

**NATURAL ENVIRONMENT AND CHANGING SOCIO-  
ECONOMIC SETUP IN DARJEELING HIMALAYAS**

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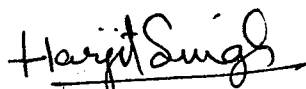


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CERTIFICATE

It is certified that the dissertation entitled "NATURAL ENVIRONMENT AND CHANGING SOCIO-ECONOMIC SETUP IN DARJEELING HIMALAYAS" submitted by Yonah Bhutia, in fulfilment of six credits out of total requirement of twenty four credits for the Degree of Master of Philosophy (M. Phil) of the Jawaharlal Nehru University is a bonafide work to the best of my knowledge. It may be placed before the examiners for evaluation.



(Prof. Harjeet Singh)

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79-79/

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## CHAPTER-I

### INTRODUCTION

Mountains cover nearly 35 per cent of the total land surface of earth and accommodate one tenth of the population. More than 40 per cent of the people there depend on mountain resources such as forest, water, agriculture, minerals and for recreation. There has been increasing awareness over the last few decades that several changes are occurring in the environment of mountain region's. These may have serious repercussions for humanity in the long run. Mountains seem to project two aspects. These are "as barriers in the movements and as a place of refuge perhaps even of isolation" where people lead a relatively free life unaffected from major sweeps of historical conflicts.<sup>1</sup>

Many mountainous regions are inhabited by people who sought refuge here. But people do not live in isolation instead they develop some interaction with other people and areas and in cases this evolves a circular pattern of movement. Movements are either seasonal between low and high altitude areas or from within to the outside or between flanking regions where mountains emerge as transitional zones.

The ecosystem of mountains is phenomenally sensitive to even diminitive changes which are more often impervious to any

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1. Nigel, J.R. Allan (1980) "Accessibility and altitudinal zonation model of mountains", Mountain Research and Development, vol.6, no.3, pp. 185-192.

modification. These regions are characterized by "extreme uncertainty" and "great complexity" from both physical and human perspectives.<sup>2</sup> Population living there in gets subjected to both internal and external pressure that lead to changes in their social, economic, political and cultural identities. The earlier concept of mountain region as secluded and away from the course of development has changed today. Accessibility into and through mountains having adequate resources have brought about new changes in land use and the environments. Major changes came about due to human activities where man for his survival after exerting ample pressure on the limited resources of the plains has entered these areas in search of resources. Thus, mountains became frontier regions for settlement and resource exploitation. Since then these regions have come under severe attack particularly in the third world countries.

Population growth in the under developed countries led to increasing pressure on land. This problem of increasing population and pressure on economic activities show signs of exasperation. The nature and extent of constraint vary in space and the forms of organization also differ. The constraints influencing behaviour are economic, political as well as ecological in nature and these have both regional as well as local specificities.

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2. Jack D., Ives, B. Messerli and M. Thompson (1987), "Research strategy for the Himalayan region, conference conclusion and overview", Mountain Research and Development, vol.7, no.3, pp. 332-335.

Changes that have come about in these regions are both negative and positive. The former show signs of deterioration in environment while the latter result in economic prosperity of the population. Most changes in mountainous regions of developed countries are related to the well being of the inhabitants. Development of transport network, forest based industries, recreation are some of these changes which are intricately linked with development of lowland areas and are essential to the well being of the inhabitants there. These brought about new attitudes and new possibilities for dealing with the natural environment. The Alps, for instance have become the area of recreation for the whole Europe as urbanization and mechanization in the surrounding regions have increased.

Mountainous regions of the under-developed countries are considered "difficult, hazardous and negative areas".<sup>3</sup> During the last four to five decades, clearly visible persistent negative changes in terms of declining crop yield, lack of mountain products, decline in economic well being of mountain people and deteriorating environmental and natural resources are seen. The changes are indicative of insustainability of the present pattern of environmental use in the mountains.

The Himalayas in India from west to east depict great variety of climate and micro-environments. The

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3. John Clarke (1990) "Mountain and man, an overview", in Mountain Population Pressure, in A. Ahmad, John Clarke, etal (ed)., Vikas Publishing House, Delhi.

region accommodates population of diverse origins. Each sub-region of the Himalayas has traditionally developed its own strategies for subsistence production and of social, political and religious organisations. Over a period of time, with rapid intervention of man in quest for survival along with developmental activities, even these quiet regions are no longer impenetrable and have undergone extensive social economic and political changes.

External forces have mainly been responsible for changes in the Himalayas. The interest of Britishers in the hills during colonial times for economic and strategic interests has brought about major alteration in the overall environmental and socio-economic structure of the region. Their interest was to expand trade through the Himalayas into central Asia especially Tibet. The cool temperate climatic conditions prevailing in the middle and the lower Himalayas were akin to their home country and attracted the Britishers to settle here. This resulted in the establishment of a number of settlements which emerged as administrative, education centres, cantonments and health resorts.

Another important aspect of the British period was the introduction of plantation crops like tea, coffee, cinchona and fruit orchards in many hill/mountain areas of India. These crops brought about major socio-economic changes. The introduction of these crops resulted in clearing, felling of trees causing deforestation, soil erosion and climatic changes

on the one hand and immigration of labourers from neighbouring areas leading to rapid population growth and pressure on land on the other.

Changes in the Himalayan region are many but the extent and the level of impact varies. Moreover, there has been rapid increase of population which resulted in over exploitation of resources. The development has not taken place in some parts like central Himalaya and the area suffer from out migration especially male selective in nature. Immigration is quite common in pockets in the eastern part like Sikkim and Darjeeling Himalayas, where various economic and political processes have influenced such movements. These include the level and nature of environmental constraints, the type of available technology and employment opportunities etc. This caused population pressure which contributed to the instability in political and cultural scenario. Political upheavals in some parts of the Himalayas are becoming common and these basically have their roots in economic differences and growing pressure on resources.

There has been remarkable changes in environment and socio-economic set up of Darjeeling Himalayas in the last century. British intervention played an important role in bringing about such alterations. Major changes came about with the introduction of tea plantations in the region. This resulted in the immigration of labour from the surrounding areas into the region which was till then largely uninhabited. Some impact of these changes can still be felt and is reflected in

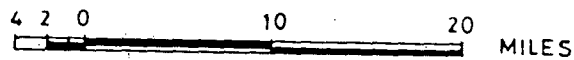
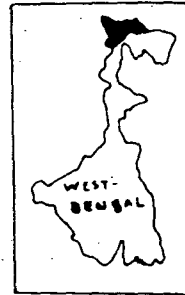
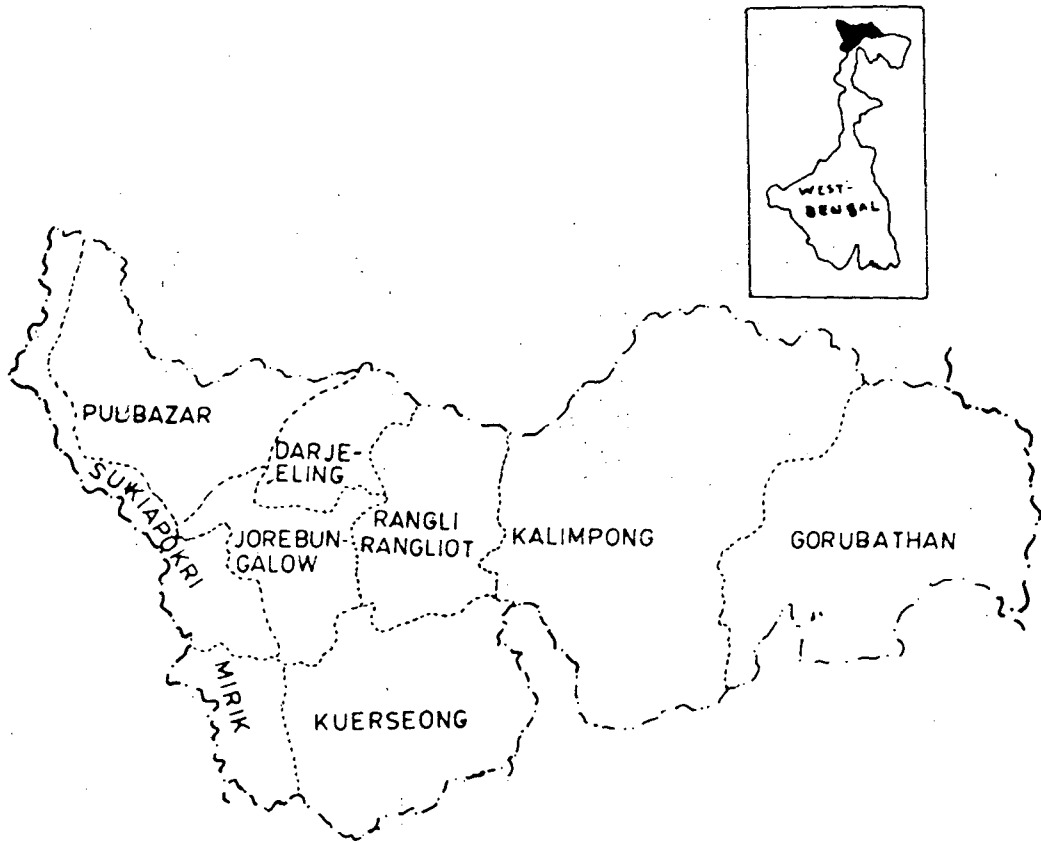
the literacy levels, sex ratio, work participation, urbanisation and in many other aspects of the economy.

### 1.1 INTRODUCTION TO AREA

Darjeeling, the northern most and smallest district of West Bengal state is bound by Sikkim in the north, Nepal in the east and the kingdom of Bhutan towards its west. The total area of the district is 3106 sq.kms. and had population of 10,24,479 persons in 1981. The district includes three hill sub-division namely Darjeeling, Kalimpong and Kurseong with nine police stations. It also has Siliguri sub-division situated in the plains which show physiographic contrast with the rest of the district.

The present study deals mainly with the socio-economic setup in Darjeeling Himalayas, the contiguous sub-divisions of Darjeeling, Kalimpong and Kurseong with an area of 2157 sq.kms. and population of 5,51,471 persons. The sub-division of Siliguri being situated in the plains has been excluded. Though small in area in context of the entire Himalayan realm, it has accommodated the settlements of population of diverse origin and has developed its own adaptive strategies for subsistence. The region has been very much influenced by the forces from the neighbouring areas. (Historically what is known as Darjeeling today was part of two kingdoms during pre-British period i.e. the kingdoms of Sikkim and of Bhutan. British relations with Sikkim had origin in the Anglo-Nepalese War of 1814-16. Darjeeling was acquired as a grant from the Chogyal of Sikkim in

# DARJEELING HIMALAYAS ADMINISTRATIVE DIVISIONS



MAP 1



1835. Kalimpong was annexed to this part in 1865 which earlier formed part of Bhutan, since then Darjeeling emerged as a separate region.

Far removed from the main stream, it is a peripheral area which received occasional off-shoots of the early civilizations. British, Nepalese and Tibetan influences have played an important role in moulding the present day socio-economic, political and cultural set-up. These people brought about a new phase in the age old traditions. The subsequent expansion of British commercial interest towards the Himalayas in the form of timber and plantation economy especially tea and cinchona brought about rapid integration of the region and its population with the 19th century world economy.

The area was subsequently exposed to various plans and policies of the government in the post independence period. Changes in the economy are also noticed as a result of political disturbances of recent past. The Gorkhaland agitation was one such movement that shook its economy. Its impact was felt more by the local inhabitants. Major affect was on the tea industries which form the main economic activity of the region along with tourism.

Like the rest of West Bengal, or India the majority of the people in the hills of Darjeeling are poor. Their basic needs of food, shelter and clothing are far from satisfied. But a comparison of Darjeeling Himalayas with the rest of the state does not show it to be more backward.

## 1.2 SURVEY OF LITERATURE

Darjeeling was introduced to the world mainly due to the effort of the Britishers. Earlier to them, the region was secluded with few inhabitants probably the tribals known as Lepchas. The region was inaccessible to outsiders, thus, academic works and accounts about the region before 18th century are scanty. Darjeeling was part of Sikkim feudal state. The similarities exist in the culture and social aspects and most significantly in their history.

### (i) Writings of the British

The early British travellers presented their accounts of the region in the form of travellogues. Of special interest is that of Sir Joseph Hooker, noted naturalist and botanist.<sup>4</sup> He visited the region to study the vegetation in this part of the Himalayas. He provided a well documented account of the culture and natural beauty of Darjeeling. He travelled extensively to different parts of the world and his visit to India especially to the Himalayas was meant to study the great variety of flora at successive altitudes. Sikkim till then was largely unexposed, Sir Joseph became the first Britisher to undertake such work. Throughout his travel from Calcutta towards Sikkim Himalayas, he describes vegetation types, landscape and the people. Changes in the type of vegetation from tropical to subtropical along with increase in elevation have been well highlighted.

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4. Joseph Hooker (1854), Himalayan Journals, Notes of a naturalist in Bengal, the Sikkim and Nepal Himalayas. Wardlock and Co., Ltd., London.

On reaching Siliguri and further with ascent towards Darjeeling, he writes : "Hitherto I had not seen the mountains, so uniformly had they been shrouded by dense wreaths of vapour, I caught a first glimpse of the outer range sombre masses, of far picturesque outline clothed everywhere with a dusky forest". Sir Joseph, during his stay in Darjeeling describes its beauty "as it embraces commanding confessedly the grandest known landscape of snowy mountains in the Himalayas and hence in the world". He calls lepchas, the original inhabitants and found them to be experts in the collection of plants.

Dozey, wrote from his personal knowledge of travel in the area and collection of records<sup>5</sup>. Giving details regarding history of the region prior to coming of Britishers and activities during the British period, he states that British relationship started with the expansion of trade. Later tea plantations and other developmental activities played an important role. His book basically deals with history but is also a guide about the area, especially useful to travellers visiting Darjeeling and its vicinity. It is encyclopedic.

Hunter's, statistical amount gives a detailed information about the region<sup>6</sup>. Starting with a description of physical

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5. E.C. Dozey (1922) "A Concise History of Darjeeling District since 1835. With complete Hinerary of Tours in Sikkim and the district." N. Mukherjee, Art Press, Calcutta

6. W.W. Hunter (1876) Statistical Account of Bengal Vol.X, District of Darjeeling and Jalpaiguri and the State of Kuch Behar Taubner and Company, London. Reprint 1974, D.K. Publishing House, Delhi.

features, it proceeds to the description of its people, their occupation, ethnical division and creeds, their material. Conditions and distribution of towns. He has also provided population growth figures since 1835, when the region was first acquired by the British. His accounts state that tea plantation formed the staple industry that led to large immigration from neighbouring Nepal. This is supported by a comparative table of Tea operation in Darjeeling district for the year 1866-1870 and 1872-1873-1874. Also included are the detailed statistics of tea gardens in 1870. Agriculture follows with very revealing information on land tenure, prices and wages, rates of rent and size of land holdings and the natural calamities which the district faced. He states that in the hills, the cultivators had no knowledge of land measurements. Large field would probably be in which two muris (4 maunds) of seed can be sown. Land for agricultural purposes was under the ownership of the ruler which was leased in lots of not less than 10 acres for a term of 30 years. Hunter's account also make note of commerce, means of communication, manufacturing, capital, interest and other industrial aspect. The working of district administration has been discussed in great details taking into account revenue and expenditure, protection to person and property, the police, the jails and the criminal classes. Statistics have been provided regarding education and of postal services. These show that the region was literally poor till 1871. Considerable development took place both in the number of schools and in attendance. This statistical account of Hunter provides details of the region from the time of the British advent till 1900 and is of great

help to assess the extent of British influence and its affect on the region.

The preparation of district, provincial and imperial gazetteers was part of a tradition set up by the British. LSSO' Malley's District Gazetteers were first published in 1907<sup>7</sup>. These official records provide a wealth of material on physical, social and economic aspects of the region. These include detailed information about the inhabitants their way of life, habits, customs, religions rites and rituals, festivals etc. Starting with the physical aspects of this district forming an irregular triangle he describes the drainage system, natural divisions of the mountain, the foot hills and the plains. History of Darjeeling, from the Nepalese war, when the Treaty of Titalya was signed in 1817 between the ruler of Sikkim and the East India Company has been discussed. The historical account helps in understanding the formation of the region and trends of development which emerged after British occupation.

Darjeeling was always included into accounts of the travellers and the explorers while undertaking expeditions to other Himalayan regions namely Nepal, Bhutan, Tibet and Sikkim. Writings of Bruce provide interesting account of travel and mountain exploration<sup>8</sup>. Account of the 'Hindu Koosh' and Himalayan

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7. LSS'O Malley (1907) Bengal District Gazetteers, Darjeeling, Logos Press, Reprinted, 1985, New Delhi.
  8. C.G. Bruce (1910) 'Twenty Years in the Himalayas', Edward Arnold publisher to the India Office, London.

ranges has also been given. He shows the differences between people, country and life that existed in the different districts, from the Kafir border on the east. His writing on Nepal and Sikkim highlight the fact that Nepal inspite of being extremely mountainous country was very thickly populated. So much was the population pressure that atleast 40,000 Gorkhas over flowed from the eastern province into the district of Darjeeling and into semi independent Sikkim. The inmigration continued into the district. The Gorkhas completely out number the original lepcha inhabitants in the Western part. Having served the Gorkha regiment for twenty one years, he took interest in the customs, rituals and the traditions of the Nepalese people. He visited many parts of Sikkim and Darjeeling and wrote that "Things have changed but little since the visit of Sir Joseph Hooker, in the late fourties, except, probably, that some more land has been taken up by the invading Nepalese". Ronaldshay described the physical, social and cultural aspects<sup>9</sup>. He mentions about the thoughts and attitudes towards life of these eastern Himalayan inhabitants. Sikkim has been described as the most mountainous country in the world by him. He says that Sikkimese posses and unusual human interest on which the thoughts of their people have developed. This peculiar bent of mind is a product of fundamentally opposed ideas, concerning the nature of things. He wrote those ideas were rationalism on one hand and superstition on the other. The former represented by early Buddhism the latter by the demonolotry which under the

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9. Earl of Ronaldshay (1923) Land of the Thunderbolt, Sikkim, Chumbi and Bhutan. Constable and Company limited, London, 1923.

name of Bon-pa, passed for religion in primitive Tibet". He has included in his study the description of the mission of the Rimpoche, a Buddhist missionary and his works. Ronaldshay's work is simply a narrative of travel in some what out of the way countries of great natural charm and among people whose strange characteristics give them an unusual interest.

(ii) Writing's during 1970 and 1980's

Many works came up on Darjeeling Himalayas, ranging from history, economy, social and cultural aspects during the early seventies and eighties. Many scholars are still writing about Darjeeling Himalayas.

Kotturam, dealt with the historical and cultural aspects. He wrote that the prime interest of the Britishers in the region was basically to expand economic relations towards the Himalayan frontiers and gain economic control for the East India Company<sup>10</sup>. With opportunities in Sikkim, the British in the process of their expansion annexed the part of land now called Darjeeling from the ruler of Sikkim, under the deed grant of 1835. He also describes the unique culture of Buddhism and of the lepcha tribes found in the State. Sen, discussed the history of Darjeeling and the interest of the Britishers in trade and that their relations with Sikkim had origins in the Anglo-

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10. George Kotturam (1983) 'The Himalayan Gateway, History and Culture of Sikkim Sterling publishers, New Delhi.

Nepalese war of 1814-1816<sup>11</sup>. He wrote about the entry of British and the various treaties signed before the British established their domination in the region. Treaties included that of Seagauli of 1816 and of Titaliya of 1817. The study provides detailed information on the trade relations and on exports and their values.

During the post independence period as the tea and tourism flourished and the region also gained importance as a hill resort. Consequently much was written about Darjeeling Himalayas. The studies emerged mostly in the form of articles published in journals. This led to the establishment of Institute of Hill Economy which conducted studies on Darjeeling Himalayas mainly on its economy, environment and society. Chakravorti's article deals with the effects of fiscal policy on investment in plant and machinery in tea plantations<sup>12</sup>. The study deals with depreciation allowances and development rebate granted to the Companies by the Central government. However, the study concludes that fiscal policy has failed to promote investment and if fiscal allowances are curtailed tax revenue will increase.

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11. Jahar Sen (1989) Darjeeling, A Favoured Retreat, Indus Publishing Company, New Delhi.

12. B. Chakravorti (1982) "Effects of Fiscal Policy on Investment in Tea Plantation, in R.L. Sarkar et al (ed) The Eastern Himalayas Environment and the Economy, Atma Ram and Sons, Delhi - PP-465-468.



Sarkar, explains the ecological factors that determine the quality of Darjeeling tea<sup>13</sup>. He explains the interrelationship between tea growing in hill areas and the ecosystem which is essentially a biotic community in interaction with its physical environment. Bhaumik's, work is confined to the impact of economic development on occupational mobility and structural change brought about by economic development in Darjeeling in the late seventies and eighties<sup>14</sup>.

Maitra, highlights the inter-relationships between the settlement and the population of Darjeeling in terms of growth and its effect on development<sup>15</sup>. These reports are related to development of hill areas highlighting their problems, the development policies and the strategies for it. Rai, has emphasised the role of tourism in uplifting the economic conditions of Darjeeling<sup>16</sup>. He wrote that "Tea fully developed and exploited to their saturation levels, the tourism industry is still in its infancy and there is ample scope for its development as a tourist spot".

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13. R.L. Sarkar (1983) "Some Ecological Considerations of the Quality of Darjeeling Tea in Eastern Himalayas", in R.L. Sarkar (ed) Hill Development Programme Plans and Strategies. IIHE, Vol.4, March, PP.1-6.
  14. K. Bhaumik (1979) "Economic Development and Occupational Mobility" Indian Journal of Hill Economy, IIHE, Darjeeling, Vol.4, March, PP.1-6.
  15. D.K. Maitra (1983) "Problems and Possibilities of Development of Hill Region" in R.L. Sarkar (ed) Hill Development Programme: Plans and Strategies, IIHE, Darjeeling, PP.75-78.
  16. R.D. Rai (1986) "Development of Darjeeling as Tourist Spot", in R.L. Sarkar, et al (ed). The Eastern Himalayas, Environment and Ecology, Atma Ram, Pub., Lucknow, PP.437-448.

Chaudhuri, shows that the ecology has shaped the economy of the area and it influences as well as limits the development programmes<sup>17</sup>. Migration of labourers from Nepal is considered to be the result of emergence of tea gardens thereby bringing about economic changes. Economy of Darjeeling is said to be the result of external forces, he contends that over time the spill over has given a new dimension.

Impact of British rule in the Himalayan region during the nineteenth century has been discussed in the accounts of English. Special significance in his writing is the processes by which the region was integrated into the colonial economy of British India during the nineteenth century<sup>18</sup>. Mountain inhabitants and their culture have drawn considerable attention. An Anthropological analysis was conducted by Fisher<sup>19</sup>.

Thakur studied Lepcha tribe conducting a detailed field work<sup>20</sup>. He describes the advent of British and the Lepchas intermingling with other Bhotia and Nepalese people. Another important aspect is the Gorkhaland agitation for a separate

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17. Buddhadeb Chaudhuri (1956) "Economy Migration and Development. The Eastern Himalayas. A study of Darjeeling Humalayas". In L.P. Vidrjathi and M. Jha (ed). Ecology, Economy and Religion of the Himalayas - Orient Publishers, Delhi, PP.72-85.
  18. Richard English (1985) "Himalayan State Formation and the Impact of British Rule. In the Nineteenth Century" Mountain Research and Development, Vol.5, August, PP.61-78.
  19. J.F. Fisher (1985) "The Historical Development of Himalayan Anthropology" Mountain Research and Development, Vol. 5, No.11, November, PP.99-111.
  20. R.N. Thakur (1988) Himalayan Lepchas, Archives Publishers Distributors, New Delhi.

identity and statehood. With emphasis on lepchas being the original inhabitants he seeks to explore as to where do the lepchas stand. He also brings into light the deepening national issue and crisis in the Sub-Himalayan region.

