CHAPTER - VIII

Conclusions, Problems & Recommendation
Chapter-VIII
Conclusions, Problems and Recommendations

The whole thesis reveals that, the unforgettable geographical study of agricultural land-use in Raigarh District. The study region has significant location on coast of Arabian Sea. It is characterized by notable spatial variation in the ecological and socio-economic frameworks. The forms of agricultural activities and farm economy, as whole influenced in a large measure of relief, climate and soil. It is very essential to examine the relationship between the main physiography and the various land-use, yield of crops, production and agricultural practices. The relief is an important element of the ecological setting, directly influencing land-utilization and the degree of accessibility. Terrain and altitudinal different in the study region, which is set their stamp upon the agricultural land-use of the study region and very well reflected in its cropping pattern. Three relief types like the coastal region, flat and fertile plain region in central and the Sahyadries region. All these can be identified in the overall morphological make up of Raigarh district.

The coastal region covers about 18.8% area of the district. The length of coast is about 160 km and length of coastline is about 240 km. The coastal lowland is naturally a very rich in agriculture, south of the Kundalika estuary, the typical coastal landscape or green valley floors and agricultural plain. Second, physiographic division is located between coastal region and Sahyadry region. It covers about 72% area of the district and has fertile land in low lying area, which are used for rice cultivation, whereas, ragi and vari are grown on the hill-slopes. Sahydry scarp lands running north-south with an average elevation of over 350 mt. Most of area is covered by hills like in the north, the Matheran(707 mt.).is
quite prominent. Besides a hill range, south of Panvel Karnala (1560 ft.), Ratnagad (1800 ft.), Nirya Dongar (1100 ft.) south of Pen Sagargad (1357 ft.) west of Alibag are more prominent elevations in the northern portion of the district. In the south, Talgad (1000 ft.), the Sukeli range dividing drainage basin of the Amba and Kundalika. The famous fort of Raigarh (2851 ft.) and Mangalgad are detached outliners of the main Sahyadries.

The geology of the whole district consists of dark coloured volcanic lava flows and laterites. The lava flows were poured out of the long and narrow fissures in the earth crust at the close of the Mesozoic era. These are spread out on the form of horizontal sheets or beds and constitute the innumerable spurs, hills and hill ranges and plateaus form a part of the famous Western Ghats. In the plain and valleys, the lava flows occur below a thin blanket of soil of variable thickness. Since these basaltic lava flows cover an extensive region in the Deccan and frequently present steep like appearance to the hills and ridges, they are commonly termed as "Deccan Traps" the word traps meaning "Step-like"

Ulhas, Patalganga, Amba, Kundalika etc. are the main rivers in the study region. All these are may well be described as un-directional and parallel, all drainage is carried by short and swift flowing streams, which have carved out deep valleys on the west facing slope of the Sahyadries. All the streams rise in the Sahyadries and flow westward to meet the Arabian Sea. During the rainy season flooding occurs and all the rivers show maximum discharge in south-west monsoon season and minimum discharge in summer, when they dry up. The Amba, Kundalika etc. provides considerable fertile land yielding two crops a year and patches covered with gardens and groves.

Climatic conditions in Raigarh district are strongly influenced by its geographical position, relief and provide a major physical control in
agricultural land-use. From and agriculture point of view the distinctive features of the study region's climate like the seasonality of rainfall, which tends to accentual the inevitable, uncertain of farming and mildness of the moisture of climate. The south-west monsoon is the pivot around which almost the entire farm life and economy swings (Simkins, 1933).

The soil of the study region are essentially derived from the Deccan trap, which is the prominent rock formation of district, with small out crops of laterite at a few place in Poladpur tahsil and in the Matheran hills. The soil characteristics in the study area differ considerably from place to place and it is controlled by local topography, underlying rocks and the types of vegetations. Laterite, khar soil, coastal alluvial soils are found in the study area.

Hilly and rugged tract of study region have luxuriant vegetations. But now much of it has been cleared, exploited to a considerable extent. Deficiency of forest cover and grass land have agricultural significance. Nearly 21.91% (2004-05) of the total land area is covered by various types of forest.

During 1980-81 to 2004-05, the highest growth rate of population was noticed in Khalapur tahsil(75.18%), while Alibag tahsil(30.22%) has shown the lowest growth rate. Population growth rate of urban Panvel, Poladpur, Karjat, Uran tahsils were 49.84%, 53.02%, 64.39%, 41.07% respectively. Crude density, physiological density and agricultural density varies from tahsil to tahsil in the study region. During 1981 to 2005 agricultural density per square km., was 180(1981) and it was increased up to 265 persons per sq.km. in 2005, where as average Arithmetic density of study area was 220 (1981) persons/sq.km. whereas, it gone up nearly 350 persons/sq.km.
The proportion of cattle is the total livestock was rank first in 1980-81 as well as in 2004-05 in all tahsils in Raigarh district. Livestock population increased from 23,84,553 (1981) to 24,85,139 in 2005 census. The number of buffaloes are increase from 1,34,122 (1981) to 147027 (2001), while that number of cattle declined. This has largely been due to increase in demand for milk, for which first choice of the farmers rests on buffaloes. Increase number of buffaloes is associated with the decrease in cattle mainly bullocks.

