable development then it would boast areal socio-economic development.

The changes in the socio-economic conditions have been studied for 20 years period. This is done in order to understand the response given by the people in the hilly area. The population growth, change in circle-wise population is comparatively higher in south-central, central and northern part. The population density reveals eastern part of study area has more increased. The rest part shows less growth change in population and also density have decreased.
The growth and change in SC population shows increase in north-west and east, south-central and east. The SC population density reveals more increase in the eastern circles of the study area. In the respect of ST population, very less population observed in the study area. The growth and change in ST population shows more intensity at north-west, middle-west, south-west and extreme south-east but rest of the portion has less increase in change of ST population and growth. Number of circles of the study area have negligible such population.

The extreme northern and southern portion reveals more sex ratio. The growth and change in female population higher observed in northern, middle south-eastern and south-western part of the study area.

Higher growth in literacy is mostly confined at northern, middle-western and south-eastern part. The change in literate population has more observed in northern, central and southern part. Working population is major resource of the study area. The growth of total workers is considered in 20 years, higher observed in northern, central-western and north of southern part. The remaining portion reveals less than 40 per cent total workers growth. The change in increase of total workers has been observed in northern, middle-western, south-western and extreme south-east.

The higher growth of primary workers has been observed in northern, middle-western, south-east. The increase in change of primary workers has found in extreme north, central, extreme south and south-east.

Growth of non-primary workers has observed more in northern and south central part. It occupied very less part of the rural hilly area of Kolhapur district. Maximum portion of the study area reveals less growth in non-primary
workers. It may indicate the backwardness of secondary activities. The change in non-primary sector more confined at northern, middle-western and eastern part.

The growth and change in agricultural labourers have higher in north-western and central, middle south-eastern and extreme south-western and east. The northern and middle eastern circles of the study area shows increase in agricultural labourers per 1000 hector of gross sown area and remaining all portion reveals low increase in the respect of this category.

The growth in gross sown area has observed more in Bavada, south-west of Radhanagari, Gadhinglaj and western part of Chandgad tahsil as well as higher change in proportion of gross sown area reveals from Bavada, Gadhinglaj, western portion of Radhanagari, Bhudargad, Ajara and Chandgad tahsils. Increase in net sown area has observed in south-west of Panhala and Bavada, Gadhinglaj and western part of Chandgad and also change in proportion of net sown area to total net sown area, more confined in Gadhinglaj tahsil, extreme north-west and south-east part of Chandgad tahsil and south-west of Bavada and Radhanagari tahsils.

Agricultural landuse in the respect of cereals reveals more in Radhanagari, Bavada and Panhala tahsils and higher change reported from Chandgad tahsil. The corps like pulses occupied more land of Bhudargad, Shahuwadi and Panhala talukas and more change reveals from Panhala taluka. The growth in oilseeds area reported from Chandgad, Gadhinglaj and Radhanagari and also increase in proportion of oilseeds crop are more observed in Panhala, Ajara and Radhanagari tahsils. The sugarcane is chief cash crop in study area, among all agricultural landuse. Sugarcane crop shows tremendous growth of sugarcane cultivation and reported from Shahuwadi, Chandgad,
Ajara and Gadhinglaj talukas. Here, mentioned talukas also show increase ment in change of sugarcane area.

The study area reveals total 880 settlements, out of these four settlements are urban and 876 settlements are rural. As per the centrality score, the hierarchy of settlements is uneven; only 11 settlements are significant as a growth centres for areal development. Remaining all settlements are fall in the lowest hierarchy. The higher hierarchies 11 settlements are providing socio-economic facilities to there neighbouring settlements. In the study area, it is observed that 80 settlements are served by one growth centre and it shows major constraints of development.

The analysis of the level of development has comp up with quite glaring results, when areal development and its findings are highlighted here. The high development of land resource is revealed from Bavada, Bhudargad, Chandgad and Gadhinglaj but low development shows in the northern tahsils (Panhala and Shahuwadi). The agriculture and livestock utilisation has reported more development in Bavada and Radhanagari as well as Shahuwadi and Gadhinglaj shows low level of development. The levels of development in the respect of socio-infrastructural facilities shows high development for Radhanagari and Bhudargad and less development indicates from Gadhinglaj and Panhala tahsils. The tahsils Bavada and Panhala reported high level of development in infrastructural or economic facilities but low development has been observed in Shahuwadi, Chandgad and Radhanagari. The index of development for human resource sector reveals high development in Gadhinglaj, Ajara and Panhala, low development has been found in Radhanagari, Chandgad and Bavada tahsil. The study of constraints of development shows higher in Shahuwadi and
Chandgad as well as low level constraints observed in Bhudargad, Bavada and Gadhinglaj.

The analysis of imbalance development reveals high-level form land resource and socio-infrastructural facilities but other sectors stand at low or medium level of imbalance. The tahsils Ajara and Gadhinglaj reported high-level imbalance and low level imbalance is observed from Bhudargad, Panhala and Chandgad.

For the integrated development of study area additional socio-economic facilities on the basis of the factional gaps with considering threshold population, proposal for 2011 has been prepared. The location for educational functions, health services, weekly market, transportation and communication and also growth centres are corporated in the proposal. The other functions likely to be concerned are biomass power generation plant, ayurvedic medicine centres and ecotourism centres. Proposed centres can provide various facilities to study area, which will be definitely beneficial for the integrated development of rural hilly area of Kolhapur district.

