PART I: INTRODUCTION
CHAPTER I

INTRODUCTION TO THE WORK

1.1 THE PROBLEM

Land use is the putting of lands to different kinds of uses by men. Land is used by them to satisfy their needs within an eco-system in a systematic manner in order to derive benefit from it. Man experiments himself in the changing environment and he has been using land from one primary use to another and in this process he uses, misuses, underuses and overuses the land. As a result, some kind of land use pattern evolves in different parts of the world. But such a land use pattern does not remain static. It changes from time to time along with the changing needs of man in the context of the overall changes in the real world situation. Thus the changing pattern of land use reflects the changing pattern of socio-economic life in a region. In the Barpeta District, the present study region, largest proportion of land is put to agricultural purposes. But the overall land use pattern of the region had not been same some decades ago as it is today. There has been abnormal change in the demographic structure of population in the region.
as a result of heavy influx of immigrant Muslim peasants from the erstwhile East Pakistan (the present Bangladesh) during the last six or seven decades. This factor combined with the internal migration of the indigenous tribal and non-tribal peasants has been leading to a rapid change in the land use pattern of the region. Because of the increasing population pressure on land, various problems have cropped up in the region such as reduction of per capita cultivable land, low yield per capita, ecological destruction as a result of land encroachment in the beels and marshy lands, forest lands and grazing fields, communal tension, land politics, etc. It is natural that such problems will arise when the people are allowed to use the land at their own. For the purpose of scientific land use in the region, a rational planning strategy must be adopted as early as possible. For scientific land use planning, an indepth study of the changing pattern of land use at micro-spatial units is of utmost necessity, particularly in such a problematic region like the Barpeta District.

1.2 SIGNIFICANCE OF THE TOPIC

A study in the changing pattern of land use is important and useful for an agrarian region and it is more so for a region like the Barpeta District, where agriculture is the predominant occupation of the people.

No innovation or scientific planning of agriculture in the Barpeta District is possible without a thorough and
scientific land use study. An indepth research of the problems faced by the peasants in their land uses is, therefore, highly essential in order to arrive at a scientific and rational decision on adopting strategy for agricultural development and proper agrarian transformation. It is through such a study that the region's problem may be understood more clearly and adequate measures may be suggested for proper land use planning in the region. It is with this end in view that this work has been taken up. Planning strategies based on the findings of such a study may be applicable in other similar regions of the State as well as of the country.

1.3 OBJECTIVE AND HYPOTHESIS OF THE STUDY

The main objectives of the study are to

(1) analyse the changing pattern of general land use in the study area in order to reveal the static, semi-dynamic and dynamic micro-regions;

(2) analyse the changing pattern of agricultural land use in the study area in order to reveal the static, semi-dynamic and dynamic micro-regions;

(3) find out whether there is a correlation between the changing pattern of land use and the changing pattern of population composition in the study area;

(4) find out the causes of the changing pattern of land use and to suggest measures for in what direction such changes should occur in favour of development of agriculture in this agriculturally potential area of the State.
In order to achieve the above objectives, the following hypotheses are proposed and attempts have been made to test these hypotheses in the course of this research.

(1) Significant changes in land use that have occurred in the study area have been made by the increasing pressure of population as a result of high natural birth rate and influx of immigrant peasants.

(2) General land use and agricultural land use pattern has a direct relationship with the settlement pattern of different social groups of peasants which has developed in direct response to the physical setting of the area.

(3) Inter-community and inter-micro-regional disparity in the level of agricultural development and the differing rates of change in agricultural land use have a close relationship with the socio-economic behaviour of different social groups and the geo-ecological conditions in different micro-regions.

(4) There is a positive correlation between the population pressure and intensity of cropping.

1.4 METHODOLOGY AND DATA SOURCE

The problem is studied in the context of the Barpeta District and the mouza has been adopted as the spatial unit of investigation for this empirical-analytical study on the assumption that intra-mouza variations in the development patterns are not very significant. For such a micro-level
study, data collection through field work is not possible for a single researcher. Therefore, necessary data, documents, publications, information, various official reports and records are collected from the Government offices, such as the Directorate of Land Records, Deputy Commissioner's Office, the Directorate of Economics and Statistics, the Directorates of Agriculture and the Chief Conservator of Forests.

To find out the changing pattern of land use and population composition and distribution, data relating to land use and population for the two re-settlement periods of 1921-31 and 1951-65 are collected from the Resettlement Reports of the respective periods from the Records Room of the Deputy Commissioner's Office at Gauhati and also from the office of the Land Records, Government of Assam.