Subba, discussed the emergence of the Nepalese in the hill region of Darjeeling and determines the hierarchy of prevailing caste systems<sup>21</sup>. His work taking note of the long historical association of Nepalese with Nepal, explains the dynamics of the Nepali society in Darjeeling. He has drawn his information from extensive field work and his experience and association with the society.

To conclude, it can be said that inspite of the above mentioned studies, Darjeeling Himalayas still remain largely away from the interest of the scholars. Most of the studies are confined to description of the region and the history while a lot remains to be unveiled and said about this region.

### 1.3 OBJECTIVES

The present study is an attempt to understand the socio-economic setup of Darjeeling Himalayas to which external forces have contributed significantly. Of major concern is the natural environment and the changes that have come about in the social and economic environment of the region due to population growth and effects of modernization. Therefore, the main objectives of the study are as follows:

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21. Tanka Subba (1989) Dynamics of A Hill Society (Nepalise in Darjeeling and Sikkim Himalayas), Mittal Pub. Delhi.

1. To bring out the regional structure and an over view of the changing socio-economic set up since the British intervention in the region.
2. To estimate the role of exogenous and endogenous forces responsible for shaping the present socio-economic set up.
3. To assess the environmental changes and emerging problems.
4. To analyse some major components like population and economy in their regional dimension and inter linkages between these which determine the socio-economic structure.
5. To assess the socio-economic changes during 1961-1981. This includes the changing population profile in terms of distribution and growth of population, urbanisation, sex-ratio, literacy rate, work force, etc. to comprehend present trends.
6. To understand current disturbances and their relationship with changing socio-economic set up.

#### 1.4 DATA BASE

In order to generalize and comprehend the various aspects of regional study, data is of great importance. This helps in explaining and bringing about a time series analysis. It is therefore, important to mention the types and the sources of data used. Secondary sources have been used in the present study.

The historical accounts of the region has been mostly drawn from the gazetteers and accounts presented by others based on the archieval sources. Some collections of papers regarding the general survey, exploration policy matters and records about the region were consulted. Administrative reports is another source of major statistical information on the region giving trade flows and budget etc.

Giazzetteers provided information about the people their customs, flora and fauna. The imperial gazetteers of India by Hunter, Hisley and O'Malley helped in cross checking this information. Most of the data on population, migration, settlement and economy have been taken from the census of India, general population tables 1961-197 and 1981 and economic tables. This source of information has been widely used in analysing the changing socio-economic set up of the region. District census hand books, agriculture census, tea statistic and statistical abstracts were used to see the major economic changes in the region.

### 1.5 METHODOLOGY

The study has been done with the help of simple statistical measures. The area being small with limited number of administrative units impeded the use of any other statistical methods. The data available have been calculated as percentages which have been arranged into classes and values. Maps have been drawn to show the environmental setting of the region.

Choropleth maps and graphs have been prepared for presenting

information on population settlement and the economy.

#### 1.6 ORGANIZATION OF MATERIALS

The major emphasis has been on identifying the changing socio-economic set up in the mountainous region. Mountain eco system being phenomenally sensitive, the inhabitants get subjected to both internal and external pressure that affects their attitudes and activities resulting in social, economic and political changes. These basic parameters have been discussed in the first chapter itself. The basic aims, objectives of the study, source of information have also been highlighted in the first chapter.

An attempt has been made in the second chapter to explain the nature of regional diversities with regard to various geographical phenomena. It deals with the environmental setting in terms of relief, drainage and climate etc. It also mentions in a broader sense the resource potential of Darjeeling. The resource affects economic activities. Thus, the chapter also deals with the developmental activities that have affected the natural environment. The evolution of spatial linkages the economy, polity have been discussed in the third chapter. The present economic set up has been influenced by past external forces in the Darjeeling Himalayas. The British involvement had an important contribution and they played a significant role in establishing the region's present economy. Thus, political and economic history, the evolution of changing space relations are another aspect of this chapter.

The empirical data and their results for the year 1961, 1971 and 1981 have been analysed in the last two chapters separately. Chapter four deals with the demographic characteristic. The changing population profile alongwith the population growth has also been highlighted.

These factors have influenced the economy of the region, which has been analysed in the fifth chapter. It also deals with the dynamics of change in the economic structure. Tea, the main stay of the region which contribute to the economy has brought about major socio-economic changes at different periods of time has also been discussed. Finally, a summary of conclusions has been presented.

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## CHAPTER II

### THE ENVIRONMENTAL SETTING

Environment is indeed a matter of great concern. This provides a base on which the whole life and economic system are built. Hence, understanding the environment of a region is important to comprehend its basic character. In a study of land man relationship and the socio-economic set up, the comprehension of environmental factors is crucial as these affect the former. There are indeed, a wide range of physical, biological and man made components that interact in building up an environment<sup>1</sup>. It basically includes location, physiography, drainage and climatic conditions alongwith morphology and geology which play major role in characterising the regional set up. These factors combined together have close interrelationship with economic, social, cultural and political activities of the inhabitants. This is more so in mountainous areas inhabited by simple societies where environment articulates and to a great extent determines the socio-economic aspects. It is because of these environmental differences that some regions enjoy some advantages which are condusive, while many others suffer disadvantages those hinder economic activities.

Availability of vast plain and resources along with easy accessibility has led to the development of agriculture and

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1. G.D. Dutt (1985) "Issues and Challengesw" in H.H. Singh et al (Ed) Geography and Environment. Concept Publishing Company, New Delhi, P.3.



industries in low lying areas while mountainous regions suffer from serious resource constraints due to difficult terrain causing inaccessibility.

It is obvious that human occupation and the resultant interference in nature have modified the environment to a great extent changing the socio-economic setup of Darjeeling Himalayas. The hill areas of Darjeeling District is part of the Himalayas, the most magnificent mountain system of the world. As part of Eastern Himalayas the three sub-divisions namely Darjeeling Kurseong and Kalimpong show great diversities of the Great Himalayan Ranges. It has giant snow capped peaks, huge glaciers, deep valleys, luxuriant vegetation and variety of resources. The hill area of Darjeeling, is situated in the northern most corner of West Bengal state and extend over an area of nearly 2439 Sq.km the dividing line with the plains being the 300 metre contour line.

### II.1 GEOLOGY:

Geology of the region reveals that the major part of Himalayas were formed during the Tertiary era as a result of certain tectonic movements, occurring due to interaction between interior and exterior of the earth<sup>2</sup>. It was during tertiary period that the main Himalayan range got uplifted. A large part of Darjeeling Himalayas is composed of granite - gneissic rocks, Darjeeling gneiss occupies greater part of the region and higher

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2. D.N. Wadia (1975) Geology of India, Tata Mc graw Hill Publishing Co., New Delhi, 4th Edition, P.5.

reaches of the hills. The geological formations consist of unaltered sedimentary rocks, confined to hills on the south and different grades of metamorphic rocks over the rest of the area. The outcrop of various rocks on a series of bands more or less parallel to the general line of the Himalaya, dipping one beneath the other. The present topography of high peaks and deep valley has been carved by water and glaciers and the weathering processes. The Mountains have folds.

Table - II.1

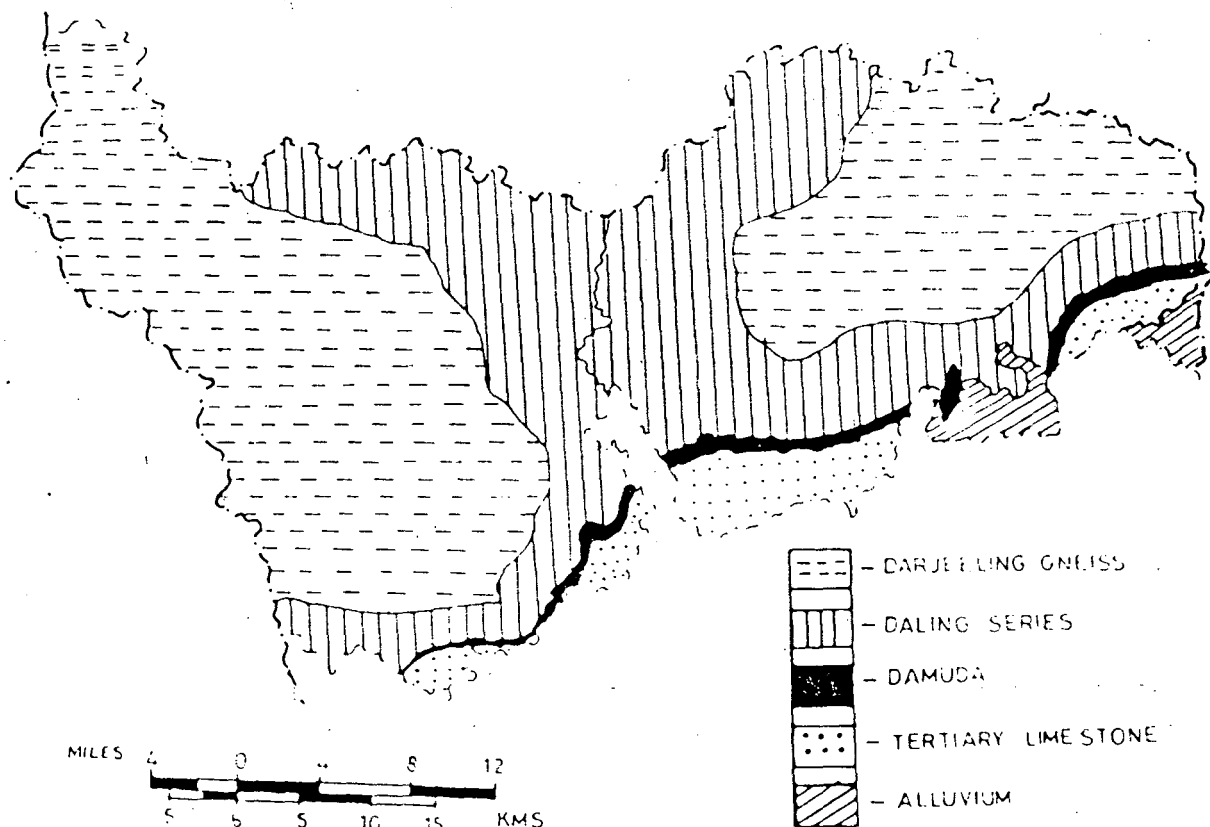
Types of Geological Formations

Sl.	Geological Formation	Geological era	Occurance
1.	Archaean System (Including Daling series and Darjeeling Gneiss, Gneiss and Schist.	Archaean	Darjeeling Hills Kalimpong Kerseong
2.	Quartzite Slate and Granite, Limestone.	Tertiary	Terai foot Hills Punkabari Gurubathan.

Source: Col. S.C. Burrard and H.H. Hayden (1934) A sketch of the Geography and Geology of the Himalaya Mountains and Tibet. Part IV: The Geology of the Himalaya, Manager of Publication, Delhi.

The Terai and the plains at the foot of the Himalays were formed after the final upheaval of the range and consist of almost horizontal layers of unconsolidated sand silt, pebbles and gravel.

# DARJEELING HIMALAYA GEOLOGY



SOURCE: DISTRICT GAZETTEERS DARJEELING

MAP 2

The rocks belong to the Siwalik system of the outer Himalaya. Resting over this bed is a group of still older rock consisting of coarse, hard sandstone, sometimes solidified into quartzites of Carbonaceous and Splintery slates of shales and of inpersistent seams of powdered coal. north of the Godwana out crops, the hills are occupied by a group of low grade metamorphosed sediments represented by quartzites, slates, Phyllites and foliated rocks composed of flaky minerals, such as graphite. There is a variety of foliated and banded metamorphic rocks generally known as Darjeeling gneiss. These rocks occupy the entire length of the region following more or less the same trend and inclination as the younger rocks.

## II.2 PHYSIOGRAPHY:

The physiographic divisions of the region are well marked with tremendous variations in altitude. The broad divisions are the hill areas of north and the north-west with the elevation varying from 200 to 3600 metres; the terai forming a transition zone, with a sharp physiographic contrast between the hills and the mountains in the north and the slowly grading plains in the south. The region can be divided into following three physiographic divisions namely the "Darjeeling Range, Kurseong Range and Kalimpong Range"<sup>3</sup>.

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3. Census of India: Regional Divisions of India - A Cartographic Analysis Occasional Papers - Series 1 Volume - XXIII, West Bengal<sup>1951</sup>, P.79.

(i) Darjeeling Range:

With an area of (762.6 Km) it occupies the northern most portion of the region covering Pulbazar, Darjeeling, north Rangli Rangliot, part of Sukhiapokhri and also the northern portion of Kalimpong mainly Monsong.

With an elevation varying from 400 metres to 3000 metres, the hills run in north west to south east and spurs plunge southwards. Many hill peaks are concentrated in the north west. The northern boundary is demarcated by the Great Rangit stream flowing in a deep valley towards east and merges with the Tista. The "Ghoom Saddle" is another prominent feature of the region where the Tista river flows southward. The Kalimpong Dome with its radial drainage pattern, the Tista region and Darjeeling are some of the remarkable zones. The Darjeeling spur is dominated by Darjeeling town. Sub-tropical and temperate wet forests are found in this region, two types of hill forests are found that is the middle hill forest at an elevation ranging from 757 to 1,666 metres. and the upper hill Forests occurring between 1600 to 2800 metres. Greater part of Darjeeling area falls in northern west temperate forests zone characterized by coniferous and alpine trees.

(ii) Kurseong Range:

Descending immediately south from Darjeeling range is the Kurseong Range. It lies between the highlands in the north and the plain of the Terai in the south. It covers an area of (667.3 Sq,kilometres km<sup>2</sup>) and include Kurseong, Mirik,

Sukhiapokhri, Jorebunglow and Rangli Rangliot police stations. The general slope of the region is from north to south and the altitude ranges from (300m-1800 metres), above the sea level. The boundary of this region is demarcated by river Mechi in the west and Tista in the east, while river Balasan with its tributaries flows in its central part.

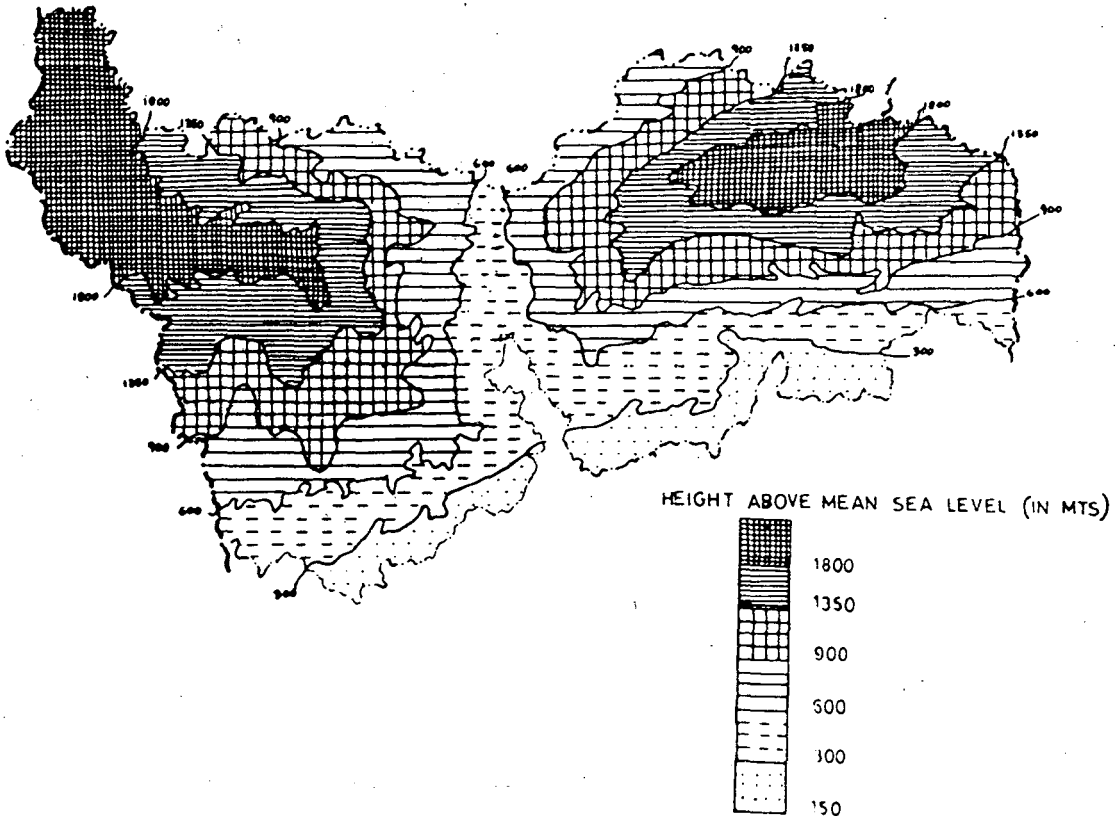
Trees of the sub-tropical moist deciduous type are found. The forest may be divided into the lower hill forest with altitude upto 1000 metres and middle hill forest upto 1,800m. Sal grows in abundance either mixed with other deciduous species or seperately on the ridges and the slopes.

(iii) Kalimpong Range:

Descending to the south east of Darjeeling Himalayas, the region lies extending from the river Tista on the west to the river Jaldhaka on the east. It covers Kalimpong and Garubathan police sations with an area of (885.2 Sq.kilometers) and is the largest among the three divisions. The main physiographic features of the region are the abruptly rising hills, and numerous rivers and small torrents. The Richila spur is about 3,000 metres high. Above 1,800m, it is almost virgin. The general slope of the hill portion is towards south and elevation ranges from 300 metres-3000 metres above in m.s.l. Sonchonglu (2000 metres) is the highest point in Kalimpong division. The Jaldhaka valley is flanked by steep escarpments and unlike the Tista, its floor is considerably wide.

# DARJEELING HIMALAYAS

## RELIEF



MAP 3

This region falls under the sub-tropical forest belt where broad leaved trees grow in plenty. Tropical semi evergreen forest type is found in the north-eastern portion of the region. The middle hill forest occur on Darjeeling and Daling series in Kalimpong region which is made up of rich sandy loam. The upper middle hill forest is characterised by laurels, oaks and sal also grows well on Kalimpong Range.

### II.3 MOUNTAIN SYSTEMS:

The mountain system of the region under study is "indescribably magnificent". "To the north the view is open and exhibits the usual succession of range beyond range all irregularly ramifying in every direction, and in apparently inextricable confusion".<sup>4</sup> The Singalila range extends northwards from Kanchenjunga in Sikkim, and forms a boundary between Nepal and Darjeeling. Sandakphu (3636 metres) and Phalut (3600 metres) are the highest peaks of the region. These ridges and spurs of the Himalayas form natural boundaries demarcating one region from another.

A numbers of spurs occur east-wards to the main ridge and are of large extent. The Senchal-Maldhiram spur juts out in the eastern direction and moves in north-northwest to south-southwest.<sup>5</sup> This spur is in the central part and acts as a mountain knot from which many spurs radiate in different

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4. J.D. Hooker (1854), Himalayan Journals, Wardlock and Company Ltd., London, p.86.

5. LSSO' Malley (1907), Bengal District Gazetteers, Darjeeling, Bengal Secretariat Book Depot, Reprint Logos Press Club, reprinted 1985, p.5.



directions separating one valley from the others. Continuation of "Singalila Ridge" in a south and then south-east direction by Tanglu and Senchal, with its various lateral spurs constitutes the Darjeeling hill territory west of the Tista.<sup>6</sup> It is the lower half of the south-western spur with its numerous ramifications, that constitutes the hills of Kalimpong. Some ranges the elevation of (500 metres to 2600 metres) in its northern half and about (2300 metres) towards the south. The highest point in the south east of the Singalila range is the east Senchal (2600 metres), Tiger hill (2585 metres) and west Senchal (2500 metres). "Below Tiger hill Takdah range branches east of Ghum, taking a north-east direction, sinking gradually from the height of (2300 metres to 500 metres at the junction of the Great Rangit and Tista rivers."<sup>7</sup> The Darjeeling Jalapahar range, extends northward from Ghum, rising to the height of (2585 metres). East of the Tista, the highest point is at Rishila (3000 metres). Labha at (2300 metres) is another prominent ridge.

#### II.4 GEOMORPHIC PROCESSES :

Different geomorphic processes predominate in the region because of large range of altitude. The fluvial processes are prominent in most of the area and the erosional process is of common sight. Steep gradients of the hill slopes create ideal conditions for soil erosion. Within this diverse terrain the south and south eastern side faces the full forces of south-

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6. Ibid. P.7

7. Ibid. P.8.

west monsoon. The area though small enjoys the privilege of having great diversity in its physiography.

## II.5 DRAINAGE

The rivers present the chief water resources of the region. Most of these are perennial and are characterised by high run-off being fed from the glaciers and the monsoon rain. These rivers flow making deep valleys in the hills. Erosion is sufficiently high, while further down the foot hills the valleys widen.

The great water shed of the region is the Singalila range while Ghum range that joins Singalila hills below Tanglu, forms a subsidiary water shed.<sup>8</sup> Water on the south and west of this line drains eventually into the Mahananda.

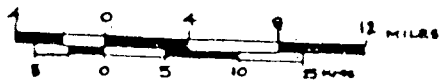
Those to the north and east find their way into the Tista. Tista is basically a broad mountain torrent with numerous shallow rapids. Having a catchment area of 1,800 sq.km, it originates from Zemu glacier (7000 metres) in north Sikkim. It is the most important river of Darjeeling Himalayas and also forms the boundry of the region with Sikkim in the upper course. The river has formed a deep gorge with steep sides covered with dense forest. Its current is swift and dangerous running at places "at 14 miles an hour"<sup>9</sup> and it is liable to sudden rise.

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8. Chakravarty (1980), "A geographical sketch of Darjeeling District.", Indian Journal of Hill Economy, Vol.5, September, 11 HE, Darjeeling, p.3.

9. Ibid. p.5.

# DARJEELING HIMALAYA DRAINAGE



MAP 6

Another characteristic of the Tista is that after it leaves Sikkim it divides the region into two, Darjeeling in the west while Kalimpong in the east. In the west the great Rangit and Riyang streams are the main right bank tributaries while the Rungpo and the Relli streams are important left bank tributaries of the Tista.

The great Rangit, enters Darjeeling from the west and forms part of its northern boundary. Its course lies entirely and provides the most picturesque scene with in the colour of the two river waters differing, Tista is turgid and milky white the Rangit dark green and clear.

Little Rangit stream rises in Tonglu ridge in the Singalila range on the border of Nepal. It flows in a north-east direction till it falls into the great Rangit on its southern bank. The Rongnu streams takes its origin from Senchal, flows northwards past into the great Rangit. Mahananda has its sources near Mahaldiram to the east of Kurseong. The river receives no tributaries of any importance within the limits of Darjeeling and attains its full volume after leaving the region. Other important streams in the west are Ramman, Balasan and Mechi.

To the east of Tista, Relli is an important tributary which rises from the Khampang range in the northeast of Kalimpong. It follows a south-west course till it falls into the Tista. Jaldhaka stream in the east flows through Bhutan and

forms the boundary of the region in the east. Its tributaries the Leech, the Geesh and the Chel emerge from the hills and carry great amount of sediments from the catchment areas due to erosion and landslides.

Besides these the region has quite a number of mountain rilles and gullies locally termed as "Kholcha". The streams of the region are not navigable. Some of these have been utilized for the generation of hydel power. Incidentally the first hydel power plant of the country was set up at Darjeeling in 1897.<sup>10</sup> Although there is an extending net work of streams and rivulets but only a few have been utilized for irrigation. The given map shows that the drainage forms mostly dendritic pattern. The swift flowing mountain torrents joining from the adjacent hills increase the total discharge of these streams and adds to the silt load. Most of these streams are in the youthful stage with high erosion and surface run-off.

The water is partially utilized for irrigating the fields but most of it runs to waste. Drinking water supply has posed problems in the hills mostly in Darjeeling, despite the presence of numerous streams. In most cases rain water is stored in reservoirs and then purified before distribution. The streams have enough potential for the generation of hydro-electric power at different stages of the rivers.

## II.6 CLIMATE :

The Himalayan ranges have played a vital role in making of

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10. Chakravarty, opp.cit n.8, p.4.

the climatic conditions. The differential terrain with wide variations in altitude ranging from (100 metres) in the terrai to (3600 metres) and above in the mountains determine the climate. It varies from subtropical to cold highland types depending upon the elevation of the place. Most of the region has sub-tropical to temperate conditions. It is only at some places towards the Singalila range and Sikkim that cold highland type conditions prevail. In general the hill areas enjoy pleasant summer, heavy rain during monsoon months and cold winter often added with snowfall at higher altitudes.

