PART III : SYNTHESIS
CHAPTER VIII

SUMMARY AND CONCLUSION

8.1 SUMMARY

The present work is an analysis of the spatio-temporal variations in the changing pattern of land use and its related problems in the Barpeta District during the settlement periods, 1921-31 and 1951-65.

The study region was rich with a variety of physiographic features offering immense potentialities for agricultural development, yet putting to human efforts tremendous barriers, such as extensive char, beels and water-logged areas, zigzag water channels, prolonged winter drought condition with scarcity of water and unhealthy forest area. The analysis of physiography, climate, and soil of the region reveals the physical setting of agricultural land use and, therefore, such an analysis is necessary for future agricultural planning.

The ecological and socio-economic attributes of the Barpeta District through their combined interplay resulted in a certain pattern of land utilization. The scope for physical expansion of arable land in the region had been gradually
becoming very much limited. The net area sown accounted for only 28.65 per cent of the district's total area in 1921-31. But in 1951-65 it increased to 49.58 per cent. On the other hand, the percentage of culturable waste land in the district had been gradually decreasing during the above periods indicating the declining scope for further expansion of net area sown horizontally. The analysis of the changing pattern of general land use reveals that due to the rapid growth of population, there had been a change in land use between the period 1921-31 and 1951-65. The change of land use pattern in the region may be divided into four categories: most dynamic, dynamic, semi-dynamic and relatively static. The most dynamic change in land use is found in most of the areas of the immigrant-dominated low-lying region of the district. Such a dynamic change was caused by the rapid socio-economic changes that had taken place due to the fresh surge of immigrants. Least change in land use is observed in most of the areas of the built-up mid-plain region, where the land had been settled by the indigenous peasants for a long time without having flood hazards and immigration. Medium change in land use occurred generally in those mouzas where both immigrant and indigenous peasants live and also in the tribal-inhabited areas. The land use change in the Barpeta District as a whole was 18.37 per cent, but there was tremendous spatial variation of it ranging from 5 per cent to 47 per cent. There existed a correlation between the increase of net
area sown and land put to non-agricultural uses (mainly settlement) on the one hand, and the decrease of culturable waste land and fallow land on the other hand. Changes in the urban area were very much minimal. Without any regard to ecology, the immigrant peasants practised agriculture reclaiming even the beela that adversely affected the breeding of various species of fish which were formerly abundant in the region under the natural condition. The reserved grazing fields, where formerly large numbers of flocks of buffaloes were kept for milk by private bathan holders, were made open for the settlement of the immigrant peasants, both Hindus and Muslims. Thus the most lucrative business of keeping bathan by some rich families had disappeared resulting in scarcity of milk products in the region.

The changing pattern of agricultural land use is the result of the transfer of land from one kind of agricultural use to another in relation to space and time. The rational utilization of the available land bears the key to the present and the future agricultural production and productivity. The emergence of a cropping pattern is a very complicated process. The cropping pattern in the district varies spatially. Food crops dominate the agricultural landscape of the region. Transplanted paddy was the most important crop in the district covering 36.45 per cent of the total cropped area in 1921-31. During 1951-65 the high land paddy occupied the largest area among all the crops accounting for 26.35 per cent of the total
cropped land. It is interesting to note that deep-water paddy concentrated more in those mouzas where jute was also a priority crop. Concentration of jute was found in the low-lying areas of the district where immigrant Muslim population was relatively high.

Concentration did not remain same during the thirty two years between 1921-31 and 1951-65. More and more waste lands had been invaded, settled and cultivated by the increasing number of immigrant peasants. Since several crops were grown in combination, it becomes necessary to find out the relative crop-land occupancy of different crops grown. The crop-combination is a technique used to identify crop regions dominated by a combination of more than one crop. There were six main crop-combination regions, but the 7-crop-combination region had three sub-regions, 6-crop-combination region had four sub-regions and 5-crop-combination region had five sub-regions during 1921-31. As evident from the analysis of crop-combination, it was lower in the high plain and built-up mid-plain, whereas the southern low-lying region, dominated by immigrant peasants, had higher crop-combinations. The number of crops in the crop-combination was gradually decreasing as one moved towards the northern part of the district, because of the replacement of deep-water paddy and jute by transplanted paddy, pulses and linseed. The main factors resulting in such replacement of crops were not only the variable physical features, e.g. soil, flood and topography,
but also the variation in the social groups of peasants preferring to grow different kinds of crops in different parts of the district.

