Chapter – IX

CONCLUSIONS AND SUGGESTATIONS
Chapter IX

CONCLUSIONS AND SUGGESTIONS

9.1 CONCLUSIONS

9.1.1 Introduction

Agriculture is the most important activity and backbone of Indian economy and more than 57 per cent population engaged in agricultural practices. For this purpose assessment of agricultural development is important in the country like India. Raigarh district is not an exception for this. Geographical appraisal of agricultural land use and land degradation is of vital importance in the context of agricultural and economic development of the region. In recent year’s lot of efforts have been made in various regions to analyse and to find out the nature of soil and its suitability for the agricultural production have given fruitful results, which helpful in planning and management for the development of the region. The present investigation is done in the same direction. It is an attempt to analyse and interpret the existing agricultural land use pattern and the agricultural land degradation of Raigarh District.

9.1.2 Raigarh District is one of the coastal district of Maharashtra lies in Konkan region, consists of 7152 sq km area with 2.27 per cent area of the state. The physiography of the district is undulating and sloping towards the west. The study region is covered by basaltic surface. The study region receives rainfall from south west monsoon from June to October. The average rainfall of the district is 3028 mm. The climate of the region is typical hot and humid. The weather is appressive in hot months and highly humid throughout the year. Being a coastal district the diurnal and seasonal variation are not large. The maximum average temperature is 32.7°C and minimum average temperature is 22.9°C. The rainfall is very high and regular thus Kharip season are assured. The soil type are identified in the Raigarh district namely laterite soil, alluvial
soil, black soil and saline soil. Physiographically the region is divided into three distinct parts namely coastal area, the central plain and the eastern hilly area, further divided into kharland area, coastal plain, plateau region, foot hill plain and ghat and hilly region. The district has six major drainage system namely, Ulhas, Patalganga, Amba, Kundalika, Savitri and Bhagwati originating from Sahyadri mountain ranges and flow towards the east. Due to sloppy land and heavy rainfall river flows fast in rainy season and dried in summer, not useful for irrigation. The irrigation in the region is not well developed. The net irrigated area is only 11701.42 hectares farming only 7.74 per cent cropped area. The region has 2, 96,866 land holders among which 71 per cent are the marginal farmers occupied less than one hectare land. The population of the region was 2007929 as per the census of 2001 and the density is 309 persons per square kilometer. National highway NH No.4 and17 runs through the district useful for the transportation. Transportation and market centre’s plays important role in the development of agriculture. Other socio-economic factors are also supports for the agricultural activity in the study region. The observations and conclusions discussed in the proceeding chapters are presented below.

9.1.3 The Raigarh District is prominently the agricultural district, well known for paddy cultivation. The general land use of the district shows the variation in the study period from 1981 to 2001, wherein net sown area shows growth of 2.34 per cent. It is an indication that the farmers are trying to bring the maximum land under cultivation. Land not available for cultivation and forest land indicates decline by 1.49 and 1.85 per cent. The cultivable waste land and fallow land has been slightly increased during the study period. In case of spatial variation, the land use pattern is uneven in the district. Mahad, Murud, Alibaug, Sudhagad tahsil shows 6 to 15 per cent increase in net sown area while Uran, Roha and Panvel tahsil shows large decline due to near industrial area and vicinity of Mumbai Metropolitan region. The cultivable waste land is
increased in Karjat Tahsil by 21.47 per cent while it decreased by 14 to 15 per cent in Sudhagad and Murud Tahsils. In other tahsils the variation is not as large. Land under forest is declined by 1.85 per cent in the district and more than 13 per cent in Karjat tahsil and 5.67 per cent in Mhasala tahsil. Slight increase less than 1.35 per cent has observed in Panvel, Roha, Poladpur and Shrivardhan tahsil.

9.1.4 Raigarh District is an agricultural district of Maharashtra state. Rice, nachni, wari, pulses, oilseeds, spices, fruits and vegetables and fodder crops are the major crops grown in the district. Rice is the major food crop grown in the study region. Rice covers more than fifty per cent to the net sown area and shows declining trend in the study period with 13.44 per cent. The spatial distribution has also shows the variation in land use. Uran, Murud, Sudhagad, Mhasla, Mahad and Poladpur tahsils show high decrease in area under rice cultivation in the study period. These are coastal and hilly tahsils of the district. Increasing the Kharland is the major cause for declining the area under rice cultivation in coastal region. The summer (Rabbi) cultivation is limited due to poor irrigation facilities. Nachni, is the another food crop mostly grown in the slope of hilly area in rainy season. It is declined by 2.96 per cent the study period. Eastern part of the district covers slope of Sahyadri mountain ranges used for nachni cultivation mostly by the tribal people. Overall decrease in nachni cultivation has observed in all tahsils except Tala and Uran tahsil. Wari is also a food grain, grown with the nachni cultivation on the slopes. Eight tahsils shows increasing trend while seven tahsils shown decline trend during study period. Gram, tur, moong, wal, chawli are the major pulses grown in rabbit season and the area under pulses is increased by 2.05 per cent in study the period. Pulses are grown after rice cultivation with limited irrigation. Eight tahsils show the increase in pulses area more than two per cent. Black pepper, cinnamon and nutmeg are the main spices grown as an inter crop in coconut and areca nut farms. The area under spices is declined by 0.36 per cent in twenty years. Coastal tahsil shows the increasing trend of spices due to coconut
Chapter IX - Conclusions and Suggestions