The annual rainfall varies from (2000 milimetres) to (4000 milimetres). Rainfall is heavy and well distributed from June to September with July being the wettest month and it is moderate in the months of May and October. During this period there are more than 20 rainy days in each month. The main north south ridge of Kanchanjunga massif in Sikkim Himalayas provides an effective check to rain bearing winds. Precipitation distribution shows typical monsoon characteristic's. Orographic rainfall predominates. It is in the form of snowfall above 4000 metres. The intensity of rainfall during south-west monsoon season decreases from south to north while distribution of winter rainfall is in the opposite order.

The table II.2 shows that Darjeeling (2137 metres) receives about (275.9 centimetres) of rainfall with maximum occurring during the month of July i.e. (713 milimetres). The monsoon current flows northward, at the same time there is great ascensional motion maintained as the spurs increase in height.

Table - II.2

Average Temperature and Precipitation

STATION : DARJEELING - ALT. 2127 metres rise

Month	Max. Temp °c	Min. Temp °c	Mean Temp °c	Rainfall (mm)
January	13.93	0°	6.95	21.7
February	14.60	0.3	7.5	26.7
March	18.60	2.9	10.8	52.4
April	21.10	6.0	13.6	109.0
May	20.0	9.1	14.6	187.1
June	20.2	11.6	15.9	522.3
July	21.95	12.7	17.3	712.9
August	22.7	13.1	17.9	572.5
September	22.4	11.9	17.2	418.5
October	21.1	7.6	14.4	116.1
November	17.9	4.2	11.1	14.2
December	15.5	1.1	8.3	5.0
Annual	19.62	6.7	12.96	2759.4

STATION ; KALIMPONG -ALT. 1209 metres

Month	Max. Temp °c	Min. Temp °c	Mean Temp °c	Rainfall (mm)
January	18.3	4.9	11.9	13.6
February	20.6	5.8	13.2	18.7
March	24.5	8.1	16.3	34.3
April	26.3	11.3	18.8	71.3
May	27.2	13.7	20.5	146.0
June	27.0	16.6	21.8	405.3
July	26.9	17.7	22.3	635.0
August	27.5	17.6	22.6	488.7
September	26.9	16.9	21.9	343.7
October	26.0	12.0	19.0	87.6
November	23.2	8.8	16.0	13.2
December	20.7	6.3	13.5	4.9
Annual	24.6	11.6	18.2	2272.3

Source : Indian Meteorological Department. Climatological Tables of Observatories in India, 1931-60.

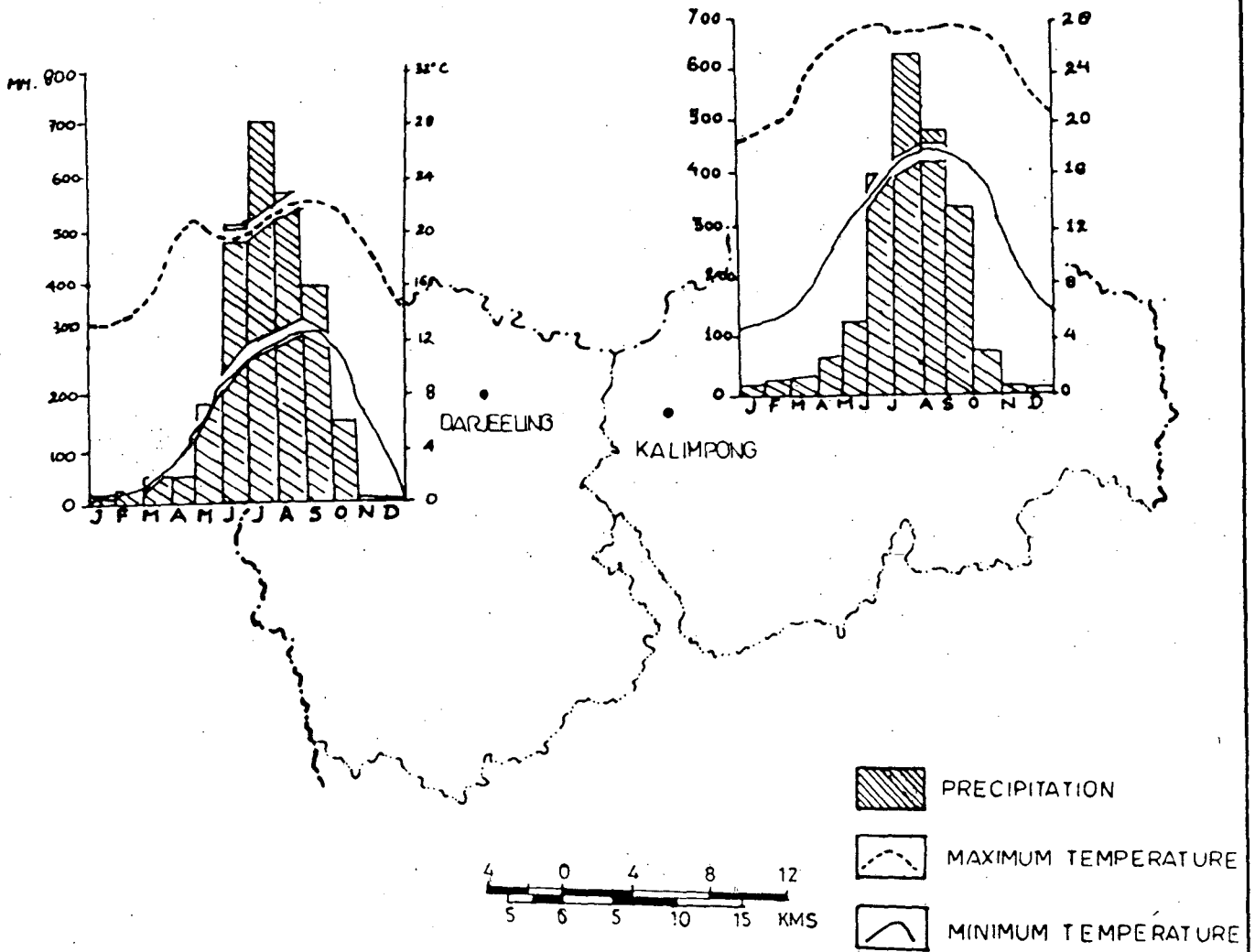
It is due to this the rainfall is heavy. Examination of table II.2 shows that rainfall continues unabated during the months of June, July, August and September with amount being (522.3 milimetre), (712.9 milimetre), (572.5 milimetre) and (418.5 milimetre) respectively. Kalimpong (1209 milimetre) receives annual rainfall of about (227.2 centimetres) with maximum again occuring in July of about 635 mm. It is interesting to note that precipitation occurs in all the months at both the stations. However, it is much lower during winter months i.e. from November to March.

Most of the precipitation during winter is in the form of snow especially in the higher parts of the region. Winter precipitation is largely caused by local orographic factors and also the western disturbances. October seems to be the turning point when the reversal in monsoon winds starts i.e. these winds start flowing from land to sea. The map reveals that though Kalimpong receives less precipitation but the monthly distribution is very similar to that of Darjeeling.

The temperature decreases with increasing altitude. The table and the map shows that these increase rapidly from March and April. August is the hottest month with a maximum temperature of (22.7°C) in Darjeeling while at Kalimpong records about (27.5°C). The maximum temperature variations are not much. During May to September, it ranges from (20°C) to about (27.2 °C) to (26.9 °C). In spite of heavy rainfall during July and August the temperature remain high. January is that coldest month when maximum temperature of (0°C) occurs Darjeeling at



# DARJEELING HIMALAYAS DISTRIBUTION OF PRECIPITATION AND TEMPERATURE



MAP 5

times it goes below this level. Maximum temperature during the month of December and February is about (1.1°C) and (0.3°C) respectively. Kalimpong is comparatively warmer with minimum January temperature of about (4.9 °c) while December and February temperature of about (6.3 °c) and (5.8 °c) respectively. Mean temperature recorded at Darjeeling station is about (17.9 °c) in August and (6.9 °c) in January while in Kalimpong the mean temperature recorded during the month of August is (22.6 °c) and January of about (11.9 °c).

## II.7 VEGETATION :

Of the total geographical area of 2,41,725 hectares, 54 per cent is covered by forest and about 14 per cent is devoted to agriculture. Darjeeling Himalaya has a variety of flora owing to the great climatic differences extending from the Himalayas in the north to the Terai and foot hills in the south. From the terai to the snowline the Himalayan flora varies drastically along with changing in elevation.

Table - II.3

### Vegetation Zone

Altitude	Forest Type	Species
a. 300-1000 m	Decideous Forest	Sal, Champ, Simal, Panisaj, etc.
b. 1000-2000 m	West Temperate Forest	Alder, Walnut, Poplar, Cryptome- nia
c. Above 2000 m	Coniferous Forest	Pine, Oak, Magnolia, Laurelbirch, Rhododendrone

The vegetation zone basically falls under two categories - sub-tropical and temperate.

1. Sub-Tropical Zone :

(a) Lower hill area extends from the terai to an altitude of (900 metres). It has shorea robusta (Sal) as the dominant specie. Along the river banks Acacia Catachu predominate. Grassy savannah are also found containing herbaceous plants of temperate zone brought down by mountain torrents.

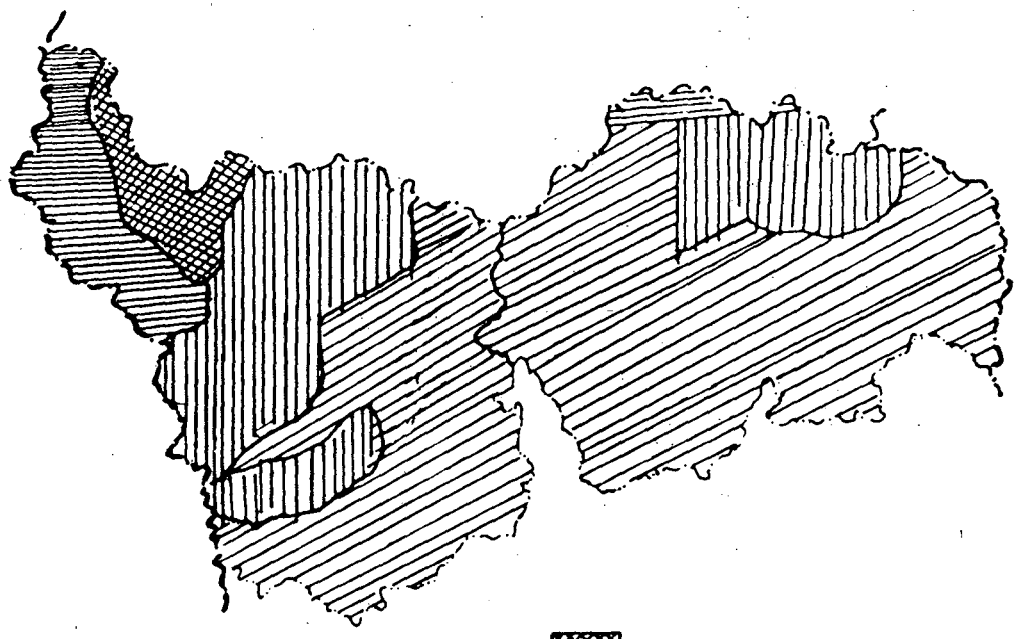
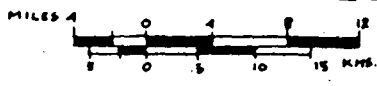
(b) Middle hill zone : Extending from the elevation of 900 metres 1680 metres and it consists of trees such as Castanopsis, Phoeba. In the upper limits these are replaced by Ostodes and Pandamus which are followed by an association of Machilus, Michelia, Arognolia and Castanopsis.





ii. Temperate Zone :

Also known as the upper hill zone from the height 1680 metres to about 3600 metres. In Darjeeling this region is roughly divisible into lower non-coniferous and an upper coniferous and Rhododendrous belt.

The conspicuous tree of the temperate zone are the Rhododendrous and the Magnolias, the former has more than 30 species while the later has around 7 specie. Other dominant trees are Maples, Birch, Alder, Bucklandia, Conifers, including Pine and Rhododendrous forming belt between 2744 metres and 3600 metres elevation.

# DARJEELING HIMALAYAS FOREST TYPES



-  - MOIST ALPINE CONIFEROUS
-  - HIMALAYAN MOIST TEMPERATE
-  - MONTANE WET TEMPERATE
-  - SUB TROPICAL BROAD-LEAVED HILL DECIDUOUS

MAP 6.

Human activity regarding forestry has significantly altered the environment of Darjeeling. When the British purchased the area from the Sikkim Ruler in 1835 it was densely covered and practically uninhabited. Overtime the developmental activities were undertaken with the introduction of tea plantation and to meet the daily requirements of the inhabitants of timber, firewood and charcoal etc. These in turn resulted in widespread changes in the entire forest coverage of Darjeeling Himalayas. Introduction of tea led to mass clearing of forest in the earlier period. The construction of the Himalayan railway led to more wood being used for railway sleepers. Despite this the Britishers tried to maintain a balance towards forest management.

After independence there has been indiscriminate felling of trees by timber merchants with no afforestation and conservation schemes. Today, it has resulted in severe deforestation and mismanagement of large forest tracts. Consequently, these areas have become more prone to erosion, landslides, drinking water scarcity, climatic changes and many other hazards. The average rainfall in Darjeeling hill area has a tendency to decline.

The table II.4 shows that rainfall has come down by about 60 per cent since the second decade of present century. This may be due to deforestation which took place in the region as shown by table II.5.

Table - II.4

Annual Rainfall in Darjeeling Himalayas

Years/Decades	Average Annual Rainfall
1911 - 1920	3422 mm
1931 - 1940	2864 mm
1971 - 1981	2135 mm

Table - II.5

Proportion of Area Under Forest in Darjeeling

Year	Percentage of forested area to total land
1911	55.55
1921	49.14
1931	45.46
1941	45.08
1951	45.01
1961	40.07
1971	38.03

Source : Table 2.4 and 2.5 M. Dasgupta (1986) "Forest management in Darjeeling. Hill areas from British Raj to Swaraj", in Sarkar et.al.(ed), The Eastern Himalayas, Atma Ram Publishers, Delhi, pp. 157-161.

The above discussion shows major ecological changes. In the absence of effective steps, these may have catastrophic repercussions in future.

II.8 SOIL :

The type of soil depends on geological formations of the underlying rocks. Darjeeling Himalaya is largely composed of Granite Gneissic rocks. Weathering is common that results in the disintegration and decomposition of solid masses of rocks, boulder and minute particles. This turns into soil that

supports extensive vegetation cover. Soils in most of hill areas of the region show variety, ranging from Red clay and Sandy loam to Grey Brown Forest Soil. Sandy loam are found on the hilly slopes but in some areas clay loam to silty clay loam are also found.

Nearly 78 to 80 per cent of the soil in Darjeeling is acidic due to excessive loss of bases. Darjeeling hill soils are rich in organic carbon and potassium content, but deficient in phosphorus and lime. Major soil types of the region are as follows :

(i) Grey Brown Forest Soil :

These are rich in organic matter and develop under forest cover. This type of soil is favourable for the lush green forest growth. Most of the forested area has this soil type.

(ii). Red Earth and Yellow Loams :

Mostly found in the foothills and are residual in character light loam having a proportion of clay and sand fractions are suitable for the cultivation of tea, cardamom and citrus fruits. Good soil for tea cultivation is old sedentary derived from gneissic rocks. The local farmers generally recognise these types of soil in the region. These are black, red and white soil. Black soil is the richest in humus content and is fertile. Most of agriculture activity is confined to this type of soil, white soil is generally poor in organic and other nutrients. Red soil occupies an intermediate position

requiring heavy manuring. The riverine alluvium developed in the piedmont zone is suitable for the cultivation of paddy, oilseeds, pulses and jute. The tracts towards the east of Kalimpong and around the Tista river have this type of soil.

Soil erosion is a perennial environmental problem in the hills. The erosion of the fertile top soil causes the lowering of the productive capacity of the soil. This is due to the traditional agricultural system which still continues in the region. Rapid deforestation which exposes the soil directly to the effect of weathering. Construction of roads causes denudation of the area through soil erosion and landslides. All these are very much prevalent in Darjeeling Himalayas.

#### II.9 Mineral Resources :

Although small in area the region has some mineral resources, various environmental and technological constraints have withheld the proper utilization of these. The mineral resources of the region include coal, graphite, iron, copper ores, lime, mica etc. complex geological formations due to folding faulting and meta, morphism, these resources are found scattered in small quantities. This has prevented the proper assessment and commercial exploitation of minerals in the region. Coal of inferior quality with low carbon and high ash content have so far been extracted. Sand stones and gravels along the river bank are the only resources that has been extensively used for construction and road making purposes.



To conclude one can say that Darjeeling Himalayas were geologically formed during the tertiary era and the rocks are composed of unaltered sedimentary and metamorphic rocks. The gneiss occupy most of the area. Physiographically characterized by ridges and valleys with well marked variations in altitudes. These variation in altitudes affect the climate of the region which varies from sub-tropical to cold highland type. The major drainage is determined by the Tista river and numerous perennial streams characterised by high run off during monsoon, when the region receives high rainfall.

Darjeeling Himalayas is rich in forest resources, the distribution and type is basically determined by climate, soil and altitude. The vegetation type is wet temperate in the higher altitudes while sub-tropical type predominate in the lower altitudes. The overall environmental characteristics indicate that resources like forest and water power can be effectively utilised for the region's economic setup.

## CHAPTER III

### THE IMPACT OF BRITISH RULE AND THE FORMATION OF THE REGION

The history of the hill subdivisions of Darjeeling is intimately inter-woven with the histories of the principalities of Sikkim, Bhutan and of Gorkhas in Nepal. The history of Bhutan and Sikkim states that the region emerged from the break-up of the Tibetan monarchy in the 10th century. Sikkim as such is believed to have come up in the 13th century.<sup>1</sup> Then, Darjeeling formed its part. The lepcha tribes were the earliest settlers. However, no records exist of their migration to the region. Moreover this Himalayan region does not figure in any of the ancient literature. While tracing the beginning of Darjeeling Himalayas, it is important to note the influence that China, Tibet and Burma had on the way the destinies of these small kingdoms were carved out.

#### III.1. EARLY HISTORY

Sikkim was a small kingdom wedged between the larger kingdoms of Bhutan in the east and Nepal in the west. Tibet's presence loomed large in the north and the inhospitable Indian plains lay to the south. It was ruled by the Chogyal dynasty, established in 1642 and inhabited by the native lepchas and the emigrant Bhutias. The small kingdom of Sikkim was often the

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1. George Kotturan (1983), Op. cit., p.6.

victim of invasions and attacks from its more powerful neighbours.<sup>2</sup>

Such was the case of Sikkim in the middle of the eighteenth century. A militant ruler named Prithvi Narayan Shah of a principality called Gorkha in Nepal led his irresistible band of warriors to victory after victory. His followers were also called Gorkhas. By diplomacy and sheer military might, Shah was soon able to carve out an extensive empire for himself. He united through annexation and absorption, the entire tract of the Himalayan slopes right upto the Sutlej river. This kingdom came to be known as Nepal.<sup>3</sup>

Sikkim had compelling reasons to fear the expansionist kingdom just a little distance from its borders and as feared, the Gorkhas started towards Sikkim. The Chogyal and his family fled to Tibet in 1788 and Nepal occupied the entire western part of the Tista valley. The Gorkha army marched into Tibet in 1791, but was defeated by a huge Chinese army. A treaty was signed and in the absence of anyone to advocate Sikkim's interests, the Sino-Nepal treaty reduced Sikkim into a small principality. It was in such circumstances that Tshugphud

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2. H.H. Risley (1894), Gazetteer of Sikkim, Reprinted 1985, B.R. Publishing Corporation, New Delhi, p.24.

3. F.H. Buchanan, An Account of the Kingdom of Nepal and of Territories Annexed to the Dominion by the House of Gorkha, 1819 New Delhi, Manjusri Publishing House, Reprinted, 1971.

Namgyal (1785-1864) was consecrated as the seventh Chogyal of Sikkim in 1793.<sup>4</sup>

In the meanwhile, there was turmoil in the land of India situated south of the kingdom. The fight for possession was in full swing between European nations in which, by the end of the eighteenth century, the British had come out more successful.

The British, by now the virtual masters of the subcontinent, extended their empire and consolidated their position to such an extent that any threat to their superiority was possible only from the north. Moreover, they were also interested in the resources of Tibet. They looked northwards then with quite some interest at Sikkim.

(i) British Intervention

The entry of the British into the region was, however, triggered off by Nepal. The powerful Gorkhas were irritating the British with their frequent forays into British territory. There was also the fear that the Gorkhas would enter into an alliance with the Bhutanese to undermine British superiority in the neighbourhood. This was the main reason for the British to establish a foothold in the area.

Conciliatory approaches to the court of the Chogyal marked the British attempt to influence the Sikkimese. Accordingly Capt. Barre Latta of the East India company was deputed to

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4. H.H. Rishley (1954), Op. cit., p.14.

negotiate with Sikkim ruler. He was able to bargain with the Sikkimese authorities. He promised to help Sikkim to win the territories it had lost to Nepal in 1780 and also offered help in any skirmish thereafter. In return, he asked for the assistance of the Sikkim ruler to help the British in their fight against the Gorkhas.<sup>5</sup>

The situation as it prevailed then, precluded Gorkha incursion into the west, now consolidated by the sikh leader Ranjit Singh. It was unwise for the Gorkhas to encroach into Tibet for the latter had a strong alliance with the Chinese. This left the Gorkhas with the option of pressing into British territory in the south.

The Governor General Lord Moira declared war in 1814 against Bhim Sen Thapa and the Gorkhas. The Anglo Nepalese war (1814-16) drew the British directly into the Himalayas. In the two encounters that followed and by the negotiations held earlier, Sikkim was drawn dragged into a conflict in which they could only render limited help. General Ochterlomy defeated the Gorkhas and hostilities ceased with the signing of the treaty at Segauli on the 4th of March 1816. This treaty rendered British direct control of the Himalayan district of Kumaun and Garhwal. A group of hill states from Tehri to the borders of Ladakh also came under British protection.<sup>6</sup>

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5. Ibid.

6. Jahar Sen (1989), Op. cit., p.12.

According to the terms of this treaty, the gorkhas were to cede to the British, the territory of Sikkim which they had occupied from 1780. The treaty also established British arbitration powers in case of differences arising between the state of Nepal and the Chogyal of Sikkim. "For sixty years after the treaty of Segauli (1816) Sikkim Darbar made it a policy not to allow the Nepalese to enter Sikkim. Some Sikkimese feudal lords encouraged Nepali settlement in Southern Sikkim in 1875. From 1889 onwards during the tenure of Claude White as political officer, encouragement to immigration from Nepal became a settled policy of the Sikkim Darbar".<sup>7</sup> With the end of the Anglo-Nepal war, the British wanted to strengthen their position in the Himalayan belt. They made a decision to sign a treaty with the Chogyal of Sikkim.

A treaty was concluded at Titalya and was signed on the 10th of February 1817. Under the treaty, Sikkim got back its lost territories which had been ceded to the British by the Gorkhas. The treaty's significance also lies in the fact that it made Sikkim protectorate of the British. Sikkim no longer needed to fear the Bhutanese or the Gorkhas. But it also had to accept the overwhelming superiority that the British now had in the region.

It needs to be remembered that the British in India were still in the name of the East India Company which was a

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7. Ibid, p.81.

commercial organization run for profit. It was the prerogative of this company to look for newer trade pastures. Though the British had very little knowledge about life beyond the Himalayas, they thought that Tibet was a profitable proposition if a route could be established. A look at the possible routes through the Himalayan ranges put Sikkim in an inevitable position of being situated between Tibet in the north and the areas of East India company in the South.