In an agricultural region where population growth is alarmingly high and possibility of further spatial expansion of crop land is limited, intensification of cropping is one of the possible ways to increase output. In a situation where there is a general lack of occupational avenues for livelihood other than agriculture for the increasing working force, intensive utilization of land is the only means of meeting food requirement for the growing population. It is evident from Table 4.9 that in all the mouzas of the Barpeta District, the intensity of cropping was low during 1921-31. Of the two ways for achieving larger volume of agricultural production, viz. extensive and intensive cultivation, greater emphasis was laid on the former in the district. During the two periods, the district as a whole showed an increase in intensity of cropping by about 15 per cent. Introduction of crops like tobacco, chillies and coriander and gradual increase in the crop hectares under deep-water paddy, jute and pulses raised the agricultural intensity in the latter period. Fig. 4.9 shows that the Uttar-Bajali mouza attained the highest percentage change in intensity of cropping. High density of rural population in this mouza had the impact on the percentage increase in intensity of cropping.
Crop-diversification simply means the raising of a number of diverse crops in an area. In the Barpeta District under the given ecological set-up and socio-economic milieu, a variety of crops with different areal strength were raised during the periods under this study. On the basis of crop-diversification indices scored by different mouzas, the district is divided as follows: (i) diversified mouzas, (ii) less diversified mouzas and (iii) least diversified mouzas. Diversification is, in fact, a reflection of the interplay of the complex social, economic, and physical factors. All the factors themselves keep on changing, except the physical ones. Thus, under the influence of dynamic socio-economic factors, the crop-diversification goes on getting modified. The percentage change in diversification of crops between the two periods, 1921-31 and 1951-65 was high in the Sarukshetri and the Paka mouzas of the low-lying region and Hastinsapur mouza of the built-up mid-plain region. Percentage change was negative in the Pub-Bajali and Uttar-Bajali mouzas as the spread of education created alternative easier sources of income and a tendency 'to leave the system' had developed among the peasants.

The agricultural regionalization is based on physical, economic, demographic and cultural differences prevailing in different parts of the district. For 1921-31, the district was divided into six agricultural regions and...
period 1951–65, the district was divided into seven agricultural regions. During 1921–31, there were two core regions, one transitional region and three peripheral regions on the basis of the predominance of certain crops grown. The southern core region of jute and deep-water paddy was the most prosperous agricultural region which was settled mostly by the immigrant Muslim peasants in the low-lying plain. The central core region of highland paddy and linseed in the built-up mid-plain was inhabited by the indigenous non-tribal where agriculture was most traditional.

The middle transitional region grew some crops similar to the central core region and some crops of the southern core region. But transplanted paddy was important here. In a similar way, the three peripheral regions also had their peculiar crops. During 1951–65, there was the emergence of three core regions, one transitional region and three peripheral regions. The southern core region covered the same areas of the low-lying plain as in the earlier period, but in this period it included another important crop, i.e. highland paddy besides jute and deep water paddy. The central core region during this period covered only the Hastinapur, Bhawani-pur and the Sarih mouzas where transplanted paddy was predominantly grown. There was the emergence of a new core region covering the northern high plain and the Manikpur, Uttar-Bajali and the Pub-Bajali mouzas of the built-up mid-plain where highland paddy and linseed became important.
The central transitional region then included the Howli and Chilajhari mouzas where highland paddy and jute became the predominant crops. Highland paddy and sugar-cane were the important crops in the western peripheral region, jute and highland paddy in the south-eastern peripheral region and deep water paddy and highland paddy in the eastern peripheral region.

The analysis of the volume of change in agricultural land use in the Barpeta District between the settlement periods of 1921-31 and 1951-65 provides a comparative view of the areas where agricultural land use pattern had been relatively most dynamic and by contrast, other areas where it had remained relatively static. Between the two periods, outstanding change took place in the Bagaribari, Barpeta, Chenga and Ruposi mouzas. Rapid socio-economic changes were brought about in these areas under the impact of fresh surge of immigrant peasants who started a sort of agricultural revolution in respect of growing jute, deep-water paddy and highland paddy by reclaiming the riverine waste lands. So these mouzas are included in the most dynamic region. Agricultural land used under different categories was relatively stabilised in the Sarih mouza between the two settlement periods, as this mouza had been settled by the indigenous peasants for a long time without any significant physical as well as socio-economic disturbances.
The volume of change in agricultural land use was between the above two extremes in all the remaining mouzas of the district. It was dynamic in the predominantly Muslim immigrant inhabited mouzas situated away from the Brahmaputra river. The semi-dynamic change took place in the built-up mid-plain (except the Sarih mouza) and the high plain which were inhabited by the indigenous non-tribal and the tribal peasants respectively.

