

**PHYSICAL AND SOCIO-ECONOMIC CHARACTERISTICS AND
LEVELS OF RURAL DEVELOPMENT IN DARJEELING HILLS**

*Dissertation submitted to Jawaharlal Nehru University in partial
fulfillment of the requirements for the award of degree of*

MASTER OF PHILOSOPHY

RAM KUMAR TAMANG



**Centre for the Study of Regional Development
School of Social Sciences
Jawaharlal Nehru University
New Delhi - 67
India
2003**



जवाहरलाल नेहरू विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
Centre for the Study of Regional Development
School of Social Sciences
New Delhi-110067

CERTIFICATE

I, Ram Kumar Tamang, certify that the dissertation entitled “**PHYSICAL AND SOCIO-ECONOMIC CHARACTERISTICS AND LEVELS OF RURAL DEVELOPMENT IN DARJEELING HILLS**” for the degree of **MASTER OF PHILOSOPHY** is my bonafide work and may be placed before the examiners for evaluation.

(RAM KUMAR TAMANG)

Forwarded by

(PROF. HARJIT SINGH)
SUPERVISOR

(PROF. ASLAM MAHMOOD)
CHAIRPERSON

**To
Aama-Aapa and Aani
for giving me never failing support
and stimulating my spirits ever higher.**

ACKNOWLEDGEMENT

I express my heartfelt gratitude to my supervisor Prof. Harjit Singh. It is undoubtedly his constant encouragement and advice that has propelled me to complete this work. To say that I owe my success to him is to say the least.

I take this opportunity to express my sincere gratitude to the Centre for the Study of Regional Development. The staffs at the Centre were extremely helpful and cooperative. Among the staffs two people still deserve special mention. Mr. K. Verghese and Binod Dolay have helped me in preparing maps meticulously. I am very grateful for their priceless help.

I would also like to thank Binu and Anil Daju for performing the tedious task of correcting the draft. Samar was equally generous in allowing me to use his computer. I did the entire work on his computer. My sincere thanks are also due to Bidhan Bhai for his timely help. I also wish to thank Divya, Vimal and Manish for their constant support and encouragement.

My special thanks go to my beloved parents, aani, jyojo and sisters. Had it not been for their support, it wouldn't have been possible for me to complete this work.

I thank Tine for her never failing support. Though I have taken utmost care while bringing out this work, however, any errors arising herein will solely be mine.

Dated: 21st July, 2003

RAM KUMAR TAMANG

CONTENTS

	Page No.
ACKNOWLEDGEMENT	iii
LIST OF TABLES	iv
LIST OF MAPS AND FIGURES	
CHAPTER 1 INTRODUCTION	1-16
1.1 Area of Study	4
1.2 Need of Study	4-6
1.3 An Overview of Existing Literature	6-12
1.4 Objectives of the Study	12
1.5 Hypotheses	12-13
1.6 Data Source	13
1.7 Methodology	13-14
1.8 Organization of Material	14-16
CHAPTER 2 THE ENVIRONMENT	17-36
2.1 Geology	18-20
2.2 Physiography	20-23
2.3 Drainage	23-26
3.4 Climatic Characteristics	27-28
2.5 Natural Vegetation	28-33
2.6 Soils	33
2.7 Environmental Constraints in the Development of Darjeeling Hills	34-36
CHAPTER 3 DEMOGRAPHIC AND SOCIAL ASPECTS	37-54
3.1 Population Distribution and Density	38-40
3.2 Population Growth	40-47
3.3 Sex Ratio	47-48
3.4 Social Composition	48-50
3.5 Literacy and Education	50-53
3.6 Urbanization	53-54
CHAPTER 4 ECONOMIC RESPONSE	55-80
4.1 Land Utilization Pattern	56-62
4.2 Agricultural System	63-68

4.3	Occupational Structure of Workforce	69-74
4.4	Development of Infrastructure and Basic Amenities	74-80
CHAPTER 5	RURAL DEVELOPMENT: A SYNTHESIS	81-96
5.1	Choice of Indicators	83-87
5.2	Composite Index	87-89
5.3	Levels of Social and Demographic Development	90-91
5.4	Levels of Economic Development	92-93
5.5	Levels of Infrastructure Development	93-94
5.6	Levels of Overall Development	95-96
	CONCLUSIONS	97-100
	BIBLIOGRAPHY	101-105

LIST OF TABLES

		Page No.
2.1	Geological Time and Material Deposition	19
2.2	Typology of Major Constraints Factors and their Impact on Development Activities.	35-36
3.1	Himalayas - Density of Population 2001	38
3.2	Darjeeling – Percent share of Hill Population 1901-2001	41
3.3	Darjeeling – Intercensal Growth of Population 1901-1991	42
3.4	Darjeeling – Area and Inhabited Villages	44
3.5	Darjeeling – Population Characteristics and Growth 1981-1991	44
3.6	Darjeeling – Population Growth Rate and no. of Settlements 1981-1991	46
3.7	Darjeeling – Sex Ratio 1981-1991	48
3.8	Darjeeling – Educational Facilities (Number of Institutions) 1991	51
3.9	Darjeeling – Literacy (Percent Literates) 1981 & 1991	51
3.10	Darjeeling – Percentage of Urban Population and Urban Growth 1981-1991	53
4.1	Darjeeling – Area Under Different Landuse Category of Inhabited Villages 1981 & 1991	57
4.2	Darjeeling – Subdivision wise Classification of Landuse 1981 & 1991	59
4.3	Darjeeling – Area Under Principal Crops 2000-2001	64
4.4	Darjeeling Hills – Workers in Different sectors of Economy 1981 & 1991	70
4.5	Darjeeling - Distribution of Main Workers, Marginal Workers and Non Workers 1981 & 1991	71
4.6	Darjeeling – Distribution of Villages According to the Availability of Different Amenities 1991	75
4.7	Darjeeling – Number of Institutions 1991 & 2000-2001	75
4.8	Darjeeling – Availability of Medical Facilities, 1991	76
4.9	Darjeeling – Villages Electrified 1991- 2001	79
5.1	Allocation of Special Central Assistance for Darjeeling Hills Under Different Five Year Plans	82
5.2	Levels of Social and Demographic Development	90
5.3	Levels of Economic Development	92
5.4	Levels of Infrastructure Development	93
5.5	Levels of Overall Development	95

LIST OF MAPS AND FIGURES

- Map I(1) Study Area
- Map II(1) Darjeeling – Geology
- Map II(2) Darjeeling – Relief
- Map II(3) Darjeeling – Drainage Network
- Map II(4) Darjeeling – Seasonal Distribution of Temperature and Rainfall, 1980
- Map III(1) Darjeeling – Population Distribution, 1991
- Figure III(1) Darjeeling – Decadal Growth Rate of Population 1981-1991
- Map IV(1) Darjeeling – Landuse Pattern, 1981
- Map IV(2) Darjeeling – Landuse Pattern, 1991
- Figure IV(1) Classification of Cultivated Land
- Map V(1) Darjeeling – Social and Demographic Development
- Map V(2) Darjeeling – Economic Development
- Map V(3) Darjeeling – Infrastructure Development
- Map V(4) Darjeeling – Overall Levels of Development

CHAPTER 1

INTRODUCTION

Development has become a single most common feature of all societies. Development as a process involves the replacement of old structures with new ones. However, this transition from old structures to new ones is not always smooth. This is so because development is conditioned by various factors. One of the most important factors is environment. To a great extent it regulates the pace and the quality of development. This relationship can be understood better if we try to understand the differential development in the hill areas like Darjeeling. The high rugged terrain and extreme climate have become constraints to smooth development of Darjeeling hills. Hence, a good knowledge is required in redesigning the strategies for sustainable development on the limitation to earth's environmental system.¹

Hill areas are distinguished primarily by their relief and other factors like slope, aspects, complexity and heterogeneity of climate, vegetation, fauna and land use patterns. Most of these are outcomes of this primary factor of relief. Hill areas have a unique ecosystem that is rich in bio-diversity and scenic resources. But the fact is that not all hill areas are alike. Some are prominent, attractive and fragile. Others may be suitable for development provided it is to be carried out sensitively and within environmentally acceptable limits. Certain others may be ecologically degraded and may require restoration. In general, it can be said that developmental policies in the agricultural and tourism sectors during the pre-independence era in Darjeeling hills have resulted in extensive deforestation, adverse environmental impact and consequential ecological imbalance. Such problems are persisting everywhere in the hills and it is not only Darjeeling but most of the hill areas in India have been listed as 'ecologically sensitive zones' by the Ministry of Environment and Forests (MoEF), Government of India.²

Hills and mountains from time immemorial have influenced the life, culture and economy of the people not only living there but also of those in adjacent the plains. Only

¹ Mohan, M. 2000. *Ecology and Development*, Sage Publication, Delhi, p. 5.

population living in adjacent areas depend directly or indirectly on the resources of the hills and mountains.³ Most of the hill areas are industrially backward and have strong rural traditional agrarian economy. This is more due to their isolation from the prosperous plains, which hinder faster rate of social and economic development. Society in most of the hill areas is conservative. In many hill regions the rural area has a major share of population depending on relatively backward economy and Darjeeling is no exception. So, in order to develop the hill areas, the development of its rural areas should be the prime focus. Because, the term 'rural development' is itself a subset of 'development' which explains both economic betterment and greater transformation of the people living in rural areas, implying thereby improvement in quality of life and level of living.

Development in the hill areas started late and until recently, the modern technology had little role to play in the process. Because of the specificities involved which are akin to the physical conditions, the development programmes need to be taken up carefully. However, there is need for evolving specific strategies for socio-economic development of hill areas. The structural backwardness concerns with natural barriers leading to isolation and remoteness. These have for a long preserved the depressed economic conditions and slow downed the rate of economic development. The cultural landscape also bears marks of the impact of isolation.

Despite its rugged terrain, the Himalayas are a region of tremendous movement.⁴ Though, migration in Darjeeling hills largely started after the British rule but there were people already settled. They may have experienced some kind of in and out-migration, may be not on a large scale. The British rule in Darjeeling attracted people by opening tea gardens and constructing roads and railways from all adjacent places – be it in the form of workers or businessmen. Population in Darjeeling hills in 1835 was only 100 persons. It increased to 10,000 in 1850. Slowly and gradually, the hills became spotted with number of settlements

² Sekar and Thirumeni, "Planning Strategies for Hill Stations in Eco-Sensitive zones", *Spatio-Economic Development Record*, Vol. 9, No. 2, March-April, 2002, pp. 35-37.

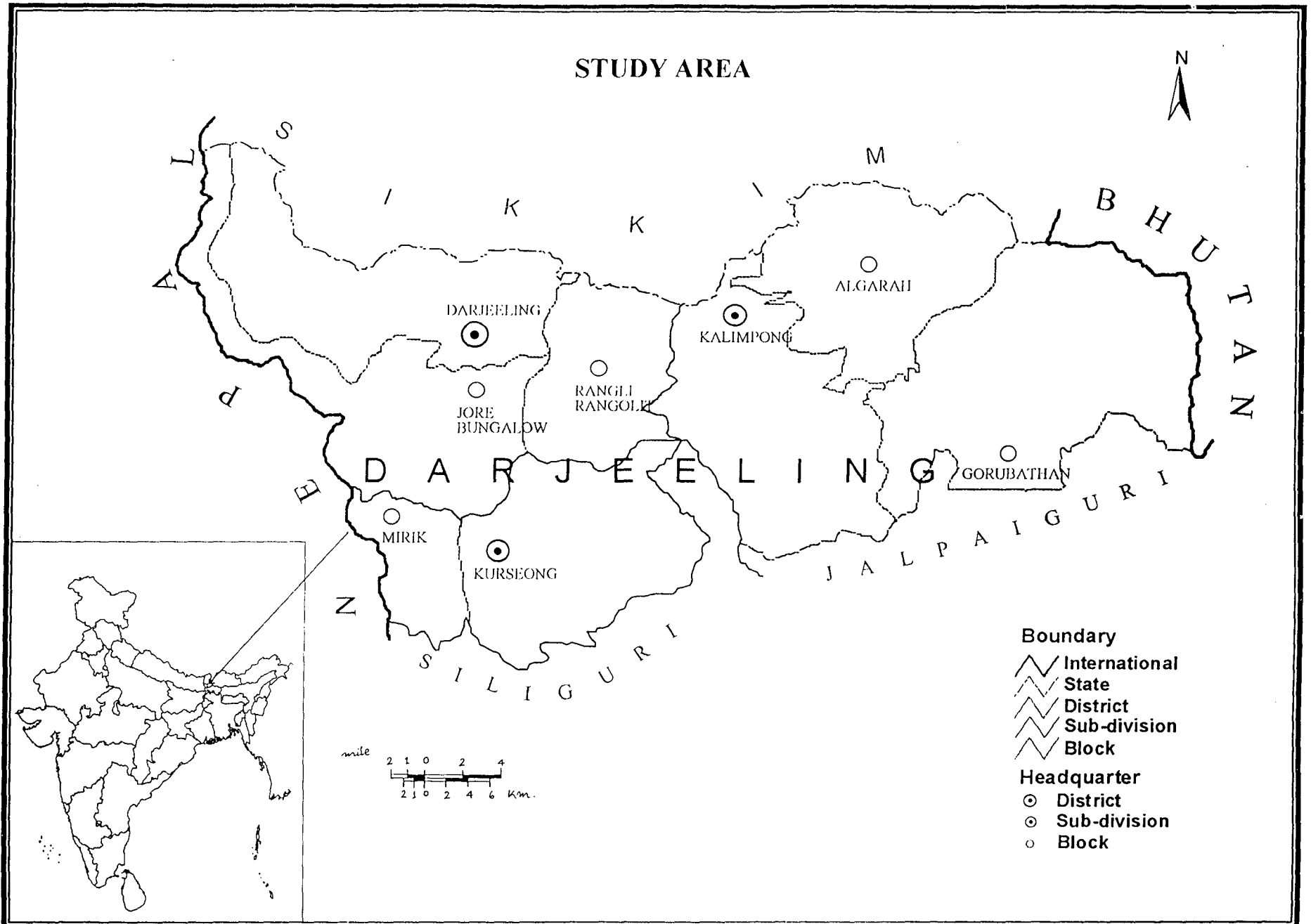
³ Meshram, D.S. and Chotani, M.L., "An Approach to Hill Area Development", *Spatio-Economic Development Record*, Vol. 1, No. 1, March-April, 1994, pp. 4-8.

⁴ Karan, P.P., "Population Characteristics of the Himalayan Region", *Mountain Research and Development*, Vol. 7, no. 3, 1987, pp. 271-274.

and became overcrowded. Total population of Darjeeling hills was 850,558 persons in 1991. Today due to high growth rate and less economic opportunities people outmigrate from the hills to betteroff plains in search of job and economic betterment. Migration, density of population and patterns of distribution of settlements are important considerations for development.

The problems of the hill regions are location specific. The geo-physical and agro-economic features make the region a distinct socio-economic entity. Till the Third Five Year Plan, hill areas did not receive any attention of the government for planning purposes. The hill areas have, however, been identified as 'Special problem Areas' for long. The general productivity levels in the hills are low, and accessibility to productive resources and income opportunities available to the people are very limited.

The hill areas thus need special attention because the process of development is very slow here. This is because of physical factors as well as cultural segregation. Development in the hills makes the development of infrastructure as a first priority. So the development in hills starts with the development of transport routes through which diffusion of knowledge and technology takes place. The first road in Darjeeling was built in 1840 connecting Pankhabari with Darjeeling and Darjeeling Himalayan Railway connecting Darjeeling and Siliguri was completed in 1881. Even though development started early in Darjeeling, it could not keep a pace. But there were certain genuine reasons behind it as the situation in Darjeeling was totally different. Literally, there were only a few settlements and the region was covered with dense forests till 1835. It was totally virgin except for a few settlements of Lepchas, the autochthones of the region, when Britishers first started settling there. Now the major problems faced by the hill people of Darjeeling are limited land resources with rapidly growing population resulting in over population, unemployment and environmental degradation. Sudden increase in population of once forested land within a few centuries has created many socio-economic problems which need a closer look.



Map I(1)

1.1 Area of Study

The area under study is a part of the Darjeeling-Sikkim Himalaya in the Eastern Himalayas comprising three hill subdivisions of Darjeeling district namely Darjeeling Sadar, Kalimpong and Kurseong. It is located at the northern most boundary of the state of West Bengal comprising of 8 Community Blocks, 284 inhabited villages and 5 towns. Geographically, it is located between 27°13'33" and 26°46'33" North latitudes and 88° 53'00" and 87°59'30" East longitudes. With an area of approximately 2417.30 sq. km., it is bordered by Bhutan in the east and Nepal in the west. The state of Sikkim forms its northern boundary and the district of Jalpaiguri and Siliguri subdivision of Darjeeling district lie to its south. All the boundaries, except southern which is based on administrative consideration, are demarcated by geographical features of mountain ridges, spurs and rivers.

The western boundary of the region commences from Phalut, the tri-junction of Nepal, Sikkim and Darjeeling at an altitude of 3579 meters above mean sea level on the Singalila range, which runs parallel to the western boundary. The River Jaldhaka forms the eastern and northeastern boundary and the River Tista and the River Rungeet flow to its north. The Darjeeling Himalaya, a part of Lesser and Siwalik Himalayas, has undulating and rugged terrain. It comprises of numerous hills and mountain ranges separated by deep gorges and valleys. Its elevation ranges from about 300 meters at the foothills to above 3000 meters at Phalut and Sandakphu. This varied physiography has important bearing on the variations of other related factors like climate, vegetation and soil etc. and finally in the process of development. Alongwith severe environmental conditions, improper attention with regard to its priorities and preferences in the allocation of resources for developmental activities have led to underdevelopment.

1.2 Need of Study

Many of the mountain areas ranging from Afghanistan to Balkans, the Caucasus, the Andes and the Himalayas from Kashmir to North-East – are the flash points of conflicts afflicting the world today. Some of these conflicts in mountain areas are related to denied

voice of the locals in the use of resources. Besides, poverty in the hills is directly related to the unrest. The capacity of land to support the population has already been exceeded. Many of the mountain people live in abject poverty. They face massive barriers to development in terms of rugged terrain, poor communication and transportation system, political marginalization and limited access to education. As a matter of fact, the related barriers of armed conflict and hunger may today pose the most significant obstacles. In 1999 alone 23 of the 27 major armed conflicts in the world were being fought in mountain regions and today about 800 million undernourished people in the world live in mountains.⁵

The governments of different countries accept the above facts and they have initiated many development plans. The Governments of India has also started such plans to develop the hill and backward regions. The full fledged development work was initiated by the Government of India in its Eight Five Year Plan under ‘Hill Area Development Programme’ (HADP). This concept had evolved during the Fifth Five Year Plan. The programme implemented during the Fifth Five Year Plan was mainly beneficiary oriented. The emphasis shifted to economic development in the Sixth Plan. The Seventh Plan laid emphasis on development of ecology and environment. It aimed to take care of socio-economic growth, development of infrastructure and promotion of ecology. The Eight Plan focused especially on modernizing agricultural policies and raising small-scale industries at household, cottage and village levels. Huge amount is spent on the hill areas by the government to run such programme. Rupees 196.60 crores were spent under HADP alone in Darjeeling during the Eight Five Year Plan.⁶

But the outcome of such huge flow of money was rather unsatisfactory. In fact, the development in Darjeeling started with its opening up as health resort (sanatorium) in 1830s and with the introduction of tea plantations. Early start of the construction of roads, laying of railway tract, setting up of medical and educational institutions is evidenced by the letters of Englishmen in Pinn’s book.⁷ But subsequently during post independence period, the development in Darjeeling hills seemed to be sluggish. The development in agricultural

⁵ Yadav, Santosh, “Eco-tourism: Problems and Prospects”, *Yojana*, Vol. 46, august, 2002, p. 22.

⁶ <http://planningcommission.nic.in/fiveyr/8th/vol2/8v2ch17.htm>.

sector in modern sense started only since 1972-74 with the establishment of Small Farmer's Development Agency.⁸ There are still many villages, which are not provided with basic amenities. The growing population on one hand and scarcity of opportunities on the other resulted in a lot of unemployment among youths. Census data of Darjeeling hills show 35.19 per cent area under forest, 45.30 per cent under cultivation, 7.25 per cent occupied by cultivable waste and 12.26 per cent is under area not available for cultivation. Darjeeling once known for 3 Ts – Tea, Timber and Tourism now shows deterioration in all these things. Lack of interest and improper treatment of workers by planters have turned many good gardens into 'sick'. Illegal felling and wanton destruction of forest resource have created many landslide-prone zones in the hills. Recently, introduction of eco-tourism has begun but on a small scale. Today almost entire hill region of Darjeeling is economically backward with limited infrastructure development. Only some places, which came up during the colonial period to perform specific functions, continue to be "developed" as urban centers surrounded by underdeveloped rural areas. The constraints hindering development in the region includes physical, social, economic and political and these have direct bearing on regional economic development. Hence, the basic aim of the study is to analyse the socio-economic conditions of people in this fragile mountain environment and to measure the levels of development and disparities within the region.

1.3 An Overview of Existing Literature

The history of Darjeeling starts prior to the British rule in India. The available literature tells us that the region initially was a part of Sikkim; a sovereign kingdom later annexed by the Nepali king in 1780 upto Tista River. This included Darjeeling sadar and Kurseong sub-divisions. Kalimpong sub-division was annexed by Bhutan in 1706 and remained its part till 1866. The Treaty of Titalya was signed in 1871. According to this Treaty the Nepali king had to return the captured part to Sikkim. The present Darjeeling was ceded to East India Company in 1885-86. So the existing literature gives a clue that the British has a greater influence over the region since then. Therefore, most of the earlier studies available on the

⁷ Pinn, Fried. 1986. *The Road of Destiny: Darjeeling Letters 1839*, Oxford University Press, London, pp. 65-66.

⁸ Subba, T.B. 1989. *Dynamics of hill Society*, Mittal publications, Delhi, p. 15.

region are in the form of accounts written by Britishers. The literature available of early British period is mainly in the form of travelogues, gazetteers and statistical accounts. However, at present a number of books, journals, and newspaper are available on the various aspects of the region. Keeping in view the time and method of writing, the literature available on Darjeeling hills can be divided into two categories of the British period and Recent Studies.

1.3.1 General accounts of the British Period

As mentioned earlier, most of the writings of the British period are in the form of travelogue and other general accounts written by the Britishers. Although these have limited use for the present research, yet, these provide clues to know the past history and man-environment interaction in the region.

“Himalayan Journals or Notes of a Naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasia Mountains” is probably the earliest study of the region written in the form of travelogue by Sir Joseph D. Hooker (1854). He was a botanist. Hooker identified the vegetation and gave detailed information of the plants found in Darjeeling. Moreover, culture, inhabitants, settlements and political scenario of the then Darjeeling-Sikkim Himalayas has also been discussed in the book. He observed that vegetation and settlement pattern change with the changing landscapes from Sunderban vegetation of Calcutta to rhododendron (*guras*) bushes of upper Sikkim Himalayas.

Hunter’s Statistical Account of Bengal (1876) gives detailed information about the region of British Empire. His study shows a large-scale migration of Nepalis to the hills as labour force to work on the newly opened tea gardens. He has also discussed population growth since 1835. Hunter thinks that high growth of population from 100 population in 1835 to 10,000 in 1850 and 22,000 in 1869 within a short span of time is the direct result of tea plantations. Besides, his account gives overall view of the region in terms of natural environment, the local inhabitants as well as migrants and their occupation, economy and settlements.

O'Malley's District Gazetteer (1907) is a major source of information for those who wish to know about Darjeeling. It gives a clear picture of the changing occupational history of this hill region till British rule. He has discussed about the annexation of Darjeeling and Kurseong from Sikkim to Nepal in 1780. Later through the Treaty of Titalya(1871) and with the British intervention, Nepal had to return the captured part to Sikkim. He has further stated that again on 1st February 1835, the *Chogyal* of Sikkim out of friendship presented Darjeeling to the East India Company. The study helps in understanding the formation of the region and other aspects related to physical set-up, people, economy, means of communication and the administration. Natural calamities in the form of landslides/landslips in a sequential form since 1899 have also been mentioned in the book. The system of land revenue collection through *mandals* (village headman) and the system of poll tax in lieu of land revenue, in case of Kalimpong Government estate have been highlighted in detail.

Most of the studies published during the colonial period included the aspects of history, environment, economy and society. These are the sources of general information of the British rule in the region. However, the work of Hooker is a premier source based on his personal experience provides good information about the environment of the region.

1.3.2 Recent Publications

Focused studies on the region started appearing only during the post independence period. It was mostly in 1980s that number of works were published in the form of books and articles in journals and newspapers with independent studies of environment, economy and society.

Like any other hill areas Darjeeling hills also remained backward writes Bandopadhyaya (1983). Starting with the colonial period when Darjeeling was explored only for sanatoria and military Cantonment and then explains the later conversion of the area into an export earning tea plantations region. He has further stated that about 40 per cent of the labour force in Darjeeling is faced with the problems of relative stagnation and in some cases

decline in productivity. The long colonial and post-colonial method of capitalist exploitation by profit-oriented entrepreneurship (mostly private) has failed to resolve the cost rise and turned good gardens into 'sick'.

Basu (1984) has studied the negative effect of modernization on Darjeeling Himalayas and explained the threat to its environment. He suggested that unhealthy and destructive processes of development should either be modified or abandoned. He further suggests some remedial measures by providing alternative means.

Mitra and Ray (1985) give an account of changing occupation of workers from cultivation to household and other non-household activities like forestry, plantation, construction, commerce, transport, and tourism etc. A delicate ecological balance does not suit to extend the cultivated land at the cost of destruction of slopes. So they have mentioned that the shift towards household and tourism industry is a good sign. They have also mentioned the distribution of development measures over Darjeeling hills and a weak administrative system, which have been problems for a balanced growth of the economy.

Pinn (1986) compiled the letters written by the Britishers residing at Darjeeling in a form of book entitled "The Road to Destiny". The book gives basic information about the British history of Darjeeling' like the idea of Darjeeling's suitability as a sanatorium was of J. W. Grant. He further gave a view of socio-economic life of the Lepchas, the autochthones of the region. Trans Himalayan trade is an old occupation of these people. Lepchas used to get the necessary items from Tibet. He also talks about "Deed of Grant" and puts some doubts whether Darjeeling was gifted/exchanged/annexed/ceded or was a foul game of General Lloyd.

Chakravarti (1986) has discussed the environmental constraints on economic development of Darjeeling hills despite the fact that the area is rich in natural resources viz. land, climate, water, mineral and dense forest. Besides, he stressed on the spatial development and careful handling of the region because of its strategic location and has suggested some remedial measures.

Various studies in 'Environment and Economy' are found in a book edited by Sarkar and Lama (1986). The book has a wide coverage of environment, ecology, demography and economy of Eastern Himalayas. Besides, there are few articles on development and planning processes as well as the problems and prospects of such developments in the hill regions in common and the Darjeeling hills in particular.

Tea has been a major source of income and has provided huge employment to the people of Darjeeling hills. Seasonal tourism is the other only alternative industry in the region that too has brought some benefits to the urban people. The wider rural people have not much benefited. It is because of the lack of diversification and the tourism industry has been unable to provide an employment to the rural people to a great degree. Many articles on tea industry regarding its problems, prospects and present condition have been compiled in a book entitled "Tea Plantation in Eastern Himalaya". The book has also been edited by Sarkar and Lama (1986). High terrain, lack of proper infrastructure and slow diffusion of technology increases the cost of production of Darjeeling tea, which finds difficult to compete with the tea from other parts. Besides, after the British left, most of the planters who came from the plains were profit oriented. Sarkar in his article explains that the mismanagement of the tea gardens by such planters is one of the major causes of "sickness" of tea industry of Darjeeling.

The issues related to rural development also got some space in the writing of some scholars. Biswas (1987) in her study of two villages in Kalimpong namely Sundepong and Bhalukhop, both located within five kilometers of distance from the town, aimed to find out the socio-economic impact of the developmental work carried out by the government agencies. She has evaluated the functioning of different agencies active there such as Panchayat, Small Farmers Development Agency (SFDA), Integrated Rural Development Agency (IRDA), Comprehensive Area Development Corporation (CADDC), etc. but most of the schemes run by these agencies found unsatisfactory. It is because of ecological, social and institutional constraints that have played a part in impeding the functioning of agencies.