and area nut farms. Horticulture is not much developed in the region in study period at initial stage. The area under fruits and vegetables show remarkable increase by 7.43 per cent in the period of 1991 to 2001. Mango, Cashew nut, coconut, chiku, ratambi, watermelon, jackfruits, papaya are the major fruit crops and lady fingers, bitter guard, bottle guard, cucumber, spinach and chili are the major vegetables grown in the district Sudhagad, Mhasala, Uran, Karjat, Murud, Mangaon and Poladpur shows more than 10 per cent while only Khalapur tahsil shows decline in fruits and vegetables cultivation. Nearness to the Mumbai market caused for increase in fruits and vegetable cultivation. Groundnut, seagamum and linseed are the important oil seeds grown in the region shows overall growth of 0.80 per cent. Ten tahsils show the increase and five tahsils show the decrease in oil seeds. It is mostly grown on plateau region of the district. Fodder crop includes maize, kadwal and grass covers 18.17 per cent area in 2000-01. It is increased by 6.78 per cent in the study period. Proximity of Mumbai Metropolitan region is the cause for increasing trend of milk farming among the farmers. The rise in fodder crop cultivation is a result of the same. Eleven tahsils shows the increase in the area of fodder crops.

9.1.5 Crop ranking shows relative strength of crops at tahsil level. Rice and fodder crops are at first ranking crops in the district. Rice ranks first in thirteen tahsil while fodder crops in two tahsils. Five crops namely fodder crops, fruits and vegetables, rice, nachni and pulses are observed as second ranking crops among them fodder crops is observed in seven tahsils. Six crops are observed at fourth rank, five crops are at fifth rank in the region. Two crop combinations has observed in Raigarh district. Crops in two crop combination has been increased in twenty years. It is an effect of market, irrigation and efforts of the horticulture department. Rice as monoculture was observed in six northern tahsils in 1990-91 and in five tahsils in 2001, spared over the district. Two crop combinations continued mostly in southern tahsils. Rice-fodder crops, rice-nachni, rice-pulses are the crops in combination in 1990-91 increased by one
more combination of rice- fruits and vegetables in 2000-01. This new crop combination shows the impact of market demand on framers decision.. High crop diversification is seen in coastal and southern tahsils namely Uran, Mahad, Sudhagad, Shrivardhan, Mhasala, Murud and Poladpur tahsils with index value ranges from 0.64 to 0.80. Moderate crop diversification is observed in central and northeastern seven tahsils namely, Panvel, Karjat, Khalapur, Alibaug, Roha, Mangaon and Tala tahsil. Low diversification is observed in Pen Tahsil.

9.1.6 The production aspect is an important indicator of agricultural development. Productivity is an important tool for the better planning and development. The figures indicated that the productivity is higher in plateau region and at the base of Sahyadri hills due to availability of plain land, irrigation, plateau land and intensive cropping pattern. The study of the productivity of rice indicates increasing trend from southern part to northern side of the district. The highest productivity has observed in Khalapur while lowest has observed in Poladpur tahsil in south. The productivity of nachni shows the inverse trend to the rice increasing towards south side. The highest productivity has observed in Mangaon tahsil while lowest is in Alibaug tahsil due to coastal saline land. Productivity of pulses is higher in central plateau and coastal plain land. The highest productivity in pulses is seen in Sudhagad tahsil on a plateau region and lowest has seen in Karjat tahsil. Productivity of oilseed shows the spatial variation in the district. The highest productivity is recorded at Poladpur tahsil and lowest in Uran tahsil. The variation in productivity is a result of various factors like topography, irrigation, farming methods etc. Due to small land holding, most of the agricultural practices are done by manually without using the modern techniques also affects the productivity in the study region.

9.1.7 Agricultural land degradation in the study region is the combine effect of physical and socio-economic factors observed in the various parts of
the region. Salt affected lands by over use of chemical fertilizers, loss of top soil by brick making industry, salt accumulation on coastal agricultural land, soil erosion caused for loss of soil and unsuitable cultivation practices are the important causes of land degradation identified in the region. Fertilizer is an essential ingredient in augmenting agricultural productivity and maintaining soil fertility, but the application of excessive use of fertilizers caused ill effects on the quality of soil. Fertilizers are largely used for rice, fruits and vegetables, pulses and oil seeds cultivation in the region caused to increase the pH of soil in the region. Total 32.41 per cent land of the net sown area is having more than the 6 pH and the soil become unproductive. The level of electrical conductivity is critical on 8030 hectares (6.75 per cent) land of the net sown area, where seed emergences is poor. The northern tahsils are close to the proximity of urban area caused for increasing number of brick klins which damaged the good productive soil from the agricultural land. It covers 0.32 per cent of the net sown area. Coastal tahsils facing the problem of salinity of land by sea water covers 32564 hectares area out of which 14081 hectares area are heavily affected and not useable for cultivation. The soil erosion has been on large scale in eastern part of the Karjat, Khalapur, Mahad and Poladpur tahasil. Unsuitable cultivation practice is the common cause observed in all villages.