From the analysis of correlation coefficients between density of population and intensity of cropping for the two settlement periods, it has become clear that the intensity of cropping was influenced to some extent by the density of population in 1951-65, whereas in 1921-31 intensity of cropping was insignificant because of low density of population. Only 32 per cent \( (r^2 = 0.32) \) of the variation in intensity of cropping was accounted for by the density of population in 1921-31, whereas as high as 69 per cent \( (r^2 = 0.69) \) was accounted for by the density of population in the later settlement period. Such a finding indicates that population pressure had been playing an increasingly greater role in augmenting the intensity of cropping in the district.

The Barpeta District was thinly populated during 1921-31, but it became very densely populated during the
later period, 1931-65. It was essentially a rural region as only 4 per cent of the total population in 1921-31 and 5.18 per cent in 1951-65 lived in the urban places. The district has been the home of several social groups. The physical settings of the region had great impact on the distribution and density of population. The district had an arithmetic density of 107.30 persons per km² in the former period and 247.43 in the latter period. Mouzawise population density per km² varied between 26.65 and 441.04 persons during the first period. Indigenous non-tribal population constituted 60.78 per cent in 1921-31 and 48.68 per cent in the later period. As many as 10.45 per cent of the population in 1921-31 and 6.36 per cent in 1951-65 were indigenous tribal population. The percentages of immigrant Muslim population were 27.47 and 40.61 respectively in the two settlement periods. The polygamous system of the Muslim immigrant and uncontrolled high birth rate were also responsible for the phenomenal increase of growth rate in the succeeding decades. The population projection of the region shows that if there is no further immigration, then by 1991 the population of the district will be 1.72 million and by 2001 it will be 2.21 million. But if the rate of increase of immigration as it were during the decade 1971-81 is to continue, then the projected population of the district will be 1.98 million by 1991 and by 2001 it will be 2.91 million.
The study of the distribution of settlement of the different social groups shows that the majority of the people settled in the built-up mid-plain region were indigenous non-tribal who were living here for a long period. Their settlements became clustered as the number of villages had been increasing along with the increase of population. There was no physical barrier in this mid-plain to disperse the settlement, as the plain here was almost physically homogeneous. In the high plain region the settlement pattern was relatively less clustered than in the built-up mid-plain region. During the earlier period, most of the lands here were jungle-covered and so the tribal people lived in scattered villages. However, there was a tendency towards clustering of the settlement during the latter period as there was an increasingly heavy pressure of population in the built-up mid-plain region from where some of the non-tribal people had been migrating to this high plain region in order to settle there.

In the low-lying region inhabited by the Muslim immigrants, the settlement pattern was different from those of the built-up mid-plain region and the high-plain region. Here villages were located within the agricultural fields without following any line of communication, such as roads or rivers resulting in scattered type of settlement. Even a village comprises a number of hamlets scattered over the open agricultural fields without having any linkage between one hamlet and the other. But there was a tendency among the older immigrant settlers towards clustered settlement like that of the indigenous non-tribal people.
As the subsistence agro-based economy is not well-equipped to give rise to the growth of urban centres, the district had only one class IV urban centre in 1921-31. This urban centre, i.e., the Barpeta town raised to class III town in 1951-65. Barpeta Road became a class IV town in 1951-65. The then headquarters of the Barpeta sub-division (now it is the headquarters of the Barpeta District) was originally a big village where Mahapurush Sri Sri Madhav Deva, the principal disciple of the great Vaisnavite saint Mahapurush Sri Sri Sankar Deva established a famous gatia. People from different parts of the district as well as from other parts of Assam were attracted by the gatia to come and settle here because of the liberal appeal of the religion preached by them in those days of the late mediaeval period when the common people belonging to the lower castes had been socio-economically suppressed and humiliated by the high caste Hindu people, and superstition, sorcery, fatalism were prevalent in the name of religion. Besides, the place was an important trading post as it was well-connected through a network of river routes with easy access via the Brahmaputra river to Guwahati, Dacca (now in Bangladesh) and Calcutta facilitating export of local resources and import of essential goods from outside. As a result of these two kinds of influences, the population agglomeration of Barpeta had been rapidly increasing so as to qualify this place to become a town. The general level of all the lands of the Barpeta town
was as low as to be submerged under flood. So the lands had to be raised by earthfilling to make them higher than the ordinary flood level and only thereafter the lands became fit for residential and trade site. The present scenario of the town seems to be of a functionally *static* one with a large number of non-agricultural people clustering round the *gatra* having limited scope for earning livelihood. The Barpeta Road town provided the only outlet for the people of the Barpeta town to the railway system. The town was well connected with other important towns and places of the state and the country by the railway and the National Highway and with other important places within the district by roads. Its importance had been considerably increasing as a commercial centre for the export of raw jute coming from the surrounding jute growing areas. The hinterland of the town was large and rich and well connected by roads. As a result, the trade and business had been fast developing attracting a large number of traders and businessmen to this town.