In addition to British interests in Tibet, the geographical position of Sikkim was also significant with regard to defence. A permanent outpost in this terrain could help in keeping under surveillance the entire range including Tibet, Nepal, Bhutan and Burma. Consideration of these factors first brought the British to a small hamlet dominated by a monastery atop a hill, called "Dorje-ling". It is learnt from a report dated 18th June 1829 that General then Captain G.W. Lloyd, in the course of his journey to Sikkim to settle a dispute between Sikkim and Nepal came upon this settlement which was subsequently called Darjeeling and was immediately struck with its being well adapted for the purpose of a sanitarium.<sup>8</sup> He strongly felt the importance of securing possession of the place in realising its advantages as a centre of trade and as a position of great strategic significance commanding the entrance into Nepal and Bhutan.

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8. LSSO' Malley, Op. cit., p.20.

Darjeeling, formerly a large village and the residence of one of the principal Kazis was deserted. The region around it was sparsely inhabited. The place seems to have got its name from the monastery that dominated it. It is now generally accepted that the name is a corruption of "dorje", the mystic thunderbolt of the Buddhist faith, and the "ling", meaning abode. 'Dorje-ling', (abode of the thunderbolt) was the name of the monastery, that situated on the top of what now is the observatory hill. However, other etymological explanations are also forthcoming. One says that the Dorje in the first half of Darjeeling belonged to the name of the lama, Dorje Rinzing, the founder of the monastery there. The monastery was subsequently moved to another place but the former site retained the name of "the abode of Dorje lama". Some attribute the name to "Durjaya"; an incarnation of lord Shiva, and "linga", the phallus his symbol in Hinduism. But this explanation seems to be historically incorrect as the Hinduism entered Darjeeling only later with the migration of people from Nepal.<sup>9</sup>

(ii) Cession of Darjeeling, 1835

Darjeeling's position in the region greatly tempted the British. It not only had the importance of a watch tower but also because of its amenable climate, promised a respite from the heat and dust of the Indian plains. Such a place was necessary to the British who now occupied India in larger numbers.

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9. E.C. Dozey (1922), Op. cit., p.15.



Lord William Bentinck, the Governor General, authorized Capt. Lloyd to negotiate with the Chogyal Tshugphud Namgyal for transfer of the area to the British company. Initially Sikkim was loathe to part with the region, even though it yielded only the minimum of revenue i.e. Rs.20/- per annum. However, with the Gorkhas still aggressive and Tibet uncertain, the Sikkimese could not dare to shrug off British protection. Consequently it had to accede to the British request.

Darjeeling was handed over to the British on February 1st, 1835. The gift deed read "The Governor-General having expressed his desire for the possession of Darjeeling on account of its cool climate, for the purpose of enabling the servants of his government, suffering from sickness, to avail themselves of its advantages, I, the Sikkimputtee Rajah, out of friendship for the said Governor General, hereby present Darjeeling to the East India Company, that is, all the land south of the great Ranjeet river, east of Balasur, Kahail and little Ranjeet rivers, and west of the Rungno and Mahanuddi rivers".<sup>10</sup> This was an unconditional cession of what was then a worthless uninhabited mountain tract. In return Tshugphud Namgyal was promised an annual subsidy of Rs.3000 in 1841, later increased to Rs.6000 in 1846.

### (iii) Expansion and Development

After Darjeeling came into British hands it was rapidly developed. The few huts of 1835 soon gave way to private houses

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10. LSSO' Malley (1907), Op. cit., p.21.

as applications for land poured in from residents of Calcutta. A road had been built in the forest from Parkhabari by 1840 and hotels established in Kurseong and Darjeeling. A year earlier, Dr. Arthur D. Campbell the Indian Medical Service and the British resident in Nepal had been transferred to Darjeeling as its first Superintendent. He worked for the development of the area and attracted immigrants to cultivate the slopes and encouraged settlers. As the region took a new shape with increase in population and developmental activities, British relationship with Sikkim had deteriorated. The population of Sikkim had been forced by the oppression of the Chogyal to migrate to Darjeeling. The little cultivation in Sikkim was abandoned; the Sikkim Chogyal had prohibited his subjects from going to Darjeeling and helping in the establishment of the new settlement. Various measures were proposed to repopulate the region. The British relationship with Sikkim further deteriorated to such an extent that hostilities started taking place. Tshugphud Namgyal, old and infirm, left much of the state governance to his Diwan, Namgnay, more known than as the Pagla Diwan (the mad Minister). He was intent on his ambition of regaining Sikkim's lost sovereignty.

Sir Joseph Hooker the famed botanist and Dr. Campbell were made prisoners in 1849 while travelling in Sikkim. Consequently, an expeditionary force crossed the great Rangeet river and the Sikkim terai was annexed in February 1850. Its annual subsidy was suspended. The portion of Sikkimese territory bound by river Ramman in the north, the Tista on the

east and Nepal on the west was also annexed. It thus, made the boundaries of Darjeeling with Nepal on the west, Bhutan on the east and Purnea and Jalpaiguri in the south.

A treaty signed with the new Chogyal Sidkeong Namgyal in 1861, redefined Sikkim's relationship with Darjeeling. The terms stipulated the opening of the country to trade, removal of all restriction on travellers and merchants, and provided for the construction of roads. This treaty finally severed all Darjeeling's ties with Sikkim. Sikkim's military adventures were quelled. But now trouble began with the kingdom of Bhutan. Aggression by the Bhutanese in 1862 was followed by conciliatory moves on the British part. Sir Ashley Eden led a special mission to Bhutan with peace proposals but he was insulted and forced to sign a document by which the British were to renounce their claim on the Dooars. As a result of this, a strong military force marched into Bhutan in 1864 and annexed the entire Dooars, including the forts of Dalingkot, Pasaka and Diwangiri. This tract of land, now comprising Kalimpong, was added to the district of Darjeeling in 1865, giving it its present dimensions.

Rapid development took place with peace established in the wake of the wars with Sikkim and Bhutan. A broad metalled road had been constructed from the Ganges to Siliguri by 1866. Darjeeling was linked with a cart road. Efforts were made to extend this road up to Siliguri. But it wasn't until the starting of the tea plantations that the most rapid

developmental steps were taken. The year 1856 saw the first extensive development of the tea plantations. These were raised at Darjeeling, Kurseong and Kalimpong. There were 116 tea gardens; 70 in Darjeeling and Kalimpong and 46 in Kurseong by 1907.

Development of tea plantations made an immense demand on the workforce and led to large scale immigration of Nepalis from neighbouring territory of Nepal. They got engaged as labourers in tea gardens in Darjeeling and Kurseong while some of them as agricultural labourers towards Kalimpong. There was a steady increase in the number of Europeans. The influx was a result, once again, of the expansion of the tea industry whose supervisors were almost entirely Europeans. Another reason which brought a number of Europeans to Darjeeling was missionary work. These people saw there a fertile field for missionary work and set to their task among the tribals and the other inhabitants of Darjeeling with admirable zest.

The role of the missionaries was of much importance in the development of the hills. They started educational institutes for which the district is famed. They opened schools for the local people and spared no efforts in translating texts, writing books and training teachers. It was because of this that Darjeeling had the enviable leading position in province of Bengal in terms of both male and female literacy.

The region, all this while was undergoing remarkable change. The Darjeeling Himalayan Railway was established and

the railline linking Darjeeling to the plains started operating in 1881. On the other hand, the towns of Darjeeling, Kurseong and Kalimpong slowly started gaining the character of typical English towns, with club houses, dance halls, shopping centre and parks with band stands. More and more houses were coming up and an increasing number of people were flocking to the three towns. From the beginning, the region developed under the guidance of the Britishers who were responsible for the establishment of the present day socio-economic setup.

The region's attraction as a hill station has remained undiminished. After the Britisher's left in 1947, the government of India introduced various plans and strategies towards the development of this region which brought certain changes in its socio-economic and political setup. There was a change in the overall environment of Darjeeling as years passed. After decades, a major force that had affected the socio-economic structure of the region was the recent disturbances during 1986-88. It is important here to discuss as to what effects did these disturbances have on the social and economic setup of the region.

### III.2 RECENT DISTURBANCES

Since independence the first major movement that brought about some adverse changes in its socio economic set up was the Gorkhaland agitation. A demand was raised for a separate state for the Nepali speaking communities, on grounds of their

identity and that Darjeeling never was a part of Bengal. Besides the political implications, regarding the issues raised by the parties and authorities, the study focuses on the widespread economic and social impact of this 29 month agitation. Although this may not be supported by figures and other evidences, but is based on first hand information available and views from other published sources.

During this period, the most affected sectors were the Tea estates, Tourism and Timber the three Ts considered to be the economic main stay of the inhabitants. Tea industries suffered huge losses due to the closure of factories and strikes called by the agitators, which hindered the smooth functioning of these gardens and resulted in decline in production and unemployment. Many suffered and the decrease in production also affected the income of the region and of the inhabitants. Tourism, though it may not be as important source of income as tea but many local inhabitants depended upon it. Many had to bear this loss directly mainly the hotel owners, transportation agencies and the tourist guides. The flow of tourist traffic towards Darjeeling declined considerably. The region's lush vegetation of tall trees was cut indiscriminately by the local inhabitants and sold at cheap prices. The movement took such a turn that there were no powerful authorities to check such activities. Today, this attitude of the people has resulted in the environmental problems of landslide, soil erosion and climatic changes. The regular bandh and increasing violence led to the closure of many schools and colleges, consequently there was

decrease in attendance and also those appearing in important board exams suffered. Because of this, the number of local students pursuing studies outside Darjeeling has increased while earlier, many students from outside came here for studies.

As the movement turned violent, the local inhabitants were under severe economic stress and social insecurity. Threats from both the agitators and authorities and insecurity resulted in out migration of many people to nearby regions of Sikkim, Nepal, Bhutan and to Silguri. Number of people entering Sikkim during this period was more as this was the only safe and affordable region nearby. But these surrounding Himalayan regions also felt the impact and pressure of this movement, as people temporarily migrated to these places. Along with this, the strikes and bandhs affected the daily inflow of commodities.

However, this movement brought about political awareness and consciousness among the once reluctant and easy going people of the hills. Due to continued disturbances and violence, they were forced to look upon the functioning and attitudes of certain political parties. They had to rely on certain government authorities and political parties that would bring about peace and stability in the region, for it had become unbearable for the hill people as their economic, social, political and cultural activities were severely affected.

With the timely understanding and negotiation between the parties and the government, the movement was called off after 29

months, on 22nd August, 1988, with the signing of the hill accord ensuring Darjeeling Gorkha Hill Council (DGHC). Efforts are being made to improve the socio-economic conditions of the region by the DGHC.

### III.3 DARJEELING TODAY

"India's first experiment in regional autonomy, Darjeeling Gorkha Hill Council (DGHC) has begun to be sour in the very first year of its functioning",<sup>11</sup> changes that the Council tried to bring about have been so far unproductive. There have been talks about linking the three subdivision of the region with all corners of roads. An easy and quick access will also facilitate tea estates. At present, the tea gardens are in a state which need proper care. Road construction would certainly bring about some modification in the age old traditions, but the Darjeeling planters are of opinion that road construction and the widening of the existing roads imply acquisition of land in the tea gardens. Since no garden has any disposable land, the only way land for roads can be made available is by uprooting tea bushes.

Changes in the social and economic spheres which have come about after this disturbance are having adverse effect. The inhabitants are already disillusioned by the functioning of the DGHC. Unemployment has become the soaring problem in the hills and no significant effort has been made to improve the conditions of workers in the tea gardens, tourist facilities, and educational institutes. People are of opinion that the

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11. Hindustan Times, ~~2nd~~ February 1990



three years of the Gorkhalnad Movement have injected violence in the very veins of the once peace loving people.

To sum up, it can be said that Darjeeling has witnessed many changes in its socio-economic setup. It has been influenced by various external and internal forces. With the coming of the Britishers its economic and social activities got altered. At the same time unfavourable attitudes and forces have transformed its social, economic and political setup.

## CHAPTER - IV

### DEMOGRAPHIC STRUCTURE AND ITS DYNAMICS

Population structure in a region is intimately related to its socio-economic changes. Very limited habitable area is available in mountain regions which gets crowded with population growth. Growth represents only quantitative change in the size of population which also at times bring about some qualitative changes. Literacy, health and urbanization are certain qualitative factors which affect the changing socio-economic setup of a region. The quantitative changes have always been dominant in the mountain regions. These at times have serious repercussions on environment. Thus, it is important to strike a balance between the two. Changes have come about in Darjeeling Himalayas since these were acquired by the Britishers. Till today certain factors introduced by the Britishers continue to influence the population structure. As population structure changed over time its socio-economic set-up also changed. In the light of above, it is important to know the following to comprehend the demographic structure of Darjeeling Himalayas;

#### i. Distribution of Population.

The pattern of population distribution in the region is influenced by its physiographic characteristics and economic activities. As the area is static, increased population has obviously changed the pattern of population density.

#### ii. Growth of Population

Growth of population in the region has been remarkable and it affected the socio-economic changes. Besides the natural growth, migration towards Darjeeling in the earlier periods has been high.

#### iii. Sex Composition

The study of sex ratio is important as its analysis reflects several aspects of migration and other demographic phenomena.

#### iv. Literacy

It is an important indication of social changes in any region and influences the quality of human population. This brings about change in the outlook as it also improves the efficiency of workers that ultimately plays a role significant in economic change.

#### v. Urbanization

The increasing proportion of the regions population has been more in urban areas and has made an impact on the socio-economic conditions of the people. The process of organization although slow cannot be ignored in view of the role of exogenous factors in its emergence.

#### IV.1 DISTRIBUTION OF POPULATION:

The mountainous part accounts for only one third of the total population of Darjeeling district. It can be observed from

# AREA AND POPULATION DARJEELING HIMALAYAS

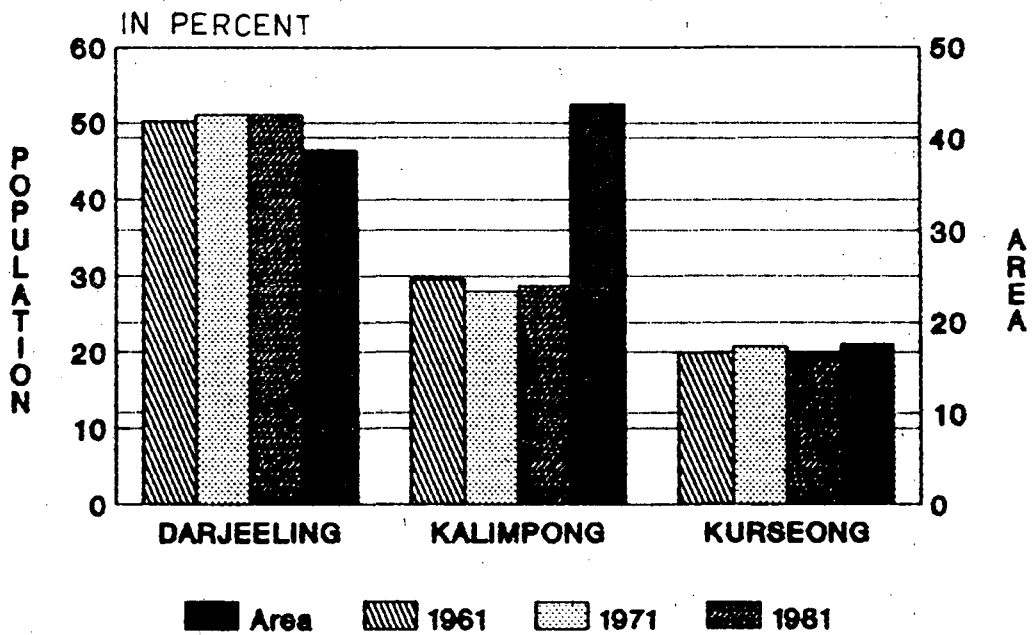


Fig. 1

figure 1 that out of the three sub-divisions, Darjeeling subdivision with an area of about 38.7 percent of the total had the largest population accounting for 50 per cent in 1961 and 51 per cent in 1981. Kalimpong sub-division ranks first in the area covering about 43.7 percent of the total land. It had only 29.7 per cent in 1961 and 28 percent in 1981. It ranks second in population size. Kurseong sub-division is the smallest and accommodates 20 per cent of the population on 17.6 percent of the land in the region. Almost 80 per cent of the population in the region is rural. It was only in Kurseong sub-division that the proportion of rural population was less i.e. around 74 per cent in 1981. Among the nine police stations in the region, six are entirely rural.

Population density in Darjeeling Himalayas was 228 persons per  $\text{KM}^2$  in 1981 as against 198 persons in 1971 and 167 persons per  $\text{KM}^2$  in 1961 (Fig 2). Table IV.1 shows that Darjeeling sub-division is most densely populated with density of 300 persons per  $\text{KM}^2$  in 1981. Kurseong and Kalimpong sub-division follow in that order with density of 261 persons and 150 persons per  $\text{KM}^2$  in 1981 (Fig 3). It is mainly because Darjeeling and Kurseong have large concentration of tea estates numbering 47 and 34 respectively.

The table reveals that the density of population varies between 82 persons in Garubathan police station to 998 persons per  $\text{KM}^2$  in Darjeeling police station in 1981. The map (No.7)

## POPULATION DENSITY (1961-81) DARJEELING HIMALAYAS

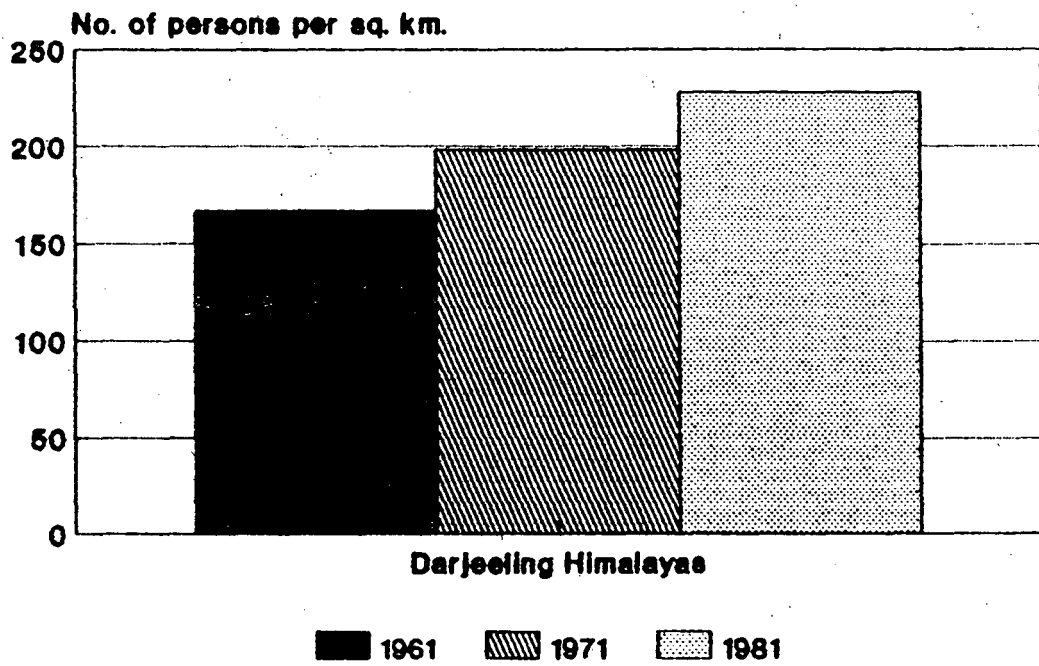


Fig. 2

shows that the population density is lower in the eastern portion of the region and is higher towards the west. Highest density recorded in Darjeeling police station is mainly due to the fact that Darjeeling town is situated here. Lowest density of population at Garubathan is the result of more area under forests. Of the total area nearly 63.3 per cent is under forest. Moreover, the police station has only 12.63 per cent of cultivated land and six tea gardens. Other police stations having density of population of less than 200 persons per square KM include Sukiapokri, Rangli Rangliot and Kalimpong. It is because most areas of these police stations are quite rugged and forest covered. Moreover, these have not been affected much by external forces. As against this, alongwith Darjeeling, other police stations having high density of population i.e. more than 300 persons per KM<sup>2</sup> in 1981 include Jorebungalow, Pulbazar and Mirik. This is because the former two have more tea estates, 23 and 27 respectively. These police stations have been identified as growth centres with well established communication and have development facilities for agriculture, animal husbandry and small scale industries. Mirik has been developed as a tourist spot in recent years. The percentage increase in density of population during 1971-1981 was more in Kalimpong sub-division i.e. 16.16 per cent. Among the police stations Darjeeling with 27.45 per cent increase records the highest, Jorebungalow had 26.69 per cent. The police station with the lowest change in density was Rangli-Rangliot and Mirik 1.19 percent and 3.07 percent respectively. In fact, the density of population declined in Rangli Rangliot during 1971-1981. It is mainly because of out migration as both the police stations are entirely rural. On the basis of the above discussion it can be said that the terrain and economic prospects are the main factors to influence the distribution of population.

**Table IV.1**  
**DENSITY OF POPULATION**  
**DARJEELING HIMALAYAS**

SUB DIVISION/ POLICE STATION	1961	1971	1981	TOTAL POPULA- TION.	PERCENTAGE CHANGE IN DENSITY 1971-81.
Darjeeling -Himalayas(T)	167	198	228		15.15
Rural	136	166	182		
Urban	3244	3390	2762		
I Darjeeling Sub-Division (Total)	217	262	300		14.50
Rural	176	218	242		
Urban	3835	4044	5434		
1. Sukiapokhri (T)	95	121	121		
Rural	95	121	121		
Urban	--	--	--		
2. Pulbazar (T)	236	299	326		
Rural	236	299	326		
Urban	--	--	--		
3. Darjeeling (T)	711	783	998		27.45
Rural	359	416	497		
Urban	3835	4044	5434		
4. Rangli-Rangliot (T)	125	163	166		- 1.19
Rural	125	168	166		
Urban	--	--	--		
5. Jorebungalow (T)	241	281	356		26.69
Rural	241	281	356		
Urban	--	--	--		
II. Kalimpong Sub Division	114	127	150		18.11
Rural	91	106	120		
Urban	2885	2693	3412		
1 Kalimpong (T)	157	167	194		16.16
Rural	118	131	149		
Urban	2885	2693	3320		

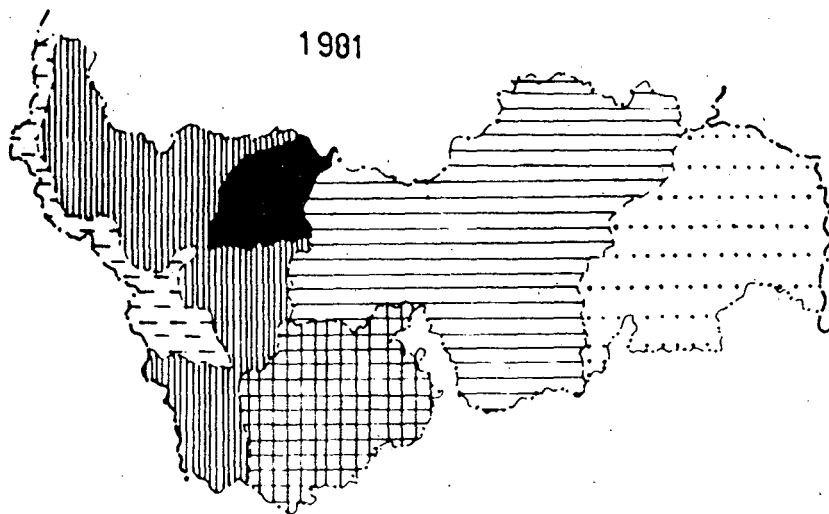
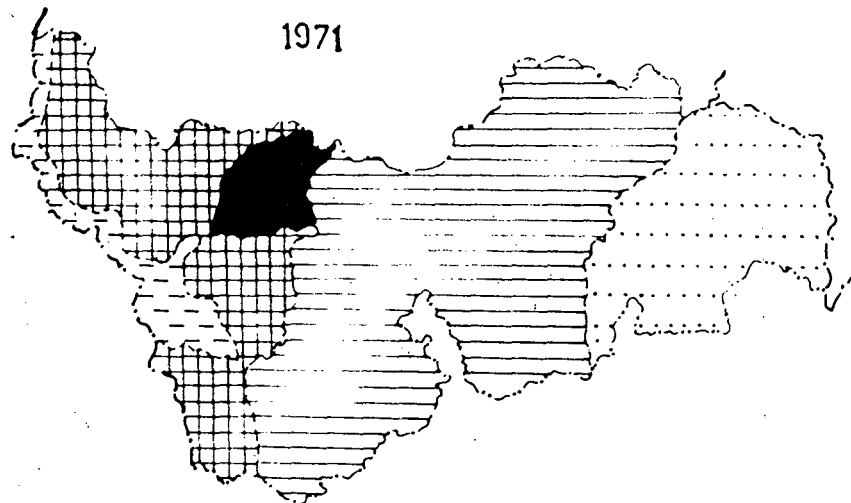
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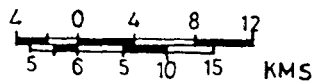
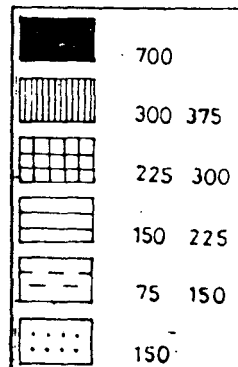
SUB DIVISION/ POLICE STATION	1961	1971	1981	TOTAL POPULA- TION.	PERCENTAGE CHANGE IN DENSITY 1971-81.
2. Garubathan (T)	54	72	82		13.88
Rural	54	72	82		
Urban	--	--	4351		
III. Kurseong Sub Div.(T)	189	235	261		11.06
Rural	160	199	204		
Urban	2682	3220	1262		
1. Kurseong (T)	180	3220	1262		14.22
Rural	141	218	249		
Urban	2682	171	173		
2. Mirik (T)	222	293	302		3.07
Rural	222	293	302		
Urban	--	--	--		

# DARJEELING HIMALAYAS DENSITY OF POPULATION

POLICE STATIONWISE



PERSONS PER SQ. KM.