For better understanding, assessment and analysis of the problems, data and information have been collected with the help of schedule, personal interviews, field observation and discussion with the village people during the field work carried out in five villages situated in different parts of the district and inhabited by different communities.

Quantitative and cartographic techniques have been used in order to reveal the spatial and temporal pattern of the characteristics of land use and population in the district.
1.5 A BRIEF REVIEW OF RELEVANT WORKS

Eminent geographers and scholars have long devoted to the study of the problems of land use in different countries of the world with a view to finding out existing maladies and potentialities. The study is as old as agriculture itself. It is interesting to observe that most of the studies on land use were mainly related to the agricultural lands, because in an agricultural society, other types of land uses were of little importance. Urban places were unimportant in the landscape and viewed as parasitic on the vast agricultural region. Urban land use have been studied since late nineteenth century.

At the beginning of the nineteenth century, David Ricardo (1819) presented a treatment on agricultural rent which is still the foundation of most of the present day theories on land rent. He pointed out that most of the fertile lands were first put to use only when the demand for agricultural products increased. Von Thünen (1826) developed the theory of location on differential rent of land and built a model to study agricultural location on a scientific basis. Von Thünen model of agricultural location was based on the decline of economic rent or land rent with distance from the market. Based on this theory Von Thünen predicted a concentric series of agricultural zones around a central market. Hard (1903) made a study on urban land use based on the assumptions made by Thünen for agriculture. Baker (1923) in
the United States, Stamp (1930) in Britain and Lossing Buck (1937) in China contributed towards the dynamic studies of land use. But the real development in this direction started with the establishment of British Land Use Survey in 1930 under the Directorship of Stamp. The British Land Use Survey Department created a good impact on the country by solving the agrarian problem during the First World War. This gave impetus to the geographers to establish a commission on the world-wide land use survey at the International Geographical Congress, Lisbon in 1949 under the Chairmanship of Valkenburg. This survey proposed a scheme for the delineation of land use classification on a uniform scale for all the countries of the world (Stamp 1949). Again the eighteenth conference of the IGU at Rio-de Janeiro (1956) recommended to set up a commission under the Chairmanship of Stamp to organise a land use survey in all parts of the world. The Food and Agricultural Organisation of the United Nations collects land use data from all of its member countries and publishes these data annually in its Production Year Book. These include data on the total land area, arable area, permanent pasture, wood-land and areas given to other uses in each country (Singh 1980). Firth, Redfield Wolf, Padilla, and Rees contributed towards agricultural geography. Gregor (1970) has reviewed and commented on a large number of important contributions to the general themes in agricultural geography and Grigg (1969) dealt with many of the concepts dealing with agricultural regionalization. During the decades of sixties
and seventies geographers made several conceptual, methodological and thought-provoking studies which strengthened the theoretical base of agricultural geography. The works of Bunge (1962), Brookfield (1964), and Franklin (1969) are worth mentioning here. The Quantitative Revolution of the fifties encouraged the development of positivistic approach in geography and gradually hypothetico-deductive treatment of problems leading to the building of models and formulation of theories used to gain ground. In the recent period, a tendency among some of the agricultural geographers to adopt the structural mode of explanation based on radical thinking has also been observed.

Land use studies in India is still younger. Before the fifties, the study in this field was limited to regional description of some major crops. But during the last few decades, the Indian geographers have been trying to apply quantitative techniques in the study and analysis of land use and agriculture as a result of which there have been some notable changes both in content and methodology.