Caste, class and agrarian structure of Nepalese in Darjeeling and Sikkim Himalaya is more prominent as found in the writings of Subba (1989). He says that there was no 'caste system' in Nepali community until the beginning of 14th Century. It was Hindus fleeing to Nepal who introduced caste system and spread Hinduism. Mangars and Gurungs were the first to convert. He found that the agrarian hierarchy of the region is shaped basically by ecological factors like altitude, nature of land etc. His study further shows that the middle caste has economically satisfactory position especially Newars who have been competing with Marwaris and Tibetans in capitalizing the situation. He has shown some kind of relationship between altitude and caste-class relationship in Darjeeling and Sikkim Himalaya. The Tibetan refugees residing in Darjeeling-Sikkim Himalaya especially after Chinese occupation of Tibet have adopted the region well in comparison to the other parts of India (Subba, 1990). The better settlement of these migrants is because of similar type of environment, culture, religion, and language prevalent here. He further mentioned that most of them are less competitive to employment as they are engaged mainly in trade, business and cottage industries by opening 'Self-Help Centre'.

Ethnicity and identity has become major issues in the recent time. Yonah's (1996) study gives an idea that there is multi-ethnic society in the hills and these groups differ from each other in socio-economic aspects. Bhotiyas (migrated from Tibet) are better off than Nepalis (from Nepal) and Lepchas (the autochthones) in economic terms and are mostly engaged in service sector and household industry. Ethnic awareness and identity have been accelerated among each of these groups. He also mentions that this multi-ethnic character of the region was an important force for the rise of political movement that affected Darjeeling Himalaya in 1980s.

The works of post-colonial period focus mainly on the environment and economy with only a few selected works focusing on social aspects, which are also equally important for overall development of the region. Though most of these studies are based on limited information, yet some important problems of this neglected area have been highlighted.

Although the early studies of the region are mainly based on history but these give basis for good understanding of the region. The recent literatures deal with almost all aspects but the detailed studies at micro level are still not there. Moreover, it is clear from the above that the literature directly relevant to the present study is limited.

1.4 Objectives of the Study

On the basis of the above main focus of the study is to analyse the physical and human environment, the processes of socio-economic change and the pattern of land management in Darjeeling hills. The objectives of the study are;

1. To know the physical set up of the region that has acted as the constraints on the development of a region.
2. To analyse the demographic aspects to know their pressure on resources.
3. Understanding the economic activities and the level of living in the fabric of hill society.
4. To investigate the agricultural system in the hills and their suitability to fragile mountain environment.
5. Identification of major cause for the backwardness and the present level of development in the hill area.

1.5 Hypotheses

Based on the above objectives the following hypotheses have been formulated

1. Physical set up constitutes major constraint on the development of the region.
2. Rural areas have higher out-migration and sex ratio than the urban centres.
3. The density of population will have positive correlation with the settlement history and level of infrastructure development.
4. Villages situated in lower altitudes have more diversified agriculture compared to those on higher altitudes.

5. Higher spatial interaction lead to higher level of specialization and subsequently to higher level of development. Therefore, villages in the remote parts continue to be backward.

1.6 Data Source

The objectives the present study is based on secondary sources of information which include the following;

1. Census Data: To analyse the different attributes of population and work force. For this Census Handbook of 1981 and 1991.
2. Statistical Abstract: to analyse economic data on infrastructure development and land use in Darjeeling have been largely used.
3. Gazetteers and Published Documents: District Gazetteers are the main source of information to know the historical processes of present day Darjeeling. Moreover, these give the overall view of the district. Similarly, the various documents of scholars working on the area and of the government give idea about the changes in the mountain environment.
4. Office Records: to know the present state of development.

The above database has certain limitations-

1. As the study area covers only a part of the district it becomes difficult to get the precise data as intended by the researcher.
2. The political movement of 1980s had adversely affected the developmental work in the hills so that there is a gap in the availability of data other than Census.

1.7 Methodology

With the focus of the study on socio-economic development, regional diversities and disparities have been examined in terms of: 1) Environmental factors, 2) Social and Demographic aspects, 3) Economic factors and 4) Rural development. The first factor has important bearing on the overall development of the rest. The second and the third factors are

most important in the study and have been analyzed extensively with the help of various statistical techniques. Choropleth maps and drainage maps have been prepared to show the physical aspects. Population distribution has been shown with dots and spheres. The trend in growth of population and economic activities has been shown with the help of graphs and pie-diagrams. Finally, an integrated picture of socio-economic development of the study area has been presented by knitting together all the regional patterns of development of both the second and the third factors. Some selected variables have been used for finding the level of development.

For this analysis, the choice of indicators has become crucial. The choice of indicators has been constrained by the availability of data. For example, the non-availability of data on co-operatives and banks at village level is one of the constraints. Similarly, the data on per capita income, which is one of the most important indicators of development, was not available. However, other data which could reflect development have been used in the study.

As mentioned earlier, the village has been adopted as the basic unit of study. Such a choice is guided by two considerations. First, because of the smallness of the study area as it covers only the hill region of Darjeeling district. Second, village is the lowest level of data availability through secondary source. Data used here is successful in identifying bare disparities in the development at micro level.

Finally, a composite index of all selected indicators has been prepared to know the regional variations as well as the level of development in the region.

1.8 Organization of Material

The present study is would be divided into six chapters dealing with different aspects and components of relief, and human and natural resources management in the Darjeeling Hills. The major thrust of study is to look into the socio-economic status of the hills and the problems existing thereon. Hence, it is always mandatory to understand the physical set up of

an area in order to know the root of the problems so that one can also suggest some remedial measures over the given condition.

In the first Chapter all the issues on which the whole study is based has been discussed at the theoretical level. The basic issues of the study, the nature of the existing literature, an introduction to area under study, its basic objectives and formulation of hypotheses and selected methodology and database have been covered in this chapter entitled “Introduction”.

We know as to how environmental and physical factors and peculiarities contribute to condition the institutional framework of land management and economic activities. It is, therefore, in Chapter II background of the study area, physiographic condition, water, other natural resources and other environmental conditions have been assessed.

Chapter III deals with the human resources and cultural aspects. The high increasing population in Darjeeling hills has put the region in a situation where it can be considered as one of the most densely populated hills (510persons/sq.km. in 2001). The high growth of population has created congestion and scarcity in resources availability as it can be seen with high sex ratio and continuous out-migration from the villages.

In most of the hill areas more than ninety per cent of the total working population is engaged in traditional cultivation and allied activities. It is, therefore, quite important to study the man-land interaction in this mountainous region. The analysis of shift towards sedentary cultivation and plantation agriculture from primitive shifting cultivation is significant to understand the sustainability of hill cultivation. It is to be noted that the restriction imposed by the British government on the fire utilization of forest resources led to settled cultivation in Darjeeling hills. So, Chapter IV deals with the man-land relation as well as other economic activities, level of infrastructural development, and land use patterns.

After assessing all these physio-socio-economic conditions it becomes necessary to look into developmental issues in the hills. As the major objective of the study is to see the

level of development the fifth chapter deals with the composition of all the selected indicators and their role in the development of the region.

Finally, conclusions of the whole study have been presented.

CHAPTER 2

THE ENVIRONMENT

Man interacts with nature by making use of numerous resources that environment provides. Comprehension of environmental factors is crucial in a study of land man relationship and the socio-economic set up.¹ Man is largely dependent on environment for his existence especially in the underdeveloped areas. A clear distinction lies in the economic activities of man living in different environments. People living in lowlands are generally economically better off than those living in highlands. High altitude and cold climate in mountain areas often restrict peoples' movement and hinder many economic activities. Moreover, such lands have low carrying capacity and a very low level of tolerance to environmental damage caused by man. On account of these problems, there is always low level of infrastructure development and low economic interests for investment by various agencies. The stage of development and structure of economy of many such regions are related to the environmental problems.

Environment plays major role in development especially in hill areas. In other words, development in many cases is related to the economic structure and environment. So, the problem of development is associated with the lack of economic activities, nature of topography and land degradation caused by human interference in nature. In general, in comparison to the plains, the hill areas are ecologically rich but at the same time more fragile and economically less developed. Some of these factors can be attributed to the physical set-up and geological formations. The ecological richness of the hills is due to their scenic beauty, the panoramic view of all vales and ridges, and dense vegetation with various types of flora and fauna. Hence many hill areas have been opened as tourist spots. Besides, there are huge scope for plantation, agriculture and hydroelectric power generation.

Environmental aspects constitute a vital theme, for any comprehensive study of a region. Such a study is even more important while analyzing mountain regions. At present, Darjeeling hills are facing many problems – ecological and those related to economy. The region, on account of varied altitude, diverse topography and climatic extremes, obviously supports much varied economic activities and life style among the people. Thus, the study of environment is a primary need to understand the socio-

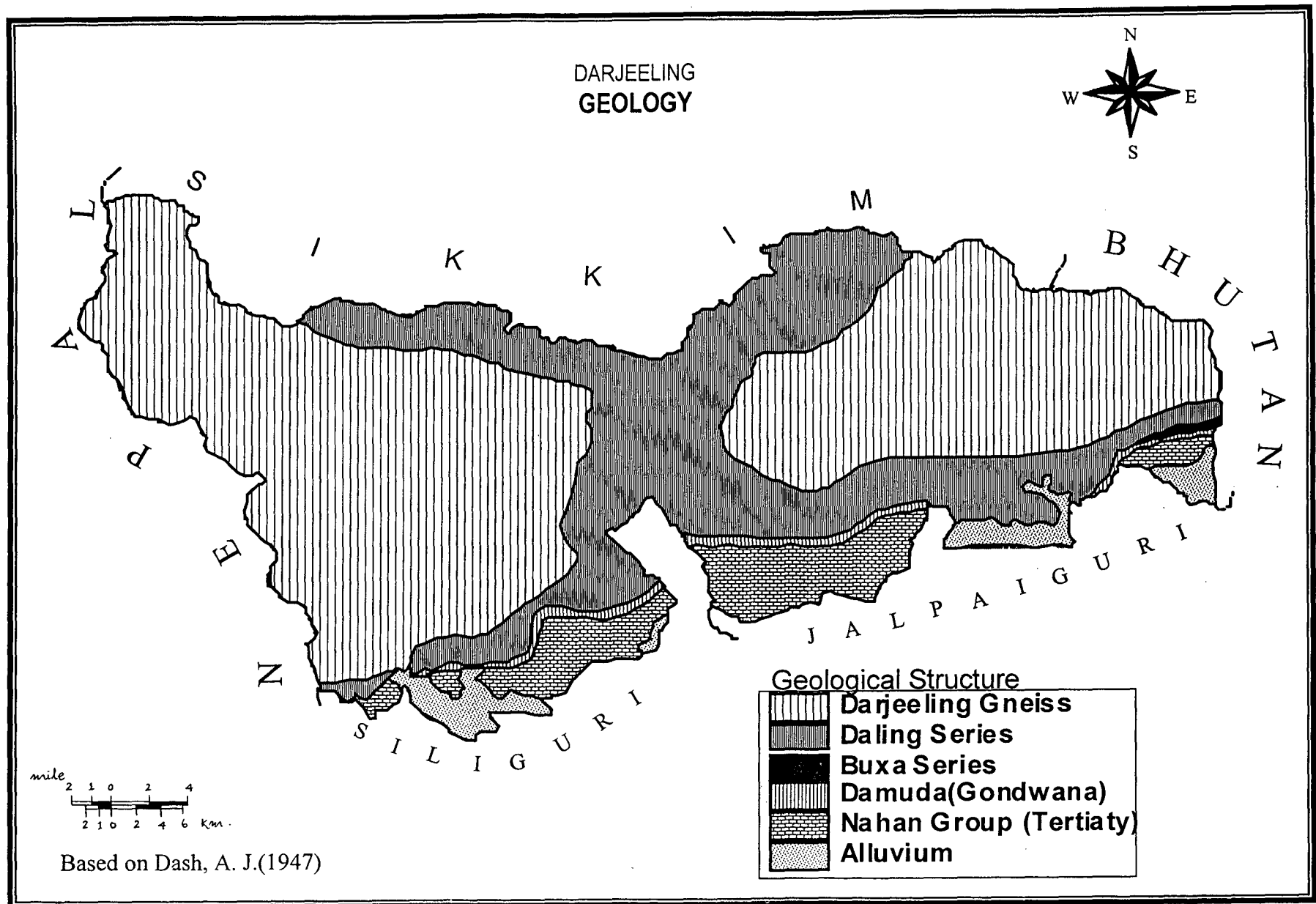
¹ Bhutia, Yonah. 1996. *Socio-Economic structure of Different Ethnic Groups in Darjeeling Himalaya: A Comparative Study of Nepalis, Lepchas and Bhutias*, Unpublished Ph.D. Thesis, CSRD, JNU, New Delhi, p. 41.

economic set up of the hill region. Such studies are very helpful to know the balance between the mountain environments, human society and development of resources. In the present context, a profile of environmental system of Darjeeling hills is being presented, which can form the base for planning of the region for its development keeping in view its problems and prospects. In the light of above it is important to understand the following;

1. Geology – Along with other factors, geology provides basic information of resources for development.
2. Physiography – The study of physiography is important as it influences development in many ways. Areas of low altitudes provide more economic opportunities. A contrast can be seen in the level of infrastructure development between the plains and the hills. Moreover, the areas of high and rugged terrain are barely approachable.
3. Drainage – Rivers modify the physiography and also provide water resources.
4. Climate - The climate of a place determines the conditions of comfort. It has important bearing on economic activities especially on agriculture.
5. Vegetation - Forests in the Himalayan regions play an important role in the life and economy of some communities. These give them food, provide them with firewood and building materials and even help in earning livelihood.
6. Soils – Soils of any region directly influence the agricultural productivity. The diverse variety of soils is suitable for equally varied crops.

2.1 Geology

Darjeeling hills are made up of metamorphic rocks generally called Darjeeling Gneiss, and Daling series. The former is found in the higher hills whereas the latter is confined to lower altitudes and in river valleys. The rocks of various types form a series of bands running more or less parallel to each other. It is noticeable that the rocks of older formations rest on the younger rocks in the southern horizon.. It shows a reversal of the original order of superimposition of sediments deposited in the Tethys Geosyncline. MapII(1) the geological sequence of Darjeeling hills.It is such that a variety of foliated and banded metamorphic rocks, partly sedimentary and partly igneous in



Map II(1)

origin of Darjeeling Gneiss are found in the higher reaches of the hills. Below these lie the low grade metamorphosed sediments of quartzites, slates, phyllites and foliated rocks, composed of graphites, chlorite and sericite. These are known as Dalings. This group overlies the Gondwanas. The Gondwanas constitute a narrow band between the Dalings and the Tertiaries running parallel from Pankhabari to Jaldhaka. It is a great coal bearing seam and yields huge plant fossils.² A thrust plane can be clearly observed between the Gondwanas and the Siwalik. Another thrust plane is also found between the Gondwanas and the Dalings. At the extreme east, the rocks of Buxa series overlies the Gondwanas. Such superimposition of stratified units found in the district is the result of over folding or over thrusts of the mountains.³ The rocks of older alluvium are found as bordering the southern end of Tertiary rocks. The sequence of the deposition of various materials under different geological time period is given below –

Table 2.1: Geological Time and Material Deposition

ERAS	PERIOD	MATERIAL TYPE
Quarternary	Recent	Alluvial plains
	Pleistocene	Older alluvial, Bhabar
Tertiary	Pliocene	Middle Siwalik to Lower Siwalik (Nahan)
	Middle Miocene	
Mesozoic	Cretaceous	-
	Jurassic	-
	Triassic	-
Palaeozoic	Permian	Damuda Sandstone, Quartzites, Sales, etc.
	Carboniferous	
Archeans	-	Darjeeling Gneiss & Daling Series

Based on: Mukhopadhyay, S.C.(1982), p, 20.

² Chakraborty, S. "A Geological Sketch of Darjeeling District" in Lama and Sarkar(eds.) *Eastern Himalaya: Environment and Economy*, Atma Ram and Sons, Delhi, 1986, pp.7-8.

In General, the geological formations of Darjeeling hills show the general sequence of material deposition in the Geosyncline with the older rocks in the higher hills and the younger ones in the foothills. However, there are some micro-variations in this sequence in the outer Siwalik where the rocks of Tertiary age are overlaid by older rock of Damuda series. It is due to the tectonic activities of thrusting and faulting. These micro variations have played important role in bringing out well marked intra-regional variation in physiography.

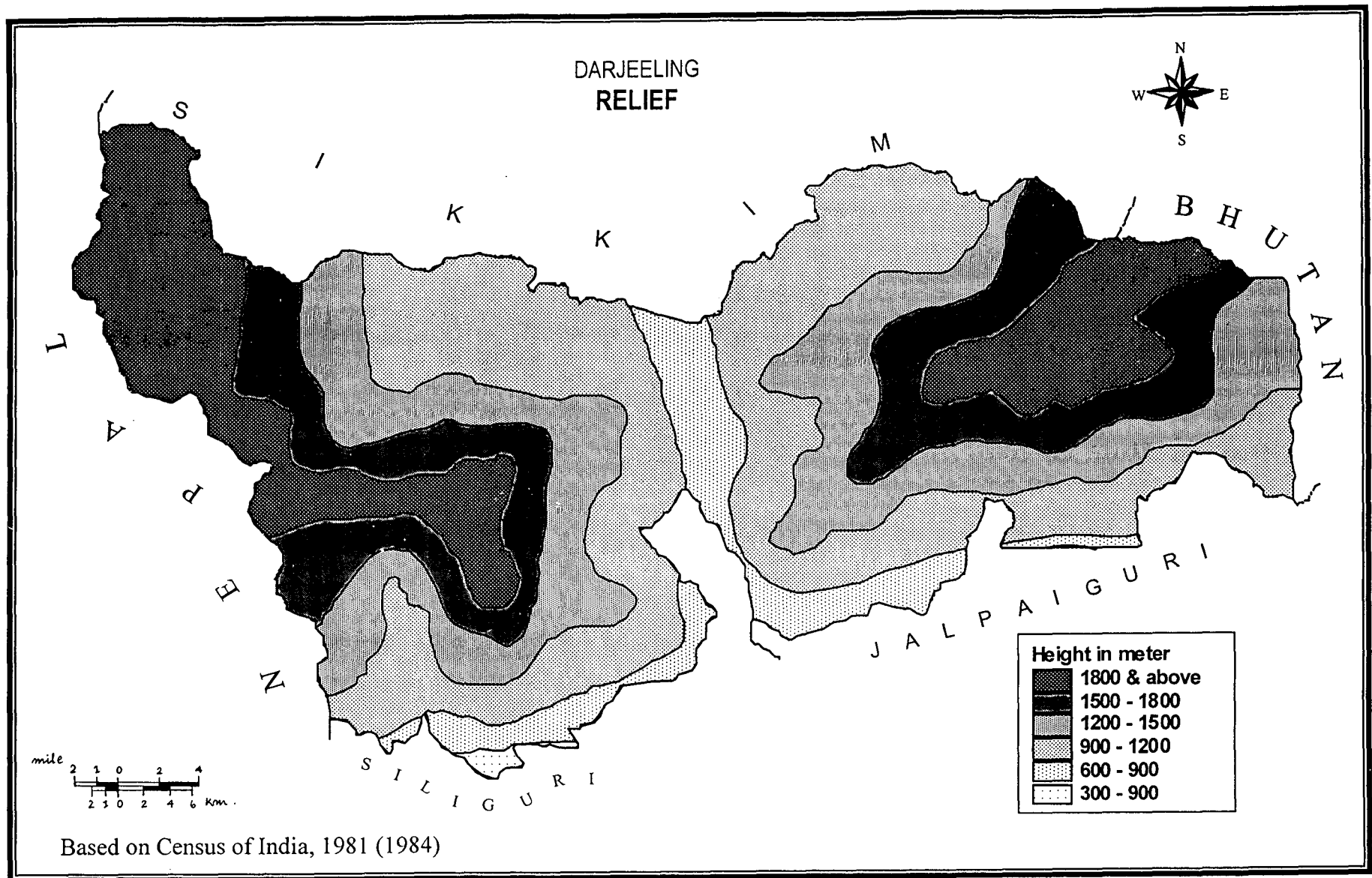
2.2 Physiography

Darjeeling Hill area is a part of the Siwalik and the Lower Himalayas. The elevation here ranges approximately from 300 meters to 3000 meters above the mean sea level. The physical configuration of the area is partly due to the main rivers flowing through it and due to geological formations. So, the present relief features have been formed as a result of the interaction between the endogenetic and the exogenetic forces.

The rugged terrain of the Darjeeling hills, like any other hills, has created problems for the development of the region. Ruggedness of land and steep slopes sometimes reaching above 60°, deep narrow gorges etc. acts as constraints on land use. Very steep slopes tend to have higher rate of erosion of topsoil. Loss of topsoil is also due to deforestation and urban development which results in blocking of natural drainage channels and silting up of rivers and lakes. Therefore, slopes beyond a certain degree (generally taken as 36°) are considered unsuitable for building activities.⁴ Slopes are often composed of steeply inclined materials which have low bearing capacity and are prone to mass movements such as mud flow, slides and creep. These slopes are also prone to landslides and are totally unsuitable for any form of development other than forestry. The northern portion of higher hills are composed of hard gneissic rocks and are more resistant to erosion. The southern portions are soft, thin, slaty and half-schistose rocks which are less resistant to erosion.⁵ The latter is more accessible and better populated. Moreover, the upper slopes are covered with vegetation and lack development of cultural landscape. The lower valley slopes are used for tea gardens and agriculture.

³ Dash, A.J. 1947. *Bengal District Gazetteers*, Darjeeling, Government Printing Press, Calcutta., p.15.

⁴ Banerji, A. K., 1980. *West Bengal District Gazetteer*, Darjeeling, Government printing, Calcutta, p. 7.



Map II(2)

MapII (2) shows the general relief features of Darjeeling hills. The highest elevation are observed in the north-east and north-west corners and the lowest elevation in the middle and in the southern portion. There is a deep gorge in the middle of the region formed by Tista river which flows in north-south direction. This river has an important bearing on the development of relief feature of the region. An understanding of terrain feature of a region is necessary to know their constraining nature. As mentioned earlier, mostly rivers control the relief of Darjeeling hills. Tista river divides the entire hill region into two parts namely – 1) Darjeeling-Kurseong range in the western part and 2) the Kalimpong range in east. The river flows through the heart of the region in north-south direction.

2.2.1 Darjeeling-Kurseong Range

This Himalayan range runs from northwest to southeast producing numerous spurs of the Singalila and a few other spurs. It is a southward extension of the Great Kanchanjunga, the mighty snowy range, forming the major feature of Darjeeling Himalayas. While stretching southward, the Singalila forms the boundary between Nepal and Darjeeling and also acts as the watershed between the two great river systems –Kali river system on the west and Tista river system on the east. The highest peak of the range rises above 3600 meters at Phalut. It goes gradually towards Sandakphu and descends towards south at Maneybhanjan to 1800 meters. A number of streams traverse through the region. Predominant among them are the Rammam, the Shiri Khola, the Lodhma, and the Chota Rangit making impact on micro relief features.

Towards the northeast of the Singalila range lies the Ghoom Saddle (2233m) situated to the northwest of Sinchel. It acts as a junction wherefrom four-hill ranges which radiate. These are the Ghum range, the Sinchel-Mahaldiram range, the Takdah range and the Darjeeling Jalapahar range. The Ghum range rises westward and meets the Singalila range at Simana Basti. The Sinchel-Mahaldiram range trends southwards towards Kurseong. Its elevation reaches up to 2424m and 2606m in its northern part and to about 2121m towards south. The highest points of the range are East Sinchel (2602m), Tiger Hill (2580m) and West Sinchel (2551m) peaks. River Balasan rises from

⁵ *Ibid.* p.4.

TH-10895



Lepahajagat at 2261m heights. The Takdah or Tangbu range separates from the Sinchel ridge below Tiger Hill, east of Ghum, making a northeasterly direction. It descends at the junction of the Great Rangit and Tista River. The fourth range is the Darjeeling-Jalapahar range, on which lies the town of Darjeeling and the Cantonment of Jalapahar. This range rises abruptly from the Ghoom Saddle towards Jalapahar and then descends northward to an elevation of 2121m at the Chaurasta and then rises again to 2171m at Observatory Hill (Birch hill).⁶ The ridge divides, at this point into the Tukvar and the Lebong spurs before these descend to the Rangit River.

The Darjeeling-Kurseong range limits itself between the Mechi on the west and the Tista on east and the Balasan River with its tributaries flowing in the central part of the region.

2.2.1 Kalimpong Range

The range extends from Tista on the west to Jaldhaka on the east. The main physiographic features of this region are the abruptly rising hills, numerous streams and some small torrents. The general slope is towards south. The elevation ranges between 300m and 3000m above mean sea level. The highest ground on the east of Tista is at Rishi la (3049m) There are many peaks of several spurs here and also a meeting place of Bhutan, Sikkim and Darjeeling. From here one of the more prominent ridges runs southeast and cuts off Jaldhaka valley from the rest of the region. Another ridge descends just under 2100m and forms the Labha Saddle. At this point the main spur gets divided into several smaller ones those are well drained by small streams forming radial drainage pattern. Two prominent spurs – one leads southwestward finally touches the plains and another runs northwest of Rissium joining another ridge at Pedong.⁷ The southwestern spur passes through the town of Kalimpong via Delo Dara at the northeast, the highest point at the vicinity of town. It acts as the watershed between the Tista and Relli stream, a tributary of Tista. The ridge descends abruptly from Durbin Dara and diminishes at the confluence of the two rivers. It is only between the Neora and the Murti it encompasses a small tract of river terraces and forms a typical bhabar belt.⁸

⁶ O'Malley, L.S.S. 1907. *Bengal District Gazetteers, Darjeeling*, Logos Press, New Delhi, p. 5.

⁷ S. Chakraborty, *op. cit.* p.5.

⁸ A. K. Banerji, *op. cit.*, p. 7.

The above discussion shows the regional geomorphology of Darjeeling Hills to very varied which in turn has an important bearing on the development of the region. In Kalimpong Hills the area above 1676m are almost virgin and all the settlements are found below that elevation.⁹ The absence of settlement in the upper reaches of the hills is due to rugged terrain and cold climate.