In the absence of secondary data to study the present situation of land use, the author has to take resort to the collection of primary data from only five representative villages. The Simaluguri village of the high plain region was quite undeveloped and backward. The village was mostly inhabited by the indigenous tribal people. There were a few Nepali families also. The principal occupation of the people was agriculture. There was also some landless agricultural
labourers who worked in the fields of other farmers on the daily wage basis. Weaving was a cottage industry for the females of the indigenous tribal people. The Bamunkutni village of the built-up mid-plain region was inhabited by the people belonging to the caste Hindu community. The principal occupation in this village was agriculture. Paddy was the chief crop grown. There were also school teachers, service holders and shop-keepers. The literacy of the village was high. The location of the village was comparatively better than that of either the villages of the high plain or the low-lying plain as the built-up mid-plain region was free from the adverse effects of flood and well connected with other places through a network of roads. The high caste people were not very much interested in agricultural occupation. Instead there was a growing interest in them in educating their children for services other than agriculture. The Bamun Dangra village of the low-lying region was inhabited by the immigrant Muslim community. As an after-effect of the great earthquake of 1897, the village had been deserted by the indigenous people who migrated to other places where they found themselves better placed. As a tragic result of this migration, the village became desolate and its land remained unoccupied and unutilised for several years. Since 1930, the immigrant people of the Muslim community from the erstwhile East Bengal (now Bangladesh) started coming and settling in this village. The village is remarkable for its jute
cultivation. Fine quality jute is grown abundantly and the sale of jute is the principal cash crop of the peasants. Duck rearing and poultry farming are also practised by the village people. The standard of living of the people of this village in general is below the poverty line. The people here just managed to survive by dint of their hard labour. The rate of literacy is very low. The residents of the Mandia village of the low-lying region belong to both the Hindu and the Muslim communities. Prior to the arrival of the Muslim immigrants, the village was solely inhabited by the indigenous Hindu people. But since 1930s the Muslim immigrants started to come here and gradually occupied lands belonging to the indigenous people either by forcibly grabbing or in some cases by purchasing at a nominal price: until the erstwhile majority of the indigenous Hindu people were reduced to minority. After the Muslim immigrants became majority, their position in the village was stabilised and secured. Since then both the communities of the village have been living comparatively in a peaceful condition except at the time of election or movements on communal basis. Jute, paddy, wheat, pulses were the main crops in this village. The Nasatra village located near the Barpeta town is inhabited by the indigenous non-tribal people. The main occupation for earning livelihood is cultivation, fishing and services. As the village is situated in the suburb of the Barpeta town, the literacy rate of the village is high in comparison to other villages situated away
from the influence of the town.

The study of the landholding structure at the micro-level reveals that the majority of the peasants of the surveyed villages have marginal holdings. The percentages of big-sized families are highest in all the villages irrespective of communities or of ecological set-ups.

8.2 CONCLUSION

The study on the changing pattern of land use in the Barpeta District through the inductive-empirical method is concluded with the following findings and suggestions. Here the suggestions are made on the basis of the findings of the study assuming that the pattern of land use in the study region has not been changed much after the period, 1951-65.