Chatterjee (1941) appealed to all the geographers of India to undertake a land use survey of the country. Siddiqui (1946) studied the influence of physical environment and socio-economic factors on land utilization. Shafi (1951) made a strong effort to carry out a land utilisation survey combined with land capability survey of the country. Land use surveys were carried out by the students of the Department of
Geography, Aligarh Muslim University (1956), Madras University and Calcutta University in different areas of the country. Banerjee (1954) analyses the influence of physical environment on the distribution of tea plantation in West Bengal. Rao (1956) carries out pilot studies on typical land use regions. Mukerji (1962) studies the field pattern of a village in Telengana and established the relationship between the size, situation, and form of the fields. Hussain (1970) studies how the distribution of rainfall determines the agricultural activities of the Upper Ganga-Yamuna Doab. With the comparative study of the physical conditions and their possible effects on the type of land use, it may be possible to ascertain the quality and character of the present land use i.e. whether the land is under proper use or being misused. In this regard Shafi (1969) points out that there is a need to raise uniformly the food production efficiency of land and if land is used properly it can feed as many as five times the India's population. Singh (1975) has analysed the natural, economic and cultural variables as the basis of farming and studied in detail some environmental problems and their solutions. He has made a comprehensive study of the form of surface, climate, soil, developed water resources, crop distribution and yields, cropping pattern, crop status, crop combination and agricultural efficiency in association with livestock for the delimitation of crop producing regions and delineations of 'weaker areas'.
So far as the land use of Assam is concerned, Das (1984) has analysed the general and agricultural land use in detail in his structural analysis of peasant agriculture in Assam. The spatial pattern of agricultural land use is delineated in all its aspects. The problems of agriculture in Assam are compounded by recurrence of floods, drought and soil erosion, which are also discussed at length. Exploring another dimension of the problem, the study investigates the socio-economic structure and the socio-cultural institutions that typify peasantry—family, caste and class structure, the role of existing laws of inheritance and the stronghold of religion. The study of the infrastructure reveals lacunae in all aspects, viz. rural electrification, irrigation, agronomic credit, transport and communication and marketing.

That a large-scale immigration of peasant population from the neighbouring countries into Assam can conspicuously change the demographic as well as land use pattern of the State can be understood from the analysis made by Weiner (1973). Goswami (1963) has also discussed about the influx of immigrants into Assam and its impact on agrarian pattern of the State. Bhuyan (1977) has made a detailed study on immigration into Assam and its associated problems.

Barman and Das (1978) by applying the Weaver's method delineate the crop-combination regions in Assam. Nath (1984) in a micro level study of the Mangaldai Region of Assam gives

From the above review it is seen that although many studies have been made on different problems relating to land use, agriculture and immigrant population, this author could not find any work on the problems of changing pattern of land use relevant to the present study. The present study has, therefore, been selected by the author for an indepth analysis adopting a methodology of her own.

1.6 SCOPE AND LIMITATION

This study is an attempt to analyse the changing pattern of land use with special emphasis on agricultural land use of the Barpeta District in spatio-temporal dimensions. It encompasses the analysis of ecological setting, changing pattern of general land use, changing pattern of agricultural land use, changing pattern of population, changing pattern of urban land use and village case study. In order to make an indepth study of such a problem, temporal data for a long period and spatial data at micro-level units are most inevitable. As such data were not readily available, this researcher had to make investigation in various government departments and libraries with a view to collect records, information and data, if there were any, relevant to land use, agriculture, and population at different periods as well as at micro-level units.
as village, mouza, etc. But it was not possible to obtain
the above materials at different periods except those recor-
ded in the Re-settlement Reports during 1921-31 and 1951-65. However, these data were at the mouza level which could be regarded as a desirable micro-level units of the district. In the first resettlement, data were collected in different mouzas at different years within 1921 and 1931. So the whole period is considered in this study as one period. In the next resettlement period also the mouzawise data collection spread over a long period of 14 years from 1951 to 1965. So this period is also clubbed as one period. After this later period there has not been so far any resettlement operation. This study, therefore, confines to the analysis of the changing pattern of land use between the above-mentioned resettlement periods at the mouza level. If relevant data were available before 1921 and after 1965 up to the present decade, the study would have been more interesting and the analysis also would have been easier. For the period from the great earth-
quake of 1897 to 1921 there are a few scattered records regarding natural calamities, physical conditions, land use and settlements in the reports of the British administrators. Such fragmented information have been incorporated in this study wherever they are found to be relevant. As the study of the changing pattern of land use between the two resettlement periods mentioned above shows a dynamic change, it is assumed that there might be more dynamic change after 1965 to the present time. In order to have an idea of the processes which are involved in the creation of the present pattern of
land use, a detailed land use analysis have been made by collecting data with the help of schedules from villages. For the study of environment and ecology, data are not available for the concerned periods. Moreover, in the Census Reports there is no mention of the data relating to immigrant population without which land use study in this region cannot be meaningful. Some factual information on immigrants are gathered from various works containing references of immigration to Assam. The size of the immigrant population for which no data are available is estimated by the author on the basis of the field studies, sample surveys, reports and the estimates given by the leading members of different immigrant communities. In addition to the analytical texts, cartographic illustrations have been provided in order to give an authentic visual picture of the situations.