MAP 7.

# POPULATION DENSITY SUBDIVISIONWISE (1961-81)

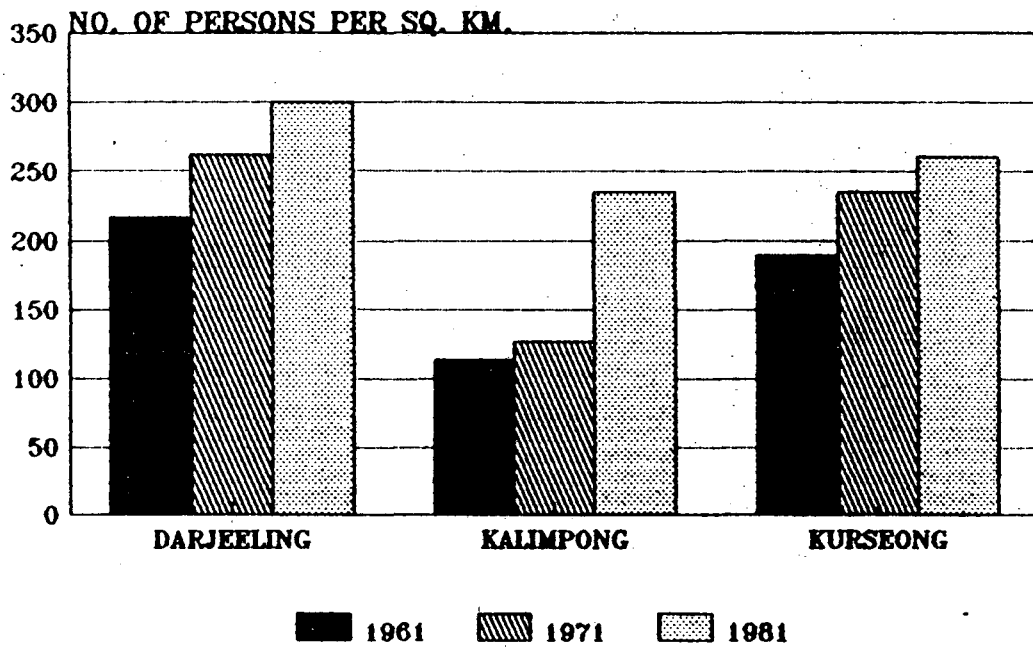


Fig. 3

The proportion of Scheduled Caste and Tribe population shown in Table IV.2 indicate that the former constituted 8.48 per cent of the total population in 1981 as against 9.18 per cent in 1971 and 8.3 per cent in 1961.

**Table IV.2**  
**PERCENTAGE OF SCHEDULED CASTE AND**  
**SCHEDULED TRIBE POPULATION TO TOTAL POPULATION**

SUB DIVISION/ POLICE STATION	SCHEDULED CASTE			SCHEDULED TRIBE		
	1961	1971	1981	1961	1971	1981
Darjeeling -Himalayas(T)	8.3	9.18	8.48	9.86	10.13	10.98
Rural	7.2	8.44	7.42	8.93	9.41	10.73
Urban	13.0	12.73	12.32	13.07	13.59	11.9
I. Darjeeling Sub Division						
Total	8.5	8.72	8.01	7.30	8.56	9.36
Rural	7.61	7.79	7.40	6.11	6.97	8.21
Urban	12.30	13.09	10.40	12.07	16.05	13.84
1. Sukhipokri (T)	9.9	10.32	9.65	5.8	6.30	9.64
Rural	9.9	10.32	9.65	5.8	6.30	9.64
Urban	--	--	--	--	--	--
2. Pulbazar (T)	5.9	5.68	5.34	9.3	11.71	12.28
Rural	5.9	5.68	5.34	9.3	11.71	12.28
Urban	--	--	--	--	--	--
3. Darjeeling(T)	10.5	10.71	9.03	6.8	9.53	4.33
Rural	8.37	8.11	7.34	2.39	2.39	3.69
Urban	12.30	13.09	10.40	12.07	16.05	4.89
4. Rangli Rangliot (T)	6.7	7.95	7.78	7.3	7.85	8.43
Rural	6.7	7.95	7.78	7.3	7.85	8.43
Urban	--	--	--	--	--	--
5. Jore Bungalow (T)	8.0	7.61	7.60	5.5	5.95	7.77
Rural	8.0	7.61	7.60	5.5	5.95	7.77
Urban	--	--	--	--	--	--

SUB DIVISION/ POLICE STATION	SCHEDULED CASTE			SCHEDULED TRIBE		
	1961	1971	1981	1961	1971	1981
II. KALIMPONG (T)	7.9	8.62	8.43	17.3	17.0	17.00
Rural	6.4	7.57	7.01	16.6	13.80	17.90
Urban	13.6	13.58	14.05	20.1	15.13	13.02
1. Kalimpong (T)	8.3	8.84	8.86	18.7	18.67	18.53
Rural	6.5	7.43	7.03	18.2	19.72	20.32
Urban	13.6	13.58	14.07	20.1	15.13	14.21
2. Garubathan	6.2	7.91	7.14	11.8	11.74	11.20
Rural	6.2	-	6.97	11.8	11.74	11.96
Urban	-	-	8.91	-	-	-
III. KURSEONG (T)	9.0	12.26	10.42	5.1	5.0	6.5
Rural	7.9	12.73	8.29	4.8	4.72	6.59
Urban	13.1	10.59	14.29	6.67	5.0	6.83
1. Kurseong (T)	8.6	11.09	9.72	5.1	5.00	6.5
Rural	.77	11.14	8.11	.48	4.72	6.59
Urban	13.1	10.59	14.29	6.67	5.00	6.83
2. Mirik (T)	7.4	8.01	7.78	2.64	2.77	3.69
Rural	7.4	8.01	7.78	2.64	2.77	3.69
Urban	--	--	--	--	--	--

The table shows that Kurseong sub-division had made scheduled caste population i.e. 10.42 per cent in 1981. In comparison Darjeeling and Kalimpong had around 8.4 per cent. There has been a decline in the proportion of scheduled caste population during 1971-81 Sukiapokhri, Darjeeling, Kurseong and Mirik police stations have higher percentage of scheduled caste population. Most of them are engaged in the tea estates ever since their migration from Nepal. Scheduled tribe population in the region increased to 10.98 per cent in 1981 as against 9.86 per cent in 1971. Concentration has been more in Kalinpong sub

division which recorded scheduled tribe population of about 17 per cent of total population in 1981. Pulbazar, Kalinpong and Garubathan police stations have higher proportion of scheduled tribe population than scheduled caste population. These are mainly agricultural tracts with less number of tea gardens where the tribals are mostly confined to such economic activities.

#### IV.2 GROWTH OF POPULATION:

Population of Darjeeling has increased remarkably during the last one hundred years. The region was largely under forest when it was acquired by the British in 1835 from the ruler of Sikkim. It had only 100 inhabitants at that time. Influence of The Britishers have played an important role in the growth of population in Darjeeling Himalayas. With the annexation of Darjeeling there came about various developmental activities for the development of the region that required labour which in the process led to increase in population mainly through immigration. The British impact on the growth of population needs closer scrutiny in this respect.

As stated above, immigration towards Darjeeling Himalayas started with the coming of the Britishers. Alongwith this pressure on the land in eastern Nepal increased due to rapid population growth and people from this part migrated towards Darjeeling. The Britishers encouraged migration as they required labour for the development of this region.

The first immigration of the Nepalese from the west began with the appointment of Dr. Campbell as the superintendent of Darjeeling. This opened a new chapter in the economic development of the region which had remained almost uninhabited till then. These early migrants settled as cultivators particularly carrying out shifting cultivation as the region was densely covered with forests. Besides other developmental and constructional activities started by the Britishers engaged them. The effort to involve the local populace and these migrant labourers in development of the region induced confidence in British rule. The population of the region numbering 100 persons in 1835 rose to nearly 10,000 persons by 1850.<sup>1</sup> Immigration followed with the introduction of the plantation and expansion of the administrative divisions. As stated earlier Kalimpong sub-division formed part of Bhutan and the tract covering an area of 401 square miles was annexed in 1865. It had a population of about 2530 persons at that time.<sup>2</sup> A census of Darjeeling taken in 1869 put the number of inhabitants of this tract to be over 22,000.<sup>3</sup>

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1. LSSO'Malley, (1906) : Bengal District Gazatteer, Darjeeling, Logos Press, Reprinted 1985, Delhi, p.35.

2. Ibid, p.36.

3. W.W. Hunter, (1876) : A Statistical Account of Bengal, Vol.X, District of Darjeeling, Jalpaiguri and the State of Kuch Behar, Taubner and Co., London, Reprint 1914, D.K. Publishing House, Delhi. p.42

The development of tea plantations and opportunities to use unutilized land for cultivation required large labour. Tea plantations developed on an extensive scale in Darjeeling. There were around 39 tea gardens in 1866 and this number increased to 74 in 1971-72. The first regular census started from 1871, estimated total population of the three hilly tracts to be around 50,257 persons. Table IV.3 & IV.4 below shows the increase in population of Darjeeling and Kalimpong after the British started controlling the region.

**Table IV.3**

**Population of Darjeeling**

<u>YEAR</u>	<u>POPULATION</u>
1835	100
1850	10,000
1869	22,000

**Table IV.4**

**Population of Kalimpong**

<u>YEAR</u>	<u>POPULATION</u>
1865	3530
1881	12,683
1901	41,511

Source: CENSUS OF INDIA (1951), West Bengal and Sikkim, Vol.VI, Part 1-C Report.



The population further increased with the expansion of tea plantations as born out by table IV.5 of Darjeeling. These tea gardens provided employment to a large labour force. The decadal population growth rate declined after 1881. The figures indicate an increase of 64 per cent population rise during 1871-1881 and of 44 per cent during 1881-91 and only of 11.5 per cent in 1891-1901.

Alongwith increase in the number of tea gardens, the completion of Darjeeling Himalayan Railway line in 1881 led to

Table IV.5

Darjeeling Population and Tea Gardens

YEAR	NUMBER OF TEA GARDENS.	TOTAL POPULATION	PERCENTAGE
1871-72	74	94,712	
1881	153	1,55,179	64%
1891	177	2,23,314	44%
1901	170	2,49,117	11.5%

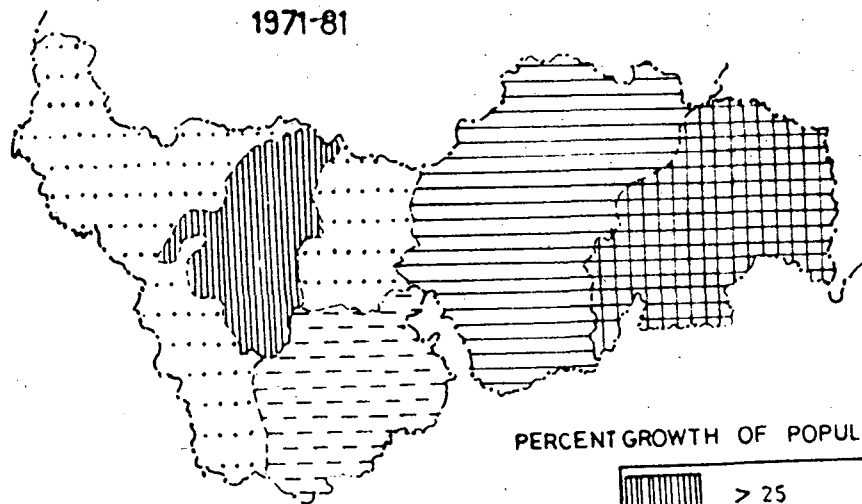
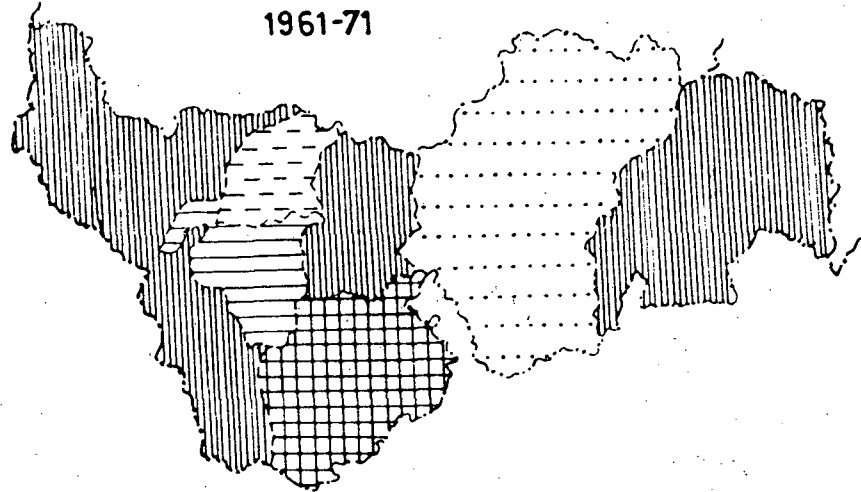
Source: CENSUS OF INDIA (1951), West Bengal and Sikkim, Vol.VI, Part 1-C Report.

an increase in the number of migrant labourers. Enumerations in 1891 revealed that no less than 88,000 persons residing in this area were born in Nepal<sup>4</sup>. The population growth was more in Kalimpong during 1891-1901 as large tracts of land were rapidly being brought under cultivation by the new settlers.

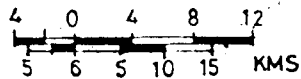
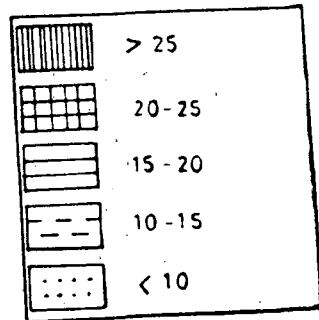
4. W.W. Hunter (1876) op.cit P.30

# DARJEELING HIMALAYAS GROWTH OF POPULATION

POLICE-STATIONWISE



PERCENT GROWTH OF POPULATION



MAP 8

The migration from Nepal continued in subsequent years as well. Even in 1931, out of the total population of 3,19,635 persons about 59,016 persons accounting for nearly 18.4 per cent had come from Nepal. These along with the off-springs of earlier migrants from Nepal constituted a majority. Nearly 86.8 per cent of the population in the three hill sub-divisions of Darjeeling were Nepali speaking in 1941.

The decadal growth rate of population was around 14.87 per cent over the decade of 1971-81 as against 18.57 per cent during 1961-71. This suggests that there has been a decline in the overall growth rate of population in the region. Table IV.6 shows that the proportion of rural-population came down from 21.99 in 1961-71 to 8.82 in 1971-81. It is mainly due to outmigration from rural areas towards urban areas. The earlier trend of high population growth rate in rural areas is due to expansion of tea gardens and agricultural activities which have changed due to availability of new job opportunities in the urban areas. This is born by the fact that urban population grew at a high rate of 43.92 per cent during 1971-81. Apart from this a number of rural settlements were designated as urban in the later decades. The table shows that the growth rate of population declined in the sub-division of Darjeeling and Kurseong to 14.74 per cent and 11.04 per cent in 1971-81 from over 20 per cent in the earlier decade respectively. Kalimpong sub-division was the only area that recorded higher growth rate of 17.97 per cent in 1971-81 compared to 11.62 per cent in 1961-71. It shows immigration especially to urban places which

experienced an increase by over 38 per cent. The decadal variations of population growth in the nine police stations as represented on map (No.8) reveal that Rangli-Rangliot had the highest decadal growth rate of population of 34.56 percent in 1961-71, followed by Garubathan with 31.9 per cent and Mirik with 31.7 per cent. It is interesting to note that these police stations with high growth rate show a lower growth rate in 1971-81. Darjeeling and Kalimpong showing low growth rate during 1961-71 experienced high growth rate during 1971-81. Rangli Rangliot and Sukhiapokhri even had a negative growth of -1.1 and 0.5 per cent respectively.

Table IV.6

POPULATION GROWTH RATE

DARJEELING HIMALAYAS

SUB DIVISION/ POLICE STATION	1961-1971 (Per cent Decrease Variation)	1971-1981
Darjeeling -Himalayas(T)	18.51	14.87
Rural	21.99	8.82
Urban	4.49	43.92
I Darjeeling Sub-Division (T)	20.48	14.74
Rural	24.22	10.58
Urban	5.46	34.35
1. Sukhiapokhri (T)	27.8	-.5
Rural	27.8	-.5
Urban	--	--
2. Pulbazar (T)	26.5	8.74
Rural	26.5	8.74
Urban	--	--
3. Darjeeling (T)	10.12	27.27
Rural	15.73	14.52
Urban	5.46	34.35

Contd...

SUB DIVISION/ POLICE STATION	1961-1971 (Per cent Decrease Variation)	1971-1981
4. Rangli-Rangliot (T)	34.56	-1.15
Rural	34.56	-1.15
Urban	--	--
5. Jore Bungalow (T)	16.54	26.6
Rural	16.54	26.6
Urban	--	--
II. Kalimpong Sub Division(T)	11.62	17.97
Rural	16.43	13.68
Urban	-6.67	38.36
1. Kalimpong (T)	6.44	15.9
Rural	11.0	13.77
Urban	-6.67	38.36
2. Garubathan (T)	31.95	24.3
Rural	31.95	13.44
Urban	--	35.33
III. Kurseong Sub Div.(T)	24.13	11.04
Rural	24.13	-1.85
Urban	22.48	76.84
1. Kurseong (T)	21.34	14.17
Rural	21.01	14.17
Urban	31.75	76.84
2. Mirik Rural	31.75	3.15
Urban	--	--

Police stations entirely rural showed a high growth rate. This is mainly because most of the gardens being located there. The earlier wave of in migrants having settled in these areas for cultivation and plantation activities. The deteriorating conditions of the tea gardens and better facilities in the nearby urban centres, with the expansion of administrative units and employment opportunities in the urban areas resulted in the shift of people toward the police stations of Darjeeling, Jore

# SEX RATIO DARJEELING HIMALAYAS

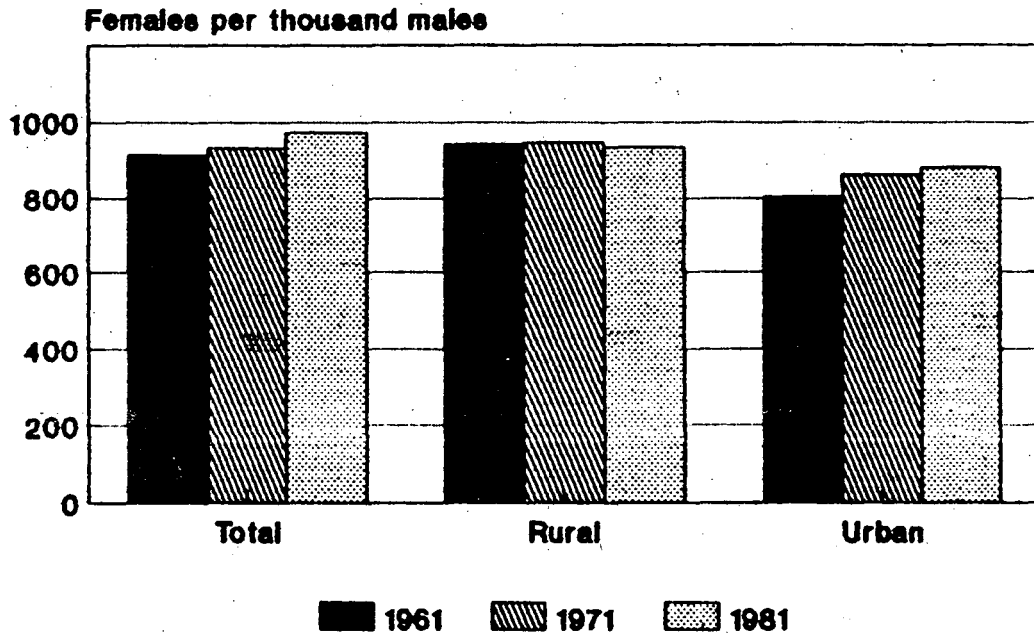


Fig. 4

Bungalow, Kalimpong and Garubathan. The map shows the growth of population was higher in those police stations in the West in 1971. As noted earlier these areas were inhabited earlier due to the favourable economic activities mostly plantation and agriculture. The physical environment prevailing in this part of the area favoured such activities. Population growth rate has been lower in 1981 in areas where it was previously higher in 1971. The map shows that Darjeeling and Jore Bungalow had higher growth rate in 1981. This is mainly because employment opportunities in Darjeeling attracted more people, besides the conditions in the rural areas where plantation actively prevailed, deteriorated. This led to the higher growth rate in Darjeeling. Development of Darjeeling as a tourist spot for its favourable climatic conditions attracted more people from rural areas to render their services.

Population growth rate kept increasing as well with more agricultural areas being brought under cultivation. Along with this expansion, the region witnessed the development of small scale industries i.e. arts and crafts, dairy products and sericulture. All these activities led to high immigration from other areas especially Garubathan, thereby showing a higher population growth rate during 1971-81.