2.3 Drainage

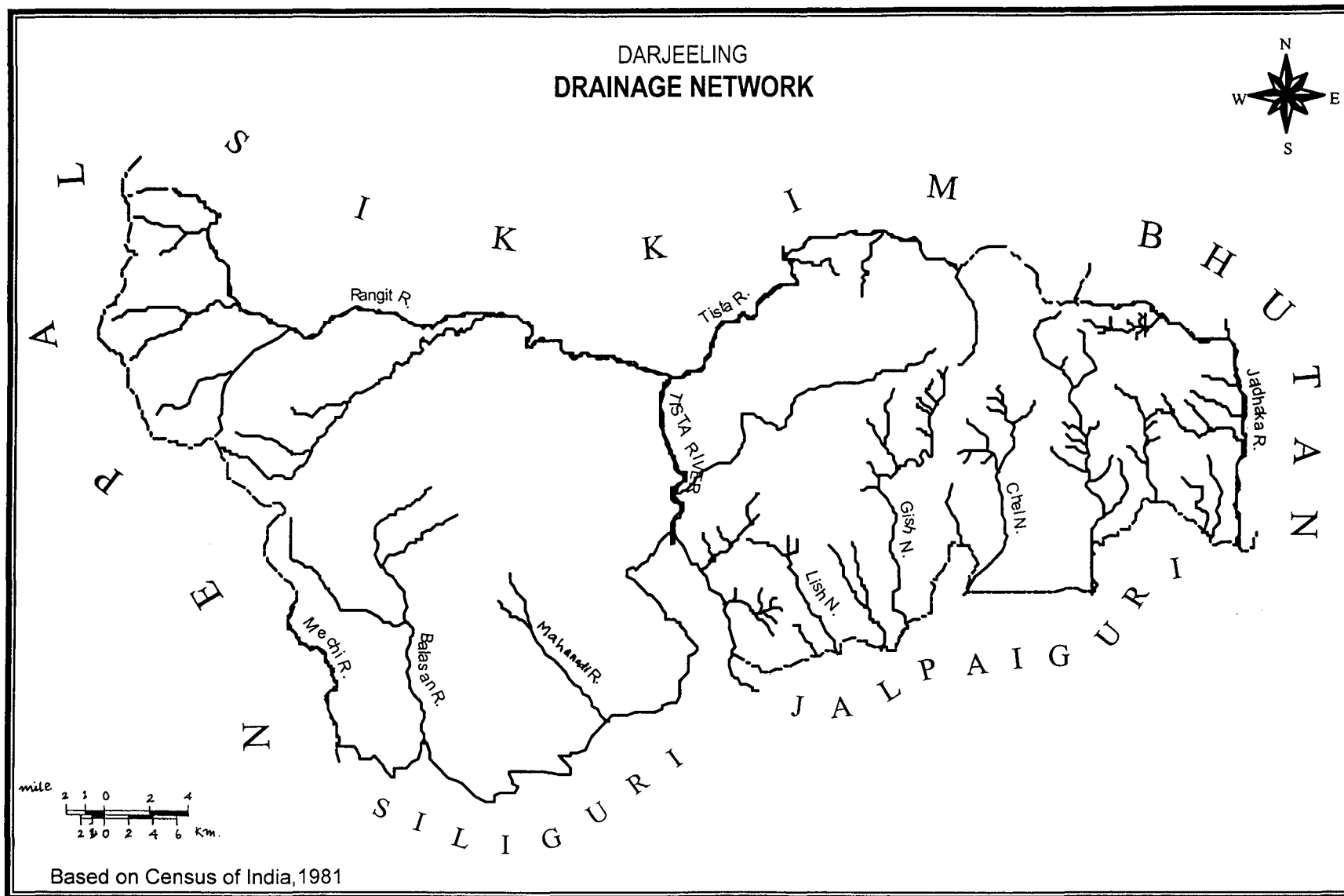
Water is the primary need for every living being for their survival and development. Most of the rivers of the world originate from mountain areas. The mountain areas are important sources of water, energy and bio-diversity. These also provide resources for agricultural and forestry products, minerals and recreational sites. Like most mountainous areas the basic natural constraint on development in Darjeeling hills are mainly because of two factors – a) hilly/mountain rugged terrain and b) scarcity of drinking water. Among these two, the problem of drinking water is severe. “Though the population of Darjeeling town has doubled over the years the capacity of three lakes in Sinchel, built in 1910, 1930, and 1979 has remained the same”.¹⁰ So the demand for drinking water in Darjeeling is increasing with the increasing population. It is, therefore, rainwater harvesting through contour bunding, the ultimate solution to the problem. Besides, there should be proper know-how of the usage of water by the people living there. The survey conducted by Central Water Research and Development Department, Jalpaiguri, shows that about 30% of the total drinking water supplies in Darjeeling are misused.¹¹

The water resources of the hills are in the form of springs, rivers and lakes of which the rivers have most important impact on physical landscape and economy. The region, like other parts of the Himalayas, is well drained by numerous rivers and rivulets, locally known as ‘*Jhora*’ or ‘*Kholsa*’, ‘*Khola*’, and ‘*Nadi*’, in the increasing order of stream. The drainage pattern of hilly areas is determined by the natural contours. Most of the rivers in Darjeeling hills flows in north-south direction following regional slope but not of course geology, since many of the large rivers are antecedent in nature. Map II (3) shows the

⁹ *Ibid.*

¹⁰ Pine Trees Squeezing Darjeeling Dry: *The Telegraph*, 1:5:99.

¹¹ Water Misuse May Lead to Scarcity in hills: *The Statesman*, 29:1:2000.



Map II(3)

major rivers and some of the important tributary system of the region. With the exception of the Balasan, the Mahananda and its western affluent, all the important rivers, namely the Tista, the Jaldhaka and the Mechi have their origin in the higher Himalayas and form antecedent drainage.¹² These rivers are perennial being fed by snow and heavy monsoon rain. The important rivers/streams of the region are;

2.3.1 The Tista

Tista is the most important river. It rises in Pauhunri glacier near Dongkya La (7128m) in North Sikkim. The river enters Darjeeling hills in its central part separating it into two parts – eastern and western by a deep narrow gorge at Rangpo in Sikkim as soon as it meets Rangpo Chu at its junction with Great Rangit It exits hills at Sevok in Siliguri subdivision. The Rangit is the most important tributary of the Tista flowing in a southeasterly direction and meets on its right bank. The confluence of Tista and Rangit is distinct with two kinds of water with different velocity and turbidity, resting one above the other for a considerable distance. ‘The water of Tista and Rangit are remarkably different. The former is cold, muddy and sea green in colour while the latter is warm, clear and deep green’.¹³ This river with deeply dissected topography and gorge formed in gneisses and granites shows that the river must have passed through several phases of ‘cycle of erosion’.¹⁴ The rejuvenation of the river can also be seen on the basis of its broader valley in the upstream and much narrower valley in the downstream at Sevok where it enters the plain.

The principal tributaries of the Tista are the Rangpu and the Relli on the left bank and the Great Rangit, the Riyang and the Sivok on the right bank. The river has formed deep steep gorge that has dense forest. The current of the river is very swift. Its course is interrupted by a large number of rapids.

¹² The term ‘Mahananda’ is a Bengali corruption of the Lepcha name ‘Mahaldi’. Its local name in the hills is Mahanadi. The same river becomes Mahananda when it enters the plain. Hence, the term ‘Mahanadi’ is preferred and used in the present study henceforth. For further information refer to LSS O’Malley *Bengal District Gazetteers*, Darjeeling, 1907, p.8.

¹³ Hooker, J.D. 1854. *Himalayan Journals or Notes of a Naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasia Mountains*, Ward, Lock and Co. Ltd., London, p. 54.

2.3.3 The Mechi

It marks the Indo-Nepal boundary on the west, rises at an altitude of 1905 m south of Rangbang spur of the Singalila Range. It flows from north to south. As soon as it reaches Terai, it gets divided into several channels and finally meets the Mahanadi. It forms deep gorge throughout hilly course. The main tributaries of the Mechi are the Kiyang Khola and the Mana Jhora.

2.3.4 The Mahanadi

It rises near the Mahaldiram dome, east of Kurseong collects water from many tributaries while descending from the Latpanchar dome. It is not a snow fed river. The process of erosion is intense here. Various rain-washed and gullied surfaces are prominent on the valley sides. Shiv Khola is the only important right bank tributary of the Mahanadi. It rises from the Paglajhora Reserved Forest on the Sinchel-Mahaldiram-Tindharia spur. Besides, there are other small tributaries like, the Babul Khola, the Mana Khola, the Jhoti Khola, the Jogi Khola, the Gumla Khola and the Goramara Khola. Most of the tributaries meet the main river in the hill section, a few join in the plain.

2.3.4 The Balasan

The River Balasan originates from Lepchajagat peak at a height of 2216m, on Ghoom Saddle. The basin has been drastically deforested resulting in loosening of soil and in some cases disturbs the ecological set up also. The river meets the Mahanadi after traversing 48.6km southeastward.¹⁵ This river basin receives less rain than that in Mahanadi valley. The railway track and road to Darjeeling runs the interfluvium between the Mahanadi and the Balasan. The important left bank tributaries of the Balasan are the Bhim Khola, the Rangmuk Nala, the Jor Khola, the Pachim Nala, and the Rinchingtong Khola. All these rise from Sinchel spur south of Ghoom Saddle, form gorges in a few tea gardens and dense forest. Others rivers like the Rungsum Khola, the Rakti Khola and the Rohini Khola rise from below Kurseong.

¹⁴ Mukhopadhyay, S.C. 1982. *The Tista Basin: A Study of Fluvial Geomorphology*, K.P. Bagchi and Company, Calcutt, p. 5.

2.3.5 The Jaldhaka

The Jaldhaka River forms the eastern boundary of the region and separates it from Bhutan. It enters the area through Bhutan at very low altitude of 615.69m. The point of confluence with Ni Chu makes the northern boundary of the region. This tributary stream originates in the Richi La dome of Kalimpong hills. Pareng Khola, Jhalung Khola and Narkral Khola are the right bank tributaries of Jaldhaka which originate and run through Kalimpong hills. Assam Khola, Binda Khola, Sati Khola, Sipchu Jhora and Jiti stream are among the left bank tributaries. The basin has a dendritic pattern of drainage.

Apart from the above main streams there are other streams, which are also important in shaping the natural landscape of Darjeeling hills. Among these, the Chel, the Lish, the Gish and the Git are important streams. All these remain independent in the hills and flows in southerly direction forming deep gorges in the hills and terraces in the plains before they meet the trunk rivers to Tista and Jaldhaka.

Besides, there are number of springs and rivulets in the hills. Some of these supply water to the households. Example can be cited of Sinchel Lake and Delo supplying water to Darjeeling and Kalimpong towns respectively. There are some other lakes in the area. Important among them are Mirik, an artificial lake and Sukhiapokri, a natural lake.

The water resources from these rivers in the lower hills of the district have enough potential for the generation of hydroelectric power. Jaldhaka Hydel Project is the biggest in the region supplying power to the hills and the *duars*. Currently, hydroelectric project is under construction on River Tista near Sevok.¹⁶ However, scarcity of drinking water in the hill top towns is a common problem except for the rainy season. The present state of drinking water supply is not sufficient enough to meet the needs of the people.

¹⁵ Basu, S.R. and De, S.K., "Soil Loss and its Conservation in the Balasan Basin, Darjeeling Himalaya", *Geographical Review of India*, Vol. 60, No. 3, September, 1998, pp. 294-309.

¹⁶ The work on Teesta Low Dam Hydroelectric Project – Stage III and Stage IV at 27th Mile and near Coronation Bridge respectively have already been started. It has a plan of generating 510 MW of electricity that would serve the nearby town of Siliguri and the unelectrified villages in the hills. The other Stages of I, II and V fall under Sikkim.

2.4 Climatic Characteristics

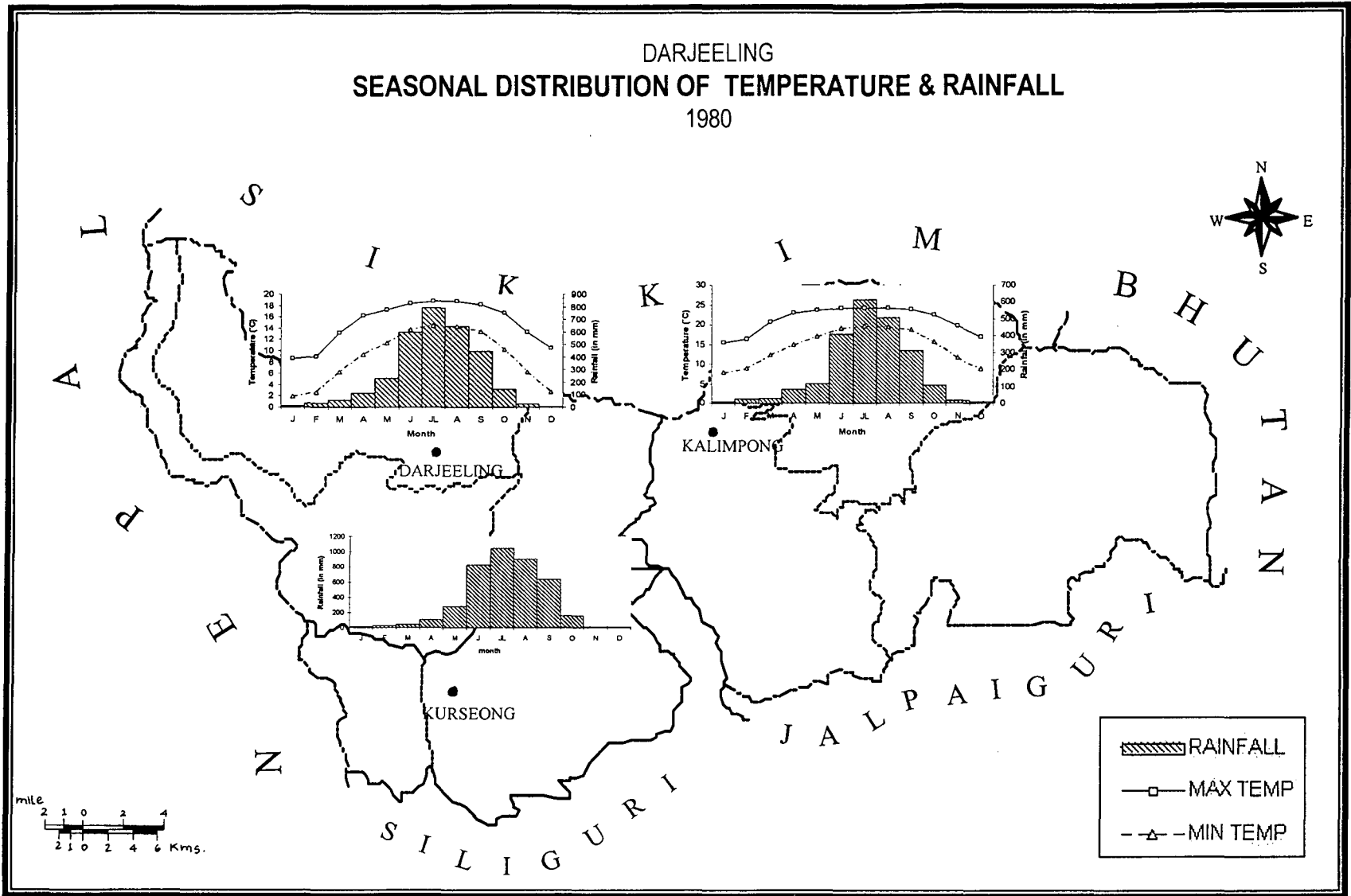
Due to variation in altitude and differences in aspects, the climate within the hills varies greatly. According to Koeppen's climatic classification, the hill region falls under Dfc type of climate. Here the winters are cold, humid and long, while the summers are wet and short. In general, the area enjoys pleasant summer and heavy rain in rainy season brought by southwest monsoon. Snow falls at higher altitudes during winter. Both spring and autumn with pleasant climatic condition and clear weather are ideal for tourism to visit the region.

Temperature in Darjeeling hills start rising and flower blooms during early spring. It is dry and sky remains clear. Summer is short-lived, spanning the months of April and May, often accompanied by light showers of rain, which gets intensified at the end of May or early June. From June to August Darjeeling is exposed to full force of rain. The humidity increases; the ground surface is covered with low clouds and fog. The area remains very damp in this period. Maximum rain falls in July (792 mm). Rains start diminishing with the beginning of September and ceases altogether by the first week of October. Winter in Darjeeling is severe. It is accompanied by frost in the beginning of December. January is the coldest month (5.2°C). Temperature sometimes reaches below freezing point at higher altitude. The air is dry and is very cold. Nights remain very clear and chilly. Sometime there is winter rain in December-January which further intensifies the cold. Frost is common during winter.

2.4.1 Temperature and Rainfall Characteristics

The variations in climate in Darjeeling are strongly correlated to the variation in altitude. Thus, in the Himalayan region, we find striking changes in temperature within very short horizontal distance. The places of lower altitudes in Darjeeling hills are warmer than those of higher altitudes. Moreover, it has a diverse physical landscape of very deep dales up to 300m heights to very high ridges of 3000m and above. Necessarily, there is great contrast in temperature between the places. Kalimpong located at lower altitude than Darjeeling records mean annual temperature of 17.8°C while it is 11.9°C in

DARJEELING
SEASONAL DISTRIBUTION OF TEMPERATURE & RAINFALL
 1980



Map II(4)

Darjeeling¹⁷. The maximum and minimum temperature in Darjeeling recorded are 18.8°C and 1.9°C in July and in January respectively whereas in Kalimpong maximum temperature goes upto 24.2°C in June and falls to 7.9°C in January respectively. On account of hilly nature of terrain, there is sharp contrast in the amount of rainfall even within the region. These variations in temperature and rainfall are shown in Map II (4).

The hills of Darjeeling acts as a natural barrier to south –west monsoon blowing from Bay of Bengal causing heavy rain during June- July. The rainfall data of various stations depict that intensity of rain varies with varying location of places.¹⁸ Among the three hill towns, the heaviest rain falls at Kurseong (4052.3mm annually) and lowest is at Kalimpong (2254mm). Darjeeling recorded a rainfall of 3092.4mm. Places like Mungpo at 1424.24m and Pedong at 1818.18m also receive relatively higher rain (3213.6mm and 2623.5mm respectively). Other elements of weather like thunder, hail, squall and fog are also common in the region. July is the rainiest month. There are occasional winter showers also.

With the above temperature and rainfall characteristics it is clear that there is very cold winter and warm summer in Darjeeling hills. Since most of the rainfalls during monsoon, and a few in winter the region remains dry and pleasant during early summer and autumn. At some occasions during monsoon, the intensity of rain reaches so high that it causes landslides in the hills and flood in the foothills. As most of the rain is concentrated in monsoon which flows through the slopes as surface runoff, there is scarcity of drinking water in the hills during the dry seasons. Use of ground water is practically not possible in the hills.

2.4 Natural Vegetation

Unless one understands the ecology and biodiversity of hill regions and the role of forests, one will get nowhere in formulating policies for development.¹⁹ Forests in Darjeeling cover a large portion amounting to 35.19 per cent of total area and play an

¹⁷ See Appendix I

¹⁸ See Appendix II

¹⁹ Bose, Ashish, "Ecology, Economy and Society in Himalayan Village", *EPW*, July 29, 2002, pp. 2707 – 2079.

important role in the economy of Darjeeling. The total area covered by forests in Darjeeling is about 1150 sq. km., out of which 330sq. km. is completely inaccessible.

The vegetation in Darjeeling hills varies with altitude. As we climb up from plains near Siliguri “the ascent to Punkhabaree is sudden and steep, and accompanied with a change in soil and vegetation”.²⁰ There is tropical broad leaved vegetation in the lower altitudes and in the foothills. It is replaced by temperate varieties of needle shaped vegetation in the higher altitudes. Broadly, the forests of Darjeeling hills can be classified into two types: (i) Tropical forest of lower hills and (ii) Temperate forests of higher hills. However, the Directorate of Forest has classified the forests of Darjeeling into three broad categories based on elevation –

1. The Upper Hill Forest (2400 – 1400 meters)
2. The Middle Hill Forest (1400 – 800 meters)
3. The Lower Hill Forest (<800 meters)

1. The Upper Hill Forest

Wet temperate forest covers the higher parts of hills. Pine is the most important species of this forest. The luxuriant community of the upper hill Forests have developed layer structure of vertical stratification of three types (i) tall canopy layer, (ii) the middle layer of shrubs and (iii) the ground layer of grasses and herbaceous plants. The principal species of tall trees found here are Pipli, Utis (*Alnus nepalensis*), Rhododendron, Saur (*Betula alnoides*), Katus (*Castanopsis tribuloides*), Kapasi (*Acer cambellii*), Mauwa (*Engelhardtia spicata*), Khanakpak, Buk (*Quercus lamellose*), Phalat (*Q. limeata*), Malata (*Macaranga pustulata*), Sinloli, Arkaula, Tarsing, Phalane (*Litsaea enlongata*), Chilauni (*Schima wallichii*), Kharani (*Symplocos spp.*), etc. Moreover, various species of some important local families are also found. These include Musure Katus (*Castanopsis tribuloides*), Sungre Katus (*Q. Bachyphylla*), etc. of Katus family, Lepch Kawla, Lali Kawla (*Machilusodoratissima*), Chiple Kawla (*Machilus gammiena*) of Kawla family and Champ (*Michelia excelsa*), Tite Champ (*Alcimandre cathcartii*), Hill Champ (*Michelia doltsopa*), Ghoge Champ (*Michelia champbellii*), etc. of Champ family. Of the species of medium height Jhingani (*Eurya japonica*), Chuletro, Basak, etc. are common. The ground

²⁰J.D. Hooker, *op.cit.*, p.71.

layer undergrowth are dense and contains many nettles, raspberries, bamboo, kibu (*Strobilanthes spp.*), pareng bamboo (*Arundinaria aristata*), maling bamboo (*A. racemosa*) and various types of ferns are also common.²¹ Lichens and mosses cover the trunk and branches of trees.

Besides, there are various types of exotic flora, which have been introduced here. Among them the most important is Dhupi (*Criptomeria japonica*), which was imported from Japan and introduced in the late 19th Century.²² Other exotic plants are eucalyptus (*Cedrus deodara*), Cupressus cashmiriana and others. Plantations of trees in this zone are extensive.

2. The Middle Hill Forest

It is a dense forest of magnificent trees rich in its florist composition. The Middle Hill forest is a type of sub-tropical wet hill forest. The commonly found species are Mauwa, Chilouni, Utis, Okhar, birch or Saur, Lali Kawla, Lepcha Kawla, Chiple Kawla (*Machilus Gammieana*), Pipli (*Bucklandia Populnea*), Angare (*Phoebe spp.*), Lekh Toon (*Cadrela febrifuge*), certain species of Champ, Oaks (*Quercus*), Musre Katus, Dhalne Katus (*Castanopsis indica*), Buk, Arkaula, sungre, Malata (*Macaranga pustulata*), Siris, Hill Champ, Patpate (*Meliosma simplicifolia*), Bepari (*Ostodes paniculata*), Bilaune, Jhingni, Khanium and Kutmero.²³ The undergrowth consists of numerous herbs and shrubs, such as, *Erva japonica*, *Symplocos theifolia*, *Meliossa wallichii*, *Rubus spp.*, *Swerita chirata*, *arundinaria maling*, *Astelba rivularis*, *Daphne canabins* and *Viburnus strombilanthus*.²⁴ Climbers and epiphyte are common here. Choya bans and ferns occur extensively.

Plantations of trees consist mainly of Dhupi, Panisaj, Toon, Pipli and Okhar. Generally, the Middle Hill forests are closed evergreen forests, the trees being mostly short boled and branchy and attain considerable girth. These forests occur on Darjeeling

²¹ Directorate of Forest, Sixth Working Plan for the Forest Kurseong Subdivision, Hill Circle, West Bengal, 1997-98 to 2017-18, Vol. 1, p. 28.

²² A.K. Banerji, *op. cit.*, p. 60

²³ Directorate of Forest, *op. cit.* p. 30.

²⁴ A.K. Banerji, *op. cit.* pp.58-60.

gneiss and Daling series of slates, quartzite and schist of rich sandy loam soil.²⁵ The trees are of medium height, but some can grow up to a height of 25m high.

3. The Lower Hill Forest

It is a mixed forest zone of both deciduous and evergreen species. This forest can further be grouped into three categories²⁶-

- a) Sal Forest
- b) Dry-Mixed Forest
- c) Wet-Mixed Forest

Sal (*Sorea robusta*) is an important species grown at the lower altitudes having well drained soils and are confined mainly in Damuda and Daling series. It is a hardwood forest and has a great commercial value. Other important species found here are Pacca Saj (*Terminalia tomentosa*), Chikrassi (*Chukrasia tabularis*), Chilauni, Toon, Panisaj (*Terminalia myriocarpa*), Simul (*Salmalia Malbarica*), Lampati (*Duabang sonneratioides*), Gokul (*Ailanthus grandis*), Mandani (*Acracarpus fraxinifolius*), Mainakath (*Tetrameles nudiflora*), Karam (*Adina cordifolia*), Harra (*Terminalia chebula*), Barra, Amla (*Pterospermum acerifolium*), Parari, etc.

Dry-Mixed forests often occur over extensive areas. The principal species include, Paccasaj, Bohera, Sidha, Gamri, Toon, Ritha, Mauwa, Moina, Mandani, Chiwri, Katu and Timur. The moist-mixed forests are found in small patches of moist areas in the valleys, water channels and damper areas. The principal species found here include Lampate, Panisaj, Mandani, Gokul, Am, Malagiri, Pahenle, Angare, Sinkoli and Borhar. The undergrowth is sparse in Sal Forest, varied in Dry Mixed forests and very dense in the Wet Mixed forests. The undergrowth includes Bepari, Patpate, Hatipaile, Chuletro, Timur, bamboo, canes and palms. The ground vegetation is composed mainly of Hurumpa, Galeni, Morangey, Zeneo, Kamipat, Gagletto, Kilo, Amliso and Dhotisara. Moreover, climbers (*lahara*) abound here. Among them the most common are Gurio lahara (*Zinospora cordifolia*), Debre Lahara, Acacia Pinnali, Bhorla, Karkus, Caoh and Golaneha. Plantations in lower hill are mainly of the species of Sal, Teak, Panisaj,

²⁵ *Ibid.* p.59.

Chikrasi, Toon and Lampate. Besides, all these valuable trees, the forests are rich in various medicinal plants and exotic varieties of Himalayan Orchids that grow in a zone of 1000-2000 meters height.

There is no doubt that forests in India are getting degraded especially in the hills and so is the case with Darjeeling hills. The gradual deforestation started mainly with the commercial exploitation of forests and partly with the encroachment on forestlands by people due to growing population. Darjeeling was almost entirely covered by forests with only about hundred population when it was received from Sikkim by the Britishers in 1835.²⁷ But now forests cover is only about 35% of the total land. Destruction of forest may be attributed to unplanned development like the opening up of tea gardens, new tourist spots, and construction of roads. The environmental degradation in the hills has created many ecological problems. The destruction or degradation of the forest cover here like other hills, is directly responsible for many choked watersheds from which unchecked mountain streams flow down slope causing flash floods downstream and huge soil erosion in the upstream.²⁸

The soil erosion in Darjeeling is more pronounced during monsoon when streams attain highest discharge and flows with tremendous velocity. The millions of cubic feet of soil gets eroded annually. Some deforestation has also occurred due to government plans of transforming part of forest into the tourist attraction centers. The opening up of new tourist centers has threatened the plant species and has adversely affected animal life. The turning up of Sukhiapokhri forest, the habitats for rare amphibian, Salamander, into a tourist spot and setting up of trekkers' halt at the Singalila National Park near Sandakphu-Phalut are classic examples of this.^{29, 30} Local people and environmentalists are now trying to resist the State Forest Division's attempts to fall trees for the construction of residential quarters in the region. The Park is a home to a variety of animals including species of Red Panda. This type of development is harmful to the environment as well as

²⁶ Directorate of Forest, *op.cit.* p. 28.

²⁷ Dasgupta, M. 1986. "Forest Management in Darjeeling Hill Areas from British Raj to Swaraj", in Sarkar and Lama ed., *The Eastern Himalayas: Environment and Economy*, Atma Ram and sons, Delhi, pp.136 – 168.

²⁸ Kalapeshi, D.M. 1980. "Understanding Himalayan Ecology" in Tejvir, S (eds.) *Studies in Himalayan Ecology and Development Studies*, The English Book Store, New Delhi, pp.10-26.

²⁹ DGHC Plan Threatening Salamander's Habitat, *The Statesman*, 2:7:99.

³⁰ Villagers to Resist Deforestation in Singalila National Park Area, *The Statesman*, 7:1:2000.

to the society. Hence there should be proper and complete planning on the part of the government to bring overall development in the hills.

2.6 Soils

The soil formation and soil profile development is very closely connected with the geomorphologic processes of erosion such as fluvial, glacial, aeolian, etc. The soils in Darjeeling have been formed under the influence of micro variations in geology, vegetation as well as of climate. The soils show a wide variety in terms of slope, degree of erosion, stoniness and rockiness ranging from red-clay and sandy loam to gray-brown forest soil. The forest soils are rich in organic matter and are developed under thick layer of humus, which absorbs rainwater. The red earth and yellow loams of the foothills are residual in character and are much leached than the brown forest soil.³¹ The people of the region has divided the soils of Darjeeling into three types – black, red and white, in a descending order of fertility. Of them, the black soil is suitable for dry crops like *makai* (maize) and *kodo* (millet). Actually, the fertility of soil depends much on the geological formation of the underlying rocks from which the soil is derived. The greater portion of hill area lies on Darjeeling gneiss, which commonly gets decomposed into a stiff reddish loam but may also produce almost pure sand or stiff red clay. The alluvial soil in the hills is completely absent and the soil in most parts is residual except in a small section in the southeastern parts where alluvial soil is present. Broadly, the soil on the Siwaliks is pale yellow and coarse in texture, on the Daling dark gray, sometimes plastic, shallow and sticky. Soil in the hills is highly leached, especially at lower altitude. Generally the soil throughout the hills is deficient in lime.

The soils of the region are eminently suitable for tea, cardamom, citrus fruits, and cereals like maize, millet and few other crops. The podzolic soil in the hills is best suited for cultivation of tea.³² The hill soils are, however, associated with various problems, which are discussed later on.

³¹ S. Chakraborty, *op. cit.* p.11.

2.7 Environmental Constraints in the Development of Darjeeling Hills

According to the Planning Commission the hill areas are defined as the areas having a height of more than 600 meters above mean sea level.³³ Each hill region has its own set of problems and potentials due to its typical land setting. However, there are some common problems faced by all hill regions like soil erosion, siltation in the downstream areas, indiscriminate felling of trees in the catchment's areas, unplanned agricultural practices, small holding size, less diversified economy, large area of uncultivable wasteland, inaccessibility of certain areas and lack of consciousness among people for environmental degradation and conservation due to their limited economic and cultural activities. The most crucial environmental problems of the hills are deforestation and soil erosion, both leading to the drying up of perennial sources of water and small springs.