Collected land use data are found in bighas and so these are converted to hectares and so minor errors may occur in that case. Temporal data of yield per hectare are not available for the concerned periods. So the agricultural productivity is not possible to find out. In spite of all these limitations, the researcher has tried to make the study comprehensive and analytical as far as practicable.

1.7 TERMS AND TERMINOLOGY

Since some available terms have different meanings in different contexts, it is necessary to spell out clearly the meanings and definitions of such special terms in which sense
these are being used in this work. Some of the local terms used also need explanation.

Ahutali: Ahutali is a high land usually sown with broadcast variety of paddy locally known as shudhan.

Baotali: Low-lying land sown with deep water paddy capable of standing considerable flood. This kind of paddy is locally known as baodhan.

Bardhantali: Land sown with a coarse variety of transplanted paddy locally known as bardhan.

Laghantali: Land sown with a soft variety of transplanted paddy. Such land contains water during the growing period but dries in the maturing stage. Thus the land is of intermediate level.

Athaletia or athalua: A clay, rather sticky but requiring less labour to plough than inferior kinds of clay. This land when properly situated in relation with water supply is the best for bardhan.

Mauletia or maubelia: A loamy soil, composed of athaletia mixed with sand. Good mauletia soil does not crack, and though unable to retain water in the same way as athaletia, is
said to withstand a drought better than the latter. The level of the land is higher than that suitable for growing bardhan. This land is said to be the best for laghandhan.

Baliseria: Composed chiefly of sand with an admixture of clay

Khiraj land: Fully assessed temporarily settled land. It is a full revenue paying land.

Lakhiraj land: Revenue free land

Nisf-khiraj land: Land paying half the usual revenue under special grants

Basti: Homestead and garden land

Chapari: Riverine lands (in old Kamrup District) or floodplains of the Brahmaputra river

Hat: Weekly or bi-weekly market

Pam: A temporary camp for temporary cultivation or livestock rearing carried out by the cultivators away from their home

Pamua: A temporary cultivator holding a pam. As most of the immigrant Muslim peasants carried out temporary cultivation in the char or chapari lands, this term has been used by the local people to mean the Muslim immigrants
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<thead>
<tr>
<th><strong>Kalazar</strong></th>
<th>A malaria type epidemic disease, extremely dangerous and fatal to life</th>
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<tbody>
<tr>
<td><strong>Satra</strong></td>
<td>The religious temple for the preaching of the 'Bhakti cult' of the Hindu Vaishnavite religion during the fifteenth century A.D.</td>
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<tr>
<td><strong>Bhakat</strong></td>
<td>Devotee of 'Bhakti cult'</td>
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<tr>
<td><strong>Beel</strong></td>
<td>A small lakelet</td>
</tr>
<tr>
<td><strong>Mouza</strong></td>
<td>A fiscal division consisting of a number of villages together created for the convenience of revenue collection through a <strong>Mouzadar</strong></td>
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<tr>
<td><strong>Settlement</strong></td>
<td>Settlement with reference to any local area or class of estates means a special operation carried out in pursuance of a notification under section 18 of the regulation for the revision of the land revenue demand of that local area or class of estates</td>
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<tr>
<td><strong>Bathan</strong></td>
<td>A camp of buffaloes located in a grazing area away from home. Such camps are generally owned by a rich family for milk production.</td>
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<tr>
<td><strong>Cultivator</strong></td>
<td>A person engaged in cultivation directly or by supervision or direction in one's capacity as an owner or as user of land taken from others.</td>
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The self employed agricultural workers who is largely dependent on his own labour and that of his family members, for whom the contribution of such labour is more important than that of capital. More specifically, a cultivator as classified by the Census of India is assumed to be a peasant for the purpose of this work. Such a peasant possesses an operational holding, whatever be its type of tenure. Neither a landless agricultural wage labourer nor plantation labourer (organized in the line of industrial factory labourer) is considered to be a peasant.

A rural unit of settlement with a distinct name

A week long period beginning with the first day of the Assamese month of 'Ashara' (third week of June), the last three days of which are observed with rites and rituals by the Assamese peasants. This coincides with the bursting of the monsoon and people believe that the mother Earth attains menstruation during these days. It is significant that brisk agricultural activities follow this period.
REFERENCE


Bunge, W., 1902, Theoretical Geography, Lund Studies in Geography, Series C, University of Lund.


Richard, M.H., 1903, *Principles of City Land Values*, New York, pp. 11-78.