#### IV.3 SEX RATIO:

The analysis of sex-ratio helps in drawing several inferences regarding the dynamics of population. The proportion of females to males increased during 1961-1981 in Darjeeling Himalayas. Table IV.7 shows that there were 973 females per 1000

# SEX RATIO

## SUB-DIVISIONWISE (1961-81)

females per 1000 males

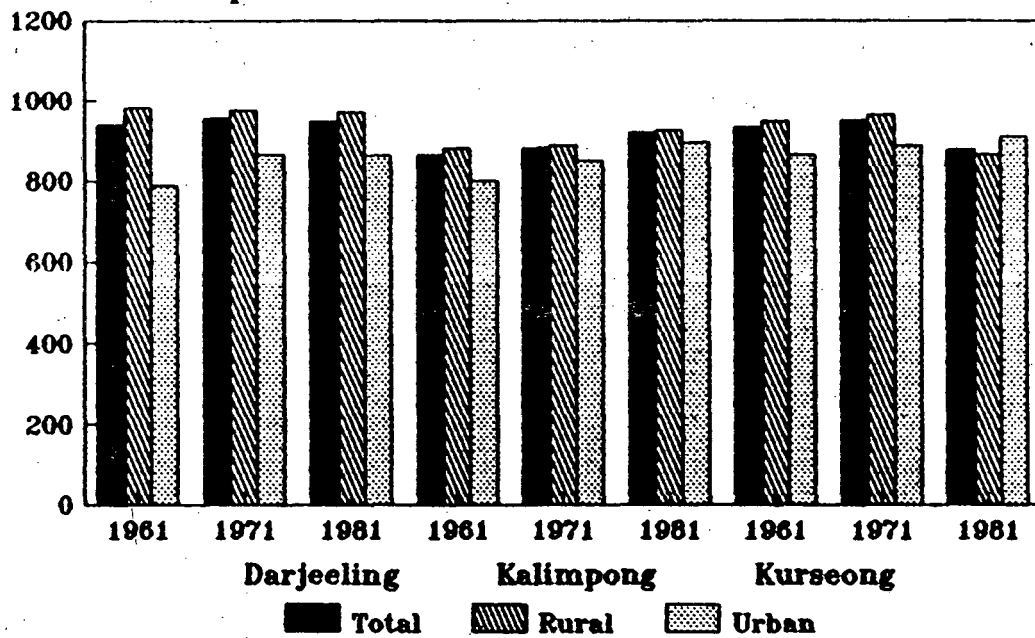


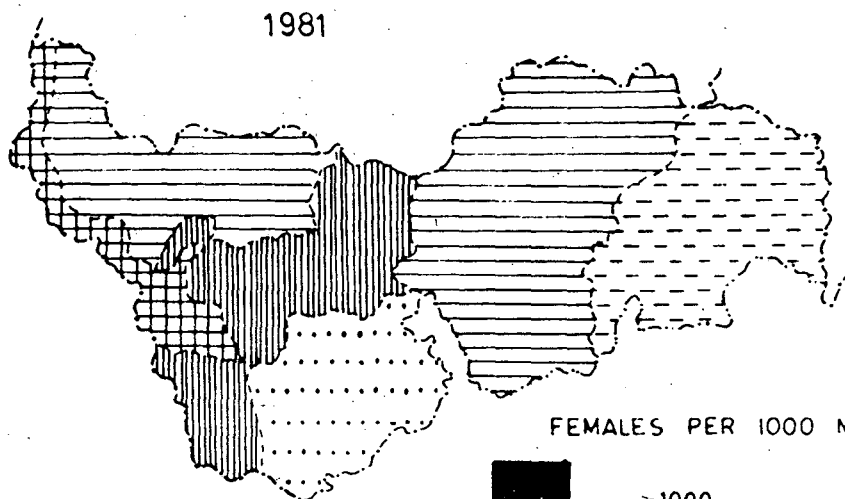
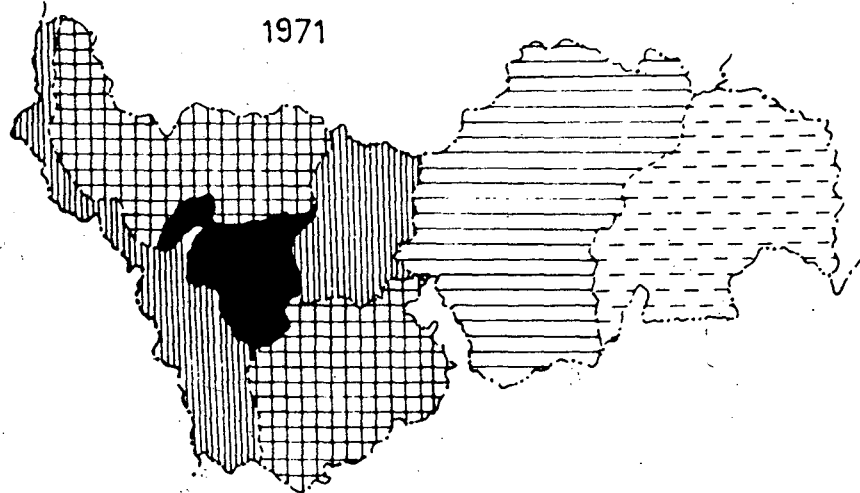
Fig. 5



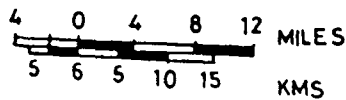
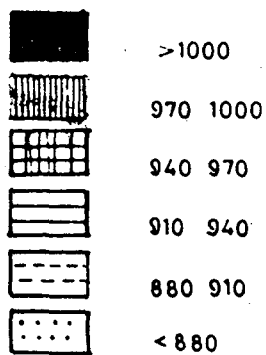
males in 1981. The number of females in urban areas was 882 per 1000 males in 1981 as against 936 females in rural areas (Fig.4).

The sub-division wise distribution shows that Darjeeling had the highest sex-ratio in the region i.e. 946 females per 1000 males, followed by Kalimpong (919 females) and Kurseong (876 females). The sex ratio on figure 5 shows an increasing trend of females per 1000 males in Kalimpong. It indicates male selective out migration there. As expected the sex ratio is higher in the rural areas and low number of females per 1000 males in urban areas of Darjeeling and Kalimpong. Inmigration of males to urban places is the main factor explaining this especially during 1971-81. It is interesting to note that females outnumber males with a ratio of 1010 females per 1000 males in 1971 in Jore Bungalow police station. The given map (No.9) shows that sex ratio is low in the east and is increasingly high towards the west. This is mainly because the east comprising Kalimpong and Garubathan police station have more agricultural area which required more male labour for agricultural activities. Therefore sex ratio remained low. Sex ratio varied from 839 in Garubathan to 986 females per 1000 males Mirik in 1981. Comparatively the sex ratio was more in 1971 in most of the police stations. This indicates that there has been rural to urban migration. Kurseong and Kalimpong were the main town of the region with various employment opportunities. Despite male inmigration females also tend to be higher in this area compared to the other police stations.

# DARJEELING HIMALAYAS SEX-RATIO POLICE - STATIONWISE



FEMALES PER 1000 MALES



MAP 9

Table IV.7

SEX RATIO

DARJEELING HIMALAYAS

SUB DIVISION/ POLICE STATION	1961	1971	1981
Darjeeling -Himalayas(T)	914	932	973
Rural	943	947	936
Urban	804	864	882
I. Darjeeling Sub-Division (T)	939	955	946
Rural	981	975	970
Urban	788	865	862
1. Sukhiapokri (T)	973	977	960
Rural	973	977	960
Urban	--	--	--
2. Pulbazar (T)	960	936	931
Rural	960	936	931
Urban	--	--	--
3. Darjeeling (T)	872	914	920
Rural	984	971	997
Urban	788	865	862
4. Rangli-Rangliot (T)	989	979	970
Rural	989	979	970
Urban	--	--	--
5. Jorebungalow (T)	993	1010	984
Rural	993	1010	984
Urban	--	--	--
II. Kalimpong Sub Division	863	880	919
Rural	881	887	925
Urban	799	848	894
1. Kalimpong (T)	872	888	931
Rural	890	901	931
Urban	799	848	931
2. Garubathan (T)	828	855	884
Rural	828	855	912
Urban	--	--	637

SUB DIVISION/ POLICE STATION	1961	1971	1981
III.Kurseong Sub Div.(T)	932	951	876
Rural	947	964	864
Urban	862	887	910
1. Kurseong (T)	921	941	839
Rural	939	958	803
Urban	862	887	910
2. Mirik Total	963	976	986
Rural	963	976	986

#### IV.4 LITERACY:

Literacy is an important aspect affecting quality of population. High literacy is essential for any change in a region. Literacy in Darjeeling Himalayas has been increasing over the decades. The contribution of the Britishers in the spread of education among the population can never be denied. There are atleast five schools in each sub division that were established during their rule. The pioneers in the spread of education were Christian Missionaries and particularly those of the church of Scotland mission.

Total literacy in Darjeeling Himalayas was 49.26 per cent in 1981 as against 34.66 per cent in 1971. There has been an increase of about 50 per cent in total literates from 1971-1981 in the region. This increase in 1981 is also due to the introduction of community service programmes as part of education when in 1978 the Government of India formally started the National Educational Programme. Educational facilities are being opened for adult literacy especially in the rural areas.

This brought about some changes in the percentage of literates. "The percentage of adult literacy in Darjeeling Himalayas was only 33.07 per cent in 1971, which increased to 42.52 per cent in 1981"<sup>1</sup>.

Table IV.8 shows that 33.64 per cent females were literates in 1981 as against 28.85 in 1971. Female literacy in 1981 increased by 61.21 per cent while the urban literate females accounted for 57.88 per cent in 1981 as against 49.74 in 1971. Rural female literacy increased by 56.93 per cent during 1971-81. The table shows that 27.16 per cent literate females as against 18.72 in 1971. This indicates that more number of females are going for education which reflects social change.

Amongst the sub-divisions, Kurseong had highest literacy of about 34.74 per cent followed by Darjeeling with 33.58 per cent and Kalimpong 33.01 per cent in 1981. Compared to the earlier decades literacy has increased in all these areas. Besides the introduction of education programmes by the government, there has also been an increase in the requirement of skilled labour mainly because of development of the region. The dependence on plantation and other primary activities has decreased with increase in secondary and tertiary sectors, which has led to higher literacy level. The Government allocation of funds have increased on education to bring about mass literacy and to improve the

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1. GEETA BOSE (1983) "The Adult literacy programme in Darjeeling". R.L. Sarkar (ed) Hill Development Programmes: Plans and strategies, IIHE, Darjeeling, p.187.

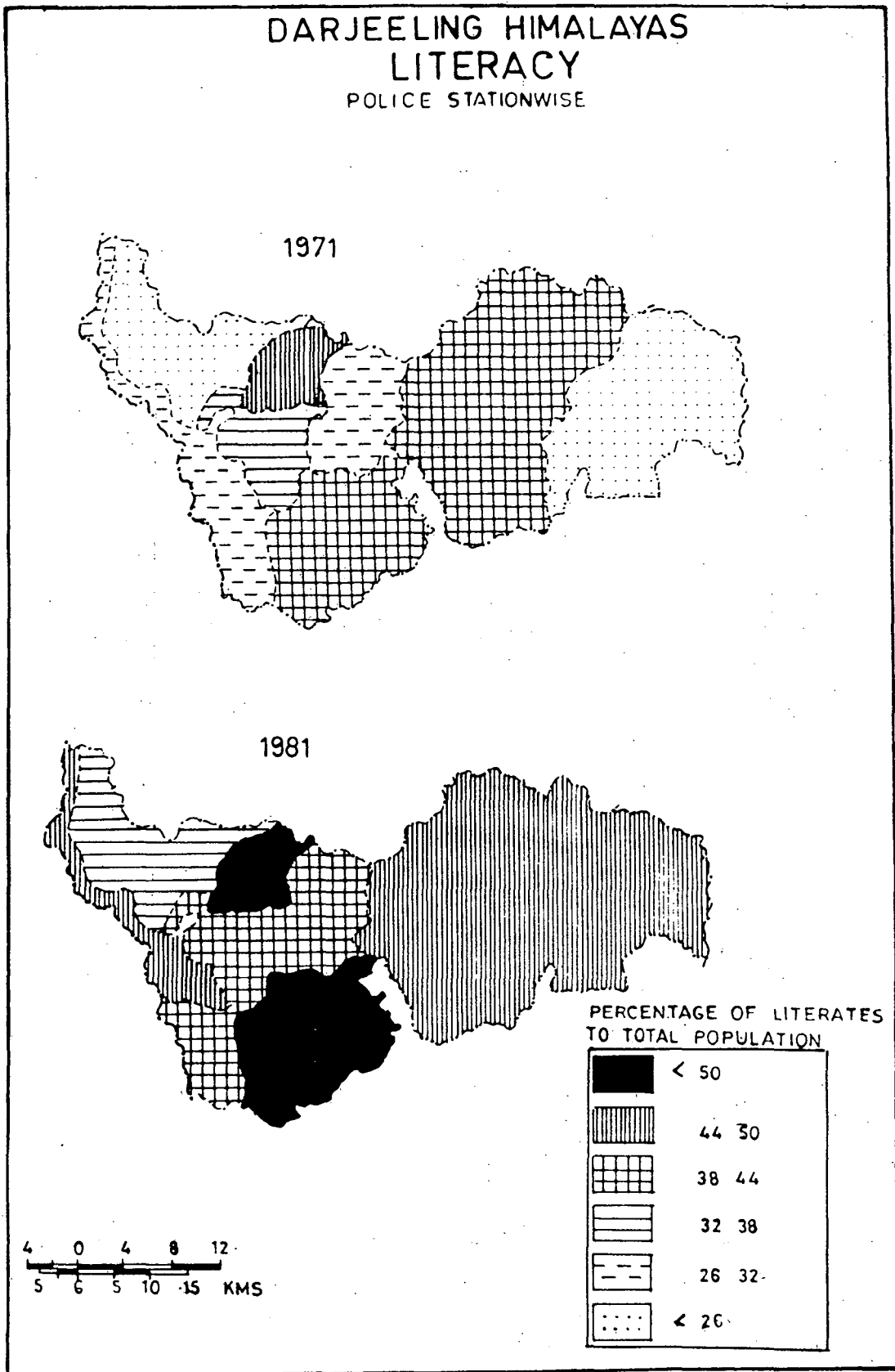
Table IV.8

## PERCENTAGE OF LITERACY TO TOTAL POPULATION

## DARJEELING HIMALAYAS

SUB DIVISION/ POLICE STATION	1961			1971			1981		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Darjeeling -Himalayas(T)	29.3	42.96	14.55	34.66	44.73	28.85	45.26	58.96	33.64
Rural	24.27	38.37	9.33	29.95	40.59	18.72	39.70	51.57	27.16
Urban	50.44	60.49	37.93	57.27	63.77	49.74	65.21	71.69	57.88
I. Darjeeling Sub-Division (T)	30.0	44.61	14.47	34.43	45.21	23.13	45.15	56.10	33.58
Rural	24.01	39.15	8.58	29.59	40.9	17.92	39.57	51.83	27.31
Urban	54.06	64.36	40.08	57.25	64.14	49.25	66.13	71.85	59.49
1. Sukhiapokri (T)	26.5	41.89	10.80	29.39	39.01	19.55	44.03	55.82	31.75
Rural	26.5	41.89	10.80	29.39	39.01	19.55	44.03	55.82	31.75
Urban	-	-	-	-	-	-	-	-	-
2. Pulbazar (T)	17.49	30.49	3.96	24.58	37.07	11.24	33.43	44.53	21.50
Rural	17.49	30.49	3.96	24.58	37.07	11.24	33.43	44.53	21.50
Urban	-	-	-	-	-	-	-	-	-
3. Darjeeling (T)	41.45	34.99	35.93	44.83	54.12	34.67	54.30	62.85	45.02
Rural	26.2	42.49	9.84	31.23	42.52	19.60	39.73	50.96	28.48
Urban	54.06	64.36	41.21	57.25	64.14	49.29	66.13	71.85	59.49
4. Rangli-Rangliot (T)	26.84	21.67	10.38	29.84	41.62	5.5	40.42	52.89	27.56
Rural	26.84	21.67	10.38	29.84	41.62	5.5	40.42	52.89	27.56
Urban	-	-	-	-	-	-	-	-	-
5. Jore Bungalow (T)	21.11	37.91	8.20	32.87	44.08	21.77	42.16	55.67	28.42
Rural	21.11	37.91	8.20	32.87	44.08	21.77	42.16	55.67	28.42
Urban	-	-	-	-	-	-	-	-	-
II. Kalimpong Sub Division	26.83	38.76	13.01	34.57	43.38	24.57	43.37	52.90	33.01
Rural	22.56	34.87	8.59	29.96	39.43	19.28	38.50	48.64	27.54
Urban	43.04	52.92	30.68	56.46	61.72	50.26	63.37	69.23	54.69
1. Kalimpong (T)	28.50	40.49	14.75	38.10	46.91	28.18	46.63	55.55	37.04
Rural	23.35	35.85	9.47	32.64	42.38	21.83	41.54	61.27	31.09
Urban	43.04	52.92	30.68	56.46	61.72	50.26	62.49	68.85	55.53
2. Garubathan (T)	20.27	32.13	5.19	23.42	32.43	12.89	31.76	45.25	20.77
Rural	20.27	32.13	5.19	23.42	32.43	12.89	31.05	42.25	18.77
Urban	-	-	-	-	-	-	61.90	71.91	46.18
III. Kurseong Sub Div. (T)	31.64	45.34	16.95	35.34	45.45	24.72	48.24	60.09	48.74
Rural	27.32	41.67	12.17	30.81	41.30	19.94	41.76	55.26	26.15
Urban	53.32	62.94	42.09	58.46	65.80	50.19	66.58	74.12	58.29
1. Kurseong (T)	32.17	44.57	18.71	38.27	48.35	27.55	51.61	62.97	38.07
Rural	25.97	38.96	12.13	32.27	42.97	21.09	43.38	57.19	26.17
Urban	53.32	62.94	42.09	58.46	65.80	50.15	66.58	74.12	58.29
2. Mirik	30.19	47.47	12.26	28.0	38.0	17.73	38.86	51.44	26.10
Rural	30.19	47.47	12.26	28.0	38.0	17.73	38.86	51.44	26.10
Urban	-	-	-	-	-	-	-	-	-

# DARJEELING HIMALAYAS LITERACY POLICE STATIONWISE



MAP 10

conditions of the regions population. Moreover the per-capita income of the people perhaps has increased and being aware of education the coming generation have been encouraged and provided scope for education.

The map (No.10) further shows that Darjeeling and Kurseong police stations had above 50 percent literate population in 1981. Literacy rate in Garubathan has increased at a remarkable rate during 1971-81. The area being in close access to Kalimpong where there are a number of schools and other educational institutions, has witnessed an increase in the proportion of literates. Pulbazar and Garubathan police stations had lower literacy in 1971 and the rate increase has also been lower in Pulbazar. Although its surrounding areas have recorded high literacy rates. There is an Adult Education Board sponsored by the state Government in each of the police stations and blocks. More emphasis has been laid on social aspect of learning. These have further brought about awareness among the people, that played a significant role in bringing about changes in the society. The police stations are well connected by motorable roads to nearby towns and it does not take long for an individual to go to the nearest centre of learning. Many schools are in the rural areas. These factors combined reflects on the high level of literacy in the region. This has brought about major changes in the society and economic set-up.



#### IV.5 URBANIZATION:

Urbanization as a process has brought about gradual changes in the society and its economy. Darjeeling, Kalimpong Kurseong were the three urban centres in 1971. These accommodated 17.2 per cent of the total population of the region in 1971. Two more towns were designated as urban in 1981. These included Cart Road in Kurseong of class IV and Jaldhaka Hydel Power Project Town (JHPPT) of class VI. This increased the total urban population to 21.5 per cent. Table IV.9 shows that among the three Kurseong had the highest proportion of urban population of about 26.0 per cent as against 16.3 per cent in 1971. Darjeeling and Kalimpong recorded 20.4 per cent in 1981 as against 17.4 per cent in 1971 (Fig.6). Since the region is mostly rural, the rapid growth of urbanization has been restricted by its environment. Urbanisation is usually thought to be a consequence of the growth of industries, expansion of administration, development of transport and the growth of trading activity. Darjeeling Himalayas have not experienced any of such activities in a large scale. Their very nature is not suitable for such activities. Infact some of these urban centres were established by the Britishers as the cool Temperate climate suited them. Moreover, tea plantations also led to the development of these towns which subsequently became important centre for tourism. Darjeeling is typical of such cases. It may be remembered that many Himalayan towns came up not in response to local economic requirements but because of exogenous factors to suit the needs of the British. Kalimpong, however,

## URBAN POPULATION TO TOTAL POPULATION DARJEELING HIMALAYAS

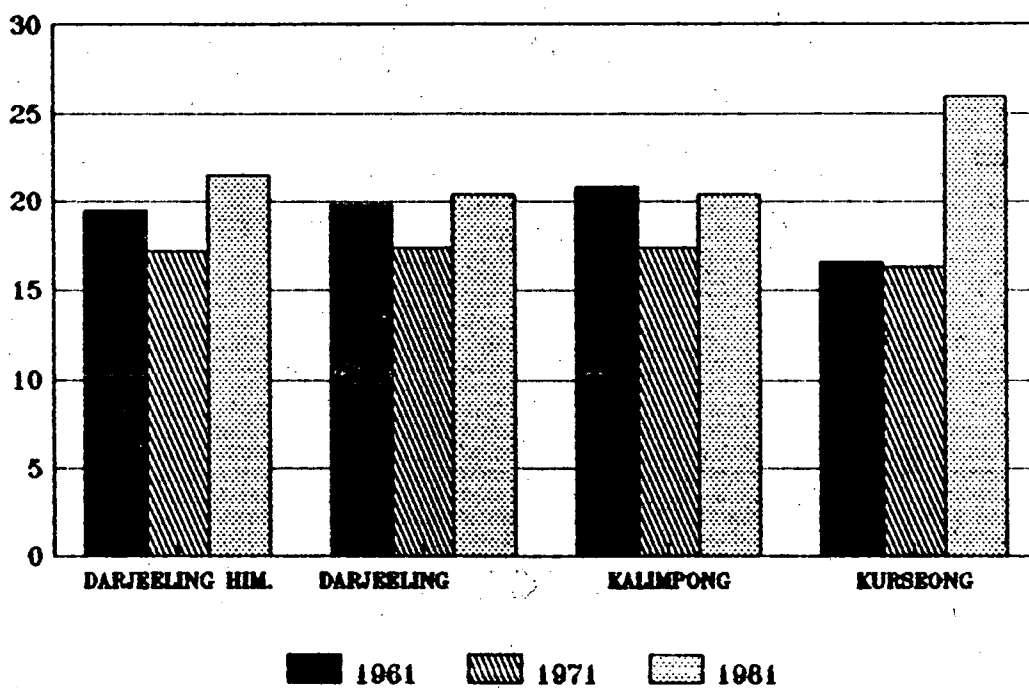


Fig. 6

had an important place as it was situated on the important Chumbi Valley trade route linking the Bengal plains with Tibet.

TABLE - IV.9

PERCENTAGE OF URBAN POPULATION TO TOTAL POPULATION

	1961	1971	1981
Darjeeling Himalayas	19.5	17.2	21.5
Darjeeling Sadar	19.8	17.4	20.4
Kalimpong	20.8	17.4	20.4
Kurseong	16.6	16.3	26.0

The proportion of urban population has increased in all the three subdivisions. It is mainly due to expansion of economic activities in urban centres. Moreover as mentioned earlier two new towns came up after 1971. Table IV.10 reveals that highest growth of urban population of 76.84 per cent was recorded in Kurseong during 1971-81. As opposed to this Kalimpong recorded a negative growth rate of -6.67 per cent in urban population in 1961-71 which subsequently increased to 38.36 per cent in 1971-81 (Fig.7). Urban population in the subdivisions increased at a faster rate during 1971-81. Rural to urban migration can be assumed to be the most possible factor responsible for this. Employment opportunities, educational facilities and other available social amenities in urban areas seem to have attracted the rural masses during 1971-81.

Although there has been high growth of urban population but the level of urbanization is low. In spite of strides and changes in the socio-economic setup urban functions have remained confined to the three centres till 1971. As stated

# GROWTH RATE OF URBAN POPULATION DARJEELING HIMALAYAS

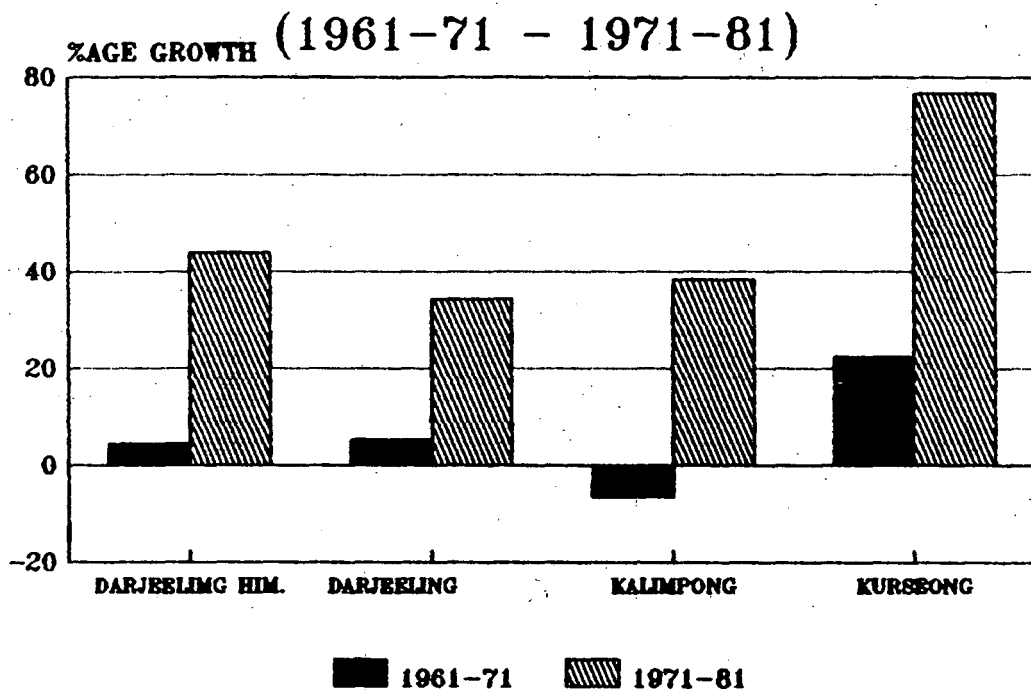


Fig. 7

earlier it was the tea industry which played an important role in the urbanization, but there has been stagnation of this industry in the recent years. The region acquired further importance due to political considerations. consequently its functions and activities increased especially in the urban centres with more people coming to the urban areas.