Most of the area is under tremendous pressure of economic exploitation and urbanization but the basic economic activities remain the same. That is, agriculture still dominates as the main occupation of the hill people.³⁴ Farming in the hill is done in intensive manner. The hill slopes are cut into terraces, called 'Gara' in Darjeeling hills, to restrict huge soil loss. There is least mechanization of farms and most of the work is done with physical labour. Hills as the natural biosphere reserves need special attention. Economic Development and sound environmental management are complementary aspects of the same agenda. Without adequate environmental protection, development will be undermined; without development, environment protection will fail.³⁵ The Planning Commission of India is aware of the problems and has been giving attention since the Fourth Five Year Plan. With the introduction of Hill Area Development Programme in the Fifth Five Year Plan the work has been further accelerated, but the problem still continues. The following table gives us idea about how in spite of implementation of major programmes and plans our natural environment acts as major constraints in the development of the hills –

³² *Ibid.* p.11.

³³ Kulshrestha, S.K., "Plight of Hill Areas", *Spatio-Economic Development Record*, Vol. 1, No. 1, March-April, 1994, p.3.

³⁴ Kulshrestha, S.K., "Plight of Hill Areas", *Spatio-Economic Development Record*, Vol. 1, No. 1, March-April, 1994, p.3.

Table 2.2: Typology of major constraint factors and their impact on developmental activities

<i>FACTOR CAUSE</i>	<i>IMPACT</i>
<p>1. High altitude and rugged relief</p> <ul style="list-style-type: none"> ●Steep slopes ●Loose materials ●Erosion and mass wasting 	<ul style="list-style-type: none"> ●Isolation ●Restriction on mobility and transportation ●Land degradation, environmental hazards, catastrophe ●Reduction of agricultural land and restricted land use
<p>2. Adverse climatic condition</p> <ul style="list-style-type: none"> ●Low temperature ●Reduction of atmospheric pressure and oxygen supply ●Low temperature an excessive humidity 	<ul style="list-style-type: none"> ●Reduction of working capacity and human energy ●Impairment of health ●Selective crops can be grown
<p>3. Adverse soil condition</p> <ul style="list-style-type: none"> ●Poor soils ●Heavy soil loss by natural process <ul style="list-style-type: none"> ●Shallow soils ●Soil degradation 	<ul style="list-style-type: none"> ●Weakening of environmental conditions, mass wasting ●Reduction of agricultural potential
<p>4. Adverse vegetation condition</p> <ul style="list-style-type: none"> ●loss of vegetation by illegal felling, lumbering, forest fire etc. ●Dense forest cover in some areas 	<ul style="list-style-type: none"> ●Increased soil erosion and accelerated natural hazards of landslides, mass wasting, slope failure, etc. <ul style="list-style-type: none"> ●Shortage of fuel wood ●Change in microclimate, geo-hydrology and soil condition ●Reduction of mobility and transportation through forested land

³⁵ World Bank. 1992. *World Development Report: Development and the Environment*, Oxford University Press, New York, p. 25.

<p>5. Natural hazards and catastrophes</p> <ul style="list-style-type: none"> ●Landslides, rock fall and mudflow, earthquakes 	<ul style="list-style-type: none"> ●Destruction of wealth and property ●Loss of life ●Damage to transport and communication lines and other infrastructure
---	---

Based on: Stadel, C. (1991), p. 217-219.

The hill area of Darjeeling-Sikkim Himalayas is famous for scenic beauty and production of world famous tea. As in other parts of the Himalayas, this area has also seen rapid economic and social change, resource conflicts and mounting pressures on natural ecosystems. Population pressure and unhealthy development policies are not the only issues, however; isolation from the productive plains because of its hilly terrain is also a major concern. The function of mountain wall in intercepting monsoon clouds thereby causing heavy rainfall is quite clear. But it has also obstructed cultural and commercial movements. Construction of roads and railways is not viable everywhere in the hills. 'Least cost to builders' and 'least cost to users' of transport networks are of greater difference and does not compromise easily so that there are only few motor able roads in Darjeeling hills that connect towns and a few villages. Apart from these, wanton destruction of forests and intensive farming system has caused huge soil loss through landslips, slope failure and soil erosion during monsoon. Heavy rain during monsoon causes heavy damage to transportation and communication system and sometime in loss of property.

From the above discussion it is revealed that the structural and lithological characteristics along with the climatic variations has given rise to a multiple types of landscape in Darjeeling hills. Some of the important geomorphic features like deep narrow gorge, antecedent drainage in the upstream and polycyclic landscape in the downstream are well preserved in the main valley of Tista. The diverse physiography has important bearing on climate as well as on the development of the region. The lower Himalayan zone of the region consists of deformed rocks. Degradational processes has been very active here. Recurrent landslides, river rejuvenation and several small faults and folds in the region show marked imprints of tectonic and neo-tectonic activities. Moreover, the region is very prone to soil erosion and does not get soil deposition. It renders some valuable lands totally unproductive for cultivation.

CHAPTER 3

DEMOGRAPHIC AND SOCIAL ASPECTS

After knowing the environmental conditions of Darjeeling hills it is now important to understand the demographic parameters. The state of environment, levels of use of natural resources and the pace and quality of economic and social development are interrelated with population. Population changes in Darjeeling in the past due to natural increase and in-migration especially with the introduction of tea plantation has resulted in great instability in the land-man ratio. This has also caused some present day socio-economic problems. It is believed that high rate of population growth obstructs the social and economic development.¹ Nevertheless, the initial development in the hill region had started only after the covering in of settlements and the growth of population through in-migration from adjoining places. The population growth and development show casual linkages in both directions in the hills. Initially the development in Darjeeling hills started with the growth of population. But at present the overpopulation has become a serious problem.

As long as the population in Darjeeling grew to the extent that there were reasonable quality land resources available for conversion from forest or grassland into arable land for tea estates and for agriculture. It resulted in in-migration from all adjoining lands. Moreover, with the improved education and health care system, mortality was reduced substantially. Given the slow economic transformation process in the hills, the overwhelming majority of the increase in population had to be accommodated within agricultural growth. About 76.29 per cent of the people were living in rural areas in 1991 and their primary occupation was agriculture. Population, in its various aspects, has two-fold relevance to development: it is integral part of the resource base of the region for development and is in itself, an outcome of development. Development can never be thought of independent of man.

It needs to be remembered that the interrelationship between man and development is not a static one. It is a dynamic relationship both in temporal and spatial terms. The changing numbers and characteristics of population through time and the spatial

¹ Yadava, S and Yadava, K.N.S., "Social, Economic, and Environmental Development and Population Growth: Prospects and Consequences", *Indian Journal of Social Development*, Vol. 2, 2002, pp. 1-16.

variations therein are vital to the whole process of socio-economic development. It is therefore, important to know the level of social development and its impact on economic aspects. Thus the following aspects of population require a closer scrutiny;

1. Population distribution and growth – to know the nature of increase in population and its pressure on land.
2. Sex ratio – to know the state of male-female equality/inequality of social treatment as well as the trends of migration.
3. Population composition in terms of social and ethnic composition.
4. Literacy – for understanding the quality of population.
5. Urbanization – to know the degree of transformation of countryside in social as well as economic terms.

3.1 Population Distribution and Density

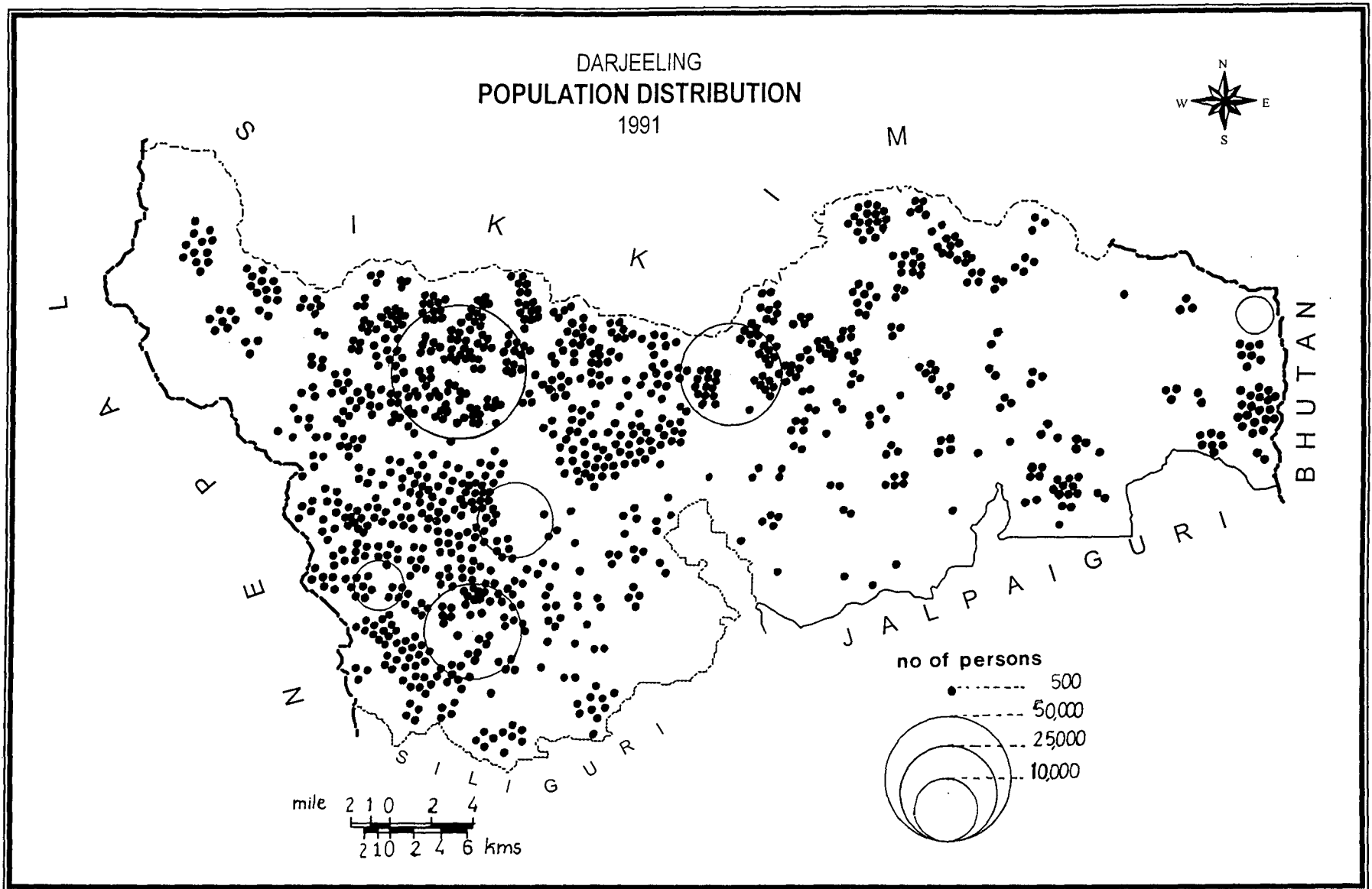
Darjeeling hills accounted 52.68 per cent of the district population and occupied 67.69 per cent of the total area in 1991. Thus compared to the density of the district with 413 persons per sq. km. the hill is less densely populated having 321 persons/sq. km. The density of population for the district rose to 510 persons per sq. km. in 2001. It being a hill region, the present density of population is very high as compared to other hill regions of the Himalayas (Table 3.1).

Table – 3.1

Himalaya – Density of Population 2001

	Population	Area (sq.km.)	Density
Jammu & Kashmir	10069917	101387	99
Himachal Pradesh	6077248	55673	109
Uttaranchal	8479562	53483	159
Sikkim	540493	7096	76
Arunachal Pradesh	1091117	83743	13
Nagaland	1988636	16579	120
Manipur	2388634	22327	107
Mizoram	891058	21081	42
Tripura	3191168	10486	304
Meghalaya	2306069	22429	103
Assam (only hill dists.)	998509	15322	65
Darjeeling (incl. Siliguri)	1605900	3149	510

Source: Census of India, Provisional Population Totals, 2001



Map III(1)

Density of population largely depends on the history of migration and the carrying capacity of the place. Darjeeling hills had an average density of 259 persons per sq. km. in 1981. The sharp difference between Darjeeling and Kalimpong is noticed at subdivision level. It is because, among the three subdivisions, the former had an oldest settlement history and the latter has relatively recent one. The large scale settlements in Darjeeling came up in the middle of the 19th Century while these evolved the later half of the same century and the beginning of nineteenth century in Kalimpong. It can also be stated that the settlements in Kalimpong came up mainly after the Bhutan War of 1865, till then it was a part of Bhutan with a small population. Other factors like the tea industry on which the growth of the district mainly depended passed through a serious crisis. Prices fell greatly between 1865 and 1901. Many of the gardens started running in loss and some of these were closed and some other reduced their labour force. These ousted people started settling in Kalimpong where vast forest and wastelands were available, which were brought under plough.² Among the three subdivisions Kurseong has highest density of population on account of its high growth in population. The urban growth in the subdivision was very high because of the new town, Mirik, which obviously came up with many new government offices and residential houses. This attracted people from other parts of the region. Map III(1) shows villages with high density in areas nearby towns, tea gardens and at those points of junction where there is better connectivity. Therefore there is greater concentration of population in Darjeeling and Kurseong Subdivisions. Also villages with hats (weekly/bi-weekly markets) are also found with greater concentration of population. Villages with low density are found in Khasmahal and forest villages. These are backward areas with low connectivity and low infrastructure development. It can be seen in Kalimpong which is dominated by Khasmahals and forest settlements.

From the above discussion it can be concluded that there are uneven distribution of population in Darjeeling hills. Most of the population of the hills is concentrated in Darjeeling and Kurseong subdivisions. Population in Kalimpong subdivision is concentrated only in a few villages. Most of the villages in this subdivision show a few

² Census of India, 1961, Vol. 16, Part XI, District Census Handbook, Darjeeling, pp. 22- 30.

population. It is also noticed that a few population is settled in the foothills of the region as most of these areas are covered by forests.

3.2 Population Growth

Population figures of Darjeeling are known since 1835 when it was first visited by the British. It was reported to be having only 100 population mostly the Lepchas, the local inhabitants of the region. With the starting of tea estates and construction of roads and railways, the people from the neighbouring territory got attracted and were encouraged by Dr. Campbell (The Superintendent of Darjeeling) to settle here. With these efforts, the population in the area rose to 10,000 persons in 1850 to 22,000 persons in 1865.³ Most of them which migrated to the new land were Nepalis from Nepal who shares a common boundary with Darjeeling. The present day Kalimpong, as stated earlier, was under Bhutan till 1865. It became part of India only after Indo-Bhutanese war of 1864 and was included in Darjeeling District in 1866. Thus, it was only in 1866 that the present district of Darjeeling took this shape and size. The population of Kalimpong was reported to be 3,536 persons at that time.⁴ The present Siliguri subdivision largely constituting of plain area, was annexed by British in 1850, rather forcefully as a punitive measure for imprisoning Campbell and Hooker imprisoned by *Namgyal* Dewan, the brother-in-law of the then *Chogyal* of Sikkim. Until 1947 Darjeeling was administratively not fully integrated with West Bengal though politically it was apart of it since 1866 itself.⁵

The addition of Kalimpong and Siliguri to Darjeeling district resulted in a sudden rise of population of 94,412 persons in 1871-72. It was generally believed the figure was not accurate and the population was enumerated to be 155,179 persons in the census of 1881.

Darjeeling hills had a population of 684,818 persons in 1991, of which 351,881 are males and 332,937 were females. Total population of the district including plain area of Siliguri was 1,229,919 persons. So, only 52.62 per cent of population was settled in the

³ O'Malley, L.S.S. 1907. *Bengal District Gazetteers*, Darjeeling, Logos Press, New Delhi, p. 35.

⁴ Subba, T.B.1992. *Ethnicity, State and Development: A Case Study of Gorkhaland Movement in Darjeeling*, Har-Anand Publications, New Delhi, p. 36.

hill region of the district. Population of the district increased to 1605900 persons in 2001 registering an increase of 23.54 per cent since. The population hill area has been estimated to be 850,558 persons in 2001.

Table – 3.1
Darjeeling - Percent share of Hill Population 1901- 2001

Year	District Population	Hill Population	Percentage share
1901	265780	178651	67.22
1911	279899	193304	69.06
1921	294237	206961	70.34
1931	332061	239377	72.09
1941	390899	286355	73.26
1951	459617	328785	71.53
1961	624640	404792	64.80
1971	781777	479978	61.40
1981	1024269	551374	53.83
1991	1299919	684818	52.68
2001	1605900	850558*	52.96*

Source: Taken and computed from District Census Handbook, Darjeeling, 1961 – 1991 and Provisional Population Totals, West Bengal, Census of India, 2001.

*As projected using exponential growth.⁶

Table 3.1 and 3.2 show an increasing trend of hill population till 1941. It was 67.22 per cent in 1901, which increased to 73.26 per cent in 1941. Soon after the independence the proportion of hill population started decreasing from 71.53 percent in 1951 to 52.68 percent in 1991 and 52.96 per cent in 2001. The probable reason for the increase of population till independence may be expanding tea related activities in the hills which led to in-migration. So, the people from Nepal and Sikkim were migrating and to work and settle here. This continuous in-migration of people from outside resulted in higher growth. After the independence some restrictions were imposed for free movement across the border. The other reason was settling down Bangladeshis refugees in the plain parts of Darjeeling and in other districts adjoining to it. Therefore, the rate of

⁵ *Ibid*, p.3.

⁶ Population is projected as:

$$P_t = P_o \cdot e^{rt}$$

Where, P_t = Projected Population (2001)

P_o = Population of 1991

r = Rate of Growth (1981-91)

t = Time.

growth of plain population exceeded the rate that of the hill people and the share of hill population started showing decreasing trend.

Table – 3.3
Darjeeling – Intercensal Growth of Population 1901 - 1991

Year	HILL AREA			DISTRICT
	Total Population	Intetr-Censal growth	Percent growth	Percent growth
1901	178651			
1911	193304	14653	8.20	5.31
1921	206961	13657	7.07	5.21
1931	239377	32416	15.66	12.85
1941	286355	46978	19.63	17.72
1951	328785	42430	14.82	17.58
1961	404792	76007	23.12	35.9
1971	479978	75186	18.57	25.16
1981	551374	71396	14.87	30.02
1991	684848	133444	24.20	26.91

Source: Census of India, 1961 - 1991

Table 3.3 shows the low growth rate of population till 1941. The growth population during 1901 was 8.2 per cent as compared to 5.31 per cent for district which was quite high. This was probably because of the continuous flow of migrants form outside due to expansion of agriculture in Kalimpong subdivision. The lowest and highest growth rate of 7.07 per cent and 24.20 per cent in the hill region was recorded in decades 1911-1921 and 1981-1991 respectively. Low growth of population during 1911-1921 can be attributed to spread of some epidemics. The state suffered a declined in population by 2.91 per cent while Darjeeling registered positive growth.⁷ It is clear from this that epidemics affected mostly the plains resulting in high death rate and some people might have migrated to the hills to seek refuge. This is supported by comparatively higher growth rate of the hills than the district as a whole in the decade.

The growth of population is also affected by some external factors. The political movement in Darjeeling which ended with signing up of Tripartite Accord in 1988 also caused some population fluctuations. The lower growth rate during 1961-71 and 1971-81 and high growth rate after the Accord during 1981-1991 are probably due to this political factor. The

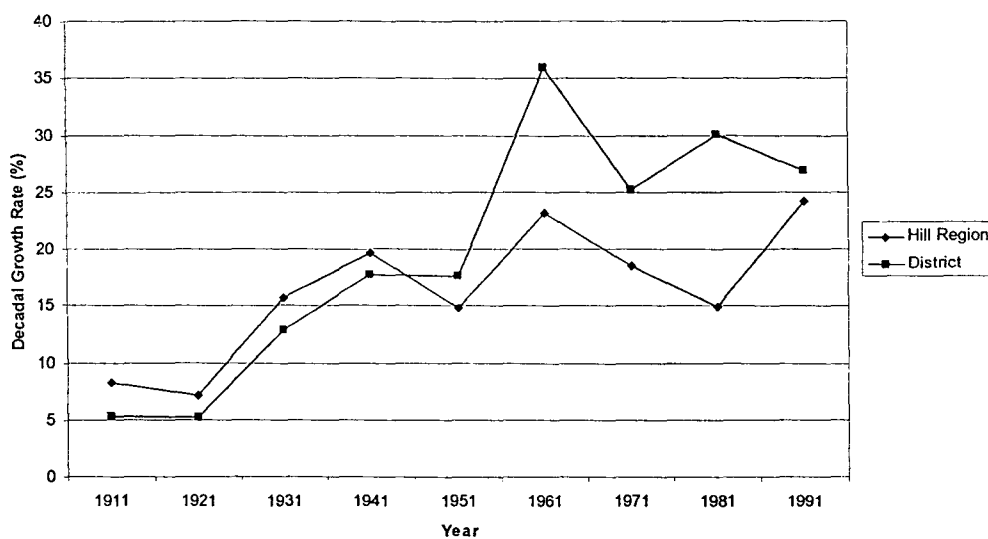
⁷ Census of India, , *op.cit.*, p. 22.

growth rate in the hills of only 14.87 per cent during 1971-81 compared to 30.02 per cent for the entire district may be attributed to out-migration due to political disturbances in the hills. After the Accord many people might have returned and causing higher growth during 1981-1991.

The decade of 1951-1961 also showed higher growth rate 23.12 per cent. This may be attributed to immigration of Tibetan refugees after the Chinese occupation of Tibet in 1959. Due to proximity of the region and similar environment, culture, religion and language, they have adopted the area in large numbers.⁸

The fig. III(1) does not show any clear trend but most of fluctuations both for the hills and as well as the district as a whole. However, there is some relationship in the fluctuations, if one is increasing the other is also increasing may be not at the same rate. Only the decades of 1971-1981 and 1981-1991 showed exceptions. In the decade 1971-1981 the growth rate for the hill region decreased from 18.57 per cent to 14.87 per cent whereas the district showed an increase during the same period. Again in decade 1981-1991 the hill region experienced increased growth whereas the district expressed decrease in the growth rate.

Fig.III(1): Darjeeling – Decadal Growth rate of Population 1901-1991



⁸ Subba, T.B. 1990. *Flight and Adaptations: Tibetan Refugees in the Darjeeling and Sikkim Himalaya*, Library of Tibetan Works and Archives, Dharamsala, p. 25.

Table 3.3 gives a broad idea about the available area and inhabited land. Out of the total, 95.59 percent area and 90.33 per cent villages were inhabited in 1981 including some forest settlements with small. Population increased in 1991 but the inhabited area decreased. Similarly, total villages as well as inhabited villages decreased. It is understood that many forest settlements with small population in 1981 were found uninhabited in 1991 probably because of political disturbances.

Table – 3.4
Darjeeling – Area and Inhabited Villages

	Total area (sq. km.)	Area inhabited (sq. km.)	Total number of village	Inhabited villages
1981	2417.3	2310.77	331	299
1991	2417.3	2131.48	328	284

Source: District Census Handbook, Darjeeling, 1981 and 1991

It was seen that near the urban centers are clustered with larger population. Besides, the villages with better connectivity also have larger size of population. For better understanding, the settlements including towns have been divided into three zones based on subdivisions.

Table – 3.5
Darjeeling – Population Characteristics and Growth 1981-1991

Year	Subdivision	Total	Rural	Urban	Male	Female
1981	Darjeeling	281346	223743	57603	144525	136821
	Kalimpong	158726	126308	32418	82707	76019
	Kurseong	111302	82256	29046	59324	51978
	Total	551374	432307	119067	286556	264818
1991	Darjeeling	347912	274850	73062	177601	170311
	Kalimpong	190266	148337	41929	98526	91740
	Kurseong	146640	99288	47352	75754	70886
	Total	684818	522475	162343	351881	332937
Decadal Growth (%)	Darjeeling	23.66	22.84	26.84	22.88	24.48
	Kalimpong	19.87	17.44	29.34	19.13	20.68
	Kurseong	31.75	20.71	63.02	27.70	36.78
	Hill Region	24.20	20.86	36.35	22.80	25.72

Source: Taken and Computed from District Census Handbook, Darjeeling, 1981 and 1991

The region was inhabited by 551,374 persons, of which in 1981. Of these 78.41 per cent population lived in rural areas and 21.59 per cent in urban centres. Males constituted 51.97 per cent of the total population with 48.03 per cent females in 1981. In the next ten years the population of hills rose by 133,444 persons i.e. an increase of 24.20 per cent. The

high rate of population growth can be attributed to urbanization. Highest growth in Kurseong subdivision which also had very high urbanization.⁹ The lowest per cent growth is found in Kalimpong subdivision which is mostly rural.

The growth rates of rural population is lower than the urban population. Those are 20.86 per cent and 36.35 per cent respectively. The highest growth of population in rural areas is observed in Darjeeling subdivision while it recorded lowest growth in urban population. The lowest growth in rural population is observed in Kalimpong. The highest growth of urban population in Kurseong (63.02%) is due to some places given the urban status like to Mirik in 1991. Moreover, this subdivision has the highest number of towns. Thus the sub-division is likely to attract larger number of people to work in manufacturing and service sectors. Females show higher rate compared to males. This is probably because of higher literacy and increasing consciousness of equal treatment of male-female in the society. Besides, some male selective out-migration also takes place from the region.

The village level data (Appendix III) reveals that tea gardens in general have larger size of population than the Khasmahals¹⁰. Thus the villages in Darjeeling which has main tea estates, have larger size of population than Kalimpong contributing of mainly Khasmahals. The largest village is Mangpu, a Cinchona Plantation with 11771 persons. Richilachak, a khasmahal with 3 persons is the smallest village situated in Kalimpong sub-division. The size of village is also influenced accessibility and the history of the settlement. Tea plantations in Darjeeling and Kurseong are better connected with motorable road and have larger population. Most of the villages in Kalimpong especially in its interior, are not accessible by pucca road and has small population size. Moreover, the plantation villages of Darjeeling and Kurseong sub-divisions have older history of in-migration and settlement. Although few Dukpas were found settled in

⁹ Urbanization Index is given in the section under 3.6 Urbanization.

¹⁰ Khasmahals are revenue villages with agricultural or fallow lands made up of scattered helmets in the hills.

Kalimpong prior to the British annexation of the area in 1865,¹¹ large scale migration and settlement took place only after 1866. The increase in population in Kalimpong is due to availability of good agricultural land.

Table – 3.6

Darjeeling – Population Growth Rate and No. of Settlements 1981 - 1991

Decadal Growth Rate (%)	No. of Settlements			
	Darjeeling	Kalimpong	Kurseong	Total (%)
Declining Growth	30	18	11	59 (20.34)
<25	38	46	23	107 (36.90)
25 - 50	25	21	13	59 (20.34)
50 - 75	11	8	6	25 (8.62)
75 - 100	6	2	5	13 (4.48)
>100	11	3	23	27 (9.31)

Source: Computed from District Census Handbook, Darjeeling, 1981 and 1991

The growth rates of population at village level (Appendix IV) do not show any regular pattern. The highest and lowest (negative) growth of population was observed in Sukna forest and Tindharia tea garden both in Kurseong sub-division. The cent per cent negative growth is observed in 14 forest settlements. These are of Sonada forest and Dooteria forest in Darjeeling sub-division. Dalapchan Ridge forest, Dalapchan Reserve forest, Rangpo forest, Mangchu forest, Parengaon Khas forest, Icha forest and Sangser forest in Kalimpong sub-division. Along with these Badamdhura forest, Chattakpur forest, Gola forest, Phuguri forest and Manjua forest of Kurseong sub-division also show similar pattern. These together had 7092 persons in 1981 who migrated to the other areas and these became uninhabited in 1991. Apart from these, there are 59 other settlements with negative growth rates. Villages with higher growth rate were probably those with better infrastructure and economic activities in 1991. Besides the villages with recreational centres has been found to have higher rate like, Singalila Forest, Sukna Forest, Tukdah Forest, Teesta Valley Forest, Mangpong, etc. Other villages experiencing higher growth rate has been found in areas of better connectivity, like the villages along highway or other important roads. These include Singla Tea Garden, Gielie Tea Garden, Tukdah Tea Garden, Giddapahar, Jamdar Bhatia Khasmahal, Kaffir Khasmahal, etc.

