Population geography as a field of systematic study is not very old. As a matter of fact, the importance of the field came to limelight only when Trewartha (1953) made a strong plea for the subject in 1953 in his presidential address entitled 'A case for Population Geography', before the Association of American Geographers. Following this Clarke (1965), Zelinsky (1966), Garnier (1966), Demko (1970) and a few others contributed substantially to the growth of this sub-field. It is worth mentioning here that the indispensable facts and techniques for the study of population have become available only very recently, although the basic concerns of the field are as old as human society itself. Until the later half of the present century, population characteristics were dealt with only by demographers and they received inadequate treatment in geographic research. In any case, the development in the field has been stupendous during the last few decades. Therefore, a review of the contemporary development in the field is essential for doing any geographic research on population as it provides the basis against which the nature and scope of the work have to be outlined. It is in this background, the present chapter is devoted to review some of the relevant literature and allied research works done in the field during the period of its history of development.

To begin with, it hardly needs any emphasis that Trewartha's work was a landmark in the development of the field as a distinct branch of Geography. In nineteen sixty, his significant contribution towards population geography is 'A Geography of Population: World Pattern'. In this work he made comprehensive study of worldwide patterns of demographic, economic and socio-cultural characteristics of human population.

John I. Clarke, a British geographer (1965) is credited for his work in the development of population geography. He emphasizes on the spatial aspects of population and distinguishes population geography from demography. According
to him population geography is concerned with demonstrating how spatial variations in the distribution, migration and growth of population are related to spatial variation in the nature of place. To him, the human characteristics that form the content of population geography seem to fall into three groups; (i) absolute numbers, (ii) physical, social and economic characteristics, and (iii) population dynamics.

In 1966, Wilbur Zelinsky’s work on ‘A Prologue to Population Geography’ provides the students of population geography an introductory text on this newly emerging sub-field. In his book the author not only explains the meaning, nature and scope, issues and limits but also stresses that ‘the main objectives of population geography is to understand various population characteristics of places, their causes, consequences and interaction with various non-demographic phenomena, thereby producing distinct geographical personality for each inhabited part of the world. He also classified these characteristics into three categories: (i) the essentially biological; (ii) the economic, social and cultural; (iii) the elements of dynamic change. At last, he emphasises on the study of the balance of population and resources and a cultural approach towards the formation of a population region.

Madam Garnier (1966), a French geographer, in her book, ‘Geography of Population’ considered the description of demographic facts in their present environmental context. She also studied their causes and regional characteristics and possible consequences. Here, she deals with various aspects of world population taking relevant case studies from different parts of the world. Besides dealing with the demographic and economic aspects, such as working population, occupational categories of the different parts of the world, she deals with the racial complexity, population distribution and the various factors affecting them.

Later in 1971, Clarke in view of the rapid population growth and related problems faced by the developing countries, analysed the patterns of population change, their causes, consequences and variations particularly in the developing countries of Latin America.
There is a difference between the conceptual basis of population geography held by the western geographers and the Soviet geographers. The basic tenets of Marxist theory lie counter to the view that man could be moulded, consciously or unconsciously by his physical environment. According to them, the distribution of population of a place is determined by the productive aspects of population. They place the population geography within the framework of economic geography. According to Melezin (1963) a Soviet geographer, 'Population geography is the study of distribution and productive relationships existing within various population groups, the settlement network and its fitness, usefulness and effectiveness for productive goals of a society'.

Alina Potrykowska, a Polish Geographer, in her work Population Demographic Change and Environment in Developing countries, mentions that 'the growth of population in developing countries remains staggeringly high and in some places has reached crisis proportions'. She says, due to high growth rate of population developing countries face increasingly serious environmental problems that threaten efforts to improve the standard of living, worsen health conditions, reduce income from agriculture and other sources.