Goat ranks second in livestock in study region sheep have shared about 0.03% of the total livestock number of sheep and goats are declined from 950 (1981) to 823(1981) and 158256(1981) to 158233(2001) respectively. Growing demand for meat have been greater.

A large proportion of study region is completely depends on traditional agricultural implements like wooden plough, iron plough, bullock carts etc. Because of stagnation in the agricultural economy. Only 289(2004-05) tractors were found in the study region. About 18774 bullock carts were used for vehicular means of transport. Highest number of carts are found in Roha tahsil and lowest in Alibag. Electric pumps are increased from 690(1981) to 895 (2004-05) in study region and highest number of electric pump sets are also found in Roha tahsil. Number of leveller has increased from 409 (1981) in 17789 (2004-05) in study region.

Rice has shown increase in its distribution of HYV seeds from 280 quintals to 290 quintals in the study region, since 1980-81 to 2004-05. Use of chemical fertilizers, high yield variety seeds and modern agricultural implements are day by day increasing to small proportion. Therefore, agricultural structure has slowly changed from food grain to cash crop, mainly horticulture farming. During 2004-05, the highest share of consumption of chemical fertilizer was found in Pen and Roha.
tahsils. Totally the use of modern input and agricultural technology are very small scale in study region.

The peculiarities of Raigarh's shape, ragged terrain, climate and vegetation are controlled the transport and communications. Total length or the national highway increased by nearly two time in the study period. Highest positive change in road length was found state high way (5.10.1) Where as lowest positive change was found under railway (1.37%). Highest negative change in road length was found under other district road (.0.13%)

There is not a single major project located in the district presently, there are 12 medium projects, 28 minor project and 07 K.T.W in study region . Met irrigated area by canals increased from 3942 hectares in 1980-81 to 4482-59 hectares in 2004-05 out of total irrigated area highest proportion of agriculture land is irrigated in Roha and (47.95%) pen tahsil (42.72%) in 2004-05. In 1980-82 there were 4545 irrigation wells where as in 2004 - 2005 , it was increased up to 5504. Out of total wells about 93.03 percent wells are in use and about 6.37 percent wells notion use 2004 – 2005 .The average density of wells per 1000 hectares of met. Soul area in the district is only 26.51 . The spatial distribution of wells in study area is very uneven. There is great concentration of wells in coastal district and few patches in foot hill of Sahyadri. Tanks irrigation is significant in study area, where as 1307.21 (2004-05) hectares cultivated land is irrigated by tanks. which constructing 15.61 percent of the total irrigation for the study area the percent intensity of irrigation for the study area as a whole is about 4.09 percent Total irrigated area from all source are record 4 percent (1980-81) to 7.3 percent in (2004-05) in study region.

The spatio–temporal investigation of the general land use4 has revealed that forested land is more in Sudhagad (32.67%)
Mangaon (29.30%) Mahad (32.29%) Poladpur (27.29%) Shrivardan (22.81%) and Murud (22.64%) tahsil is in 1980-81 where as. Below 2% negative change in forest cover are found in Sudhagad (1.08%) Mangaon (0.32), Poladpur (1.62%) while above 2 percent negative is under forest area was marked in Uran (3.22%) Panvel (2.07%) Mahad (3.93%), Masala (4.5%) between 1980-81 to 2004-05. The causes are increasing population pressure, variability of rainfall and development of transport etc. All though forest cover has declined during (23.54%) 1980-81 to (21.64%) 2004-05 period. on the whole land under forest is more than that of Maharastra’s average land area under forest.

The extent of land put to non cultivable land uses is high in Alibag (26.05) Uran (40.38%) Panvel (23.03%) Karjat (21.35%) etc. Tahsil located close to greater Bombay metropolitan. Region and therefore relatively more industrialized and Urbanized. Volume of change in non-cultivable land is shown in the map no.4.3B. It shows that below 5% negative change in area under this category was record in Poladpur, Panvel, Karjat, about 5% to 10% negative change it, found in 120ha and above 20 percent negative change in this category is noticed in Masala, Shrivardan and Murad tahsil’s where as about 5% to 20% positive change noticed in Uran tahsil.