Table - IV.10

PERCENTAGE GROWTH OF URBAN POPULATION

	1961-71	1971-81
Darjeeling Himalayas	4.49	43.92
Darjeeling Sadar	5.46	34.35
Kalimpong	-6.44	34.36
Kurseong	22.48	76.84

From the above discussion it can be concluded that population distribution in Darjeeling Himalayas is higher in smaller areas. Population increased remarkably during the last one hundred years. Majority of the population comprises of Nepali migrants who immigrated towards the region as it developed under the Britishers. Tea plantations have played a major role in this regard.

Growth of population was high in rural areas until 1971, since the last decade the growth of urban population is high. This is mainly because of better employment prospects in urban areas that resulted in rural to urban migration. Sex ratio is high in rural areas while the urban areas being main centres for various activities have low proportion of females due to male selective immigration. Literacy is increasing in the region and

it indicates awareness and changes in its economic structure. Urbanisation has been affected by the environment, its character has remained low, despite high urban population growth in recent years. These changing population profile over the last decades in Darjeeling Himalayas indicate that with increasing population many changes have come about in the socio-economic set-up.

## CHAPTER V

### THE ECONOMIC SET UP

The economic structure of a region forms an important aspect in moulding the activities of man. The physical environment influences the type of economic activities especially so in backward hilly areas. The nature of economy depends on the type of environment prevailing in such regions. The economy in the mountain regions is largely shaped by certain constraints like difficult and uneven terrain and other geographical features, inadequacy of roads and other means of communication. This results in more of its population depending on primary sectors especially in the third world countries. These activities do not generate high income but do engage majority of its population. The external forces also have influenced in changing the economic structure of such regions. Many mountain regions which have been influenced have the economy based on these forces. Darjeeling Himalaya is one such region that was exposed to the outsiders. The contribution and influence of Britishers during the colonial period have made an imprint on the economic set up of this region. Despite the difficulties of environment, economy has undergone certain changes over the years that had both negative as well as positive effects. The different areas of Darjeeling Himalayas having more or less identical ecology but varied historical background produced two types of economies one mainly the organised sector of tea industry and the other the unorganised sector of agricultural economy. The overall economic setup have been

changing in recent years, and to look into these aspects of change the following aspects need to be highlighted.

i) Work force participation Rate:

Proportion of workforce affects the level of economic activity and the character of a region. These aspects of population specify its economic characteristics, work force participation rate depends on the type of economic activities existing in the region. Moreover, occupational shift is closely linked with the change in the economic set up.

ii) Land Use:

The various land uses in space and time have a strong influence on the economy and the social and cultural attributes of human beings. It is the past experiences with current resource requirements which determine future land use pattern and practices.

iii) Agriculture and Tea:

These formed the major economic activities of the region. The tea industry considered the mainstay of economy have become stagnant in recent years and is not generating enough productivity and employment. The tea plantation played a major role in bringing about widespread changes in the society and the structure of the work force.



iv) **Tourism:**

Considered to be the other favourable industry for further development and upliftment of the region would certainly flourish in the coming years. It is already bringing some changes in the region.

**V.1 WORK FORCE PARTICIPATION:**

The total main workers in Darjeeling Himalayas constituted 36 per cent of total population in 1981 as against 37.69 per cent in 1971 and 42.48 per cent in 1961 (Fig 8). There has been a decline in the proportion of total main workers. The work participation of the region has been unable to keep pace with population growth. Part of the decline can also be explained by changing definition of a "worker" in different censuses. Apart from this unemployment rate also increases and out migration of both skilled and unskilled labour for better employment opportunities have affected the work force. As mentioned earlier population growth rate was recorded to be about 18.5 per cent in 1961-71 while increase in main workers was only 2.5 per cent in the same decade. This ultimately reduced the participation of main workers. The percentage increase in total workers was around 9.72 per cent during 1971-81 and growth of population was around 14.87 per cent.

Table V.1 shows that the total main workers in rural areas as 38-39 per cent in 1981 as against 39.76 in 1971, compared to this the total main workers in urban remained low, of about 27.30 per cent in 1981 and 27.30 per cent in 1971. This is

# WORK PARTICIPATION RATE DARJEELING HIMALAYAS

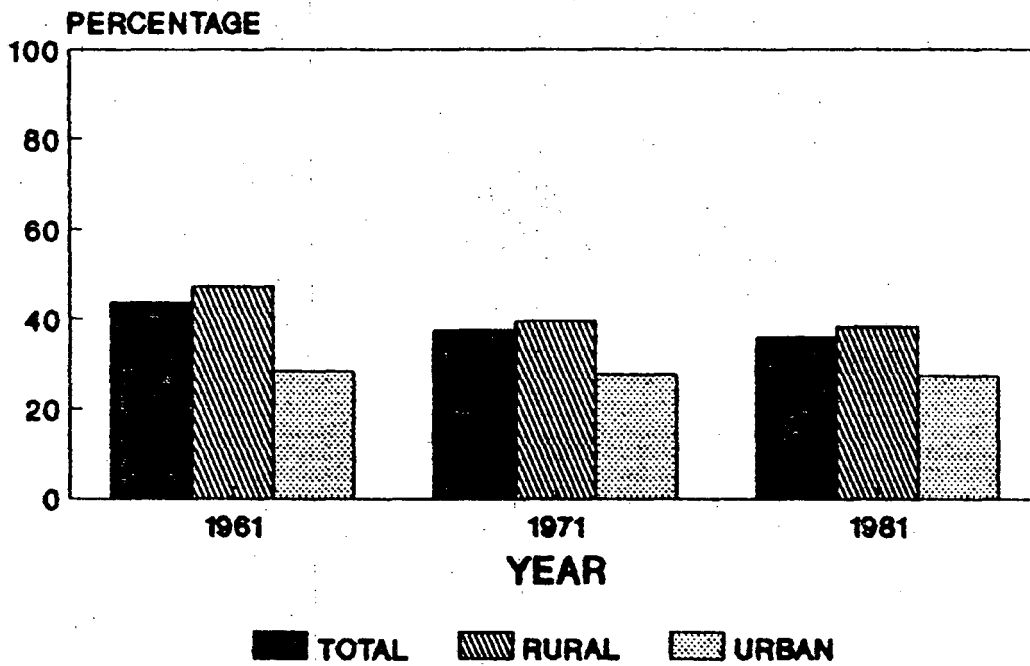


Fig. 8

mainly because Darjeeling Himalayas have more of its population engaged in primary sectors. Agricultural activities are quite dominant and that more number of people are engaged in their early years and work for longer periods than in the urban areas. This holds true for both male and female workers (Fig 9 & Fig 10).

Amongst the sub-division: Darjeeling sub-division had 35.75 per cent of total main workers in 1981 as against 37.22 per cent in 1971. Kalimpong recorded a higher percentage of 37.41 per cent in 1981 and 40.79 per cent in 1971 while Kurseong recorded 34.68 per cent in 1981 as against 34.68 per cent in 1971 (Fig 11). The total main worker in Kalimpong remained high mainly because this sub-division has extensive agricultural area with immense scope for development in various fields especially small scale industries and agro-based industries. The table further reveals that 40.18 per cent of total workers were engaged in other activities while those engaged as cultivators and agricultural labourers accounted for 51.79 per cent and 6.28 per cent respectively in 1981. The workers engaged in primary sector were more. This sector continues to engage more people. But there has been some increase in the share of workers in secondary and tertiary sectors mostly because of development of small scale industries and increase of employees in the urban centre. Kalimpong town required qualified and skilled labour for various economic activities especially small scale industries which have come up in the recent past.

### WORK PARTICIPATION RATE (RURAL 1961-81) DARJEELING HIMALAYAS

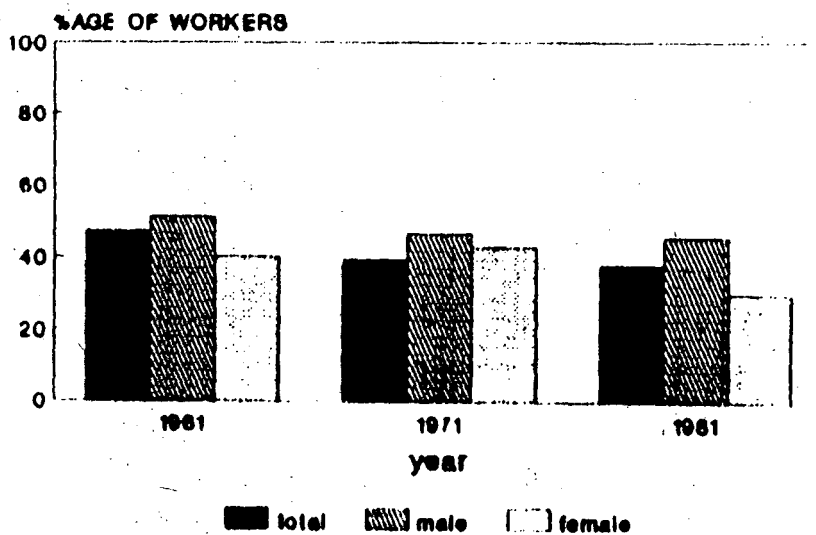


Fig. 9

### WORK PARTICIPATION RATE (URBAN 1961-81) DARJEELING HIMALAYAS

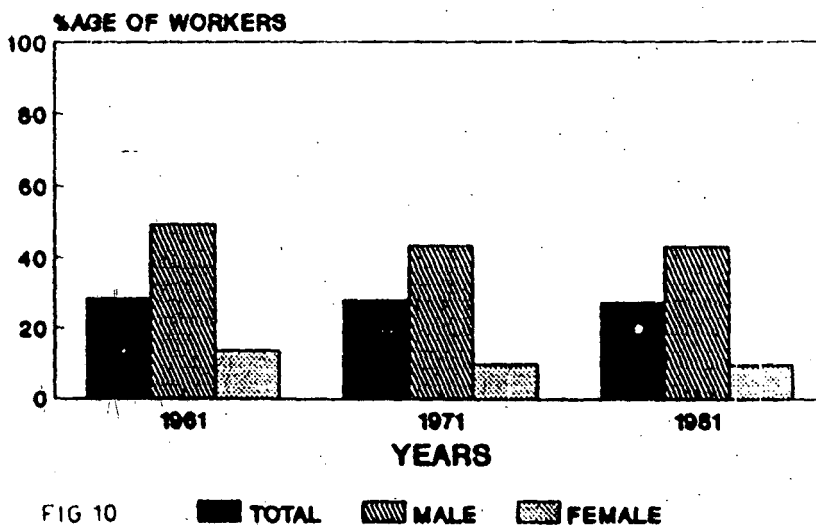


FIG 10

Agricultural activities in Darjeeling and Kurseong are limited. More number of people are engaged as plantation workers. Over the years as tea industries failed to generate more employment, work force participation has increased in the agricultural sectors. The proportion of workers in agriculture tends to be low in Kurseong. It is mainly because it possesses smallest portion of area in the region. Majority of its workers are engaged in other activities which had about 82.73 per cent workers in 1981. Only 12.96 per cent workers were engaged as cultivators and 3 per cent as agricultural labourers. There has been a decline in the primary sector in 1981. It was due to this, the tea gardens could not absorb more labour and agriculture remained confined to a few areas. The work force was dependent on other activities e.g. trade and commerce and other services. The proportion of workers in primary sector in Darjeeling sub division declined in 1981. This decline is mainly because of area being the administrative head quaters and has the main urban centre. The proportion of workers in secondary and tertiary sectors increased due to availability of employment in the area as it developed for tourism and other allied activities.

Amongst the police stations, it is found that Pulbazar had the highest work force of 45.78 per cent in 1981 as against 44.66 per cent in 1971. Agricultural activities is quite dominant along with plantations. Table V.1 shows that workers in agricultural sector includes 65 per cent as cultivators and

## WORK PARTICIPATION RATE SUB-DIVISIONWISE (1961-1981)

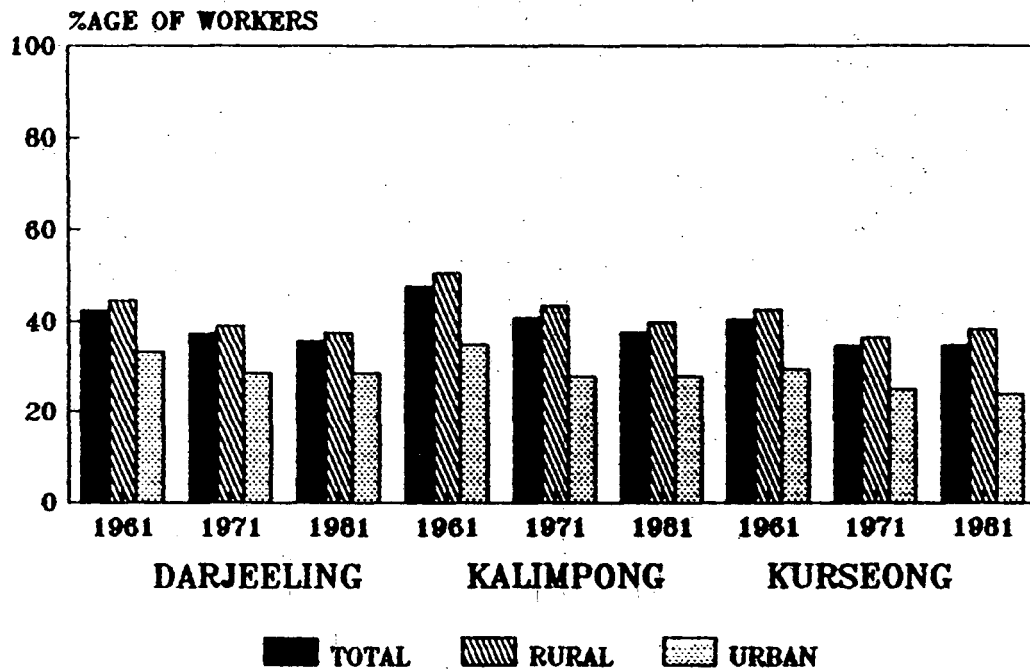


Fig. 11

10.68 per cent as agricultural labourers of the total main workers. The other activities account for 21.89 per cent. The 17 tea gardens of the area also absorb quite a good number of workers, as a result both male and female participation is high. The area is one of the important "hats" (weekly market) of Darjeeling Himalayas. Besides, the Raman Hydel Project has employed the local population. Construction of communication network has created more jobs. Garubathan police station in the east had 41.28 per cent of main workers in 1981 as against 43.79 in 1971. The given map (No.11) reveals that situated on the extreme east this area has boundaries to Jalpaiguri district and transport connections with Siliguri the main centre for trade in the district. The area has both plantation and agricultural activities. However, agriculture is the main source of income, mainly because it has more agricultural land due to location in the terai. Besides Kalimpong had 36.11 per cent of its population as workers in 1981 and 39.88 per cent in 1971. More work force is engaged in agriculture. Changes have come about because of development of small scale industries. Table V.1 shows that the proportion of workers in Kurseong and Sukhiapokri increased during 1971-81. The former had 36.43 in 1971, while the latter recorded 37.73 per cent in 1981 as against 35.10 in 1971. Sukhiapokri developed in agriculture as the tea gardens failed to employ more labour. Many of the tea garden worker took up agricultural activities. That is why the proportion of cultivators increased to 22.17 per cent in 1981 from 18.70 per cent in 1971.

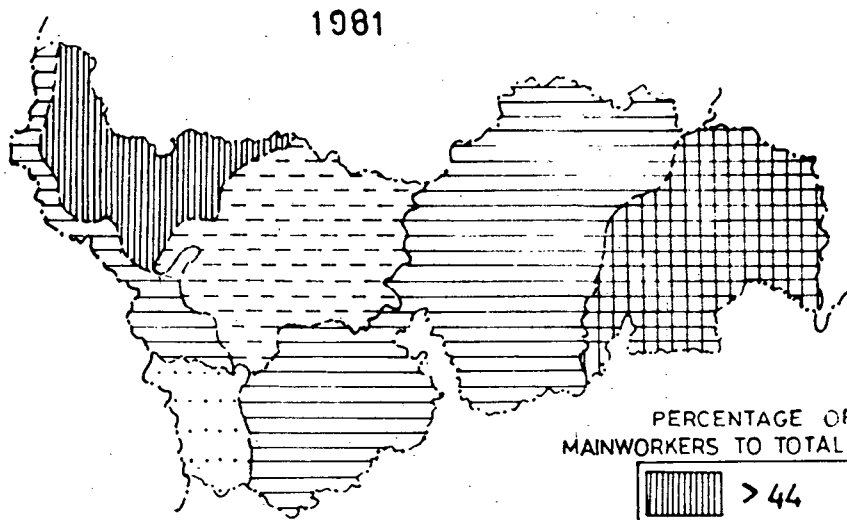
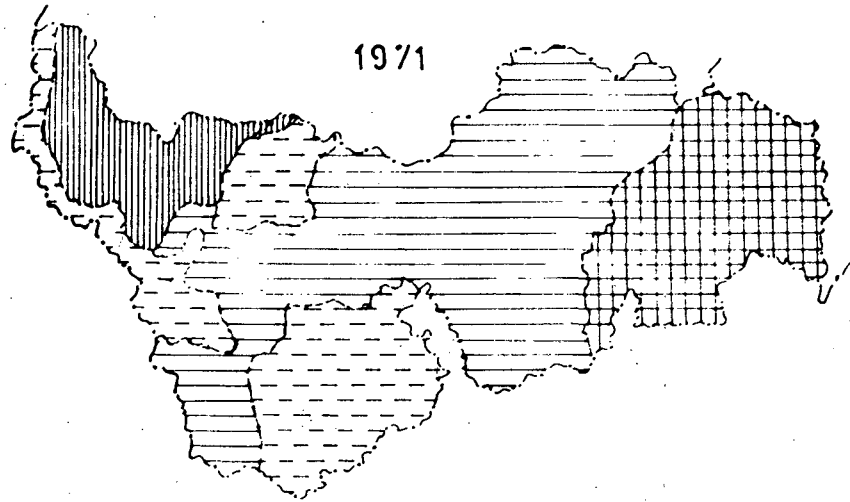
The increase of work participation in Kurseong is mainly because it became one of the important urban centres in 1981 due to its location on Darjeeling - Siliguri State Highway. Moreover, the railway has its workshop at this point. Mirik had the lowest work force participation rate around 30.25 per cent in 1981 as opposed 37.80 per cent in 1971. The area is solely dependent on tea gardens. The decrease in its workforce is mainly because most of them were employed in the tea industries which are facing stagnation. Outmigration from the area is also more as literates and skilled workers prefer to work in other parts of the region.

It can be inferred from the above that work participation was low in Darjeeling and Kurseong in 1971. Since these two areas have main urban centres the employment required certain qualification unlike other areas, agriculture activities were less. Workers were largely engaged in tertiary activities, small industries and in tourism. The areas around Darjeeling including Jorebungalow and Rangli Rangliot police station show lower participation rate. Its surrounding areas with agriculture and other activities attracted workers, while in Darjeeling majority of the work force was engaged in other services which employed a smaller number of mostly skilled labourers.

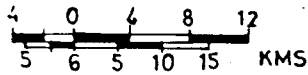
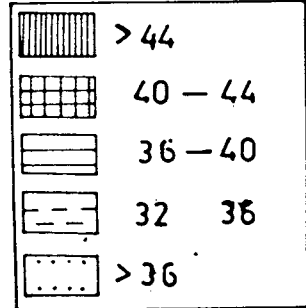


# DARJEELING HIMALAYAS TOTAL MAIN WORKERS

SUB DIVISION WISE



PERCENTAGE OF TOTAL  
MAINWORKERS TO TOTAL POPULATION



MAP 11

TABLE - V.1

**WORK FORCE PARTICIPATION (PER CENT)**  
**DARJEELING HIMALAYAS 1971/1981**

Sub Division/ Police Station	Main Workers as per cent to total population	I Cultivators as per cent to total workers	II Agricultural Labourers to total workers	V (a) Household Servicing, Manufacturing to total workers	III, IV, V(B), VI-IX Percentage of other workers to total main
1971					
DARJEELING HIMALAYAS	37.69	32.38	8.61	1.7	57.70
I. DARJEELING SUB-DIVISION	37.22	26.65	6.70	1.98	64.65
1. Sukhiapokri	35.10	18.90	5.75	0.23	75.10
2. Pulbazar	44.66	65.00	10.68	2.40	21.89
3. Darjeeling	32.91	5.11	2.73	1.75	87.50
4. Rangli Rangliot	39.21	34.48	7.87	2.29	55.34
5. Jore Bungalow	37.33	13.42	7.98	0.51	78.07
II. KALIMPONG	40.79	51.97	11.10	1.70	35.21
1. Kalimpong	39.85	52.19	13.31	2.24	32.25
2. Garubathan	43.79	51.35	4.75	0.16	43.72
III. KURSEONG	34.68	16.47	7.36	1.20	74.95
1. Kurseong	33.43	15.65	6.53	1.40	76.36
2. Mirik	37.80	18.21	9.20	0.75	71.82
1981					
DARJEELING HIMALAYAS	36.0	31.19	4.69	1.67	62.45
I. DARJEELING SUB-DIVISION	35.75	26.02	4.40	1.76	67.82
1. Sukhiapokri	37.73	22.17	6.45	3.06	68.32
2. Pul Bazar	45.78	66.90	6.68	0.54	25.88
3. Darjeeling	32.10	6.02	2.34	2.22	89.42
4. Rangli Rangliot	34.78	30.37	4.14	1.14	64.35
5. Jore Bungalow	34.28	14.68	4.64	2.14	78.54
II. KALIMPONG SUB-DIVISION	37.41	51.79	6.28	1.75	40.18
1. Kalimpong	36.11	55.23	7.71	2.13	34.93
2. Garubathan	43.79	51.35	4.75	0.16	43.72
III. KURSEONG	34.64	12.94	3.00	1.30	82.72
1. Kurseong	36.23	13.04	2.64	1.26	83.06
2. Mirik	30.25	12.67	4.21	1.47	81.65

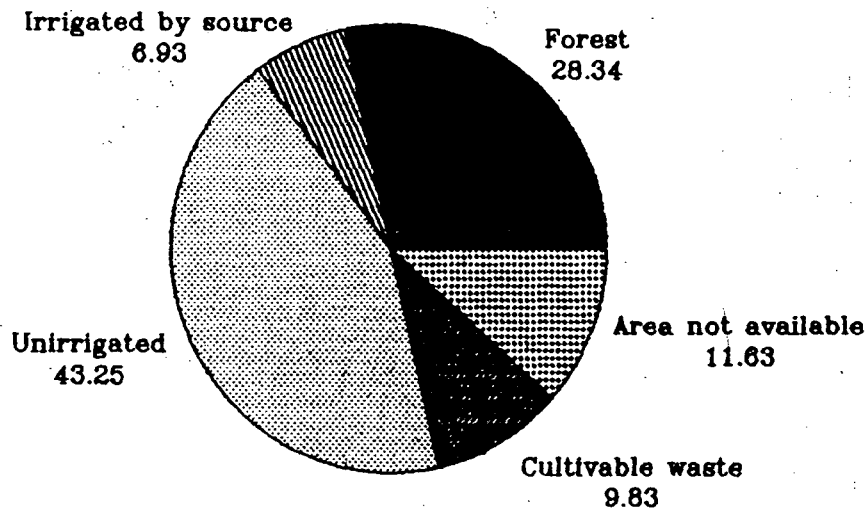
Source: Census of India - General Economic Tables 1971/1981

## V.2 LAND USE:

The land use reflects a region's social and economic activities. Land use is an attribute inferred from land cover information with the resource requirements and cultural practices. However, there are social, political and economic influences which often lead to difference in proper use of the land. As mentioned earlier the outcome of land uses varies in space and time and has a strong influence on the economy and the social attributes of human beings. As the region changes, in its social, economic and political dimensions, the land use pattern also undergoes change. Forest areas are cleared for agriculture, uncultivated land is brought to cultivation as pressure on land increases, Boundaries may change and to political and strategic influences, all such activities reflect upon the land use over time and space.