¹¹ Bhutia, Yonah. 1996. *Socio-Economic Structure of Different Ethnic Groups in Darjeeling Himalaya: A Comparative Study of Nepalis, Lepchas and Bhutias*, Unpublished Ph.D. thesis, CSRD, JNU, New Delhi, p. 75.

Only Tindharia and Gayabari villages both located along State Highway (12/A) show negative growth. This is perhaps due to their location in landslide prone zone near Pagla Jhora.

3.3 Sex Ratio

The natural growth of population is related to the age and sex structure. The age and sex structure of any region reflects the interplay of certain processes.¹² Due to economic constraints, the backward areas generally suffer from male selective out-migration resulting in higher sex ratio. So, Sex ratio apart from biological factors is also related to migration. Other factors that affect sex ratio include some socio-cultural elements like education and religion

There are more males than females in Darjeeling. The trend in sex ratio is increasing in the hills. It has increased from 924 to 946 females per 1000 males in 1981 and 1991. But the ratio is still unfavourable for females.

The rural areas have higher proportion of females than males, except in Kurseong in 1981 and Kalimpong in 1991 (Table 3.7). The highest rural and lowest urban sex ratios were observed in Darjeeling subdivision in 1981. The higher female ratio in rural areas is due to high male selective migration to urban areas. Moreover, there is great demand for female labour force in the tea gardens. The spatial variations in sex ratio can be explained through the processes of interaction between the under-developed and the developed parts. There is low sex ratio in urban centres where there are greater interaction and opportunities. The urban areas attract males from the surrounding rural under-developed areas. The increase in population growth without corresponding growth in the means of livelihood leads to male selective out-migration. That is why the rural areas have higher sex ratio than the urban centres.

¹² Butola, B.S. 1992. *Political Economy of Under-development: A Case Study of Uttar Pradesh Himalaya*, Har-Anand Publications, New Delhi, p. 103.

Table – 3.7

Darjeeling- Sex Ratio

		Total	Rural	Urban
1981	Darjeeling	947	970	862
	Kalimpong	919	926	894
	Kurseong	876	846	909
	Hills	924	936	883
1991	Darjeeling	959	965	935
	Kalimpong	931	929	937
	Kurseong	936	941	925
	Hills	946	950	932

Source: Computed from District Census Handbook, Darjeeling, 1981 and 1991.

Sex ratio in Darjeeling has increased. It increased by 14 females per 1000 males between 1981 and 1991. Out of the total 284 villages, 69 have higher females than males. Most of these villages are located in tea gardens which require huge female labour force. In other villages male population has outnumbered female population. Most of the Khasmahal villages have relatively low sex ratio than tea gardens. Forest villages have very low sex ratio. Mo Forest in Kalimpong subdivision reported to have the lowest sex ratio (486/1000 males).

3.4 Social Composition

Society in Darjeeling hills is composed of varied ethnic groups. Certain distinct changes were brought about after the annexation of Darjeeling Himalaya to India by the Britishers (1835 - 1860). Earlier, it was inhabited by Tibeto- Mongoloid race of Buddhist culture. With administrative change, society also underwent changes with the intermixing of Mongoloid, Caucasoid and Australoid races of western Nepal, Bihar and Bengal plains and the Europeans. This brought changes in religious faiths like Hinduism, Christianity and Islam started spreading. Later on, after the occupation of Tibet by China, a large number of Tibetan refugees migrated and settled in this region. This too, made some contribution to the level of social transformation in the hills.

Inhabited by different forms of organized, civil societies for more than two centuries, the Darjeeling hills have been subjected of Nepalese, Tibetan, Bihari, Marwaris, Islamic and European influences. However, Nepalese have been of greater

influence and has outnumbered all other communities together. Nepali today is the *lingua franca* of the region.

The following castes and tribes come under Nepali community include Bahun (Brahmin), Chhetri, Thakuri, Newar, Rai, Limbu, Sunwar, Yakha, Mangar, Gurung, Jogi, Bhujel, Thami, Yolmu, Sherpa, Tamang, Sunar, Kami, Sarki and Damai. Lepchas and Bhutias seem to be different they also speak Nepali language and are well adjusted with the Nepali community and culture. Constitutionally, Sunar, Kami, Sarki and Damai come under 'Scheduled Castes' and Lepcha, Bhutia, Sherpa, and Yolmu under 'Scheduled Tribes'. Recently in 2003, two groups namely, Tamang and Subba or Limbu have been included in the new list of 'Scheduled Tribes'.¹³ Scheduled Tribes have higher share to total population than Scheduled Caste population. It is probably due to following reasons. First, the region was initially inhabited by Lepchas. Second, as stated earlier also, Kalimpong was a part of Bhutan till 1865. Many of the Bhutias were already settled there. Third, Bhutia group¹⁴ that includes Sherpas and Tibetans have migrated from Nepal and Tibet respectively. The Scheduled Caste includes mostly lower caste Nepalis. In both the cases their per cent share to total population is decreasing. The share of Scheduled Caste and Scheduled Tribe were 8.48 per cent and 10.99 per cent respectively in 1981 and 7.54 per cent and 10.81 per cent in 1991.

Among the three subdivisions the higher concentration of Scheduled Caste and Scheduled Tribe population is found in Kalimpong probably due to the following reasons:

1. Concentration of Scheduled Caste is again attributed to their migration and occupational history. During the early history of settlement it was lower caste who migrated in large number than the upper castes.¹⁵ They were largely cultivators and agricultural labourers so they opted for agricultural land in Kalimpong rather than tea gardens found in other subdivisions.

¹³ The Gazette of India, Ministry of Law and Justice, Part II, Section I, Wednesday, Jan 8, 2003, pp. 8-9.

¹⁴ Dash, A.J. 1947. *Bengal District Gazetteers*, Darjeeling, Government Printing Press, Calcutta, p. 76.

2. Lepchas practiced shifting cultivation prior to Nepali immigration. The introduction of tea plantation in Darjeeling and Kurseong made limited for shifting cultivation. Therefore, many of them moved towards Kalimpong where large tracts of forest were conducive for their settlement.¹⁶

3. Bhutias settled in Kalimpong prior to British occupation of the area. High proportion of Scheduled Tribe is also due to immigration of Sherpas. Both the Bhutias and the Sherpas are mostly agriculturists and probably must have preferred the place. Only the Tibetans of Bhutia Group are traders and businessmen settled in Darjeeling and Kurseong and in other urban centres.

Most of the Scheduled Tribe population is found in forestland and in remote areas. Their marginalisation is mainly due to over dominance of superior groups especially in economic and cultural terms. Their highest concentration in 1981 was found in Richilachak forest in Kalimpong (100%). Simulbari in Kurseong had the highest concentration 71.32 % in 1991.

3.5 Literacy and Education

Literacy is considered as one of the important indicators of social development, a high level of which is an important factor in the process of modernization. It can also explain the quality of population i.e. a literate person can be more productive than the illiterate one. Therefore, in all the developed countries or regions the increase in literacy and levels of education is considered as essential for rapid and sustained development.¹⁷

Darjeeling town owes its origin as a health resort to the Britishers. So there was a need of schools for children of European staying there. Schools therefore, were opened in Anglo-Indian and European styles mostly by the Christian missionaries. This not only helped the people to educate but also had impact on the religious life of people. Till now,

¹⁵ T.B. Subba, *op.cit.*, p. 37.

¹⁶ Census of India, *op. cit.*, p. 53.

there is strong influence of Christian missionaries in the field of education. There are numerous missionary schools and colleges in the hills. However, a considerable number of Government and private schools and colleges are also found.

Table – 3.8

Darjeeling – Educational Facilities (Number of Institutions) 1991

Subdivision	Primary School	Middle School/ High School	Junior college/ College	Adult Literacy Centre/Other	Village with no educational facilities
Darjeeling	308	57	14	33	6
Kalimpong	145	43	9	-	32
Kurseong	121	30	6	1	15

Source: District Census Handbook, Darjeeling, 1991

Table 3.8 shows that Darjeeling subdivision has the better educational facilities with the highest number of centers of learning and the lowest number of villages without these. Kalimpong ranks second in the number of schools/colleges but at the same time it has highest number of villages without educational facilities. Kurseong on the other hand, has the lowest number of schools/colleges but is fairly good in educational infrastructure development as there are only 15 villages without it.

About 45.27 per cent of Darjeeling's population was literate in 1981 as compared to 40.49 per cent in the state as a whole. It is increased to 61.41 per cent in 1991 and was still higher than the state average of 57.70 per cent. This sudden increase in literacy is also partly due to changes in methodology in census operation. The literates were enumerated per total population in 1981 while the age group of below 6 years was excluded in 1991 while calculating the percentage of literates.

Table – 3.9

Darjeeling – Literacy (percent literates) 1981 and 1991

Subdivision	1981			1991		
	Total	Male	Female	Total	Male	Female
Darjeeling	45.15	56.10	33.59	60.01	70.79	50.79
Kalimpong	43.38	52.90	33.01	59.36	67.24	50.19
Kurseong	48.24	60.10	34.71	65.36	75.50	54.45
Darjeeling Hills	45.27	56.01	33.64	61.41	70.62	51.41

Source: Computed from Census of India, 1981 and 1991

¹⁷ B.S. Butola, *op. cit.*, p. 109.

Even though Kurseong has less number of schools/colleges it registered the highest literacy in 1981 as well as 1991. The lowest literacy is observed in Kalimpong but it is in spite of it having fairly good number of educational institutions. The concentration of schools is mainly in towns and many villages do not have educational facilities. Moreover, Kalimpong has agricultural and pastoral economy and the parents do not give importance to education of their children. Their economic conditions are poor and in many cases can not afford higher education of children. On the other hand there is no scope for child labour in tea gardens in other two subdivisions. So, it can be said that there is no positive correlation existing between the number of schools and the level of literacy in Darjeeling hills. It is rather economic conditions that determine literacy. Villages located near urban centres generally have higher level of economic development as well as higher literacy rate.

The male-female literacy rate shows a considerable gap in the region. About 56.01 per cent literate males were enumerated in 1981. As against this, the female literacy was 33.64 per cent. The figures rose to 70.62 per cent for males and 51.41 per cent for females in 1991. Low literacy of female in the region is also attributed to their higher work participation in farming.

Despite the small size of the study area, there are significant regional variations in literacy. It ranges from 90.98 per cent in Jaldhaka Khasmahal to as low as a rate of 8.82 per cent in Samabiyong Tea Garden. The spatial patterns of male-female literacy correspond with those of general literacy. The male literacy rate ranges from 97.44 per cent in Jungpura Tea Estate to 9.91 per cent in Samabiyong Tea Garden. By comparison, the range of female literacy is from 86.63 per cent in Tukdah Khasmahal to 7.67 per cent in Samabiyong.

Literacy in the region is determined mostly by the economic condition of the people and also by locational factors. Therefore higher literacy is observed in Darjeeling and Kurseong subdivisions where most of the people are absorbed in tea gardens. Kalimpong has low literacy. Most of the subsistence farmers in this subdivision do not afford high education to their children. Moreover, villages located around towns also have high literacy. They have better accessibility to the educational institutions since most of the institutions are located in the urban areas.

3.6 Urbanisation

Urbanization in any region is one of the important measures of socio-economic development. In any developing economy, it is only through urban centers that new technology, ideas and modern traits of life etc. spread to the rural areas. The degree or rate of diffusion of these traits determines the speed of transformation of social and economic aspects. It is in this context, the rate of transformation in Darjeeling is much better with 36.35 per cent growth rate of urban population in comparison 27.12 per cent the state in 1981-1991. But large proportion of hill population still lives in rural areas. The urban population of this region in 1991 constituted 23.71 per cent of the total population. A relatively low degree of urbanization has been a result of the physical configuration of the region. Urbanization is also thought to be the consequence of the growth of industries, expansion of administration, expansion of transport and communication and growth of trading activity. Darjeeling hills lack the above-mentioned factors with greater degree of urbanization in its plain section of Siliguri.

Table – 3.10

Darjeeling – Percentage of Urban Population and Urban Growth 1981-1991

Subdivision	1981		1991		Decadal Growth Rate (%)	Urbanization Index (U.I.)
	Percent	No. of Towns	Percent	No. of Towns		
Darjeeling	20.47	1	21	1	26.84	1.03
Kalimpong	20.42	2	22.04	2	29.34	1.10
Kurseong	26.1	2	32.29	3	63.02	1.35

Source: Computed from Census of India, 1981 and 1991

Rate of urbanization can be seen with the help of urbanization index.¹⁸ High index value of Kurseong explains high rate of urbanization. The lowest index value of Darjeeling may be because of its early urbanization and slower urban growth.

Urbanization did not show many variations in different subdivisions in 1981. But there shows the striking variations between Kurseong and the other subdivisions in 1991. Kurseong remained the most urbanized subdivision in both 1981 and 1991 with the highest decadal growth in its urban population of 63.02 per cent. As stated earlier, its high growth rate is attributed to the inclusion of Mirik as an urban centre in 1991. None of the towns in this hill has earned the status of city. Here, the urban places are mainly the market centers except Darjeeling, which is the district headquarter and Kalimpong and Kurseong are municipal towns with some administrative functions as well.

From the above analysis it can be concluded that dynamics of population in Darjeeling is largely attributed to the British rule and migrating history of population from adjoining places. The opening up of tea gardens in Darjeeling and Kurseong and extension of agricultural land in Kalimpong led to intermixing of different races and ethnic groups. High growth rate of population and literacy on the one hand and lack of employment opportunities on the other in the hills is leading towards increasing out-migration for better economic prospects. In all, Kurseong subdivision has higher level of social development.

¹⁸ Urbanization Index can be calculated as:

$$UI = (U_{91}/U_{81}) / (R_{91}/R_{81})$$

Where, UI = Urbanization index

U = Urban population

R = Rural population

CHAPTER 4

ECONOMIC RESPONSE

The relationship between man and nature gets reflected through the economy since time immemorable. Human beings have been exploited natural resources available to them for their own living. However, the method and rate of exploitation depends on the nature of environment on the one hand and available technology on the other. In hills environment plays major role in human economic activities. The economic activities further depend on the availability of local resources and accessibility and level of technological advancement. Better environment and better accessibility in the plains give impetus to greater technological development than in the hills. Therefore, there are large and growing differences in the level of social and economic development between the hills and the plains.

Human economic response is constrained largely by physical environment in peripheral areas of hills and mountains. Its high altitude, rugged relief, adverse climatic conditions and low accessibility often isolate people and reduce their mobility and exposure to innovations. Moreover, human energy and working capacity is also gets reduced due to very cold climate. Therefore, the hill areas generally remain economically backward. Due to low technological development most of the people in the hills are engaged in primary subsistence occupation of agriculture with low economic productivity.

The rural people of Darjeeling hills are generally characterized as economically deprived. The basic source of income here is either traditional agriculture or tea plantation on small terraced fields or on gentle slopes. A large proportion of population depends upon agriculture while the land suitable for agriculture is very limited. Of the total geographical area 2417.3 sq. km. only 930.18 sq. km. is cultivated in the region. The large proportion of land lies under forest and waste lands. There is also a limited scope for the expansion of agriculture. It is mainly due to topographical limitations coupled with consequential poor soils. Consequently, the land under cultivation in the hills is decreasing. About 43.50 per cent of total land in Darjeeling hills was found under plough decreased to 38.48 per cent ten years in 1991. The other reasons for decreasing proportion of cultivated land are related to

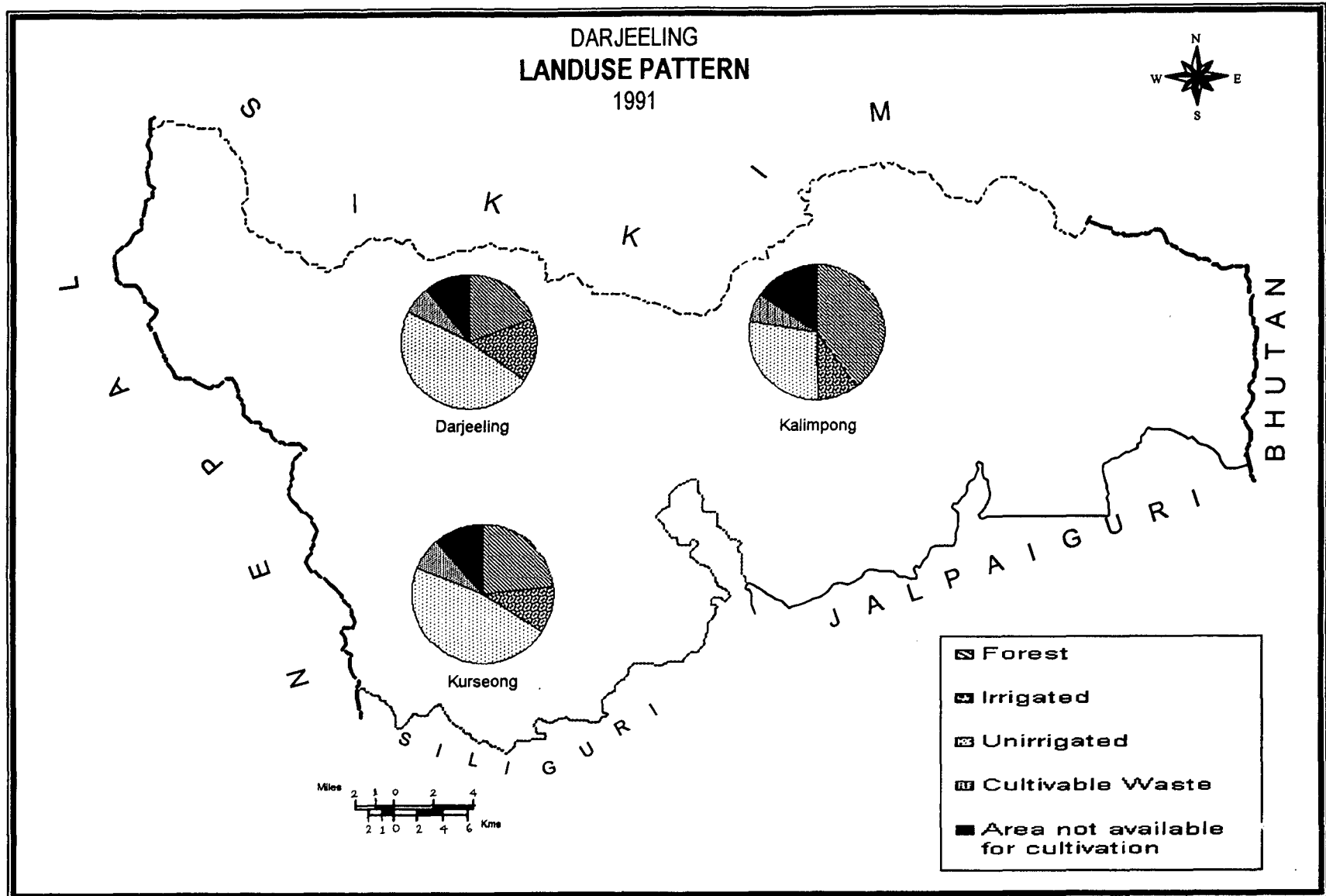
increasing urbanization and changing occupational structure in villages. Due to lack of economic opportunities and low output from agricultural fields in rural areas, people out-migrate to urban centres in search of jobs and to earn livelihoods. There is numerous instances from every village of people out-migrating to help lift the household economy and raise standard of living. Many young men also join army which is common in all hill areas due to this reason. Others move towards urban centres to look for other jobs. So the load of agricultural work rests mainly on women. Moreover, males only plough land in the hill areas and the female do all other agricultural operations. The bulk of work on land is done by women and children. Due to scarcity of manpower, in some cases, land remains uncultivated adding to culturable or even permanent waste lands. Thus in order to understand the economic response of man to hill environment, the following aspects become important;

1. Land Utilization Pattern
2. Agricultural System
3. Occupational Structure of Working Force
4. Development of Infrastructure and Basic Amenities.

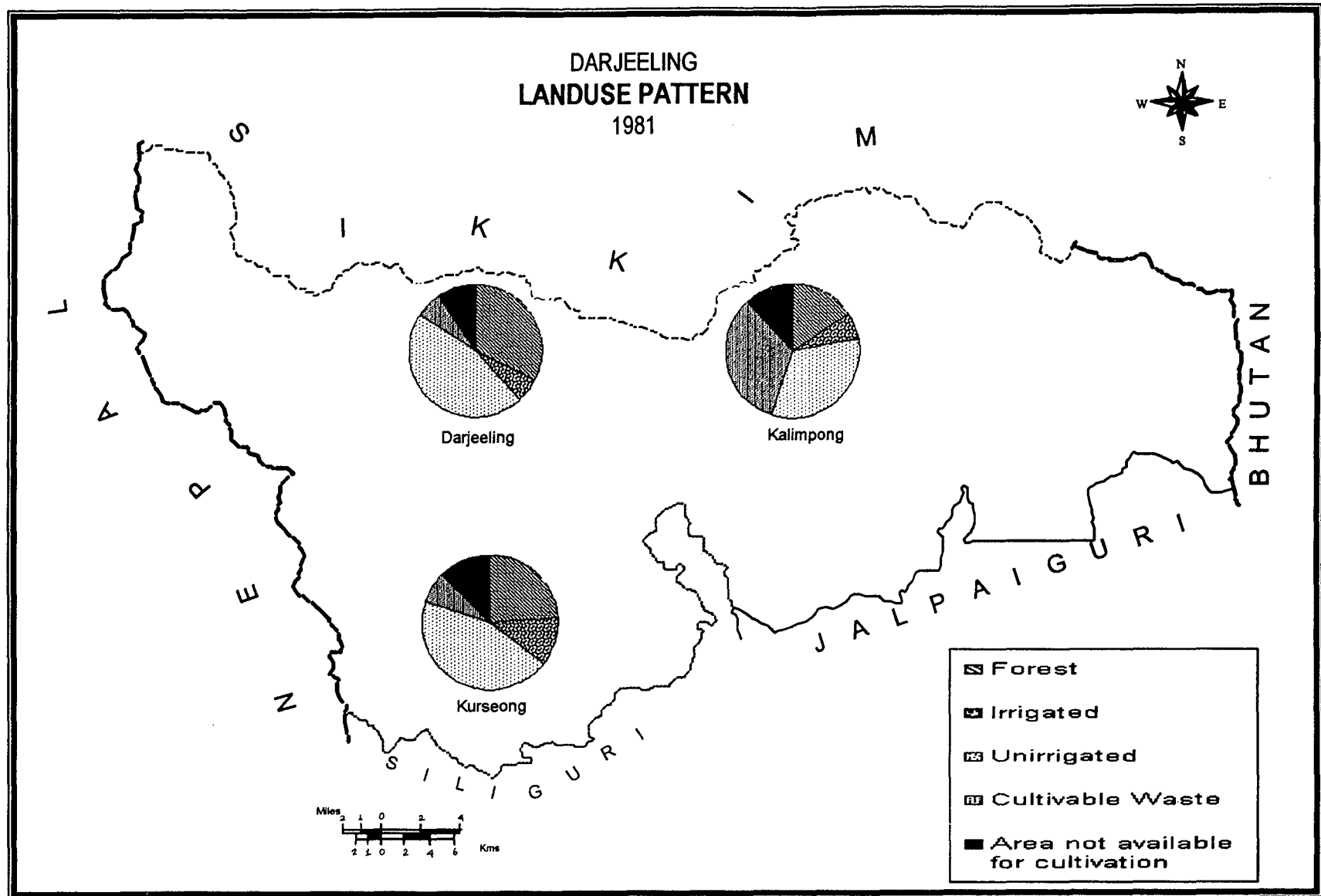
4.1 Land utilization pattern

It is quite important to analyse the land utilization pattern to understand the totality of economic structure. Generally, land in Darjeeling hills is used as forest, tea gardens and for traditional agricultural purposes which vary in different ecological zones. The higher hills are used as forests whereas lower and stable land are used for agriculture. Other economic use of land like, factories, buildings, roads, dams, etc. are very limited. However, with the pace of modernization and development land use of the place is also changing.

Darjeeling had shifting cultivation practiced by the locals in the beginning of the 19th century. There was extensive forest providing scope for such type of farming. With the introduction of tea plantations in Darjeeling and Kurseong in the latter half



Map IV(2)



Map IV(1)

of the 19th century and opening up of khasmahal lands in Kalimpong in the beginning of the 20th century, major changes in the land use were brought about. Traditional agriculture is being practiced in khasmahals and more than 35 per cent of land falls under such category.¹ Till now, the land use has been changing over time as there are less forest land and more waste and barren lands.

As already mentioned, cultivation in the hills is significantly affected by natural environment. The configuration of the land and climatic conditions in Darjeeling hills are not very suitable for agriculture though the underdeveloped economy pushes people towards it. Tea does not grow above 2000 meters and no crops grow over 3000 meters. Bare and rocky slopes further restrict agricultural operations in such heights. The slopes below 760 meters are usually steep and temperature moderate making the zone from 300 to 760 meters more suitable for forests. In spite of these natural constraints there has been great effort to convert the hill slopes into arable land. Despite constraints the Darjeeling hills are over settled with high population. Around 59.59 per cent of total reported area was covered by villages in 1981. The share reduced to 88.18 per cent in 1991. Only a small portion is uninhabited which included reserved, protected or unclassified forest and waste lands i.e. barren and rocky slopes.

Table - 4.1
Darjeeling- Area Under Different Land Use Category of
Inhabited Villages 1981 & 1991

Category	1981		1991	
	Area in ha.	Per cent	Area in ha.	Per cent
1. Forest	52355.77	25.97	54914.79	29.67
2. Cultivated Land	105161.80	52.17	93081.05	50.26
a) Irrigated	15971.86	15.19	22081.95	23.74
b) Unirrigated	89189.94	84.81	70936.10	76.26
3. Culturable Waste	18759.07	9.31	12730.81	6.88
4. Area not available for cultivation	25311.37	12.55	24406.90	13.19

Source: District Census handbook, Darjeeling, 1981 & 1991

Note: 1) Area under forest and waste land is included only of the inhabited villages.

2) Per cent figure for irrigated and unirrigated land has been computed out of total cultivable land.

¹ Khawas, Vimal, "Environmental and Rural Development in Darjeeling Himalayas: Issues and Concerns", *Spatio-Economic Development Record*, Vol. 10, No. 2, Mar-Apr, 2003, pp. 27-33.

Table 4.1 shows change in land use in the hills during 1981-91. It revealed increase in the proportion of forest land by 3.7 per cent in 1981-91. As mentioned earlier, it is probably due to out-migration of people from forest lands. Both cultivated and culturable waste lands registered decrease whereas area not available for cultivation registered increase. Irrigated land increased whereas unirrigated land decreased in 1991. But the overall cultivated land has decreased in the hills.

4.1.1 Land Under Forest

Data for forest cover pertains only to the area under forest village and forest within the inhabited village boundaries. Official figures show about 38.91 per cent of total area in Darjeeling is under forest.² But table 4.1 shows only 29.67 per cent of area under forest within inhabited area. The figure of land under forest has increased from 25.97 per cent in 1981 and 29.67 per cent in 1991. A total of 2559.02 hectares of forest land has been added in 1991 i.e. growth of 4.89 per cent of the forest land.

Important variations are observed in the increase/decrease of forest land in different subdivisions. In both Darjeeling and Kurseong Subdivisions forestland has reduced to a great extent. About 13805.45 hectares of forest land in Darjeeling subdivision and 599.38 hectares in Kurseong subdivision decreased in during 1981-91. This is due to clearing of forest land for cultivation in some subdivisions.

Forest land increased substantially only in Kalimpong subdivision. It is probably because of out-migration of people towards khasmahal lands. Data shows rise of land under forest in forest villages like Comesi Forest, Rinkingpong Forest, Birik Forest, Mangpong Forest, Lish Forest, Chuanthi, Mo Forest and Kumai Forest, etc. Here, due to out-migration the cultivated land in such settlements was abandoned

² The Office of the Chief Conservator of Forests, Hill Circle, Darjeeling. This probably includes area lying outside the control of Forest Department.

and the area fell into forest category. Forest in Khasmahal settlements was found to be rather decreasing.

Table - 4.2

Darjeeling- Subdivision wise Classification of Land Use 1981 &1991

Landuse Category	Darjeeling		Kalimpong		Kurseong	
	1981	1991	1981	1991	1981	1991
Forest	32.16	19.34	20.75	40.12	23.91	23.38
Irrigated	6.26 (12.03)	15.40 (24.42)	7.98 (15.76)	9.67 (25.88)	11.58 (20.69)	10.92 (18.89)
Unirrigated	45.79	47.67	42.66	27.71	44.38	46.92
Total cultivated land	52.05	63.07	50.64	36.38	55.96	57.84
Culturable waste	6.24	6.7	13.06	6.83	7.64	7.36
Area not available for cultivation	9.55	10.89	15.55	15.67	12.49	11.42

Source: District Census handbook, Darjeeling, 1981 &1991

Note: 1)Data for forest and waste land show minimum share as it is assessed only for the inhabited villages

2)Figures in bracket shows the percentage of irrigated land to total cultivated land.