The analysis of physiography, climate and soil reveals the spatial distribution pattern of natural resources as well as natural constraints. Such an analysis is, therefore, helpful in the scientific and economic utilization of resources and in finding out the ways of removing the constraints.

The study region as a whole is a part of the plain of the Lower Brahmaputra Valley. But within the same plain, there are three distinct micro-regions. From south to north they are (i) the low-lying plain in the south, (ii) the built-up plain in the middle and (iii) the high plain in the north, all of
which are almost parallel to the east-west flowing Brahmaputra River.

Most of the areas of the low-lying plain and some areas of the built-up plain are chronically affected by flood in summer and suffer from drought during winter. But the flood-affected areas are very much suitable for growing a variety of rabi crops, jute and deep-water paddy as the soil is very fertile as a result of replenishment every year by fresh silt deposited during flood. In such areas, therefore, emphasis should be given on intensive cultivation of multiple rabi crops and the high yielding varieties of paddy and wheat. Irrigation through shallow tubewells may be feasible for providing water to the crops during the winter season when drought prevails. Fertilisers, pesticides and insecticides should be supplied to the peasants for increasing productivity and for plant protection respectively. Suitable arable lands free from chronic flood but affected by occasional low flood are extensive in the built-up plain where there is scarcity of water during the winter season, though water is available during the summer season for growing kharif crops in the flood-free lands. Irrigation is, therefore, necessary for successful cultivation of rabi crops in this region.

In the high plain also a variety of crops can be grown with the help of irrigation during the dry season. Because of
the lack of water in the winter, the peasants cannot grow rabi crops and so they are satisfied with the wet paddy cultivation during summer. As a result of increase of population in this region, the mono-crop cultivation has not been able to support a large number of population. As a result of the decreasing land-man ratio, there is heavy forest clearance for acquiring cultivable land. If the intensive use of land could be increased here providing infrastructural facilities, then the problem of deforestation could have been avoided to a certain extent. Within both the built-up mid-plain and high plain regions, there are certain pockets which are affected by flood. Such areas should be identified and mapped so that flood control measures can be adopted for appropriate land uses.

Since even with the best efforts, appreciable benefits of flood control measures are not likely to be achieved within a short time, some well-thoughtout agronomic programmes are needed to correctly and effectively utilise the flood-affected areas, so also to improve their production efficiency. Suitable steps should be taken by the Land Record Department in consultation with the Flood Control and Agricultural Departments to survey the flooded area for preparation of maps showing the fields subjected to floods of different types by suitable legends. Besides, such survey and mapping should be revised periodically.
After the identification of the hitherto negative areas such as the beels, water-logged area, char and zig-zag river channels, proper planning may be devised in order to utilize such areas without disturbing the ecological conditions. For examples, the beels can be developed as natural fisheries water-logged areas can be reclaimed by draining out the water for growing crops, char can be developed as excellent agricultural fields for growing rabi crops and for dairy farming and the zig-zag river channels can be straightened by cutting canals in order to prevent the effect of flood as well as to provide irrigation facilities to the agricultural fields.

On the basis of the changing pattern of land use, the study region is divided into four categories: most dynamic, dynamic, semi-dynamic and relatively static. Tremendous decrease in waste land, cultivable land, fallow land and striking increase of net area sown have been observed in the most dynamic region. Such a change in the region was the result of the impact of fresh surge of immigrant settlers who occupied the vast areas of the low-lying region previously lying waste. Rapid socio-economic changes were brought about in the areas under the impact of fresh surge of immigrant peasants who started a sort of agricultural revolution in respect of growing jute, deep-water paddy and highland paddy by reclaiming the riverine waste lands and converting them into prosperous agricultural fields. For successful operation of agriculture by the peasants in the most dynamic region and the achievement of
maximum growth rate, modern inputs like fertilisers, H.Y.V. seeds, pesticides and insecticides must be supplied at the appropriate time of cultivation and infrastructural facilities like irrigation, credit, agricultural marketing and transport and communication must be provided. Farmers' training in modern method of cultivation is very much inevitable.