Daniel Noin (1997) in his work Population Growth in the Third World : Evolution and Disparities studied whether the population growth is going on with the same rate today, its evolvement and the disparities of demographic growth in the various parts of the developing world. He says that to reduce the population growth, economic development and family planning are must, and also equal emphasis should be given in the development of education and the improvement in the status of women. In a similar type of work C.R. Malakar (1997) studied growth in developing countries from 1950 to 2025. He gave special attention to the two 'population giants' of less developed region, viz., China and India. To have a better understanding of the growth pattern he examined the age composition in broad age groups and demographic parameters also.

The techniques and methods used to analyse the different aspects of population geography have undergone significant changes very recently.
Geographers now stress more on theory and model building and application of sophisticated quantitative techniques to explain the problems of population geography. In this context the contributions of Woods are worth mentioning (1979, 1982). His work has added a new dimension to the study of population in geography.

The study of population at present has a very wide scope. It is apparent that different geographers besides explaining the interrelations between the various demographic and non-demographic attributes of population in spatio-temporal context, are trying to inter-link the practical population problems with resource potentiality, environmental condition, population planning, policy making, etc.

Regarding the population characteristics Newman and Matzke (1984) state that ‘the three so called demographic variables of fertility, mortality and migration constitute a core along with ofcourse, their outcome mainly population change. Perhaps an ever more central concern is population distribution ....................... . Also the age sex and marital characteristics of population are usually given high priority, primarily because of their impact on the three demographic variables’.

In India the importance of study of population geography has been realised very lately. However, within a short span of time the subject has gained importance perhaps because of its increasing population problems that are exerting pressure on economic, social and political life of the country. Although the beginning was made by Geddes (1941) and Davis (1951) but the initial framework of India’s population geography was provided by the doctoral work of Gosal in the mid fifties (1956). Under his supervision and by using the same methodology several scholars brought out their doctoral dissertation and research papers in the field.

Punjab University was the first in India to introduce teaching and research in population geography at the post graduate level (early 1960). Later, the subject got wider recognition and importance in different Universities. Besides doctoral works, several research papers written on various aspects of population of the
country were published in different geographical journals. Among them, the works of Bhat (1961) and Chatterjee (1962) on population distribution and density are worth mentioning. They studied regional variation of population at different levels in the country and analysed the causes of such variations. In 1970 Prakash analysed the pattern of population distribution and density of Uttar Pradesh by using district and tahsil level data. In another work, Mehta (1973) did spatial analysis of distribution of population in Rajasthan. He discovered that the intensity of cropping, rather than the percentage of cultivated area, was instrumental in spatial variations in population distribution in the State.

Siddiqui (1978) examined the agricultural density of Uttar Pradesh during 1961-71. He found that here, the pattern of agricultural density mainly determined by physiography and socio-economic conditions, whereas, changes in density were inversely correlated with density at the base year. Chandna (1979) found that the years 1921 and 1951 act as divides in the recent demographic history of Haryana. It was revealed that growth rate of population should inverse correlation with density of population. In another work, Chandna (1980) made a detailed analysis of distributional pattern of scheduled caste population in India. He used the districtwise data from 1971 census.

Besides, the works of Verma (1956), Sinha (1958), Krishan (1969), Nand (1966) and Ghosh (1970), Gill (1980) on the distribution and density of population of Punjab, Orissa, Bihar, East Rajasthan, Uttar Pradesh, and Hissar district (Haryana) respectively are worth mentioning.

Among the various topics, population growth and migration received the greatest attention especially in a country like India, where it has an alarming growth rate of population. Dayal (1959), while analysing the temporal variations of population growth in India during 1891 to 1951 stressed upon the consequent problem of rapid increase in population, decrease in per capita land and rural-urban migration. Gosal (1974) studied the population growth in India during 1961-71, highlighting the gravity of the situation caused by staggering increase in India's population. He urged that high priority should be given to the country's
defence, because the massive increase in India's population was neutralizing much of the gains of economic development. In 1975, Krishan also worked on the same theme by using district level data. He analysed the spatio-temporal variations of population growth in the country during the last two decades in the context of birth rate, death rate and migration. He finds that the inter-regional disparities in growth of population in India have been narrowing down since Independence. Chandna (1974) has analysed the growth of rural population in Rohtak and Gurgaon districts by using village level data intended to examine the impact of proximity to Delhi in this respect. It is found that, villages located on the roads radiating from Delhi have the highest growth rate.