In a mountainous region like Darjeeling Himalayas, socio-economic activities. Before going into the analysis regarding the pattern of land use and change therein, certain facts regarding the data and its collection need to be clarified. The data has been taken from the census of India publication and the respective data covers only the total inhabited village area of the region. Most of the land covered by forest tracts and area not available for cultivation lying outside village boundaries has been excluded. (Therefore, data of 1971 and 1981 is not comparable). Most of the areas including forest land has been

# LAND USE PATTERN DARJEELING HIMALAYAS (1981)



299 INHABITED VILLAGES OF THE REGION IN 1981

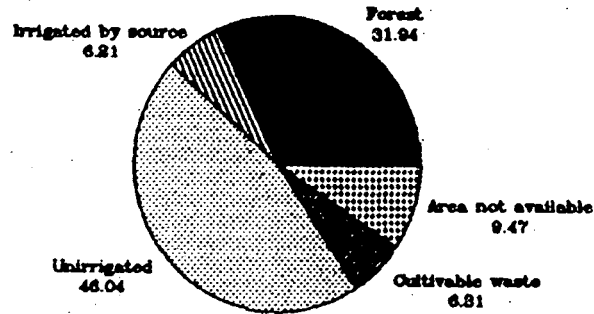
Fig. 12

Total area 202366.7 Ha

taken into account in 1981. Therefore, comparative study of 1971 with 1981 could not be carried out. The present analysis of land use in Darjeeling Himalayas have been done on the basis of 1981 data representing 299 inhabited villages, covering an area of 202365.7 hectares.

Nearly 50.18 per cent of the total area covered by the villages in Darjeeling Himalayas, is under cultivation. The diagram (Fig 12) shows that forest covered 28.34 per cent and the remaining 21.46 per cent was not available for cultivation in 1981. Only 6.93 per cent of the total cultivated area was irrigated. The cultivated area includes land under field crops and plantations. Area under cultivation has increased over time, mainly because some forest area has been cleared for agricultural activities. Darjeeling Himalayas, once covered with lush vegetation, recorded only 28.34 per cent forested area in 1981. Table V.2 reveals that Darjeeling sub-division had more area under cultivation i.e. 52.26 per cent of total area. It is mainly under tea plantations. Forest covers around 31.94 per cent (Fig 13). Area under forest has remained high in Kurseong sub division having 32.42 per cent of total area under forest in 1981. Irrigated area in the region has remained low (Fig 14). It is because of heavy rainfall during monsoon that reduces dependence on irrigation. Irrigation is done using stream water which is diverted through channels. Kalimpong subdivision had 48.85 per cent area under cultivation mostly confined to agricultural activity. More area is being brought under cultivation is reflected by low area under forest cover of

**LAND USE PATTERN  
BARILING SUB-DIVISION**

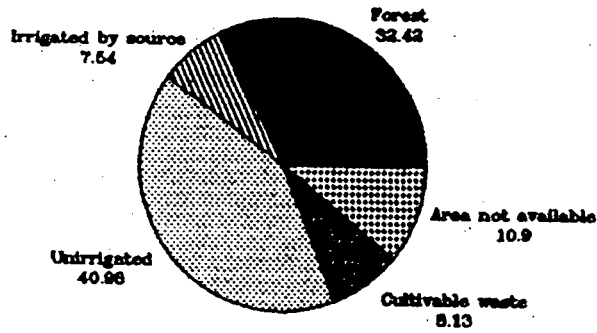


124 inhabited villages in 1961

Fig. 13

Total area 82003.19 Ha.

**LAND USE PATTERN  
KUBONG SUB-DIVISION**

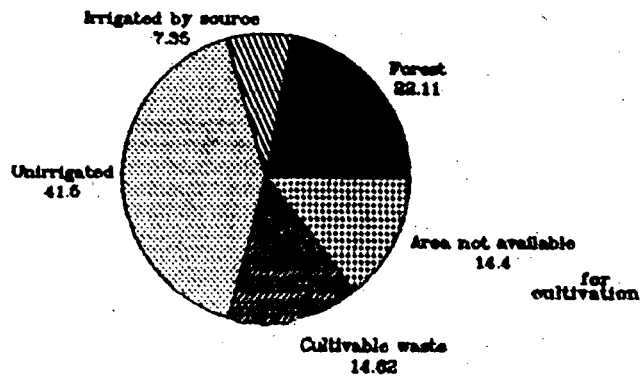


71 inhabited villages

Fig. 14

Total area 65371.57 Ha.

**LAND USE PATTERN  
KALIMPONG SUB-DIVISION**



104 inhabited villages in 1961

Fig. 15

Total area 75195.51 Ha.

around 22.11 per cent (Fig 15). Dependence on forest based industries have also reduced area under forest in 1981.

Area under cultivation is highest in Darjeeling Police Station i.e. 79.53 per cent of which 74.88 per cent is unirrigated. These are mostly the tea garden area which was expanded during the early years. However, now very limited land is available in Darjeeling for further expansion. It is reflected by the fact that only 4.89 per cent land is covered by forest. On the other hand Pulbazar still has more area under forest cover of about 50.02 per cent, while 44.50 per cent area is under cultivation. It again mostly is under tea plantations. Plantation in the area was expanded in later years after independence by the Indian planters, prior to this it was covered by forest that supplied material for forest based industries and to the tea industries. However, in recent years agricultural activity also has been given importance, and more area is devoted to it. Sukhiapokri and Rangli Rangliot have 59.26 per cent and 54.24 per cent area under cultivation respectively. It is mostly confined to tea plantations. The police stations situated in the western part have more area under cultivation, here, most of the land is devoted to tea plantations. Mirik has around 56.01 per cent area under cultivation. It is smallest police station of the region and has more area under tea. Land devoted to agriculture is low which is indicated by only 3.58 per cent of its area under irrigation.

Kalimpong has 51.89 percent of its area under cultivation and most of its villages carry out agricultural activities.

TABLE V.2

PERCENTAGE OF LAND USE TO TOTAL AREA (1981)

Sub-division/ Police station	Forests	Irrigated by source	Unirrigated	Total Cultivated Area	Cultivable Waste Area	Area not available for culti- vation
DARJEELING HIMALAYAS	28.34	6.93	43.25	50.18	9.83	11.63
I. DARJEELING SUB- DIVISION	31.94	6.21	46.04	52.26	6.31	9.47
1. Sukhiapokri	14.06	8.60	50.60	59.22	11.48	15.24
2. Pul Bazar	50.02	5.28	37.19	42.48	2.02	5.4
3. Darjeeling	4.89	4.64	74.88	79.53	2.50	13.07
4. Rangli Rangliot	26.64	6.12	48.10	54.24	6.62	12.48
5. Jore Bungalow	28.74	8.38	38.85	47.25	15.39	8.61
II. KALIMPONG SUB- DIVISION	22.11	7.35	41.50	48.85	14.62	14.40
1. Kalimpong	18.18	8.17	43.71	51.89	15.16	14.76
2. Garubathan	39.89	8.63	31.50	35.14	12.19	12.77
III. KURSEONG	32.42	7.54	40.98	48.53	8.13	10.50
1. Kurseong	34.47	8.64	37.81	46.53	8.17	10.30
2. Mirik	25.02	3.58	52.41	56.01	5.88	13.08

Source: Census of India, District Census Handbook, Part XIII-A Darjeeling District.



Forest covers around 18.18 per cent of the total area. Dependence on forest for fuel and timber in the villages is more. Garubathan police station has only 35.14 per cent of its area under cultivation and 39.89 per cent under forest. It has both agricultural as well as plantation activities.

The land use figures show that area under cultivation is more in most of the police stations and in recent year it seems to have increased while the area under forest's is declining. The region's forest cover has been decreasing over time. Forest forms one of the major resources in terms of timber and fire wood. However, with increasing population forests are depleting rapidly due to land required for habitation, agricultural activity and for other uses.

### V.3 AGRICULTURE AND TEA:

#### (i) Agriculture :

Agriculture in Darjeeling Himalayas is basically confined to the east mainly Kalimpong sub-division. Agricultural activities in the region were started by early migrants from Nepal. Towards the west Darjeeling and Kurseong sub division grew predominantly as tea plantation areas. It was only in recent years that agricultural activities started in some parts of this area as tea industries became stagnant and failed to generate income of the people.

The area under cultivation in Darjeeling Himalayas was about 50.18 per cent in 1981. As stated earlier area under cultivation includes land under field crops and plantations.

The subdivision of Darjeeling has 52.26 per cent of its total area under cultivation. On the other hand Kalimpong subdivision has 48.85 per cent while Kurseong recorded 56.66 per cent area under cultivation in 1981. Agriculture is one of the major economic activities employing about 40 per cent of the labour force and forms nearly 50 per cent of the region's income. Majority of the cultivated area is under plantation i.e. tea gardens, cinchona and orchard. Farmland account for only 18 per cent of total area. Like any other mountains region the physical configuration of the region makes the conditions of agriculture difficult and it varies from one area to another. Certain factors like the rugged terrain, colder climate with increasing altitude, small farm holding size, the thin soil cover, higher cost of inputs are responsible for poor productivity and backward economic status of the agricultural communities, that are to be supplemented by other sources of income.

Most of the farmers i.e. around 80 per cent are small, marginal and share croppers. The economic conditions are poor which is one of the reasons that they get less return from per unit of land. Agricultural activities in terms of three zones based on altitude can be seen. This includes high, mid and low altitude areas. The high altitude areas include land situated at 1250 metres and above. Land has not received adequate attention and productivity per unit area is low. The crops suffer due to various physical constraints. Potato, maize and

finger millets are the main crops grown at this level. Vegetables are grown mostly in vicinity of towns. Mid and low altitude areas have potential for large number of other crops and plants. Rice, maize, wheat, millets and barley are some of the crops grown. These are mostly confined to Kalimpong, Pulbazar, Garubathan and Rangli Rangliot police stations. Large cardamom is native of this area and grows luxuriantly near the streams in most parts of the region. Cardamom and ginger are the main cash crops.

Agriculture practices in most of the mountainous region are primitive and Darjeeling Himalayas is no exception. Cultivation depends on human labour and animal power. The great majority of the hill farms are small in size and fragmented in nature. Thus, these are quite uneconomical to sustain a sizable family. Some agricultural households have landholdings ranging between one to five acres while most have one acre. With the growth of population average size of farms is continuously shrinking.

The crops grown in the region are paddy, maize, wheat and barley, etc. Some of the areas have specialized in vegetables, orchards and cash crops.

Various changes have come in the agricultural sector during the last decade. Infact agriculture practise has become quite prominent on some land previously not cultivated. Moreover with the stagnation and deterioration of main tea

estates many have taken up agriculture. Forest areas have also been cleared mostly in Darjeeling sub-division and brought under plough. Agriculture development is gaining popularity in Pulbazar, though progressive cultivators are few in number, efforts are underway to cultivate through scientific method. Same hold true for Garubathan and Sukhiapokri police stations. Certain new trends such as horticulture and floriculture have been introduced. Various strategies to develop agriculture and to improve the standard of living have been implemented. There has been to a certain extent crop substitution in the region especially in Kalimpong and Garubathan. Within a period of less than ten years some new commercial crops have been introduced replacing the earlier crops. These new crops though not raised on a large scale earlier are being cultivated extensively. For example, ginger is replacing paddy the traditionally cultivated crop. Area under cardamom in Darjeeling and Jore Bungalow has also increased. Fruit orchards have played a major role for betterment of economic conditions especially in Rangli Rangliot and Darjeeling. Income of the rural people has increased through the development of horticulture. Under the Hill Development scheme the area under orange orchards has increased. This was achieved by supplying improved seedlings and fertilizers.

Despite improvement of agriculture in Darjeeling Himalayas most of the farmers are still languishing in poverty. The seasonal nature of job coupled with low wages are the main problems. Environmental hazards limit further development.

Adoption of modern machines hardly reduce the scope of unemployment in such areas. The region is gradually growing more and more dependent on other areas for food supply.

ii. The Tea Industry:

During the British administration, attention was given to the possibility of developing tea cultivation and its manufacture in Darjeeling and elsewhere in the territories under the East India Company.

Tea manufacturing formed the main industry of Darjeeling. It was started almost entirely with the English capital and under the skilled European supervision. Plantation of tea made rapid and steady progress. As stated earlier by 1856, tea plantations in Darjeeling had developed on an extensive scale, thereby placing the industry on a solid footing as commercial enterprise. By the end of 1866, there were about 39 gardens with 10,000 acres under plantation by 1866. The number of tea estates in Darjeeling Himalayas trebled between 1866-74 and area under plantation increased by 82 per cent. Nearly 79 square miles of area was under tea plantations in 1905.<sup>1</sup> Most of the tea estates are situated in the two sub-divisions i.e. Darjeeling and Kurseong. The Kalimpong sub-division did not have significant area under tea because the greater part of the sub-division was devoted to forests and agriculture.

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1. LSSO' Malley (1907) Op.cit, p.74.

The tea industry became the main industry of Darjeeling in 1905 and about one-third of the entire population became dependent on tea estates. Tea growing and tea manufacturing employed 6400 workers in 1901. Over the years the number of gardens has been reduced as a result of the amalgamation of several tea estates.

The Darjeeling tea known for its distinctive flavour, plays a prominent role in Indian export market. Darjeeling produces approximately 11 million kgs. of tea. Though its contribution to the overall tea production in India is just over 2 per cent but it exports 85 per cent of its total produce and earning about Rs.24 crores or 4.3 per cent in total foreign exchange.

The workers in the tea plantations were predominantly Nepalis who migrated from Nepal. Women constitute bulk of the labour force. The number of women labourers is almost twice that of male labourers. The wages of women labourers were lower than that of their male counterparts by about 5 per cent till as recently as 1976.

The majority of tea gardens are situated in West, Darjeeling and Kurseong. Garubathan in the east has 8 tea gardens covering 6.78 per cent of the total geographical area. Kurseong has 26 gardens under the area of 27759 acres i.e. 34.27 per cent of total area, while Mikir has 8 tea gardens covering 61.61 per cent of its total area. Darjeeling sub-division accounts for 47 tea gardens. Tea forms the backbone of the

region's economy.. The area unde tea is around 14,400 hectares. It has been noticed in the last two decades that this industry is getting infested with many problems. These vary from low productivity to labour unrest and industrial sickness to final closure of many gardens. These are the main causes of low level of productivity. Others include outdated technology and poor methods of organizing production. One of the major cause for the decrease in productivity has been the negligence in replantation. Many of the tea bushes are old. Replantation has been neglected by the new planters after the Britishers left. Although there has been an increase in the productivity per hectare the overall production has declined. The table below show that there has been an increase from 1961 in production per hectare.

TABLE V.3  
Tea Production  
Darjeeling Himalayas

Year	Productivity/per Hectare
1961	543 Kgs.
1971	564 Kgs.
1981	635 Kgs.

Source: Tea Statistics, Tea Board, Calcutta, 1985.

Around 41 per cent of the gardens have area of more than 200 hectares each and have comparatively high productivity. But the estates having areas below 100 hectare have shown decline particularly more acutely in the estates having less than 50 hectares of land.

The changes that have come about in the tea gardens have affected the socio-economic structure of the region over the last few decades. The quick profit tendency of the new planters made many gardens either sick or uneconomic. Since the sixties, a number of instances have come to light of how the new owners systematically skipped the gardens of their assets, drained the surplus and siphoned it off to other industries. Consequently, the number of uneconomic gardens increased by 1971. This was mainly because of lack of technology, inadequate training to the workers, existence of a huge surplus labour force in the form of disguised unemployment, increasing bandhs and violence by the labourers.



One of the most critical problems faced by the tea industry is the retrenchment of labour. There were 60979 labourers working in tea gardens in 1961. But their number declined to 45987 workers in 1981. This has not only upset the whole economic structure but has also led to unemployment problems. The number of women labourer are quite high in the tea garden mostly engaged for plucking of the fresh leaves. Most of them are educationally and economically backward. This has further led to all sorts of economic and social tensions.

The average daily wage of labourers was Rs.7.72 in 1981 as against 2.57 in 1971, and Rs.1.41 in 1961. However, the wage rate increased to around Rs.9.37 in 1984. The wage rate itself determines the conditions of the tea garden workers. The low wages have led to migration of labourers to urban centres in search of better employment opportunities. In this respect agriculture also gained popularity in areas like in Pulbazar, Rangli Rangliot, Kalimpong and Garubathan. The stagnation and deterioration of tea industry in recent years resulted in unemployment, rural to urban migration, pressure on agricultural lands and deforestation. Political unrest is common in the tea gardens. Along with these agricultural activities have increased in areas with ample land, forest have been cleared although this may not help the tea garden workers and the region economically. Small scale industries are now coming up along with the allied agricultural activities. These are providing employment to many of the rural workers.

#### V.4 TOURISM:

Tourism is an important industry of Darjeeling Himalayas. It certainly has potentials of adding to the economy of the region. It brings about changes in the life style and attitudes of the local inhabitants. This is only possible if tourism is taken proper care of and is well organised and developed. Though tourism offers great scope but is still in infancy. It is the most viable but also the most neglected of all resources of the region.<sup>2</sup> Darjeeling emerged as an important tourist centre since British times. It also came up as a health resort. The main tourist attraction in the place include the scenic beauty, snow covered Kanchanjunga, lush green tea gardens on the hill slopes and the "toy train" linking Darjeeling with Siliguri. Kurseong, Kalimpong and Mirik have now started emerging as tourist centres.

No organised effort has been made for the promotion of tourism in Darjeeling. It was during the Fourth Five Year Plan that there came about some concern for tourism. The amount received for tourism development at various sites. During the fifth five year plan Mirik was taken up for its development as a tourist spot and the project was completed during the sixth five year plan. This brought about some change in the life

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2. Bireswar Banerjee (1982), "Resource Utilization of Darjeeling Himalayas and Conservation of Ecology" in Geographical Review of India, vol.44, No.3, September, p.12.

style and activities of the inhabitants. It is more important as most of them were unemployed, mainly because of the stagnation of tea gardens. The literates and those with basic formal education were given employment in activities catering the tourists. The economy of Darjeeling has benefited by the tourists spendings. It offers scope of employment opportunities. Transport services and trading activities mainly depend on tourist flows. Along with this the small scale industries in Kalimpong with its handicrafts and arts too depend on tourists.

Though tourism is considered as one of the most important resources of the region but has not been able to employ even 5 per cent of its working population round the year. In fact it is displacing more people than it is employing.<sup>3</sup>

To conclude one can say that work participation rate in Darjeeling Himalayas has declined over time mainly because of changes in the occupational structure and unemployment resulting from stagnation of tea industries. Kalimpong has the highest participation rate mainly because of agricultural activities dominant in this area. Workers in Darjeeling and Kurseong are mostly confined to the plantations. The land use pattern shows that most of the land of the region is under cultivation but there has been a decline in areas covered by forests. It has

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3. T.B. Subha, "Tourism and Development in Himalayan Border Area of India" in Tejvir Singh (ed.), Geography of the Mountains, Heritage Pub., New Delhi, pp.279-84.

been cleared mainly for agriculture practises and extensive use of wood as fuel, resulting in deforestation. Agriculture is mostly confined to the eastern part while western part is predominantly under plantations. Cash crops have replaced the traditional crops in recent years.

Tea industry, the backbone of the region's economy, has undergone adverse changes in recent years. It is suffering from low production and unemployment. It has not been able to maintain the standard it once possessed. Tourism as an industry is yet to take off. Although it provided employment and other benefits to local inhabitants but still a lot remains to be achieved. It has high potentials in the region.

## CHAPTER VI

### SUMMARY OF CONCLUSIONS

I. The ecosystem of mountainous regions is phenomenally sensitive to even dimunitive changes which are more often impervious to any modifications. Impact of external forces on the fragile socio-economic structure of the mountainous region especially in the third world has been viewed from both negative and positive aspects. Accessibility into and through mountains having adequate resources have witnessed new changes in the population profile, land use, and resource utilization. Population living in such regions get subjected to internal and external pressure which often lead to changes in their social, economic, political and cultural identities. There has been remarkable changes in the environment and socio-economic set-up of Darjeeling Himalayas basically due to external forces ever since the evolution of the region. These changes can be noticed and are reflected in the environment, demography, economy and cultural attitudes.

II. Changes in the socio-economic set-up of Darjeeling Himalayas are marked by the variation in environmental factors of the region. The region geologically formed during the tertiary era and is physiographically characterized by ridges and valleys with marked variation in altitudes. These variation in altitudes have resulted in climate that varies from subtropical to cold highland type. The cool climate served the purpose of the Britishers to establish sanitoria and health

resorts. The region is endowed with perennial streams, the lush green vegetation and favourable climate for plantation crops which geared it towards development and changed its economy. Environmental factors in Darjeeling Himalayas have to a greater extent articulated its socio-economic developments.

III. The history of the British intervention in Darjeeling Himalayas was one marked phase towards their expansion of trade in the Himalayas especially Tibet. On this account Darjeeling was occupied, expanded and developed under the British supervision. It resulted in widespread social, political and economic alterations. Development of the region's economy was based on forest resources, tea plantations, and agriculture. The region suited the interest of the Britishers and they exploited its resources. This resulted in complete change in the social and economic set up of the region. In the post-independence period many developmental activities started that also had some negative effects. The recent Gorkhaland movement for a separate state was another incident in the history of Darjeeling that had an adverse effect upon the economy and the society.

IV. Depending upon the natural and historical factors the socio-cultural setting shows marked variation. It is reflected in the demographic trends like distribution and growth of population, sex-ratio, literacy and urbanization. Density tends to be more in areas where the early economic activities

started. It is more in the western part of the region that is Darjeeling and Kurseong sub-divisions. The agricultural tract of Kalimpong and Garubathan have low density. Irrigation in this part was high. Population increased remarkably with the introduction of tea plantation and continues to remain high. Recent trends show higher growth rate of population in urban areas as the earlier activities gave way to other activities in the region. Differences in economic activities and the development of urban centres led to higher sex-ratio in areas of plantation economy while in Kalimpong and Garubathan remained low. Literacy, an important aspect affecting quality of life of the people shows an increase in Darjeeling Himalayas over the last few decades. The number of literates especially female literates has increased in recent years. Urban population growth rates increased remarkably during 1971-81. High rate of urbanization is also due to the inclusion of some new settlements as urban centres.

V. Economic set up of the region largely corresponds to the natural, demographic and historical set up of Darjeeling Himalayas. Its economy is largely based on tea and agriculture, where the former has played a significant role in the development of the region since the beginning. There has been a decline in the economic activities pertaining to this sector in recent years due to various constraints. This has resulted in lower work participation in 1981. High population growth accompanied by unemployment have also contributed to it. There

has been a decline in proportion of workforce engaged in primary sector with increase in tertiary sector. It indicates that skilled labour has been on the rise. The land use pattern indicates that most of the villages have more cultivated land including plantation and agriculture. It also reflects that change in economic structure has led more people to expand agricultural activity. Area covered by forests has declined.

Tourism in Darjeeling Himalayas can be further strengthened with proper planning. Although this sector requires proper care which will certainly improve the economic structure checking the deteriorating economy.



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