As the individual peasants having small plots of landholding are not capable of adopting modern method of cultivation which is cost-intensive, agricultural modernization can easily be made possible by organising the small peasants in cooperative farms in which by pooling the resources of the small peasants into a consolidated farm, economic utilization of inputs can be made for obtaining maximum possible growth. Least changes in land use had taken place in most of the mouzas of the built-up mid-plain region, as the land here had been settled by the indigenous peasants for a long time and as the region remained unaffected by any kind of significant physical as well as socio-economic or socio-cultural disturbances. The horizontal expansion of cultivation of land became almost saturated in the relatively static region. Therefore, intensive cultivation is the only remedy here. But intensification of agriculture should be achieved not by the force of population pressure, but by a choice of scientific farming. Urgent steps should be taken to develop agro-based industries and
tertiary services in order to make agriculture economically more efficient by releasing the surplus labour force from agriculture. The Law of Inheritance should be amended to prevent further deterioration of the farm size in such a way that only the genuine cultivator gets the share of parental land property. The non-cultivating adult members of a family employed in non-agricultural occupations must be debarred from inheriting the agricultural land and purchasing such land from other peasants.

The dynamic and semi-dynamic changes in agricultural land use were found in the northern high plain as well as in those mouzas of the built-up mid-plain where there were immigrant settlements in the low-lying parts and indigenous non-tribal peasants in the flood-free parts. In the northern high plain, agricultural development may be possible if the irrigation facilities are provided and much extension works are carried out in order to motivate the tribal peasants for the adoption of modern method of cultivation. Farmers' training is highly essential and there must be the development of transport and communication.

The mouzas with the mixed population constituted by the immigrant Muslims and the indigenous non-tribal peasants where the agricultural land use is already dynamic or semi-dynamic have a bright prospect for agricultural development. What is needed here is to give incentive to the
peasants so that they can intensify their cultivation by the adoption of modern method.

Food crops dominate the agricultural landscape of the region as a whole. Concentration of jute was found only in the low-lying areas of the district where immigrant Muslim population was relatively high. Transplanted paddy was mostly concentrated in the built-up mid-plain area of the district. Unless the yield per unit area of paddy is increased, its hectareage cannot be reduced to make room for growing other cash crops which would derive higher income to the peasants.

The number of crops in the crop-combination was gradually decreasing as one moved towards the northern part of the district, because of replacement of deep water paddy and jute. The main factors resulting in such replacement of crops were not only the variable physical features e.g. soil, flood and topography, but also the variation in the social groups of peasants growing different kinds of crops in different parts of the district. The crop-combination regions should be demarcated properly in the fields for a successful planning of crop-husbandry. Efforts should be made to increase both yield and agricultural efficiency by crop rotation, inter-culture and also by the use of modern inputs according to the suitability of crop-combination regions.

In a situation where there is a general lack of
occupational avenues for livelihood other than agriculture to the increasing working force, intensive utilization of land is the only means of meeting food requirement for the growing population. Urgent steps should be taken to develop agro-based industries and the tertiary sector in order to make agriculture economically more efficient by releasing the surplus labour force from it.

The Barpeta District was thinly populated during 1921-31, but it became very densely populated during the latter period. The rapid growth of population as a result of high birth rate, declining death rate and heavy influx of immigrants from the neighbouring countries had aggravated the already existing problem of population pressure on agricultural land in the region. So the first and foremost measure to be taken by the government is to control birth rate effectively among all sections of the people and to stop further immigration without any delay by effective implementation of the legal measures.

The district had only one urban centre in 1921-31, i.e. the Barpeta town; but in 1951-65 the Barpeta Road was also declared as a town. The present scenario of the Barpeta town seems to be of a functionally static one with a large number of non-agricultural people clustering around the satra with limited scope of earning livelihood. As the surrounding suburb areas of the town are low-lying, there is no scope for further
horizontal expansion of it. Industries or trade and commerce also cannot be easily developed. As such there is a limitation to the development of the town beyond whatever has already been made in administrative, cultural and educational spheres as a district headquarters. Of course certain proposals can be made for further development of the town as follows: (i) In the surrounding low-lying areas and beels, fisheries can be developed by organising the fishermen of the town who constitute not less than 20 per cent of the total population in co-operative fishing enterprise. Some fish-processing industries also can be set up so that processed fish instead of raw fish can be exported. Local youths belonging to the fishing community should be trained in fish-processing technology. (ii) Small-scale agro-based industries can be set up in the co-operative sector by organising the educated unemployed youths after they are trained in special kinds of agro-based industries and their management. (iii) There are a large number of artisans who are experts in making potteries, ivory works, jewelleries and iron works. The condition of such artisans has been deteriorating as a result of the non-availability of raw-materials. If the poor artisans with inherited skill can be grouped together in co-operative enterprises, their cottage industries also can be revived and developed easily provided sufficient raw materials are made available to such co-operatives. (iv) The town may be developed as a tourist centre linking it with the Manas Wild
Life Sanctuary which is near to the Barpeta town. (v) The women are expert in weaving, embroidery and cloth designing. So they may also be organised in co-operative enterprises for such works. (vi) Lastly, it is suggested that there should be proper man-power planning to increase the quality of the human resources for better employability of the people.