Other uncultivable land more (18.03%) than that of the (7.97%) average in 2004-05. During 1980-81, the total area under this group was 14.89% of the total geographic area. This percentage sharply increased upto 18.03 percent in 2004-05. Out total geographical area below 15% area found under this category in Mahad, Mangaon, Roha and Karjat. Highest percent of land under this category was noticed in Shrivardhan, Murud and Masala tahsils, which are located in estuarine low lands and with stony waste lands and khar lands its.
The proportion of fallows is also high all over the study region as irrigation facilities are limited. Besides, rain fall is also confined to the South – West Monsoon seas on. The study area has a substantial proportion of fallow land with average 7.04% (2004-05) Of the total geographical area. Above district average land under this category was recorded in Murud, Shrivardhan, and Masala tahsil, and while below average is noticed in Panvel, Karjat (5.68) Pen(6.61%) Roha (5.2%) Mahad tahsils (5.54%) in 2004 – 2005. The amount of follow land may be permanent or current, reflects the efficiency or the ability of former. similarly practically, it reflects the socio - economic condition prevailing in the farming society.

Net area sown occupies the largest share, namely 29.77 percent (2004 -05) in Raigarh district’s general land use pattern. But it is much too meager as compared to Maharastra’s average, which is about 58.03% of the state area.

Thus the general land use pattern clearly indicates that 70.23% of the land area is just not used for cultivation. Rugged terrain, poor soils and sea city of water supply, despite abundant rain fall, coupled together with poorly developed transport network, all contributed to this situation in study regions agriculture, the estuarine low lands, and a few patches of plates surfaces, which constitute the major cultivated land.

The cropping pattern in the study area is dominated by the food grains. Area under selected are have shown ups and down during the period of investigation Agriculture in the study region is largely of tensile subsistence type, where rice is the single important (up and clearly dominates the entire economy of the study region. About 50.41 (2004-05))percent of the total cropped area is occupied by rice. Area drained by Ulhas, Patalganga, Kundalika, and Savitri rivers of Raigarh District has the highest hectare are, under rice during. But there is a declining trend of
area under rice during the last twenty five years. And a shift towards area under fruit crops for a rich variety of fruit like mango. The reputation and economic significance of these fruits mainly mango and cashew nut, suggest that horticulture is deeply rooted in study region and play a significant role in its agriculture from the stand point of better land use and improvement of the economic condition of former in study region.

Table No. 5.3 reveals that four crop combination was recorded in study region by applying Weaver’s method in first and last quinquennium. Though no change was found in crop combination, but crops included in combination were changed to some extent. According to Weaver’s method monoculture crop combination was found in Khalapur, Sudhagad, Masala and Shrivardhan tahsils whereas, two crop combination was recorded in Uran, Pen, Roha, Poladpur, Mangaon and mahad tahsil, while three crop combination was registered in Alibag, Panvel and Murud tahsils and only in Karjat tahsil was found four combination in 1980-81 in study region. In 2004-05 certain changes has been observed monoculture was found in Alibag and Mahad (Table No.5.4). While two crop combination was observed in Mangaon, Uran, Panvel, Karjat, Sudhagad, Poladpur, Shrivardhan, Masala and Murud whereas, three crop combination was marked in Pen and Khalapur tahsils and four crop combination in Roha tahsil. According to Rafiullah method only two crop combination observed in study area whereas in 2004-05 three crop combination recorded in the area under study.

Table No.5.9 showed that, the lowest crop concentration (0.02%) was found in area under vari in Alibag tahsil and the highest crop concentration(1.93%) was found in area under mango in Sudhagad tahsil in 1980-81. The lowest crop concentration (0.11%) was noticed in area under in ragi in Panvel tahsil and highest crop concentration (1.48%) was found in area under ragi in Alibag tahsil during 2004-05. Spatial variation
in degree of concentration in crop production are found to be the result of the differential interaction between various factors like physiographic, climatic, technological in the study region.

During 1980-81 the index of very high diversification was marked in Panvel, Karjat tahsils, while very low diversification was recorded in Pen, Khalapur, Sudhagad and Roha tahsils, whereas, in 2004-05 very high crop diversification was noted in Poladpur, Murud, Roha, Uran tahsils while very low crop diversification was found in Pen, Khalapur, Alibag, Mahad tahsils, which happened to be the area of specialized crops. This variations in crop diversification seems to have resulted due to undulating topography, poor soils conditions etc.

Map No.5.22.A and B revealed that study region have an average 100.14% of cropping intensity because in study region, there is no great difference between net sown area and total cropped area due to small size of land holding, meagre rainfall, undulating topography etc.