8.3 SUGGESTIONS

The hilly area of Kolhapur district avails various resources and these are quite important, it has more potentially to support areal development. World history reveals that not a single country got their development through primary activities only, but number of countries got their development on industrial and tourism base. The three sectors i.e. agriculture, industry and tourism are the significant for regional development. Considering this, here attempt has been made to suggest some other aspects for the areal development. The provision of
socio-economic proposal and simultaneously suggestions followed, then real prospective integrated development can place in the study area.

The third topic deals with various resources and their geographical distribution. The study area has more potentiality of different resources. These resources should be utilized by the proper and planned manner to which support the integrated development of the hilly area of Kolhapur district. The study area has ample scope for establishing various industries i.e. Biomass Power Generation Plants, Forest based Small Scale Industries (like mat, hat and wooden toys) and Ayurvedic Medicine Production Centres. The western part and interior some places also proved ample scope for tourism development. The Western Ghat is an eco-sensitive zone; therefore, there is need of implementing ecotourism development strategy. Considering these things in mind, some proposals have recommended here, these are as below –

8.3.1 AGRICULTURAL SECTOR

Agriculture is a chief threat of study area. Particularly in the respect of irrigated land there is need to pay attention on land and water management. The area, which is under cash crops (i.e. sugarcane), is to be considered seriously while applying chemical fertilisers as well as artificial water supply.

8.3.2 BIOMASS POWER GENERATION PLANT

The study area has rich in biomass from various sources i.e. agricultural residues, forest, sugarcane industries, jaggary centres, rice mills, oil mills and saw mills, etc. As estimation reveals that, study area can produce 1144.01 MV electricity per annum. Therefore, there is need to install biomass power generation plants of different capacity. Centralized location is important because easy transportation facilities (weight loss raw material) and
distribution of generated power. Due to this, the sugarcane industries have a good network of roads as well as it has dominance of biomass production about 99 per cent out of the total biomass production. Thus, the sugar industries are the ideal locations for the biomass power generation plants.

Considering these things, some centres for biomass power generation have been suggested. These are Sonawade (Shahuwadi), Kodoli (Panhala), Vesraf Palsambe (Bavada), Gavase (Ajara), Harali (Gadhinglaj) and Halkarni (Chandgad).

8.3.3 SUGGESTIONS FOR FOREST RESOURCES

Vegetation has continuous growth of different forms of plant population in an area. Thus, vegetation includes trees, grasses, plants, bushes etc. The study area is enjoying sub-tropical evergreen, semi-evergreen and dry deciduous major forest types and it covered nearly 28.04 per cent land out of the total area. Teak is an important forest resource and it is found in all tahsils of the study area, besides this Neem, Narkys, Chandan and Phanas are the other important trees in study area. It shows ample scope for development through utilizing forest resources.

Western Ghat has tremendous biodiversity of medicinal plants. An account of nearly 81 significant medicinal plants is found in the study area. As well neighbouring Konkan region has a big number of medicine plants, which will support the Ayurvedic Medicine Production Centres. Along with this, farmers can be promote to cultivate medicine plants. Beside this Honey collection, fibres are gathered and woven into mats, hammocks, hats and other articles on commercial base as well as established wood pulp and paper industry under some circumstances.
8.3.4 SUGGESTIONS FOR ECOTOURISM CENTRES

Sahyadrian range covered the western portion of the study area and it stretches nearly 155 km north to south. The pleasant climate, variously coloured panorama of plateaus (August and September), vegetation cover, deep valleys, steep slopes, tableland, waterfall, dams, wildlife, Indian Gaur Sanctuary, religious places and historical centres, etc. are the major tourism attractions in the study area. With considering recent environmental issues, here attempt has been made to recommend that these all tourism centres should be develop as ecotourism centres. It is form of tourism, which appeals to the ecologically and socially conscious. With the help of ecotourism, we can benefit different criteria. These can increase environmental and cultural knowledge, sharing of socio-economic benefits, sustainable use of biological diversity and cultural diversity through ecotourism protection.

Though the ecotourism planning is vital significant. Tourism industry must be maintained balance among the natural, social, cultural and economic environments (WTO, 2002).

1. Travel and tourism promotes awareness about sustainable issues.

2. To achieve sustainable management of tourism resources for development.

3. State should encourage public awareness and participation.

4. To generate awareness among all stakeholders and provide them with necessary skills to carry out tasks.
5. Indigenous people should be participate to achieve of sustainable development from all section of society, including women, young and old.

6. To develop and implement effective landuse planning measures that maximize the potential environmental and economic benefits of travel and tourism.

7. The Government should take comprehensive measures for environmental protection by enacting legislation and standards.

8. To use realistic indicators of sustainable development applicable to local conditions and monitor progress.

9. Appropriate institutional and legal framework for regulation and control, which takes into account the special needs of specific areas.

10. Environmental impact assessment should be taken up as an instrument of action for all programmes likely to affect the ecology, culture and heritage.

Considering above all facts of ecotourism, here attempt has been made to propose to develop as a tourist centres for study area and these are as –

1. Shahuwadi : Amba, Vishalgad and Barki
2. Panhala : Panhala and Wadi Ratnagiri
3. Bavada : Gagan Bavada
4. Radhanagari : Radhanagari, Rautwadi, Shivagad and Radhanagari Wildlife Sanctuary
5. Bhudargad : Bhudargad, Patgaon and Rangana
6. Ajara : Ajara and Manohargad
7. Gadlinglaj : Samangad and Bhimasgiri
8. Chandgad : Mahipalgad, Kalandigad, Paragad,
               Jangamhatti and Amboli