9.1.8 An in depth study of ten sample villages has shown diversified characteristics. Village Kolve is situated in the western side near the creek on kharland has covers 144 hectares area. Net sown area accounts 86 per cent area of the total geographical area. Rice is the predominant crop in the village covers 92 per cent respectively. Soil erosion and increasing pH is the major causes of land degradation in the village. Kharsai village is situated in the western side near the creek and covers an 1138 hectares area. Net sown area accounts 46.39 per cent area of the total geographical area. Rice is the predominant crop in the village covers 92 per cent respectively. Salt accumulation, wrong cultivation method and increasing soil electrical
conductivity identified the causes affects on the quality of land. Varse village is located in the coastal area of the district covers 255 hectares geographical area. Net sown area accounts 43.47 per cent of the village. Rice and fruits and vegetables are the major crops cover 79.27 and 14.62 percent respectively. Land degradation is not much observed in the village. Increasing pH of the soil is the only cause of land degradation in the village. Wave Diwali village is located on plateau region of the district covers 691 hectares geographical area. Net sown area accounts 28.83 per cent. Rice, Nachni, fruits and vegetables are main crops grown on 75.79, 8.85 and 7.37 per cent respectively. Soil erosion and increasing pH is observed in the village which causes land degradation. Village Shiloshi is situated on the central plateau land of the district. It covers 557.44 hectares area in which 18.65 per cent area is under cultivation. Rice is the main crop covers 78.06 per cent. Along with the Pulses, fruits and vegetables are grown in more than three per cent land of the cropped area. Total 35 hectares area is irrigated by canal caused for the production of rabbit crops, specifically pulses in the village. Wal, chavali, and Tur are the major pulses in the village. Soil erosion and brick kliks are the causes noticed in the village. Village Kadav is situated at the foot hill plain land of the district. It covers 379.13 hectares area in which 72.28 per cent area is under cultivation. Rice is the main crop covers 53.28 per cent. Along with this Wari, Nachni and Pulses are grown more than 10 per cent land of the cropped area. Total 80 hectares area is irrigated by canals caused for the production of rabbit crops specifically pulses and vegetables in the village. Wal, chavali, and Tur are the major pulses taken in the village. Tupgaon village is located on foot hill region of the district covers 147.67 hectares geographical area. Net sown area accounts 70.24 per cent. Rice, pulses and vegetables are main crops grown on 72.79, 8.85 and 7.37 per cent respectively. Massive use of fertilizers caused for increasing pH is the main cause for land degradation in the village. Village Dhodhani is situated on the hilly slope of western Ghat has spreads on 645 hectares area with 1462 population. Net sown area accounts 40.78 per cent area
of the total geographical area. Rice is the predominant crop followed by Nachni covers 37.32 and 16.07 per cent respectively. Due to the steep slope gully erosion in the farms is the major cause for the land degradation. Village Warandh is situated on the slope of western Ghat has spreads on 1347 hectares area with 566 population. Net sown area accounts 70.26 per cent area of the total geographical area. Rice is the predominant crop covers 95.37 and 16.07 per cent respectively. Soil erosion and wrong cultivation methods are the common causes for the land degradation observed in the all villages.

9.2 SUGGESTATIONS

1. Ground water is the more dependable source in summer thus watershed management works like minor irrigation projects, contour banding, nala bunding etc. to be introduced on the eastern side of the region for conserving water and soil properly. This would be helpful in increasing the water table and bringing additional land under cultivation in rabbi season.

2. The cropping pattern in the irrigated area has to be altered and crops like fruits and vegetables and spices should be increased. There is an opportunity to the farmers’ to sale the products in the local and Mumbai market.

3. The district has a wide scope for milk production thus the cultivation of fodder crops needs to be increased, especially in the northern tahsils.

4. New HYV and salt tolerated seed has to be use to increase productivity of the crops in the region.

5. The fertility status of the soil should test before providing the chemical fertilizer to the farms. The efforts have to be taken to popularize the use of mechanical the bio-chemical inputs among the farmers. It will be helpful to save the fertility of the soil and increase the productivity.
6. Soil is the life for plants thus Government should not be permitted to use the fertile soil from the agricultural farms for the brick industry.

7. Construction of check dams near the farms in the coastal region will prevent the salt accumulation in the agricultural land.

8. To overcome the problem of soil degradation the proper soil and water management need to be taken on priority basis. Systematic efforts to be made by the Government agencies for sensitizing about the problems and prospects of the agriculture amongst the farmers in the region through training programmes and seminars in the villages.

9. Efforts to be taken for massive plantation of trees through Social Forestry Programmes on the fallow land available in the district.

10. To utilize the soil affected lands, fish farming is the alternative source for the farmers. So efforts to be taken for the promotion of fish farming in the coastal region.

11. To overall development, besides the agricultural activity agro based activities like dairy, poultry and household industries should be started in the eastern side of the study region.