In another work Gosal (1982) briefly studied the recent population growth in India. It was revealed that the areas of rapid population growth were associated with; (i) development of industries, mining and commercial activities; (ii) extension of irrigation facilities to semi-arid and arid lands; (iii) reclamation of wastelands, and (iv) extension of farming into the marginal hill lands. On the contrary, relatively low growth of population was registered in areas with relatively high pressure of population. He further recommends that population control and economic development have to be accelerated simultaneously. Sawant and Khan (1982) studied the factors responsible for the natural growth rate of population in Western Maharashtra. They found that population growth in the area is correlated with the proportion of females in workforce as well as male literacy rate. In another work Gill (1982) studied the population growth in Hissar district during 1951-71. Sharma and Kar (1997) have made a study of the Pattern of population growth in North-East India. The aim of their work is to analyse the population growth and the factors behind it and trace out the socio-economic consequences. They find that high natural increase and heavy influx of immigrants and in-migrants from outside are the main causes of exploding population growth. They beside giving emphasis on the control of rapid population growth, stressed particularly on the socio-economic and human resource development of the region through proper planning.
Among the studies on Migration, the work of Gosal and Krishan (1974) is worth mentioning. They used district level data on place of birth to evaluate in detail the patterns of internal migration in India. They find that a large majority of India's population spend their life in or near their place of birth. However, mobility of India's population has been increasing particularly since 1947. Maximum in-migration takes place to urban industrial concentrations, areas of plantation, newly reclaimed agricultural land, mining tracts and multipurpose project areas. Out-migration takes place from the densely populated area marked by small agricultural landholdings and overdependence on agriculture. Swarnjit Mehta (1973) analyses the pattern of migration in the Bist Doab during 1951-61. While studying the process of emigration from the regions he finds that there is a regular excess of out-migration over in-migration and the main causes is the severe pressure of population on the available resources.

Among the few works done on age sex composition, works of Gosal (1961) and Sen (1963) on sex composition of India's population are worth noting. According to Gosal, it is the differential in sex at birth followed by differential in the rate of mortality in the two sexes at different ages that together explain the existing overall sex-ratio in the country. Krishan and Chandna (1973) examined the sex composition of Haryana's population and observe the excessive deficiency of females in the State's population which is attributable to an unusual low sex ratio at birth and higher rate of mortality among the females. Siddiqui (1982) examined the regional aspects of sex ratio in Uttar Pradesh. From the analysis it is obtained that socio-economic structure and urbanisation are the important variables responsible for characteristic pattern of sex ratio in the State.

Krishan and Shyam (1972) viewed the progress of female literacy in India in spatial perspective. They used district level data for mapping percentage of literate females in 1951, 1961 and 1971. The main cause of areal variations in female literacy were found to be related to male literacy, age at marriage, degree of urbanisation and influence of Christianity. In another work Krishan and Shyam (1974) observed a high incidence of literacy in Indian cities where 44 per cent of the total population were illiterate in 1971. There is a wide disparity between male
and female literacy. The spatial variation in literacy in the cities is related to their functions, population composition and size.

In another work, Krishan and Shyam (1978) discuss in detail the rural-urban differential in literacy. Among the studies on regional aspects of literacy Gosal’s work (1967) on ‘Regional Aspect of Rural Literacy in India is highly significant. It is found that besides a number socio-economic reasons, the prevailing mass rural illiteracy is largely a legacy of the past. Dutta (1982) examined the Pattern of Literacy in the Southern districts of West Bengal by applying regression model. Urbanisation was found as a strong explanatory variable of literacy.