Table 4.2, Map IV(1) and Map IV(2) show some changes in landuse patterns in all the subdivisions during 1981-91. Land under forest registered high growth in Kalimpong subdivision whereas in Darjeeling subdivision it decreased tremendously. Only in Kurseong subdivision it has remained almost unchanged. Both irrigated and unirrigated land registered growth in Darjeeling subdivision in 1981-91. There was an alternate increase and decrease in such lands in Kalimpong and Kurseong subdivisions. It is noticed in the above table that there is decrease in cultivable waste land in Kalimpong subdivision and Kurseong subdivision whereas it is slightly increased in Darjeeling subdivision. There registered small changes in the proportion of areas not available for cultivation in all subdivisions.

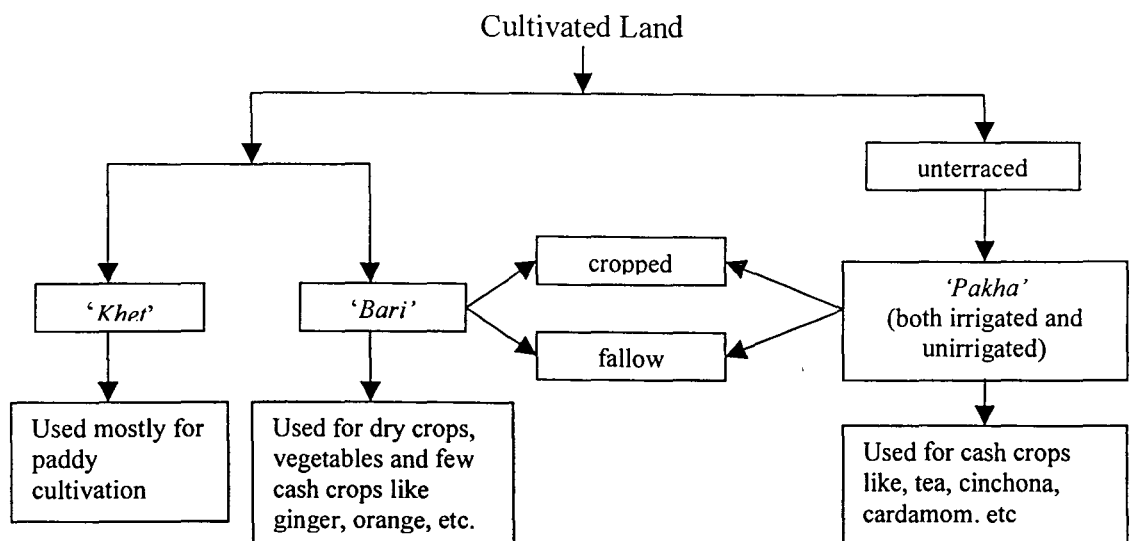
4.1.2 Cultivated Land

In this category both plantations and traditional agriculture have been included in this category. The cultivated land covers about 50 per cent of total assessed land. Although, the per cent share of cultivated land has decreased in 1991, the share of irrigated land has increased. Only 15.19 per cent of the total cultivated land was under irrigation in 1981 which rose to about 23.74 per cent of cultivated land in 1991(table

4.1). Table 4.2 shows an increase in per cent cultivated area in Darjeeling and Kurseong subdivisions. It decreased in Kalimpong . Darjeeling and Kalimpong subdivisions registered an increase in proportion of irrigated land to total cultivated land. It has decreased only in Kurseong subdivision. The decrease in per cent of cultivable land in Kalimpong is probably due to greater decrease in unirrigated area.

The cultivable land in the hills is generally termed as ‘*Khet*’ and ‘*Bari*’ as the term equivalent to ‘irrigated and ‘unirrigated’ lands. *Khets* are irrigated lands where mostly paddy is grown although in some cases dry crops are also grown during winter season when paddy is harvested. *Bari* on the other hand is unirrigated dry lands where only dry crops are grown. In both the cases farming is done in a traditional manner i.e. ploughing with the help of oxen and use of organic fertilizer. Development of water resources gets the top priority in the area. This is done with the improvement of irrigation system. The traditional irrigation system known as ‘*Kulo*’ or a system of surface irrigation where water is diverted from streams, springs, etc. to the field through narrow channels, is not sufficient enough to meet the water need of the farmers. It can irrigate only a small area because only a small amount of water is carried through it.

Fig. 4.1: Classification of Cultivated Land



The proportion of '*khet*' or '*bari*' is directly or indirectly related to the altitude. Since paddy cannot be grown in the higher altitudes on account of cold climates, the proportion of '*khet*' decrease with the increase in altitude. On the other hand, the proportion of '*bari*' increases with the increasing altitude as maize and other dry crops can grow up to much higher altitudes.

4.1.3 Culturable Waste Land

This category includes land taken up for cultivation but are temporarily not used for this purpose for a period of not less than one year and not more than five years. It is seen that between forests and fields there has always been the waste land. This culturable waste land has been put under plough for a certain period of time. The reasons for keeping such lands as fallow may be one or more of the following-

1. Poverty of the cultivators
2. Inadequate supply of water
3. Extreme climate
4. Silting of irrigation channels
5. Unremunerative prices of products.

Many people are migrating out from rural areas of Darjeeling as a result of these factors. Scarcity of workers in cropping season in the hills sometimes results in a large proportion of land lying as culturable or even permanent waste. Sometimes natural hazards like landslides and soil creeping contribute to the increase of waste land in the hills.

Table 4.1 and 4.2 reveal 6.88 per cent of the land on an average to be culturable waste. Kurseong subdivision had the highest proportion of 7.36 per cent of total land as waste. It was followed by Kalimpong with 6.83 per cent and Darjeeling with 6.7 per cent in that order in 1991. It is seen that waste land is decreasing

probably due to its transformation into forest land. This can be inferred as both cultivated land and culturable waste show proportionate decrease in 1991.

Kalimpong subdivision has the highest area under this category accounting 36.72 per cent of the total culturable waste in Darjeeling hills. This may be due to the subdivision has largest assessed area. Conversion of such lands in to arable is possible when water and technology become available. Both the things are not adequately available in the hills

4.1.4 Land not available for cultivation

Land under this category include that occupied by roads, buildings, houses, streams, market place, playground, parks and gardens, religious place, community hall and educational institutions etc. These are all for public use and are not waste lands. Table 4.1 shows that the proportion of land not available for cultivation is increasing in the hills whereas in table 4.1 a small fall of 1.07 per cent is noticed in Kurseong subdivision.

The land use data of 1981 and 1991 in Darjeeling hills show a complex nature. Land under culturable waste is found to be decreasing in 1991. It will not be correct to infer that high growth of population is resulting culturable waste land being brought under cultivation. The land under cultivation has also declined during 1981-91. This is because many households in forest villages left their place and settled in Khasmahals or tea gardens. Many inhabited forest villages in 1981 were found to be totally uninhabited in 1991. So the cultivated land in forests seems to have been enumerated as forest land in 1991.

4.2 Agricultural System

Though agriculture forms the backbone of economy of hill people, as stated earlier only about 50 per cent of the total area is available for cultivation. Consequently, the farmers have to supplement their income from other sources. Though the low productivity and low economic status of the farmers is reflected in the poor state of agriculture, yet, it still forms the principal means of livelihood of the people.

The traditional form of agriculture in the hill region was 'shifting cultivation'. New lands is acquired by clearing and burning forest, generally called '*Vasme*' in Darjeeling hills. Some crops are grown for the period of two to three years in *vasme* or till the fertility of the soil gets reduced. With the decrease in productivity the land has to be abandoned and new areas are selected. The system created damage to the forest and left much of the productive land unused. Such practices existed in the long past and were performed by the Lepchas and have now almost been given up. The stoppage of this practice may be due to the restriction imposed by the British government on the utilization of forest resources and development of tea plantations and sedentary form of agriculture. The history of settled agriculture in Darjeeling is attributed to the introduction of tea plantation in Darjeeling and Kurseong subdivisions in the middle of the 19th century and the development of 'khasmahal' farming in Kalimpong in the beginning of the 20th century. In case of former, the crops are grown on gentle hill slopes called '*pakha*' and in the latter, the slopes are cut into artificial terraces to make room for farming called '*gara*'.

As mentioned earlier physiography of the area have an impact on agriculture (see chapter-II) and made it diverse. The agro-climatic zones of micro ecosystem in Darjeeling are known by locals as '*Lek*' and '*Owl*'. *Leks* are the high altitude cold areas with less diversification of crops and *owls* are warm valley slopes with greater diversification. This shows an altitudinal gradation of crop production in the hills. Potatoes, cardamom, ginger, maize are grown extensively in *leks* whereas paddy,

maize, millets, oranges and different kinds of vegetables are grown in *owls*. Besides, numerous species of flowers are being raised depending upon their suitability to climate on a commercial scale. Literally, no crop is grown above 2850 metres because of extreme climate, steepness and dense forests.

Agriculture in Darjeeling hills can broadly be classified into three categories –

1. Farm crops
2. Plantation crops and
3. Horticulture and vegetables.

4.2.1 Farm crops

Of the various farm crops paddy, maize, millet, wheat, pulses and soyabean are most common. Since rice is the staple diet of the hill people, it is grown extensively in irrigated *owls* even though the average yield rate is very low accounting to 14.3 quintal/hectare (Table 4.3). Maize on the other hand is grown over a larger area and also has higher yield rate of 22 quintal/hectare. It is a dry crop and is raised in all agro-climatic zones. The most productive crop grown in the hills is potato which has highest yield of 114.5 quintal/hectare. It is grown during both the seasons- winter and summer seasons and is termed as winter potato and summer potato. Among the two, winter potato is more productive. It is grown extensively in Gorubathan, Jorebunglow, Sukhiapokri and Ghum areas.

Table – 4.3

Darjeeling - Area under Principal Crops 2000-2001

Name of crop	Area in ha.	Yield (qtl./ha.)
Paddy		
a) H.Y.V.	3335.5	16.6
b) Local	6660	12
Maize	27380	22
Millet	11260	12
Wheat		
a) H.Y.V.	680	15
b) Local	8	10

Barley	507	13
Mustard	231	6.55
Vegetables		
a) Winter	2257.05	80
b) Summer	1748.5	72
Potato		
a) Winter	1731	126.5
b) Summer	2395	120.5
Species		
a) Ginger	1944	148.05
b) Cardamom	2874	2.45
c) Turmeric	15	100
Fruits		
a) Orange	1972	157
b) Banana	91	90
c) Papaya	25	151
d) others	500.75	125

Source: Office of the Principal Agricultural Officer, Darjeeling.

4.2.2 Plantation crops

The main economy of Darjeeling hills depends on tea industry as it earns important foreign exchange for the country. About 80 per cent of the produce is exported. Tea plantation in the region started with the set up of first tea garden at Tukvar known as Singla Tea Estate in 1856 by Capt. Masson. Gradually more gardens were set up in and around Darjeeling and Kurseong. By 1874 the numbers of tea estates rose to 113 covering an area of 18,888 acres and by 1905 the number grew to 117 with an area of 42,700 acres.³ With the passage of time the number of tea estates declined but the area under cultivation increased to some extent. The fall in the price between 1896 and 1901 was the major set back for many of the gardens, which were no longer able to make profit. A few were closed down and others reduced workforce. This on the other hand helped in the expansion of sedentary cultivation in Kalimpong area where many of the workers migrated and settled. The trend of sickness of tea industry is still continuing though a large proportion of hill people are still dependent on it. Sickness in tea industry is due to long colonial and post-colonial

³ Sarkar, R.L. 1986. "Tea Industry: Origin and early growth" in Sarkar and Lama (eds.). *Tea Plantation Workers in The Eastern Himalayas- A study on Wages, Employment and Living Standards*, Atma Ram and Sons, Delhi, pp 1-5.

methods of capitalist exploitation of profit-oriented entrepreneurship provided mostly by the plains).⁴

Beside tea, cinchona is also grown in the hills as a cash crop. Its cultivation is mainly restricted in Mungpoo, Munsong, Rango and Latpanchor with quinine production factory at Mungpoo.

4.2.3 Horticulture and vegetables

Horticulture has a great promise in Darjeeling hills. Of the horticultural crops and vegetables orange, cardamom, ginger, turmeric, cauliflower, cabbage, pea, french bean, tomato, carrot, radish, squash, etc. are important. Orange in Darjeeling is generally grown at an area having altitude between 600 and 1500 meters. About 1972 hectares of land is devoted to its cultivation in Bijanbari, Sukhiapokri, Tukdah, Kalimpong I, Kalimpong II, Gorubathan, Kurseong and Mirik blocks. I had an annual output of 29580 metric tones in 2000-2001.

Cardamom is another cash crop which fetches good amount of money to the farmers. It is grown in higher altitude area under shade of moist forest. About 2874.80 ha. of land is found under its cultivation. Like cardamom, ginger is another cash crop most commonly grown in the region. About 1944 ha. of area is devoted to ginger cultivation with production of 28576.80 metric tones in 2000—2001. Unlike cardamom, ginger prefers hot humid conditions and its cultivation is concentrated in Kalimpong, Bijanbari, Gorubathan and Mirik.

Vegetables are grown mostly in and around urban centers and in areas having good road connectivity for commercial purposes. The moderate climate with middle level elevation is ideal for vegetables. Due to poor transportation facilities most of the

⁴ Bandopadhyaya, N. 1983. "Removal of Backwardness in Hill Areas of Darjeeling: A Case Study of Cooperative Effort" in T.S. Papola et. al. (eds.) *Development of Hill Areas: Issues and Approaches*, Himalayan Publishing House Bombay, pp. 329-348.

products from the remote villages cannot reach the urban centres. Therefore, the urban centres have to rely mostly on the surplus of the surrounding villages and if not sufficient, they import from the plains especially from Siliguri.

Darjeeling and Kalimpong are also known for floriculture. Various exotic varieties of Himalayan orchids are being raised on commercial scale. With the increasing urbanization the demand for flower is ever increasing and so is their cultivation. Today Kalimpong is famous for production and supply of varieties of cactus, gladiolus and numerous other flowers that are marketed in big cities in India and even exported outside. There are numerous flower nurseries privately owned that are engaged in this business and are earning good money. On account of availability of good land and moderate climate Kalimpong has better prospects for further development. Moreover, due to high value of flowers, there seems a growing tendency of shifting from traditional agriculture to modern practices of floriculture and horticulture. Only proper marketing and transportation facilities are needed for horticulture in the hills.

Sericulture is another less talked about aspect of hill farming which has started growing. Farms have been set up and are maintained with government efforts at Kalimpong, Pedong, Bijanbari, Gitdabbling and Tukdah. Sericulture activities in the hill region are limited to mulberry cultivation and production of cocoons only. With the expansion of mulberry culture, the annual production of seed cocoons has been increasing.

Although multiple varieties of crop are grown in Darjeeling hills, there have been serious problems on the part of extension and production. Agriculture cannot be extended further as a part of the land has already been rendered unproductive by deforestation, landslides and soil erosions etc. Fertile soil has washed away along with crops and vegetation cover due to soil creep and landslides. Heavy leaching in the

hills makes soil acidic needing proper treatment and manuring. No proper soil survey in the hills has been conducted so far.

Apart from much talked physiographic constraints, there are technical and managerial difficulties in the mountain farming. High rugged terrain and cold climate raise the need of technical expertise and greater effort of working force to get better output. Most crops grown in the hills are facing some problems. For instance, tea a major crop of the region, shows decline in production, since independence. The main reason for is this the old tea bushes of over 140 years. There is lack of proper replantation.⁵ Low technical expert and dependence on manual labour for most works constitutes heavy cost of production. Darjeeling tea also has to incur high transport and labour costs as most tea gardens are situated in interior hills and valleys. This further adds to the cost of production. All these factors raise price which finds it difficult to compete with tea from Sri Lanka and Kenya in foreign market.

Likewise, other cash crops like ginger and orange, grown over a larger area have a good market in India and abroad. But t there is not a single processing unit in the region. Presence of middlemen in marketing system results in diversion of substantial portion of the profit. Apart from this, insects and pests occasionally damage crops. Among various diseases, 'softfort' in ginger, 'fusray' (attack at new leaf) in orange, 'furkey'/'surkey' (it dries up plant) in cardamom and 'wart' in potato are most common. Hence a good amount of research needs to be done to over come these difficulties. Modernisation is also required to be brought in to improve the productivity of crops.

⁵ Mukhia, H.C. 1997. *Darjeeling Tea Industry – Yesterday, Today and Tomorrow*, unpublished paper, p.1.

4.3 Occupational Structure of Workforce

Occupational structure in any region is directly related to its economic development. The composition of workforce is an important index of level and trend of economic development. The census of India classifies main workers into nine folds. It includes- (I) cultivators, (I) agricultural labourers, (III) Forestry, livestock and allied activities, (IV) mining and quarrying, (V) manufacturing (both household and other than household industry), (VI) construction, (VII) trade and commerce, (VIII) transport and communication and (IX) other services (banking, social, cultural, public educational services etc.). All these nine-classes of working population come under three broad classifications of primary, secondary and tertiary occupations. The share of working population under these three sectors depicts the stage of economic development and over time may point towards relative shift in economic structure and economic progress. Concentration of working force in primary activities is associated with the early stage of development. The share of secondary and tertiary activities rises as the area advances towards industrialization and modernization. In other words, in the initial stage of development, primary sector is more dominant. So, there is need to diversify economy by introducing modernization and to shift the surplus workforce from the primary to secondary sector. The growth of secondary sector gives scope for further development of tertiary sector. At the mature stage of development, tertiary sector becomes the most important engaging the largest working population.⁶

Darjeeling hills are in the primary stage of development with about 65 per cent of the total workforce engaged in primary sector. So, agricultural along with other allied activities need to be improved. Occupational structure of the working force of the region has been studied for 1981 and 1991. The census 1981 has not shown data for all the nine-fold industrial classification of workers. Except V(a) categories III to IX have been included as 'other workers'. Hence there is a problem in identifying the percentage share of workers in each sector. It has led to a further problem as the workers engaged in plantations, a major occupation, have not been given separately.

⁶ Sanyal, B.M., "The Impact of Economic Development on Structural Composition of Working Force in Darjeeling Hill Areas" in Srkar and Lama (eds.) *The Eastern Himalayas: Environment and Economy*, Atma Ram and Sons, Delhi, 1986: 583-593.

In order to avoid all these difficulties, the data presented by Sanyal in his study has been used for 1981.⁷

Comparison of 1981 and 1991 figures show a decreasing trend of workforce participation. About 35.83 per cent of total population was counted as main workers in 1981 but the figure went down to only 33.57 per cent in 1991. Though the work participation rate was low compared to many regions of the country but it was still higher than the state average. The corresponding figure for West Bengal was 30.23 per cent. Darjeeling hills show higher participation of female workforce than the district and the state as a whole. Female participation in 1991 for the hills was observed as 23.94 percent whereas for district and state it was only 19.42 and 7.96 respectively. It is because females perform most of the agricultural works in the hills. Moreover, a large number of female workforce are absorbed in tea gardens.

Table – 4.4

Darjeeling Hills– Workers in Different Sectors of Economy 1981 & 1991

	1981	1991
Darjeeling Subdivision		
Primary	68376 (67.4)	74493 (67.53)
Secondary	8561 (8.43)	6248 (5.66)
Tertiary	24526 (24.17)	29563 (26.81)
Kalimpong Subdivision		
Primary	41320 (66.78)	51046 (74.62)
Secondary	4111 (6.65)	3474 (5.08)
Tertiary	16437 (26.57)	13888 (20.30)
Kurseong Subdivision		
Primary	24847 (61.59)	28985 (60.27)
Secondary	3039 (7.53)	3203 (6.66)
Tertiary	12456 (30.88)	15906 (33.07)

Source: District Census handbook, Darjeeling, 1991 and Sanyal, Bikash Mohan (1986), pp. 587

Note: figures in bracket show the percentage of workers in that category.

As mentioned earlier, greater share of workforce in this hill region is engaged in primary sector. Topographically, all three hill subdivisions are similar and the agricultural system is also more or less same. Major proportion of working force here is absorbed in farming activities. Very low share of working force is engaged in secondary sector which depicts low level of industrialization.

⁷ *Ibid.* p.585.

Table 4.4 shows that dependence on primary sector in Darjeeling subdivision is decreased from 67.4 per cent in 1981 to 67.53 per cent in 1991. In manufacturing sector where already low per cent of workforce has become even lower i.e. 8.43 per cent in 1981 and 5.66 per cent in 1991. So far the tertiary sector is concerned the participation rate maintains gradual growth with the pace of urbanization. The more workforce seems to be absorbed in this sector.

This situation however is different in case of Kalimpong subdivision where there was growth of workers in primary sector from 66.78 per cent in 1981 to 74.62 per cent in 1991. The secondary sector had decline like Darjeeling subdivision. The share of workers in tertiary sector in 1991 also came down. This may be related to recent expansion of agriculture in the sub division.

Kurseong subdivision registered a decline in share of workers in both primary and secondary sectors from 1981 to 1991. However, their share rose in tertiary sector. It must be remembered that unlike Kalimpong there is no fall in absolute number of workers in primary and secondary activities in Kurseong. This shows that tertiary activities grew at a much faster rate compared to other two sectors. It may be due to high growth of urbanization in Kurseong subdivision. The relative shift of working force from primary and secondary sectors to tertiary sector is quite encouraging. Nevertheless, like in other subdivisions, primary sector still dominates the economy of this subdivision. Still more than 60 per cent of the total working force are engaged in it.

Table 4.5

Darjeeling - Distribution of Main Workers, Marginal Workers and Non Workers

Workers	Darjeeling		Kalimpong		Kurseong	
	1981	1991	1981	1991	1981	1991
Main Workers	35.71	32.01	37.4	37.02	34.64	31.87
1. Cultivator	9.25 (25.90)	8.07 (25.22)	48.99 (50.76)	19.24 (51.96)	4.49 (12.96)	5.77 (18.10)
2. Agricultural labourer	1.57(4.40)	2.20(6.88)	2.40 (6.38)	3.76(10.18)	1.03 (2.98)	1.61 (5.04)
3. Workers in household industry	0.63 (1.77)	0.18 (.56)	0.67 (1.77)	0.26 (0.71)	0.45 (1.31)	0.10 (.32)
4. Others (incl. Plantation and allied activities)	24.26 (67.93)	21.56 (67.34)	15.23 (40.69)	13.76 (37.15)	28.67 (82.77)	24.39 (76.54)
Marginal Workers	1.56	0.55	1.44	0.99	0.58	0.59
Non Workers	62.73	67.43	61.18	61.98	64.78	67.54

Source: District Census handbook, Darjeeling, 1981 & 1991

Note: Figures in brackets indicate percentage of workers in that category out of total workers.

The above table reveals that there is a general trend of decrease in workforce in the hill area. In all the three subdivisions the share of workers has decreased and of non-workers has increased. Even the proportion of marginal workers have decreased in two subdivisions. Cultivators in Kalimpong and Kurseong and agricultural labourers in all the subdivisions have increased.⁸ Agricultural labourer has increased tremendously in the hills. It was 4.40 per cent, 6.38 per cent and 2.98 per cent of the total main workers for Darjeeling, Kalimpong and Kurseong respectively in 1981. Their share rose to 6.88 per cent, 10.18 per cent and 5.04 per cent for Darjeeling Kalimpong and Kurseong respectively in 1991.

Preponderance of primary activity is reflected by the fact that 39.13 per cent of the work force (excluding those workers who are engaged in plantation agriculture) and above 86 per cent of the rural population is dependent on agriculture (including 35.73 per cent on tea garden, 5.67 per cent on cinchona plantation and 4.65 per cent on forest). The decrease in work force and increase in non-workers is probably because of the emphasis given to education of children by parents. This is also reflected in the increasing literacy rate (see Chapter III). The young population constituted important share of working population in the traditional economy of the hills.

Inter-village analysis (Appendix – III) shows low percentage of workforce in forested lands. Probably it is due to the less economic opportunity available for the dwellers other than the forestry. But even in forest villages where people perform agriculture and other activities along with forestry like in Lama Gumba Forest (63.16%), ShibKhola Forest(62.24%), Birik(58.37%), Mal Forest (58.18%), Mahaldaram Forest (57.85%), Lolagaon Forest(42.53%), etc. show higher percentage of workforce to their total population. Again, in comparison to tea estates Khasmahals have absorbed higher percentage of workforce. Villages with high percentage of

⁸ An agricultural labourer is often termed as '*Khetala*' in Darjeeling hills, who works on somebody else's land either on hire or exchange of labour.

workers, to name a few, are Lindsay(70.81%), Labda(62.28%), Karmi(62.18%), Murmidong(62.00%), Pagongbong(61.12%), Nim(59.21%), Lonku(56.86%), Yokprintam(56.46%) are all khasmahals. Probably this is due to the availability of good agricultural land.

4.3.1 Household Industry

Because of the nature of the physical environment of the region, there is limited scope for the development of large and medium scale industry. There is a scope for the development of household industry. The traditional household industries, mainly the handicrafts have declined. The weaving and making woolen blankets at Kalimpong from raw Tibetan wool has died out due to the closure of the trade route to Tibet. Though a number of such units still exist in the region but these absorb negligible proportion of workers. A village level data show that workers in these cottage and small-scale industries are almost absent in villages (except for few hamlets). They are mostly concentrated in urban areas. The reason may be that mostly the training centres and the co-operative sales emporium are located in towns. Such training centres for vocational courses are now being provided under Darjeeling Gorkha Hill Council (DGHC). There are however, some centres which are run by Christian missionaries and Tibetan Refugee Self-Help Group; and some others are run privately or individually. These can help household industry in Darjeeling hills. The most important handicrafts which are flourishing in Darjeeling are carpet weaving, cutting, tailoring, wood carving, bamboo carving, patch works, 'Thanka' (religious scroll) painting, 'Khukuri' (choppers) making, etc.

A decrease in the share of workers engaged in household industry is seen during 1981-91 (table 4.5). Iner-subdivision comparison reveals little variation in per cent of workers involved in such industry in 1981. In Darjeeling subdivision 1.77 per cent of total workers are found in this category. The same amount of per cent is also observed in Kalimpong subdivision whereas in Kurseong subdivision had a little

lower share of 1.33 per cent. The variations were little more marked in 1991. It was 0.56 per cent, 0.71 per cent and 0.32 per cent of the total main workers for Darjeeling, Kalimpong and Kurseong subdivisions respectively. Such a trend reveals decreasing trend for the skill of the hill people. For all the practical reasons such industry absorbs more womenfolk as they are more efficient in weaving, cutting and tailoring etc. Therefore, for the promotion of hill handicrafts and to raise household economy, efforts should be made by the concerned authority/government by providing rebate, training to the locals with best machinery and other inputs and loans for opening up of marketing outlets and centres, etc.

4.4 Development of Infrastructure and Basic Amenities

The infrastructure facilities play a catalytic role in the process of development. Its development over space is often reflected in the 'quality of life' of the people. Hence great emphasis need to be placed on the infrastructure facilities. These include educational institutions, health centres, power supply, transport and communication, housing, banking services, etc. Such facilities on the one hand indicate the level of social development, and these point to the likely trend in the future progress of the area on the other.

In spite of the various schemes implemented in Darjeeling under the successive Five Year Plans through Panchayats and local bodies in the villages for the development of infrastructure, all the villages have not attained equal and in some cases even the minimum standards so far. Planning is primarily aimed at providing access to villages and helps promote their development. But due to mismanagement and improper implementation of plans, inequalities have risen among the villages. Well-to-do villages have become more developed at the cost of other villages. A clear distinction of Myrdal's 'spread effect' and 'backwash effect' can be observed here. Developed villages owing to better investment opportunities have shown more growth. This results in net movement of people, capital and goods from backward regions/villages. As migration from backward villages is generally selective of young, educated and healthy, the condition of such villages becomes even worse. In order to

reduce such imbalances, it is necessary first to identify the extent of existing inequalities and to identify the lagging villages so that corrective measures could be initiated.

Deprivation of village entails for more than meager average income of its people. More often than not, poor villages have little or no access to basic social services and are therefore, isolated, disadvantaged and deprived. Poor villages are deprived of access to market and other services which reflects on their less productive economy and poor income etc. Rapid growth of population, scattered settlements, low economic returns and high cost of development have also created a serious deficiency of infrastructure and basic amenities in rural Darjeeling. Table 4.6 gives an idea about the level of development of infrastructure in Darjeeling hills and thereby their impact on overall development of the region.