The production of rice, gram, udid, wal, chavali, chilies and sugarcane in study region has increased during the period under observation. The production of ragi, kodra and vari registered some decline. Production of total oilseeds has shown marked increase. This found that the yield of rice, gram, tur, kulthi, wal and chavali, groundnut have gone up whereas, decline is observed in yields of ragi, kodra. Even after 25 years crop productivity remained unchanged in Sudhagad, Mahad, Poladpur, Masale and Mangaon, Khalapur, Shrivardhan tahsils because of slow development of irrigation.

The Problems

The study region is presently faced with several problems of which being common to the rest of Maharashtra as well as the country. The problems may be considered in two broad groups. The first one is the
physical difficulties arising from Raigarh’s peculiar natural environmental setting and the second is the social problems stemming from the cultural background of the people.

In the study region out of total annual rainfall 85% rainfall receive from south-west monsoon. But the monsoon rains in the study region are often marked by some important variations from the normal, like climatic uncertainty, uneven distribution often expressed in the commonly held view that ‘agriculture’ in India is a gamble against the monsoon is the most out standing problems in this category. The monsoonal rains, through generally plenty in study region, show considerable variation in their time of annual amount and duration. Such variation are clearly brought out in chapter II and represented in Map No.2. Due to ups and downs in the rainfalls cropping pattern and productivity have been affected.

Soil erosion is the removal of soil from its original location, specifically, soil erosion is a process of detachment and transportation of soil materials by erosive agents like water and winds. Study region has been settled and farmed for so long that soil over has been subjected to modification. Deficiency of vegetables cover has agricultural implications. In many parts, the lack of forest cover has reduced the infiltration of moisture leading to increasing run-off and thus, giving rise to soil erosion. In addition, coastal level tracts of study region is marked by the ingress of sea water giving rose to patches of khar land unsuitable for normal cultivation and require constant improvement and protection.

Shortage of overall cultivable land is also a major problem facing the very dense population in the study region. Large tracts of its are too rugged for successful and profitable cultivation. Causes of the absence of a cold winter to control microbial and insect life, pest and diseases of both crops and livestock are more rife and constant threat to
successful harvests. Cereals and fruit crops are attacked by several diseases causing substantial losses every year.

Low level of literacy in the rural area also inhabit agricultural programme by restricting the use of written material and necessity direct contact between the small number of agricultural extension workers and farmers living in remote and isolated rural area.

There has been a lack of systematic long run planning of the needed production, processing and distribution of many of the agricultural commodities other than foodgrains, fruits and vegetables are receiving only little attention. The planning for agricultural development continues to be highly subsistence oriented with emphasis on producing for some minimum level of per capital foodgrain consumption (Abel, 1970)

Other problems of a cultural nature are some religious beliefs, the ingrained conservation of majority of the peasant farmers and the lack of capital, but these are sufficient to give some idea of the enormous task facing study region in its attempts to removes and reorganize its traditional rice growing economy.

Recommendation

In this way we can say that the majority people in the study region are mainly depended on agriculture. The economic development of the study area is mainly based on agriculture. The problems of agricultural land-use planning are envisaged in the following aspects.....

1. There are a number of fallow lands in the study area, we can think of this land seriously and can change it in to productive one limited land can be brought under agriculture with intensive efforts. Increase in the gross cropped area can be achieved by a reduction of fallows culturable waste and by increasing multiple cropping.
There should be make more effective use of water resources in study region. Which involve bringing the benefits of irrigation to hundred of small farms, improving the efficiency of water use through reduction of losses in storage and distribution systems and in farmer’s fields, improving water distribution and drainage system to allow controlled water applications which is so important in case of new varieties and also soil conservation crop management practices which enable more effective utilization of water in rain-fed area.

In addition to the development of water resources a large amount of rural infrastructure will have to be created to extent the geographic impact of agricultural modernization. Among other things, this will include an adequate system of rural roads, development improved marketing and storage facilities for both inputs and agricultural products.

The study region is observed surplus of population in rural area, many of the young male working people from this region prefer to work in factories and offices in Mumbai and other urban areas. As a result, farming in this picturesque land is almost entirely managed by female, children etc. as it were a distinct dearth of the energetic and innovative types, who alone can take lead in the modernization of agriculture.

The study areas topography and climatic conditions have put limits on the sources of income of farmers. The study area has to depend only one and rarely have two crops in a year. There is little possibilities of positive change in the status of farmers unless subsidiary supplements activities like milk, poultry etc. will be developed through proper manner.

In the study area agro-based industries like rice processing mills should be developed on co-operative basis, These industries not only increase employment potential but also raise the socio-economic status of the study area.
Plant protection measures are implemented in the irrigated area, little progress has been made in adopting improved agricultural implements in the study area. Small and marginal farms should be provided modern agricultural implement on concession rate.