In one of the work on working force and its occupational structure Krishan and Chandna (1973) found that despite of a net gain in migration, Haryana had the lowest proportion of workers in the country mainly due to a very high proportion of children in 0-14 years age group and extremely low participation of females in work. In 1981, Krishan analysed in detail the spatial variations in the proportion of non-agricultural workers in rural India. Raju (1982) found that female work participation rate decreases from South to North India because of different cultural contexts.

The studied on working force and occupational pattern of India’s population are limited. Vishwanath (1975) made a study of occupational structure of women in India. She opines that, women are employed more in primary sector in the rural areas and in tertiary sector in the urban areas. However, female workers are low in the secondary sector in both the areas. A.B. Mukherji (1971, 1974) in his two identical works statistically analysed two different regional patterns of distribution of female agricultural labourers in Andhra Pradesh and Uttar Pradesh. He finds that high female participation is highly correlated with sex ratio, percentage of scheduled caste population, diversification of agriculture, size of landholdings, wage rates and percentage of female workers in the workforce.

The interest towards the study of population resource relationship is gradually increasing because of increasing pressure of population on the resource and environment through time and space. P. Sengupta’s (1985) work on this line
is quite remarkable. He tried to divide India into a number of dynamic, prospective and problem regions on the basis of basic population characteristics and resource potentialities.

S.S. Chib (1991) in his work Population Region of a Trans Himalayan Tribal Tract: A Case Study of Kinnaur District of Himachal Pradesh tried to portray the Changing demographic landscape of Kinnaur through the medium of ‘Population Regions’ of the district. His work based on the analysis of census data and extension field work. He finds that first order population divisions of Kinnaur bear a large resemblance to physical divisions. However, with exogenetic influences, development of transport and communication and improved agricultural technology, the association between population and physical regions is gradually changing.

R.S. Tripathi (1991) in his work Identification of Backward Areas in Human Resource Development in Uttar Pradesh (India), tried to identify the backward areas in human resource development and highlight the dimensions of their backwardness. The findings are, the districts of the western and hill regions of the State are in better condition in human resource development than other regions. The districts of the Eastern and Bundelkhand regions are much backward in comparison to other regions.

During the last two decades, a few books on India’s population have been published which may further enrich the field. The important among them are the ones of Bhattacharyya (1978), Bhende and Kanitkar (1978), Chandna and Sidhu (1980), Chandna (1986) and B.N. Ghosh (1987).

The number of research works on scheduled castes and scheduled tribes population is very limited. The work of Gosal and Mukherji (1971) on scheduled castes population throws light on the spatial and relative concentrations of scheduled castes population in the country. Similar type of work is done by Mukherji (1971) on the patterns of distribution and density of scheduled castes population at regional level for Andhra Pradesh.
Roy Burman (1971) has done a remarkable work regarding the distribution of tribes in India. He divided the tribal groups of the country into six categories on the basis of territorial-cum-ethno-cultural relations, where he grouped the tribes of North-East India into a distinct category. Patnaik (1970), Prasad (1971), Mazumdar (1976), Sinha and Mishra (1976) and Banerjee (1976) worked on the spatial pattern of distribution, growth, sex-ratio, age structure, literacy, occupational structure of Madhya Pradesh, Bihar, Eastern Gujrat, Orissa and Singhbhum respectively.