The Barpeta Road town provides the only outlet for the people of the Barpeta town to the railway system. Its importance has been increasing considerably as a commercial centre for the export of jute coming from the hinterland of the town. The transport system should be improved to facilitate the agricultural marketing of the peasants' outputs. Interior rural areas should be linked with the urban centre by developing transport and communication which may change the traditional, conservative and superstitious outlook of the rural people by bringing them into more contact with the urban environment from where they can bring back the innovative ideas to be diffused in the rural areas. This town has a bright prospect for further development as there are abundant flood-free built-up land for its expansion. A jute mill can be established here as there is abundant supply of jute from its surrounding villages.

From the case study of the five representative villages situated in different physico-social spaces, it is found that there has not been any significant change in the land use
pattern between the present period and the 1951-65 period. The patterns of both the general land use and the agricultural land use as revealed in the mouzawise study for the period 1951-65 have been reflected similarly in the case study of the representative villages. In all the villages, the percentage of net sown area is highest among all the categories of land use, and fallow lands, pastures and grazing lands are either insignificant or absent. This indicates excessive use of land for agricultural activities in comparison to other kinds of uses. There should not be, therefore, further, expansion of cultivated land at the cost of other uses. Agricultural productivity should be increased by increasing the intensity of cropping, crop rotation and multiple cropping with the help of the use of modern inputs.

The study of agricultural land use shows that different crops are grown in different villages depending on different ecological conditions and socio-cultural behaviour of the different groups of people. Strategy for agricultural planning should be adopted in such a way that it suits the local need and preference of the particular peasant community for whom the plan is prepared. The study of the landholding structure in the five villages reveals that the sizes of most of the landholdings are either marginal (less than 2 ha) or small (2-4 ha) irrespective of physico-social spaces. This indicates that there is tremendous pressure of agricultural population on arable land. On the other hand, peasants having big-sized
landholdings are few among all the social groups. The size disability of landholdings is becoming a serious constraint to an efficient and economically feasible agricultural operation for supporting a peasant family even at the subsistence level. For the removal of the size-disability, there is only one alternative, that is the pooling together of the agricultural landholdings of the individual marginal and small peasants in order to organize cooperative farming in the lands thus consolidated. Then only it will be possible to modernize farm activities with the economic and scientific use of modern inputs provided infrastructural facilities are made available.

The study of the family structure in the selected villages clearly manifests that the percentage of big-sized families (6-12 persons per family) are highest in all the villages irrespective of communities or ecological set-ups. The existence of such big-sized families clearly indicates that the family planning programme has no impact on the peasant population belonging to all the social groups. The peasant families with a large number of family members but having small-sizes of landholdings cannot except to raise their standard of living.

The family size of the people cannot be reduced by the liberal implementation of the family planning measures in
a situation where the extension of the health measures has reduced the probability of child death. Moreover, the general faith of the people on Destiny that man should not interfere in the natural biological process of child-bearing is another factor for high birth rate. In the case of the Muslim immigrants, polygamy and the need of more family labour in agricultural works induce them to increase the number of their family members. The only solution to limit the family size to a minimum of two or three lies in raising the standard of living of the people through modernized farming and production-oriented education. It is, therefore, clearly seen that modernized agriculture through co-operative farming only can solve the problems of size-disability of small farming as well as the uncontrolled birth rate responsible for raising the size of family with the concomittant lowering of the standard of living.

Lastly, the study may be concluded with the observation that the objectives set out in the introductory chapter have been achieved in the analytical part of the thesis and all the four hypotheses postulated also have been proved to be valid. Through this work the physico-social space model for the study of changing pattern of land use in an overwhelmingly agrarian region with a population of different peasant communities settled in different time sequences is found to be established.