Table – 4.6
Darjeeling- Distribution of Villages According to the Availability of Different Amenities

Subdivision	AMENITIES							
	Total no. of villages	Education	Medical	Drinking water	Post and Telegraph	Bus Stops	Road	Power Supply
Darjeeling	120	95.00	64.17	100.00	49.17	18.33	40.00	69.17
Kalimpong	96	66.67	20.83	98.96	23.96	16.67	31.25	22.92
Kurseong	68	77.94	45.59	100.00	51.47	20.59	50.00	51.47
Total	284	81.34	45.07	99.65	41.2	18.31	39.44	49.3

Source: District Census handbook, Darjeeling, 1991

4.4.1 Educational Institutions

Modern growth theory considers education as an important factor of economic development. Educational development tends to equalize economic opportunities and it removes socio-economic barriers to change particularly in the rural areas. Table 4.6 shows high development of educational facilities i.e. 81.34 per cent of villages in the study region have access to it. The highest percentage is observed in Darjeeling subdivision and lowest in Kalimpong.

Table – 4.7
Darjeeling- Number of Institutions, 1991 & 2000-2001

Subdivision	Primary Schools		Middle/High Schools		Junior colleges/colleges		Professional, Technical Schools/Colleges	
	1991	2000-21	1991	2000-21	1991	2000-21	1991	2000-21
Darjeeling	308	383	57	42	14	23	2	2
Kalimpong	145	235	43	28	9	10		-
Kurseong	121	157	30	20	6	9	1	1
Total	574	775	130	90	29	42	3	3

Source: District Statistical Handbook, Darjeeling, 2001.

In table 4.7 a comparison can be made for the number of institutions changed over the years from 1991 to 2000-2001. It reveals 99 new basic schools have come up in the region. Highest growth of such schools is found in Kalimpong. Here 90 new schools have been established within the span of ten years. In case of middle and high schools there has been a fall in number over the period. On the other hand, in case of junior colleges and colleges, it shows a considerable increase.

4.4.2 Medical Facilities

Health is an important aspect of social development of any region. Medical facilities are crucial to check morbidity and mortality rates of population. The human misery related to diseases is reduced and longevity of life is enhanced if proper medical facilities are made available. Thus, a higher frequency of occurrence of medical institutions is indicative of higher level of development.

Table 4.6 shows very low level of development of medical facilities in Darjeeling hills. About only 45.07 per cent of villages in the hills in 1991 had access to it. Among subdivisions Darjeeling had the highest percentage of villages with this facility registering 64.17 per cent followed by Kurseong 5.59 per cent and Kalimpong 20.83 per cent.

Table – 4.8
Availability of Medical Facilities, 1991

Subdivision	MEDICAL INSTITUTIONS				Villages with no Medical Facilities
	Hospital	Dispensary	Primary Health Centre	Others*	
Darjeeling	12	45	10	16	44
Kalimpong		5	5	5	13
Kurseong		2	22	10	5

Source: 1) District Census handbook, Darjeeling, 1991.

*others include family planning centre, primary health sub-centre, maternity & child welfare centre, nursing home, etc.

Although table 4.8 shows greater number of medical institutions in the region but the rural areas do not have satisfactory facilities as mostly these are found in respective subdivision headquarters. Darjeeling had the highest number of medical institutions numbering 83. It was followed by Kurseong 39 and Kalimpong with 28 institutions. As per population served per medical institution, Kalimpong was worst off with 6795 persons per centre and Kurseong had 3760 persons per centre.

Form the analysis of table 4.6 and 4.8 it is revealed that though Darjeeling subdivision had the highest share of villages with medical facility as well as the number of such institutions, there were still 44 villages out of 120 villages without it. The level of development is worst in Kalimpong subdivision, It had only 20.83 per cent villages with access to medical facility. It also had the highest number of villages numbering 79 without it. There was relatively better level of development in medical facility in Kurseong subdivision with 45.59 per cent villages with access and only 39 villages without it.

4.4.3 Water Supply

The traditional water use has been for irrigation and to meet domestic requirements. The supply of drinking water in the mountains, with some urban exceptions, still depends largely on direct drawing of water from streams and springs. Although table 4.6 shows about 99.65 per cent of villages with drinking water facility in the hills in 1991, there is no proper piped water supply in rural areas. Thus, they use conventional/natural sources of supply like spring, streams and ponds. In many cases river water is also used. Scarcity of water is a serious problem in the hills. The villagers have to travel on rough terrain for a considerable distance to fetch water for their daily use. With the increasing effect of global warming and the destruction of environment have resulted in reducing water quality and in some cases drying up of some natural source of water in the hills. This simply has created extra burden on the people of the region.

4.4.4 Transport and Communication

Cheap and fast means of transportation and communication constitute the lifelines of an economy in general and the modern industry and commerce in particular. Unless the rural centres of production are linked with the urban markets and growth centres, integrated rural development cannot take place. The rural roads provide connectivity to the villages so that activities in villages are carried out smoothly and needs of people satisfied.

Table 4.6 shows only 39.44 per cent of villages with pucca road in 1991. Among subdivisions Kurseong had highest proportion of villages with *pucca* road as 50 per cent followed by Darjeeling with 40 per cent and Kalimpong 31.25 per cent. There is 861 km. of *pucca* road and 1170 km. of *kutch*a road in Darjeeling hills providing movement of goods and passengers over the whole region. These directly connect only 104 villages and 6 urban centres. So there are still many villages which are not linked with roads and are not easily accessible.

Postal, telegraphic and telephonic services are the basic means of communications and are less developed in Darjeeling Hills. Table 4.6 shows 41.2 per cent of villages had post and telegraph facilities in the hills in 1991. Such facilities are found less developed in Kalimpong subdivision with 23.96 per cent. Kurseong subdivision and Darjeeling subdivision are found comparatively better off with 51.47 per cent and 49.17 per cent respectively. Overall, the means of transportation and communication shows a poor level of development in the region.

4.4.5 Power Supply

Power happens to be the most important item of modern infrastructure. Consumption of power is often suggested as a measure of general economic development. Availability of power is crucial to modernization of agriculture,

establishment of factories and running of diverse educational, medical and other facilities.

Table- 4.9
Darjeeling- Villages Electrified

Subdivision	Villages Electrified in the Year					
	1991	1997	1998	1999	2000	2001
Darjeeling	83 (69.17)	85 (70.83)	85 (70.83)	85 (70.83)	93 (70.83)	93 (70.83)
Kalimpong	22 (22.92)	91 (70.83)	91 (70.83)	91 (70.83)	91 (70.83)	91 (70.83)
Kurseong	35 (51.47)	49 (72.06)	49 (72.06)	49 (72.06)	49 (72.06)	49 (72.06)

Source: 1) District Census handbook, Darjeeling, 1991

2) District Statistical Handbook, Darjeeling, 2001.

Note: Per cent figures in brackets for all years are calculated in respect to total inhabited villages in 1991.

The above table shows highest percentage of villages electrified in Darjeeling. Here the rate of electrification shows a gradual rising trend. In case of Kalimpong there were only 22 electrified villages in 1991 whereas the data from 1997 to 2001 show high increase. It was only 22.92 per cent in 1991 whereas it registered 94.79 per cent in 1997 to 2001. One wonders about the authenticity of published data. In Kurseong subdivision 51.47 per cent villages in 1991 have been found electrified but the percentage rose to 72.06 in 2001.

The level of development of infrastructure facility in respect to 1991 figures is low in Darjeeling hills. Though many other projects that have been developed over the period like Rammam Hydel Project and Jaldhaka Hydel Project, etc., there is a great demand for power in the hills. It has not been able to fulfill the ever-growing demand so there is attempt to develop power station on Tista River. The dreams of hill people are expected to come true with the completion of this power station.

In the light of the above discussion it can be understood that there is a form of traditional rural economy in Darjeeling hills where the main occupation of people is farming. It is seen through high share of workforce in primary activities. Environment and technology are the major factors determining economic activities and land use pattern. Steep slopes and cold climate in the higher elevations has restricted limited

use of land for agriculture practices. Due to limited water supply and cold climate many crops are not grown at higher altitude. Its fragile environment does not allow the establishment of heavy and medium-scale industries. The development of villages is dependent on the accessibility to various amenities which determine socio-economic growth. It can be concluded from the above discussion that the majority of the villages of the region lack this accessibility and are therefore underdeveloped.

CHAPTER 5

RURAL DEVELOPMENT: A SYNTHESIS

It is very difficult to draw a precise profile of socio-economic inequality unless one can gather relevant information of smaller areal units of the study area. The common perception of the nature of socio-economic inequalities is one of disparities in a region like Darjeeling hills. Affluence of a very small section of society is seen with larger group living in rural areas with marked poverty. India itself is predominantly a rural country. Due to high disparities in the level of development in rural areas, rural development always had priority in the national agenda. Therefore, the government of India has been looking seriously for the most suitable model of development that can bring remedies to the rural and backward areas since independence.

Various approaches have been adopted by the government to develop rural areas. India's tryst with village started with the launching of Community Development Programme in 1952.¹ It was not a comprehensive approach and, therefore, it could not make any significant impact in the overall situation of rural poverty. Thus, in the Fifth Five Year Plan special area programmes for the 'weaker sections' of the rural population and for 'backward areas' were initiated to solve their problems. The programmes like Small Farmers Development Agency (SFDA), Marginal Farmers and Agricultural Labourers Agencies (MFAL), Drought Prone Area Programme (DPAP) and Hill Areas Development Programme (HADP) were undertaken. These were either target based or area specific approach. Programmes under area specific approaches like DPAP and HADP laid emphasis on the development of under-developed regions like Desert and Hill areas respectively.

Hills have been recognized as special problem area for quite a long time now. With the inception of development plans, special efforts have been made for development of the hill region. The full-fledged development plan for hill area was started only since Fifth Plan with a separate programme of HADP. In spite of this, not much evidence is available showing major improvement in the socio-economic conditions of the hill people.

The basic objectives of the Hill Areas Development Programme (HADP) have been the socio-economic development of the hills and the people living there in harmony with ecological development. The Programmes implemented under the HADP have,

therefore, aimed at promoting the basic life support systems with sustainable use of the natural resources of the area. Financial support received in the form of Special Central Assistance under HADP for the development of Darjeeling hill region during different Five Year Plans is given below:

Table 5.1

Allocation of Special Central Assistance Under HADP during Different Five Year Plans-
Darjeeling Hills

Hill Region	Plan Outlay (in Crores)			
	5 th Plan (1974-79)	6 th Plan (1980-85)	7 th Plan (1985-90)	8 th Plan (1990-95)
Darjeeling	15.00	29.85	44.55*	173.25*

Source: Planning Commission, Government of India.

* Additional fund of Rs. 10.49 crores in 7th Plan and 23.35 crores in 8th Plan were allocated for Autonomous Council of Darjeeling.

The above table shows that allocations for the development of Darjeeling hills had increased tremendously from Fifth to Eighth Plan i.e. from 15 crores to 196.60 crores. After the formation of Darjeeling Gorkha Hill Council (DGHC), an autonomous body, Darjeeling hills started getting special allowances other than allocation made under HADP.

Besides this area specific programme there are also integrated programmes that help in developing rural and backward regions. Various such programmes have been entrusted to rural development in Darjeeling hills. Important among these are Jawahar Gram Samridhi Yojana (JGSY), Indira Awaas Yojana (IAY), Sampoorna Grameen Rozgar Yojana (SGRY) and Prime Minister Grameen Yojana (Gramin Awaas). Funds under these programmes are being sent to respective Gram Panchayats (GPs) for the execution of different schemes formulated by the Gram Panchayats adopted in their Gram Sansads and Sabha.² A sum of rupees 38,540,004 was allocated under JGSY in

¹ Kumar, N and Mishra, O.P. "Approaches to Rural Development: Indian Experience", *Khadigramodhyog*, Vol. XXXXII, No. 8, May 1966, pp. 358-364.

² After the creation of Darjeeling Gorkha Hill Council (DGHC) in Darjeeling hills, the Panchayati Raj Institution has been re-organized with only one-tier i.e. Gram Panchayat level. The Panchayat under DGHC at Gram Panchayat level has been entrusted to formulate and execute the Rural Development Schemes out of the allocation allotted to GPs through Hill Council. The Panchayat institution has been divided into three sub-divisions i.e. Darjeeling, Kurseong and Kalimpong providing Departmental Branch Secretary and Executive Councilor to each of the aforesaid sub-divisions. There are 112 GPs under Hill Council.

Darjeeling hills for the year 2001-2002.³ Despite having spent such huge sum of money, the problem of intra-regional disparities still continues to be an urgent and sensitive strategic issue. Therefore, attempts have been made to understand the level of development and the root cause for the intra-regional disparities in different aspects in the hill region. Development is a complex phenomena and can not be measured easily. Therefore, a number of indicators of development were chosen at the village level. These indicators may not be the most suitable ones but these are the only which could be meaningfully taken out of limited available data.

5.1 Choice of Indicators

The identification of regional disparities in the levels and potentialities in the social and economic development need a judicious choice of indicators. As the major objective of the study is to understand the levels of development, selection of every indicator is based on the assumption that it has relationship with the development of the village. Fifteen indicators have been selected for this purpose. They are grouped into three broad categories of Social and Demographic development, Economic Development and Infrastructure development. Following are the list of indicators-

1. *Indicators of Social Development*

- (i) Growth rate of population, 1981-1991
- (ii) Sex ratio, 1991 (Negative)
- (iii) Percentage of literates to total population, 1991
- (iv) Growth rate of literates, 1981-1991
- (v) Percentage of female literates to total females, 1991

2. *Indicators of Economic Development*

- (i) Percentage of area under cultivation, 1991
- (ii) Percentage of irrigated land to total cultivated land, 1991
- (iii) Percentage of workers to total population, 1991
- (iv) Percentage of workers in non-primary sectors to total workers, 1991

³ Data obtained from the Department of Panchayat and Rural Development, DGHC, Lewis Jubilee Complex, Darjeeling.

3. *Indicators of Infrastructure Development*

- (i) Education – Primary/Middle/Secondary/Higher Secondary School
- (ii) Medical
- (iii) Postal
- (iv) Connectivity
- (v) Distance from the nearest town (Negative)
- (vi) Power Supply

Selection of the above-mentioned indicators can be justified on the following grounds-

The first set of indicators deals with population characteristics of each village. This helps us to understand the social and demographic development of villages which in fact is the reflection of economic development or vice versa.

The selection of the indicator as growth rate of population (1981-1991) is based on the idea that it helps to recognize the carrying capacity of a village in the hilly region like Darjeeling. It is specific to hill areas where if population grows beyond the carrying capacity then people are forced to migrate out resulting in low growth rate or even in decline in the population over time.

Sex ratio is another indicator, which helps us to know the migration characteristic of the village population. Higher sex ratio generally shows male selective outmigration caused due to poverty. It is, a negative indicator of development. It is considered that “a literate person makes a more productive labourer in a factory, a more progressive farmer keen to use new innovations and technology in farm operations, an enlightened trader and an enterprising individual showing adjustability and sociability”.⁴ Moreover literacy is both an outcome of development as well as leads to development. Change in literacy rate shows change in level of such development.

“Women are teachers” and “women’s education is the education of family”.⁵ So, literacy of females is an important indicator of development of household as well as of social development. Higher rate of female literacy suggests higher level of social consciousness and progress.

The second set of indicators is directly related to economic development. Generally regions with pre-dominance of primary sector are considered as the backward. Large proportion of land is under agriculture with a greater share of working force is engaged in it in Darjeeling hills. The growth of secondary and tertiary sector has limited scope because of underdevelopment nature of economy.

In agriculturally dominated economy of Darjeeling hills, the choice of cultivated land to total geographical land is one of the relevant indicators for development. Its high value shows high production of crops which can support large population. In other words, the large size of cultivated land enables the farmer to get a greater produce. It increases the scope of crop diversification as well. Irrigation plays an important role in the transformation of agriculture. It also helps in enhancing the productivity and increases the intensity of cultivation by converting the culturable waste into cultivated land. Higher value of irrigated land to total cultivated land shows higher level of modernisation on the part of agriculture. Percentage of workers to total population shows the ratio of workforce participation in economically productive activities. Its higher value explains that more people are engaged in economic activities and have higher growth potentials. Concentration of working force in primary activity is associated with the early stage of development. Development leads to shift of workers from primary to secondary and tertiary sectors. Therefore, the share of workers engaged in other than primary sectors has been used here considering that it gives an idea about the relative shift in the nature of economy i.e. from agriculture to industrialisation and modernisation. The proportion of

⁴ Gosal, G.S. and Krishan, G.L. 1984. *Regional Disparities in Levels of Socio-Economic Development in Punjab*, Vishal Publications, Kurukshetra, p. 118.

⁵ As quoted by Hussain Sebha. 1983. in “Development of Hill Areas: Focus on Women” in T.S. Papola et.al. (eds.) *Development of Hill Areas: Issues and Approaches*, Himalayan Publishing House, Bombay, p. 231.

workers in these two sectors rises as an area advances on the path of economic development.

The third set of indicators deal with infrastructure development; a direct requirement for socio-economic development in a region. The greater availability of infrastructure in an area results in more development

Among the various infrastructural facilities, development of educational institutions is the most important. It generally positively correlated with literacy and education. Educational development tends to equalize economic opportunities and removes socio-economic barriers to change. Similarly, medical facilities are also an important indicator of social development. It helps in checking the morbidity and mortality rate of population and enables people to live healthy life. Development of transport and communication is particularly important for the development of hill areas like Darjeeling. It breaks the isolation of rural areas and gives an opportunity to rural population to get exposed to the outside world. Distance form the nearest town is one of the important measures of socio-economic progress. In any developing countries it is urban centres where new innovations, technology or ideas grow and from where they spread to the countryside. The degree and rate of diffusion depends on the distance and means of communication. The villages located near towns have generally better accessibility and can avail better facilities. Thereby these have greater economic prosperity than those located far away. It is also a negative indicator. Power is the basic source of development. Availability of power is crucial to modernisation and also helps in developing other amenities like, education, medical and other services.

The next step in this type of analysis is to assign weights to the variables under infrastructure development (except for distance form the town). Since the data under this set is qualitative or attribute data and of different levels for the same facility. Moreover, information about these variables was available in the form of existence or non-existence in the village. Unfortunately there is no statistical method or a graded scale by which

different levels of a given facility can be assigned appropriate weightage. Therefore, in order to make an indicator for the variable the following weights have been assigned on the basis of the principle that higher the weightage greater is the importance or contribution to the development process. The weights allotted are subjective in nature.

A. Education

(i)	Primary School	1
(ii)	Middle School	2
(iii)	High School	3
(iv)	Higher Secondary School	4
(v)	Adult Literacy Centre	1

B. Medical

(i)	Child Welfare Centre/Family Planning Centre/ Community Health Centre, etc.	1
(ii)	Dispensary	1
(iii)	Primary Health Centre	2
(iv)	Hospital	3

C. Postal

(i)	Post Office	1
(ii)	Telegraph	1
(iii)	Phone	1

D. Connectivity

(i)	Pucca Road	1
-----	------------	---

E. Power Supply

(i)	Electrified village	1
-----	---------------------	---

5.2. Composite Index

After having selected the indicators and assigning weights, the most important step in a multivariate analysis is the composition of the value of all the indicators. For any region to be developed or underdeveloped, no single variable is sufficient enough to portray its complex nature. It is, therefore, several indicators having good inter-correlations among them have been selected. Composition of all the selected indicators helps in reducing the multi-dimensional aspect into a single index which could reflect disparities within the region. Hence its use is needed in the present study where the prime objective is to see the level of development within the region by comparing its different parts.

There are various methods for constructing a composite index. The most commonly used among them are direct summation of all the indicators, ranking method (used by M.G. Kendall), standard score method, factor analysis, etc. All these methods have their own limitations. Some of the methods like direct summation and ranking method besides having the advantage of having simple in computation have some serious disadvantages. In these methods the scale of indicators are ignored. So they fail to see the magnitude of the role played by different indicators. Thus all the indicators get equal merit. Similarly, the standard score method eliminates the absolute differences among the different observations of a variable.⁶ Most of these limitations get minimized in the factor analysis. It is a “technique designed primarily to synthesize a large number of variables into a smaller number of general components which retain the maximum amount of descriptive ability”.⁷ However, the most important limitation of this method lies in giving weightage in response to higher correlation or greater variance in variables. It may give higher weightage to highly correlated variables which may sometimes be less important.

⁶ Raja, M. and Singh, H. 1983. “Problems of regional Development in the Trans Himalayas: A Case Study of Ladakh” in T.S. Papola et. al. (eds.) *Development of Hill Areas: Issues and Approaches*, Himalayan Publishing House, Bombay, pp.238-269.

⁷ Mahmood, A. 1977. *Statistical Methods in Geographical Studies*, Rajesh Publications, New Delhi, p.159.

In addition to this, the variables that have been used in the present study are not sufficient enough to use factor analysis which needs larger number of variables.

Therefore, to avoid all the above-mentioned limitations of the methods and to see the actual variations within the observations of the same variable, a simple method of Composite Index has been applied in the study. “Obviously the values of all the indicators can not be added as these are incomparable in terms of units and range of values. So, first the question arises as to how to make these values scale-free so that they become comparable and capable of being added. The value of each indicator was made scale free by dividing each value by the respective mean (\bar{x}) of that column. Subsequently, the scale-free values were added to arrive at the Composite Index for each village. The mathematical formulation of the method is:

$$I.C. = \sum_{j=1}^n \frac{X_{ij}}{\bar{X}_j}$$

Here, X_{ij} = value of j^{th} variate for i^{th} village

n = number of variables.

The value of the index shows the level of development. The assumption is that the higher the value of C.I., the higher will be development”.⁸

In the present study the index for all the three sets of indicators i.e. social and demographic, economic and infrastructure has been worked out to see the disparities at each set. Finally, the overall development index has also been prepared in a similar manner on the basis of all the indicators together. To see the intra-regional disparities the villages were grouped by taking standard deviation as class interval from the mean.

⁸ Singh, H., “Economy, Society and Culture: Dynamics of Change in Ladakh” in I. Stellrecht (eds.) *Karakoram-Hindukush-Himalaya: Dynamics of Change*, Vol.4, Part – I, University of Tubinge, Germany, p.363. It should be noted that only in case of positive indicator the value is divided by the respective mean of that column to make it scale free. In case of negative indicator each observation is divided by the mean.

5.3 Levels of Social and Demographic Development

It is obvious that population is an important indicator for measuring proper and balanced development. Since the development of hill region depends upon carrying capacity of land. As stated earlier five indicators were selected for this purpose and their composite Index has been obtained to measure the level of social and demographic development at village level.

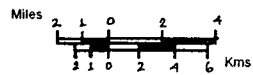
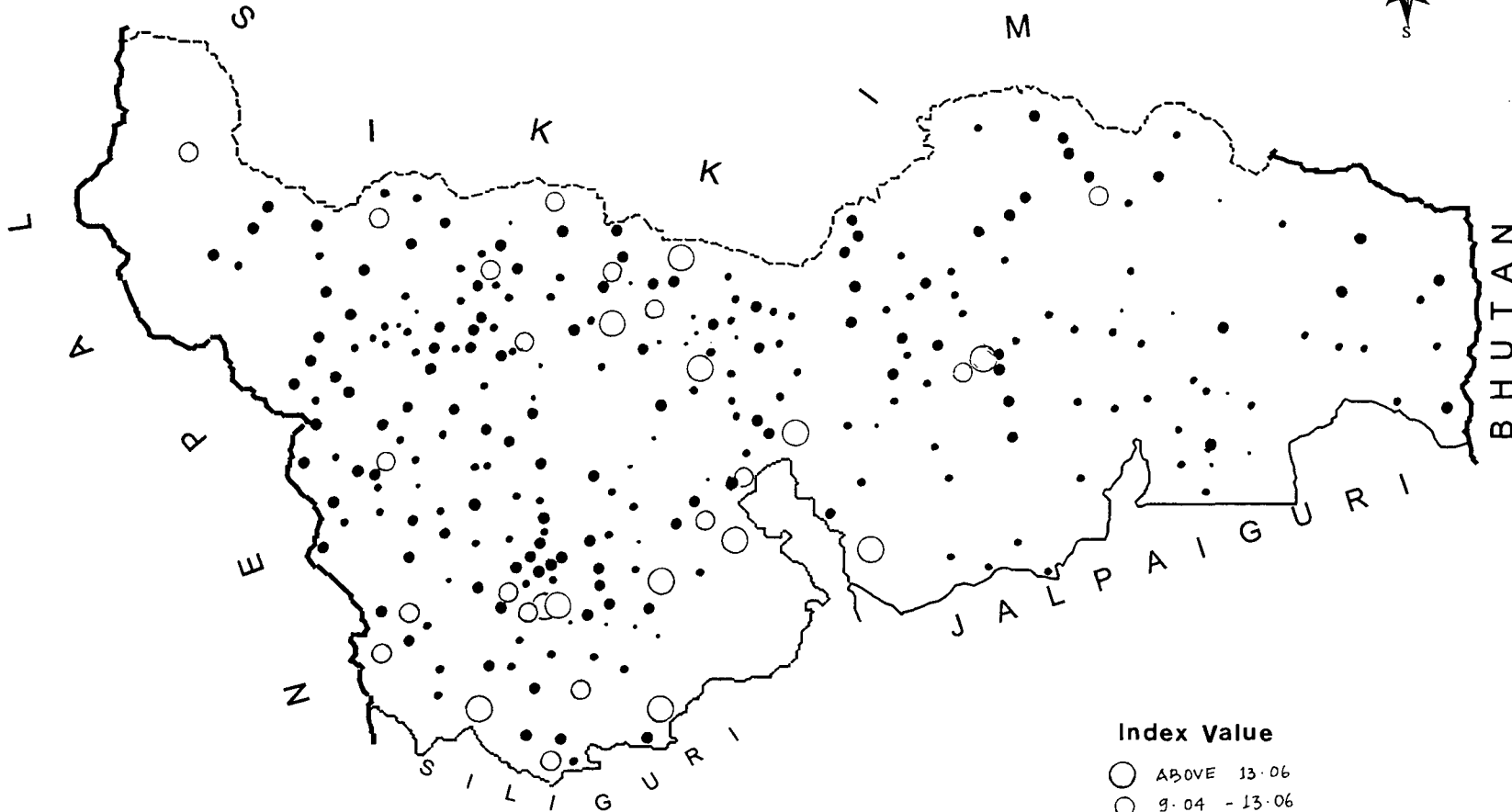
Table 5.2
Levels of Social and Demographic Development

Category	Composite Index Value	Rank	No. of Villages
Above $\bar{x} + 2D.$	Above 13.06	I	12
$\bar{x} + 1S.D. - \bar{x} + 2S.D.$	9.04 - 13.06	II	19
$\bar{x} - \bar{x} + 1S.D.$	5.02 - 9.04	III	108
$\bar{x} - 1S.D. - \bar{x}$	1.00 - 5.02	IV	115
Below $\bar{x} - 1S.D.$	Below 1.00	V	30

Table 5.2 shows that there are marked disparities in the level of development in the values of this index. The composite index value ranges between 21.22 for Sukna Forest of Kurseong subdivision to -10.00 for Richilichak Khasmahal of Kalimpong subdivisions. The gap between the highest and the lowest values show the difference in the rate of development between two villages.

The above table further reveals that the majority of the villages in Darjeeling hills occupy fourth and fifth ranks and a very less number of villages are found in first and second ranks. In fact, there are only 31 villages i.e. 10.92 per cent out of total 284 villages those have registered high development by acquiring the top two ranks. These have high level of socio-demographic development in comparison to other villages. Most of these villages recorded high growth in population and literacy because people from other villages have migrated here on account of high carrying capacity and developed infrastructure. Highest level of development in Sukna forest is due to opening up of forest offices and bungalows. It has attracted large number of staffs and their families. Some other villages (*Appendix -IV*) have improved economic activities like those of some forest villages i.e. Teesta Valley, Kaffir, Mazeok or where tourism and forestry are flourishing. Others like

DARJEELING
SOCIAL AND DEMOGRAPHIC DEVELOPMENT



- Index Value**
- ABOVE 13.06
 - 9.04 - 13.06
 - 5.02 - 9.04
 - 1.00 - 5.02
 - BELOW 1.00

Map V(1)

Tukdah, Gielle, Pokhribong, Karbia, Jamdar Bhatia, North Shib Khola and Giddapahar etc. have tea gardens with improved educational infrastructure. These have high literacy rate. Apart from these; Simring, Sittong and Marma have registered high growth of population that is reflected in the index having higher value.