Regarding the population study of North-East India, very limited work has been done till now. Because of its ethnic, social and cultural diversity, micro-level study of the population of this region is very essential. As mentioned earlier, Roy Burman (1970) studied the demographic and socio-economic aspects of the hill tribes of North-East India. Sharma’s contribution towards the upliftment of women research in geography in Assam is remarkable. According to him literacy and educational level are the vital dimensions of social development of women. Considering this he did three valuable works at different level to study the distribution pattern of literacy and education of women in North-East India (1985, 1992 and 1993). In another work, Sharma and Kar (1994) studied about the spatial pattern of women literacy in Assam and analyse the causes behind the existing patterns. They find that women educational development in Assam is not only low and uneven but also complex in character. Low literacy is the result of interplay of a host of physical, economic and cultural attributes of varied dimensions. The thesis of Bora (1990) on population of Siang Region: A Geographical Analysis, enlightens about the pattern of distribution, density, growth, migration, age and sex composition, marital status, work participation rate and occupation of Siang region and their spatio-temporal variation and causes. Das (1976) studied the character of demographic and socio-economic aspects of tribal population of Kamrup district, Assam. Singh (1986) made a detailed analysis of pattern of basic population characteristics like growth, distribution and density, migration, occupational structure literacy, religion, linguistic and social compositions of population of plains and hills of Manipur. He finds imbalance in the demographic and socio-economic aspects in the study region. He also highlights
on the increasing pressure of population on the resource base caused by mass immigration. Lokeswar Nath and M.M. Das (1995) finds out the distributional pattern of the different social groups or communities and their agricultural land occupances in different physico-social regions. M. Taher (1997) has analysed the ethnic situation in North-East India on the basis of primary and secondary information and finds out the causes thereof and interpret them for a general understanding.

Regarding the Population of Sikkim, very limited work has appeared so far. No detail research work on the population geography in general or on ethnic groups in particular has been done so far. For research purpose geographical literature on population of Sikkim is very limited. However, the authentic references about the land and the people of the region from the early days could be found from sources like the reports, travel accounts, etc., written by the British officials who visited or spent some time on official work or research purposes in Sikkim. Among them the reports of Campbell (1842-1874), White (1909) Waddel (1979 reprint), Hooker (1980 reprint), Risley (1894) and Macaulay (1884) are worth mentioning. These studies give a general idea of the land and people of the region. Most of the recent publications give a general idea of the physical, social and political aspects of the region. In the Government Publications, such as 'A Portrait of Population, Sikkim, 1981', certain aspects of population in Sikkim have been dealt with. Similar type of work has been done by Ram and Tamang (1998) of the census department. M.M. Jana (1996) made a study on the population planning in Sikkim. He tried to analyse the growth of population in Sikkim, and examined the population planning, policy measures and programmes designed to achieve economic and social development in the State.

In another work B. Thakur and P.S. Bhusan (1992) studied about the Land-Man Relationship and Distribution of Agricultural Land in East Sikkim. The work is done at revenue block level. He examined the spatial characteristics of per capita land available and factors influencing variation in land-man ratio. He found that revenue blocks around Gangtok have deficit in per capita agricultural land and the
upper valley of Dik chu, Rangpo chu, Rongli chu and Rora chu have surplus. Altitude and ethnic structure seem to be closely associated with land-man ratio.

A. Datta in his work Land and Ethnicity (1992) tried to highlight the nature of inter-relationship between ethnicity and land in Sikkim. It reveals that Nepalese possess largest number of holdings, on the other hand, the Bhutias and the Lepchas have high amount of per-capita landholdings. Bhasin (1989) made an effort to examine the complex pattern of two diverse tribal culture of the Lepchas and the Bhutias of North Sikkim. In another work Acharya (1997) studied the population growth among the different ethnic groups particularly Lepchas and Nepalese of Darjeeling and Sikkim during the last 150 years. He tried to examine the changing ethnic profile of the region and the impact of the influx on the marginalization process of the indigenous population. He finds that in both the areas major demographic explosion started since 1835. This change has basically been detrimental to the survival of the Lepchas. Changing ethnic profile has been an important factor to the marginalization of the Lepchas in the region.

Thus, the foregoing review of available literature apparently reflects that works on diverse population of North-East, particularly on Sikkim is very limited. Whatever works have so far been done comprises the works primarily from anthropological, historical, sociological perspectives. The entire North-Eastern region including Sikkim have diverse tribal and non-tribal groups with their distinct population characteristics, provide a wide and virgin field for geographic study. Thus, the present work makes an effort to study some of the major population aspects of Sikkim within the broad framework of Population Geography.

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