

Chapter IX

Major Findings and

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The study has been revealed that agricultural land use pattern within the subdivision varying across the gram panchayats. The foregoing chapters have been revealed that major portion of the subdivision is suited to agriculture. It is an agriculturally developed subdivision within Darjeeling District. The study area lies between $26^{\circ} 27' N$ to $26^{\circ} 57' N$ of latitude and $88^{\circ} 07' E$ and $88^{\circ} 31' E$ of longitude Except Siliguri Municipal Corporation, the four CD blocks, namely Matigara, Naxalbari, Kharibari and Phansidewa within the subdivision are agriculturally developed. These four CD blocks belong to plain region of Darjeeling district. The plain is composed of the alluvium brought down by the Mahananda, Balason and the Mechi rivers and their confluence. The general slope is from north to south. This plain land with alluvial deposition, sandy loam soil being the most common, is favourable for cultivation. The proportion of land with dense forest cover not favourable for cultivation has been found in extreme north. In contrast to this, extensive areas of level land suited to agriculture are found in the southern part of the region. The rivers have developed the flood plains which are highly responsible for soil fertility. Rainfall is heavier in plains of Darjeeling than hills. But, sometimes there is a delay in the onset of the monsoonal rain in the district. This makes necessary to explore the feasibility of the water for assured supply of irrigation. In the region there is a balance of ground water and this can be used for irrigation. In addition to this a substantial amount of surface water is available and this can also be used for development of water irrigation. Thus there is an ample scope for development of water resources for irrigation in the subdivision. Presently lift irrigation plays a very important role as a source of irrigation. This development of irrigation enabled farmers to accept the new innovations.

Besides the physical factors, there are also many other socio-economic factors influencing the region's agriculture. Amongst them, the population factor is more important. The area under review is a densely populated part of the district. The density of population in Matigara, Naxalbari, Kharibari and Phansidewa has been observed 1426, 890, 754 and 655 in 2011. Population pressure is increasing day by day in the region of study. The subdivision is an area of small and marginal landholdings where agricultural

implements like ploughs and carts are driven by bullocks and he-buffaloes. The reason behind this problem is our inheritance laws where the land belonging to father has been divided among sons. Thus, the land holdings become smaller and more fragmented with each passing generation.

The aforesaid factors have a profound impact on general land use pattern. In Siliguri subdivision 12.43% agricultural land decreased over the periods. All the gram panchayats have also been experienced the same. This reduction in agricultural land is for the conversion of agricultural land to other purposes like forest land, tea garden and built up area. Forest area coverage has been increased by 6.88% in the subdivision. The increase in forest area coverage is due to the implementation of afforestation works by jointly block office and subdivisional office. Area under tea garden has been decreased over the periods by 0.75%. This decline is due to the conversion of tea garden into urban areas. In Siliguri subdivision built up area is gradually increasing (6.3%) during the study period due to the significant increase in population. In most of the gram panchayats built up area has been shown increasing trend. In Siliguri subdivision there is no change in area under river and water body (5.82%) during the study.

In the agricultural land use pattern, 14 crops have been concerned in the area under review. The region is mainly cereal producing region within which aman is the leading crop in all gram panchayats of the subdivision. Jute is the leading cash crop of the region and has been cultivated in all gram panchayats. In case of spatio-temporal change the study has been revealed that area under cereals has been slightly increased in the subdivision. Except Phansidewa block, area under cereals has been decreased in all gram panchayats. Cash crops and other crops are two important crop groups occupying significant position in the agricultural land use pattern. Oilseeds and pulses have been shown decrease in area under cultivation over the periods of 20 years. Decrease in area under food grains and increase under cash crops and other crops are more apparent. Based on the proportion of area under different crops, the region is demarcated into different categories of land use regions, e.g., crop ranking, crop combination and crop diversification regions. Paddy is the first ranking crop in all GPs of the Siliguri subdivision. In all, six crop combination regions have been emerged and high diversified cropping pattern is exhibited in the region under study. The patterns of agriculture within the subdivision have been changed from one place to another due to varied socio-

economic conditions of the farmers. The types of crops have been cultivated are also different from one GP to another. As a result there is a wide variation in the production and yield rate of crops across the gram panchayats.

The study has been revealed that five types of productivity regions observed in the region. Policy makers should be given importance in the low and very low productivity region to raise their crop production. The growth trend analysis of yield has been shown increasing trend in case of aus, aman, maskalai, mustard, til, potato, jute and other crops and decreasing trend in case of boro and wheat in the subdivision. The growth trend analysis of area under principal crops have been shown increase in area under cultivation for aman, boro, potato, jute and other crops and decrease in aus, wheat, maskalai, mustard and til. The growth trend of area under boro have been increased but yield of boro decreased over the periods. For wheat area and yield growth trend both have been decreased in the area under review. This indicates the low level of irrigational facilities in the region.

So far as the use of agricultural inputs is concerned, the application of irrigation, chemical fertilizers, machineries have been developed the region's agriculture more but the rate of application is slow. Agricultural credit societies have forced to change the agricultural landscape of the region but there are regional variations which have occurred due to many technological developments. Three types of agro-technological regions have been found in this region. It has been found that agricultural land use pattern highly changed in high technological region and vice versa.

In the Siliguri subdivision the percentage of agricultural labourers is higher in Phansidewa CD Blocks than that in the other CD blocks of the subdivision. Compared to the number of cultivators, the numbers of agricultural labourers are more than that. From this, it could be inferred that the number of landless labourers has been become greater due to tremendous population pressure in the Terai blocks. In spite of the fact that such a large percentage of the population is involved in agriculture, it falls in the list of unorganized sectors; the main reason for this apparent anomaly is the lack of a regulated market, the lack of transportation facilities and the absence of infrastructural facilities to support the farmers during the lean period. The farmers have to rely on middlemen for

marketing their products. Thus, the prices charged are decided by the middlemen, irrespective of the prices prevailing in the market.

Conclusions

The present study is an attempt to analyze the agricultural land use pattern in Siliguri subdivision which is an agriculturally developed part of Darjeeling district. This study helps to a certain extent to understand the agricultural geography of Terai region.

The study reveals that during the 20 years of study paddy is the dominant crop in the subdivision as well as in all gram panchayats. Among paddy, aus has been drastically declined in its percentage coverage which is replaced by boro cultivation. Paddy has losing its importance though it is considered as a staple food. Crops like potato, jute, maize, vegetables are gaining significant position in the subdivision. Both net sown area and gross cropped area have been increased in the study region over the periods. But in case of block, in Matigara both net sown area and gross cropped area have decreased. It is due to the conversion of agricultural land into built up area. Irrigation facilities and other agricultural implements should be improved in the region as the boro and wheat yield have been decreased during study period.

In this region mainly small and marginal farmers have been found. They grow commercial crops only after meeting their food grains requirement except vegetables as it helps to earn money for their daily needs. This helps to raise the area coverage and yield of vegetables in the region during study. To overcome the bad season effects and to earn money during lean period farmers have been adapted diversification in crop cultivation. This also helps to engage agricultural labourers and cultivators in field throughout the year. The farmers are bound to sell their produce to village traders or money lenders. They also sell their agricultural produce to Pykars (local mahajan). Every year during peak season market glut forced cattle grazing. If they get cold storage for their produce then they can get money during off season by selling their produce in market.

The subdivision experienced a drop in area under cultivation of pulses and oil seeds. The drop in area of pulses and oilseeds needs to be considered by the policy makers seriously as this goes against the theory that with modernization in agriculture, multiple cropping is more prevalent resulting in general increases of net sown area and farmers tend to reduce area under cereals to produce more of various crops.