Map V(1) shows large number of low ranking villages in Kalimpong subdivision. There are only five villages in this subdivision having index value of more than 9.04. In comparison to this there are relatively higher level of development in Darjeeling and Kurseong as is shown by many villages with higher rank. In all, there are many villages in Darjeeling hills which have registered low level of development. Most of these villages have low or negative growth in population and literacy. Some of them even reflected in negative value of the index. The villages with very low level of social development having negative index values are Kolbong, Royak, Humtakda, Tukdah, Labha, Mangpu, Maribong and Sinchel in Darjeeling subdivision, Richilichak, Pankhasari, Pashting and Darjeeling Hill Doors Tea Garden in Kalimpong subdivision and South Shib Khola, Nurbang, Tindharia, Gayabari, Mahal Dhiram and Bukhim in Kurseong subdivision. These villages have registered very low growth or even negative growth in some villages in population and literacy and have higher sex ratio.

Developments of infrastructure and social amenities have bearing on the development of a region. Factors like environmental constraints like rugged terrain, cold climate, landslide prone zone, high soil erosion, etc, also have played role in the region. With the increase in distance from the town to the remote villages the change tends to decrease. Most underdeveloped villages in respect of social and demographic change include Richilachak, Tindharia, Gayabari, Labda, Humtakdah, Soring, Maribong, Narbang, and South Shibkhola having index values of -10, -8.10, -6.72, -5.2, -4.88, -3.86, -3.67 and -3.44 respectively. These are the villages with high negative population, literacy growth and high sex ratio probably due to high rate of male out-migration. All these villages got negative values of composite index.

5.4 Levels of Economic Development

Though the disparity in economic development is comparatively less than that of socio-demographic development, yet the gap between the maximum and the minimum value of composite index is very wide.

Table 5.3

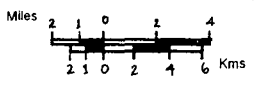
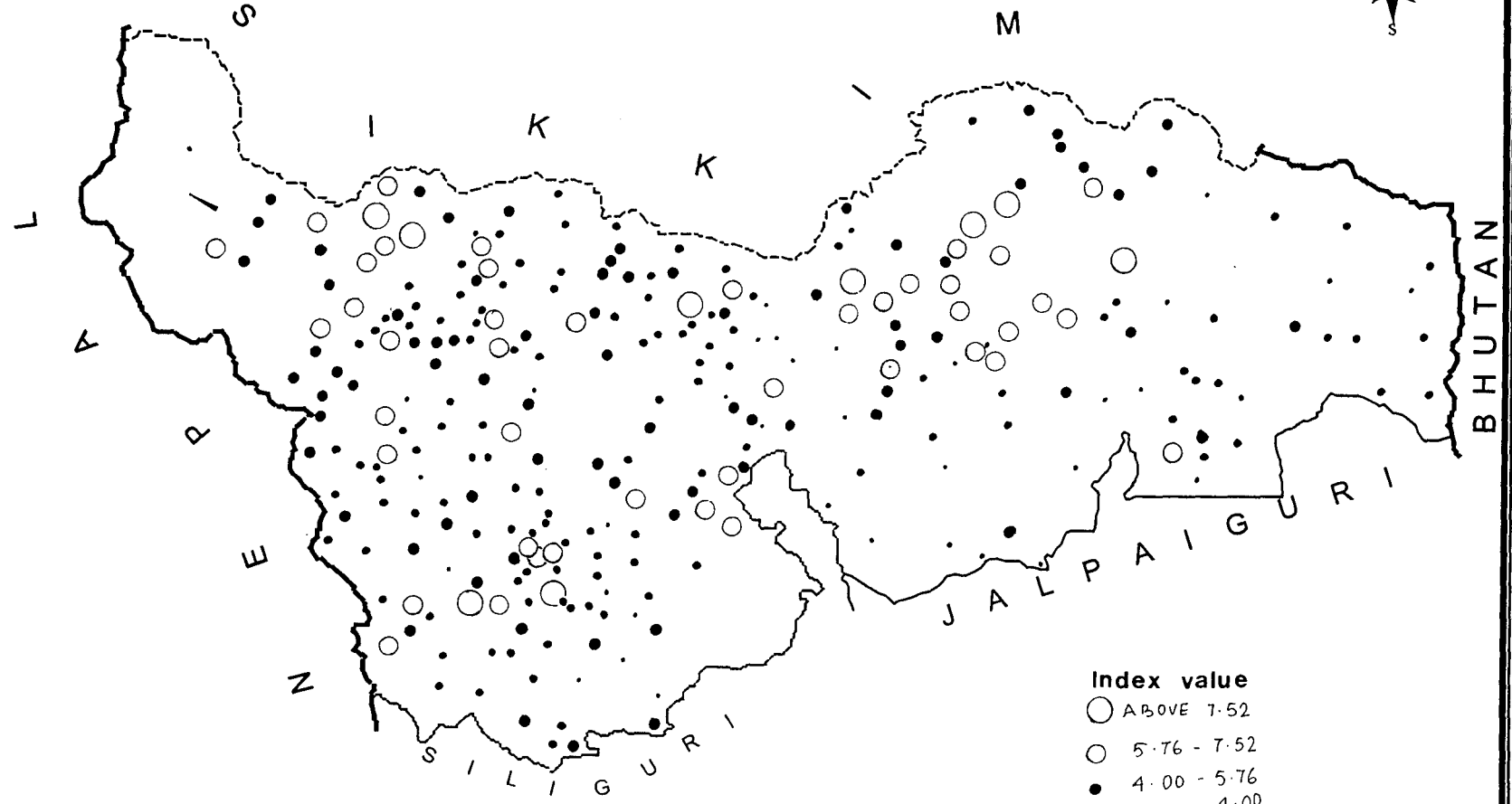
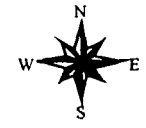
Levels of Economic Development

Category	Composite Index Value	Rank	No. of Villages
Above $\bar{x} + 2$ S.D.	Above 7.52	I	9
$\bar{x} + 1$ S.D. - $\bar{x} + 2$ S.D.	5.76 - 7.52	II	42
$\bar{x} - \bar{x} + 1$ S.D.	4.00 - 5.76	III	77
$\bar{x} - 1$ S.D. - \bar{x}	2.24 - 4.00	IV	119
Below $\bar{x} - 1$ S.D.	Below 2.24	V	37

Table 5.3 shows only nine villages having highest level of development with index value of more than 7.52 whereas the lowest level of development is observed in 37 villages having index value of less than 2.24. The highest economic development is observed in Algarah with the index value of 10.01 followed by Paiyong, Kolbong, Lava, Dungra, Bijanbari, Giddapahar, Rayak, and Marma with the values of 9.06, 9.22, 9.12, 8.20, 7.90, 7.65, 7.65 and 7.59 respectively (Appendix). Villages like Algarah, Lava and Bijanbari have local hats and are important market centres. These also have large number of workers in non-primary sectors. Others like, Dungra and Giddapahar are situated close to the urban centre of Kalimpong and Kurseong respectively. These also have high proportion of workers engaged in non-primary sector. Besides, other villages have good agricultural land with higher proportion of workers.

Apart from these, there are other villages showing high level of development. These include 42 villages ranking second in the composite index value ranging between 5.76 and 7.52. The highest number of such villages are found in Darjeeling subdivision followed by Kalimpong and Kurseong subdivisions. These are the villages with high percentage of cultivated land and high percentage of workforce participation in economic activities. Except for villages like Patlibas, Darjeeling (rural), Leborg and Aloo Bari in Darjeeling subdivision, Pudung, Sindibong, Bong in Kalimpong subdivision and St. Marys and

DARJEELING ECONOMIC DEVELOPMENT



- Index value**
- ABOVE 7.52
 - 5.76 - 7.52
 - 4.00 - 5.76
 - 2.24 - 4.00
 - BELOW 2.24

Map V(2)

Goethals in Kurseong subdivision, which are located around urban centres, others are located away from the town. There registered high per cent of cultivated land with irrigation facility and high per cent of working force. Very few are engaged in non-primary sectors. Therefore, these villages have been grouped in second category with relatively low value in composite index.

Moderate level of development is observed in about 27 per cent of villages. Majority of the villages amounting to 54.93 per cent have registered very low level of development. The lowest level of development is noticed in Panbu Forest with composite index value of 0.62 in Kalimpong subdivision. Most of the villages falling in the lowest category of composite index are forest villages where there are less cultivated land and very low percentage of workers in non-primary sectors. Map V(2) shows higher economic development in villages near town and in villages having good agriculture land. Low level of development is observed in villages situated in remote areas and in forest lands.

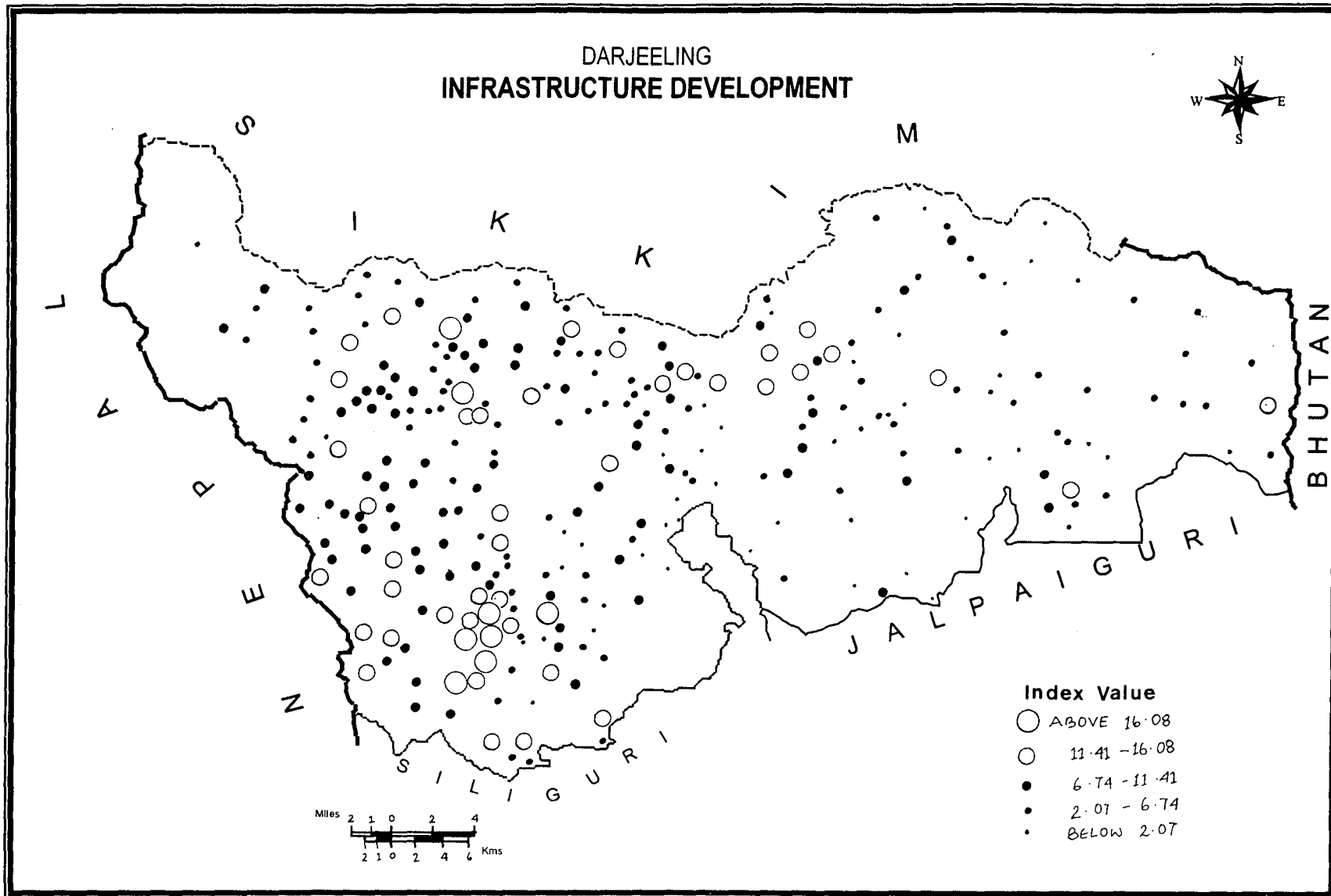
The variations in the level of economic development can be explained in terms of low level of available technology and hostile environment. Therefore, the forest villages and many other remote villages are found backward whereas the villages situated near towns have higher level of economic development as per the index.

5.5 Level of Infrastructure Development

Disparities in the level of infrastructure development are also very large. The most developed village in this set accounts for the composite index value of 26.03 recorded in Longview in Kurseong whereas the most underdeveloped village has a value of 0.42 found in Ambeek Forest in Kalimpong.

Table 5.4
Level of Infrastructure Development

Category	Composite Index Value	Rank	No. of Villages
Above $\bar{x} + 2S.D.$	Above 16.08	I	8
$\bar{x} + 1S.D. - \bar{x} + 2S.D.$	11.41 - 16.08	II	42
$\bar{x} - \bar{x} + 1S.D.$	6.74 - 11.41	III	82
$\bar{x} - 1S.D. - \bar{x}$	2.07 - 6.74	IV	97
Below $\bar{x} - 1S.D.$	Below 2.07	V	55



Map V(3)

There are only 50 villages accounting for about 17.61 per cent of total villages which record higher level of development in terms of infrastructure. Composite index value higher than 20.00 are also found in Darjeeling rural (20.680, Montiviot (21.16) and Castleton (21.93). These villages are situated near towns. Other villages with relatively higher level of development are St. Mary's, Makaibari, Spring Side, Karbia and Lebong (Appendix - VI). The levels of development tend to decrease with the increase in distance from the town. There are 152 underdeveloped villages in the hills accounting for 53 per cent of total villages. The lowest level of development in infrastructure is recorded in Ambeok Forest with 0.42 index value, where there is not a single amenity out of the selected ones, available. Moreover, it is located in one of the remotest areas and the nearest town is about 62 km. away from here.

Map V(3) shows large number of underdeveloped villages in respect to infrastructure facilities. Most of these villages are located in Kalimpong subdivision and in the eastern side of Kurseong subdivision. Highly developed are situated mostly near towns. It is also revealed from the map that Kurseong subdivision has the highest number of villages showing higher level of development. In all, villages of Kalimpong subdivision have low level of infrastructure development compared to those of Darjeeling and Kurseong. The following could be the reasons-

1. Villages in Darjeeling and Kurseong have tea gardens, which are economically more productive whereas the villages in Kalimpong have khasmahals producing subsistence food crops with low market surplus.
2. Villages in tea gardens are linked with roads for easy transportation of tea leaves to the factory for processing. In contrast, a few villages are connected with roads in Kalimpong. Accessibility to the villages in tea gardens has created 'spread effects' to the development of other infrastructure as well.
3. High level of infrastructure development in Darjeeling and Kurseong is also probably due to early start of development works during colonial rule.
4. Villages with high level infrastructure development in Darjeeling are also due to the merit of being administrative headquarter.

5.6 Levels of Overall Development

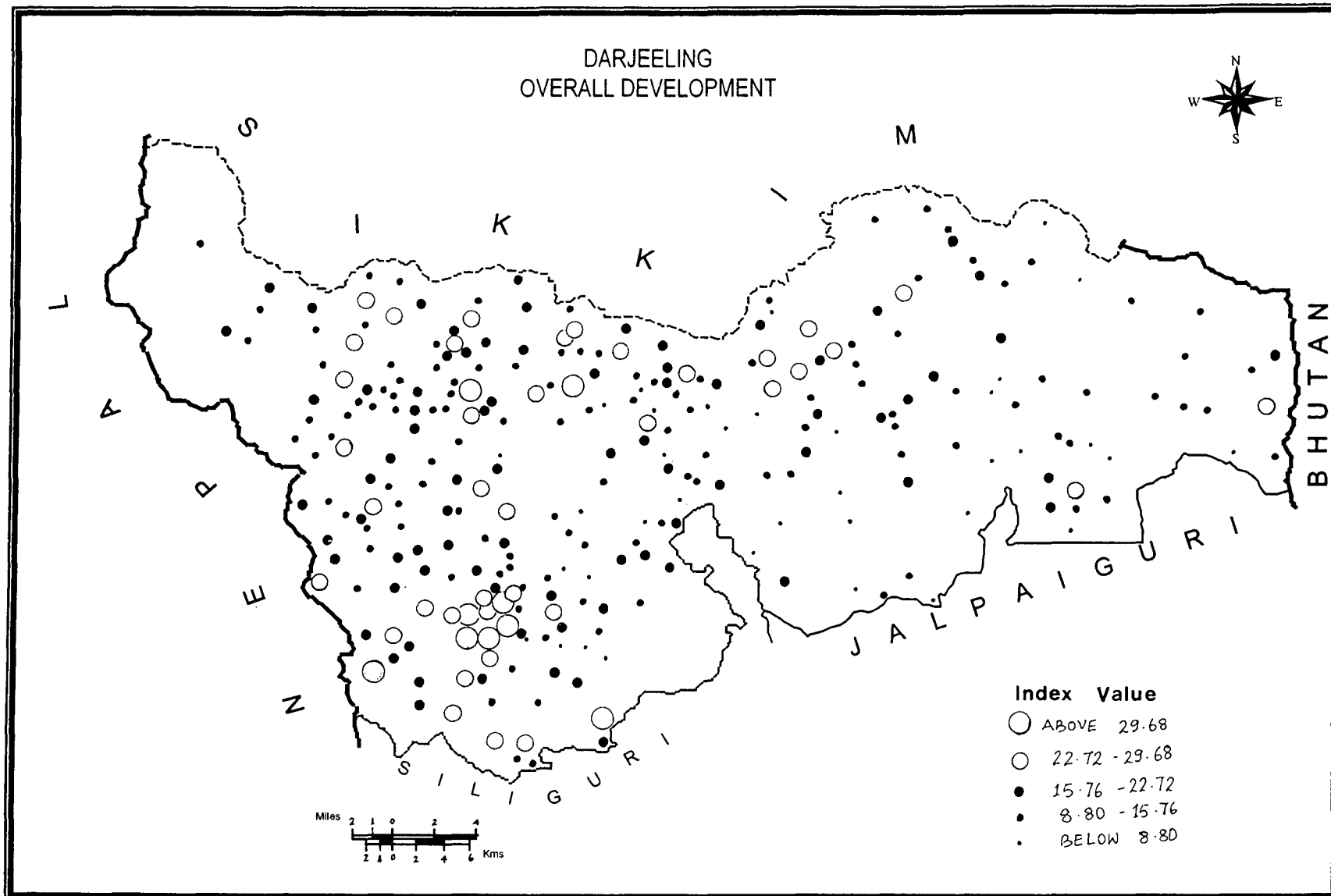
After analyzing the level of development in each set of indicators it is necessary to composite all three sets to get the more meaningful idea of overall levels of development in each village. The composite index values of all the three sets have been added to find the overall index of development.

Table 5.5
Levels of Overall Development

Category	Composite Index Value	Rank	No. of Villages
Above $\bar{x} + 2D.$	Above 29.68	I	9
$\bar{x} + 1S.D. - \bar{x} + 2S.D.$	22.72 - 29.68	II	38
$\bar{x} - \bar{x} + 1S.D.$	15.76 - 22.72	III	80
$\bar{x} - 1S.D. - \bar{x}$	8.80 - 15.76	IV	121
Below $\bar{x} - 1S.D.$	Below 8.80	V	36

The above table shows only 9 villages amounting to 3.17 per cent to total villages recorded higher level of overall development with composite index values of above 29.68. All these villages are found in Darjeeling and Kurseong subdivisions (Appendix - VI). These include Tukdah Tea Garden (33.31) and Darjeeling Rural (29.69) in Darjeeling subdivision and Longview (36.54), Giddapahar (35.39), Castleton (35.11), Sukna (34.57), St. Mary's (31.58), Spring Side (31.58) and Karbia (30.11) in Kurseong subdivision. About 13.38 per cent villages have experienced moderately high-level overall development with composite index value ranging between 22.72 and 29.68.

However, very large numbers of villages totaling 157 i.e. 55.28 per cent of total villages are found to be underdeveloped in Darjeeling hills. The most underdeveloped village Richilichak has the composite index value of -6.38 followed by Tindharia -0.33 whereas the most developed village Longview has the value of 36.54. This shows large inter-village disparities in the level of development in Darjeeling hills. Many of the villages having very low index values have experienced negative growth of population during 1981-19. Richilichak in Kalimpong subdivision is a remote forest village with limited agricultural land which is unirrigated. It also does not have basic amenities. Therefore, most of the male population seems to have migrated out to better-off villages as shown by



Map V(4)

very high sex ratio and decline in population. Similarly Tindharia in Kurseong, besides being located along State Highway No.12/A has remained underdeveloped. These two are the villages with negative values of overall indicators. Richilichak has the index value of – 6.38 and Tindharia has –0.33. Because of low level of economic development together with low infrastructure, this village also experienced decline in population. Out of the total 36 least developed villages of fifth rank as many as 22 villages are located in Kalimpong. Kalimpong. Map V(4) shows Darjeeling and Kurseong have villages with relatively higher level of development. All the highly developed villages are found in these two subdivisions whereas most of the villages in Kalimpong subdivision are least developed.

From the above discussion it can be concluded that there are various factors influencing the overall development of the region. The most important of these are physiography, accessibility, historical factors and the type of cropping pattern. Favourable topography and villages near towns having better accessibility and have shown higher level of development. With increasing distance from towns the levels of development tend to decline. Therefore, the villages in higher altitudes and in forest lands have obtained with lower levels of development. Again the historical regional structure of growth and the type of cash cropping in Darjeeling and Kurseong has led to higher level of development. Early start of construction of roads and railways and the introduction of tea plantations have led to the early development of the subdivisions. In contrast very low level of modernization and mechanization in traditional farming system in Kalimpong has resulted in low level of development of villages.

Thus the dimension of spatial socio-economic inequality in Darjeeling hills has emerged not only from the basic land resources and its configuration. Much of the present-day conditions are the legacy of a past combined with inability to harness the resources properly by government as well as private agencies.

CONCLUSIONS

There is a close relationship between socio-economic development and physical set-up especially in the hills. In most cases rugged physiography acts as a constraint on development of these regions. It restricts the flow of information and spread of technology. Rugged terrain, steep slopes and cold climate often restrict expansion of agriculture land and the establishment of industry. These factors often contribute to low level of development in the hills as is noticed in Darjeeling hills.

Physical environment of Darjeeling hills has important bearing in the development of the region. It has rugged terrain and cold climate in the higher altitudes whereas there is gentle slope and warm climate in the lower altitudes. The physiography of the region is largely shaped by Tista river, the main river of the region, flowing in north-south direction. It divides the entire hill region into two parts namely darjeeling-Kurseong and Kalimpong. General slope of the region is towards the valley side in the middle and in southward direction. Besides, there are many streams which have bearings on the micro relief features. The diverse physiography of the region has created variations in climate and vegetation types as well. General climate of the region is sub-tropical to temperate humid that varies depending on altitude. Though there is enough rain in Darjeeling hills during monsoon yet, there is scarcity of drinking water during dry season especially in urban areas. Soils in the region have been formed under the influence of micro variations in geology, vegetation and climate. High soil loss during monsoon in the hills has created hazard to the development of agriculture and productivity of crops.

Selection of Darjeeling as sanatorium by the Britishers in 1835 brought about major changes in social composition as well as in land use pattern. Distribution of population in Darjeeling hills is attributed to the history of development of the place. Early start of tea plantations and constructions of roads and railways have led to greater concentration of population in this region. Whereas the later start of sedentary farming in Kalimpong subdivision and larger forest cover resulted in less density of population here. As mentioned earlier, the choice of Darjeeling as a place of scenic beauty, introduction of tea plantations, constructions works by the Britishers and expansion of agricultural land in Kalimpong also led to intermixing of different ethnic groups in Darjeeling hills. Thus there is multi cultural society in the region. Most of

the people had come from Nepal, therefore, Nepalese today are the dominating community, and 'Nepali' has become *lingua franca* of the region.

Opening up of tea gardens and construction works in the mid 19th century attracted large population from adjoining areas. The growth of population in the hills is largely attributed to external factors. The continuous growth of population till independence was due to immigration of labourers to work in tea gardens and construction works. Fluctuations in the growth of population are noticed even after the independence. It is due to immigration of Tibetan refugees in 1960s and Gorkhaland Movement in 1980s. The movement seemed to have resulted in outmigration of people. Most of the movement of people may be due to economic reasons. They are still moving from rural areas especially the forest villages having low economic base. High growth rate of population on the one hand and lack of employment opportunities on the other leading towards increasing out migration in the hills.

Land use pattern underwent major changes since British occupation of Darjeeling in 1835. It was a virgin forest with a population of about 100 Lepchas when Britishers first came to Darjeeling. Large-scale deforestation took place in the second half of the 19th and in the beginning of the 20th centuries for expansion of tea gardens in Darjeeling and Kurseong subdivisions and agriculture land in Kalimpong subdivision. Darjeeling hills had shifting cultivation practised by the Lepchas prior to these activities. With the immigration of people from outside and expansion of economic activities, the local people were marginalized and pushed towards remote places. The practice of terraced farming in Kalimpong in the latter half of 19th century attracted local people as well as those working in tea gardens where vast forest land were available to them. Many locals who were agriculturists and a few others from tea gardens and from outside started settling there.

Shifting cultivation is no longer practiced in Darjeeling hills. The evolution of terraced farming replaced the old practice of shifting cultivation. Terraces in Darjeeling hills are called 'Garas'. Irrigated *gara* is called '*Khet*' and unirrigated *gara* is called '*Bari*'. Types of crops grown vary in these lands. The former is used mostly for paddy cultivation whereas the latter is for maize, millet and other dry crops.

Mostly paddy fields are found at lower altitudes with warm climate. This area is generally called '*Owls*' and the high altitude cold areas are called '*Leks*'

Very low proportion population is engaged in economic activities. Since agriculture is the primary occupation of the people, large proportion of work force is engaged in it. Large and medium scale industries are absent in the region. Only a few workers are engaged in manufacturing sector. With the impact of modernization, the cottage and small-scale industries are dwindling. Low economic opportunities in rural areas force people to outmigrate to urban centres. There is an increase in the share of workers in tertiary sector. Fairly good proportion of workers is engaged in tertiary sector in Darjeeling hills.

Infrastructure facilities are less developed in Darjeeling hills. There are many villages without educational institutions and medical facilities. Very few villages accounting 39.44 per cent villages out of total 284 villages were connected with pucca road in 1991. Postal, telegraphic and telephone services are also less developed in the hills. Power happens to be the most important item if modern infrastructure. But only 49.3 per cent of villages were electrified in 1991. Most of the villages located near towns are better off in infrastructure development. Those include Darjeeling (rural), Leborg, Montiviot, Spring Side, Castleton, Makaibari and Longview etc. Moreover, villages with tea gardens are also developed well than those of kahasmahals. It can also be noted that villages with large area also have higher levels of infrastructure development like Mangpu Cinchona Plantation, Rango Forest, Dungra, Tukdah and Sukhiapokri etc.

Physical environment has made major impact on the development of the region. Development of infrastructure and the type of environment are closely associated with socio-demographic and economic development. On account of poor economic base and remoteness from urban centers, most of the villages situated far away from towns are found less developed in respect of socio-demographic aspect. Some other villages like Spring Side, Humtakda, Tukdah, Reshop Bazar, Labda Maribong, Nurbang, Tindharia and South Shibkhola etc. are also found less developed in the level of social and demographic aspect due to low carrying capacity of lands. These villages have

registered low growth of population. These villages also have high sex ratio due to male specific outmigration and sometimes decline in population.

Agriculture is the mainstay of economy in Darjeeling hills. But it is less developed due to the factors of rugged relief, severe climate and low level of available technology. Therefore, again the forest villages and other remote villages found backward whereas the villages located near towns and in better environment have higher level of economic development.

Development of infrastructure is directly related to economic development of the region. Therefore, villages with strong economic base have been found to be better-off than villages with low economic development. In other words, most of the Khasmahals and forest villages with low subsistence economy are less developed. Villages having tea gardens and cinchona plantations are found more developed. Moreover, early start of development works during colonial rule in such villages also have an important bearing on the present day development of the region.

Overall development of the region is the result of the influence of various factors. Important among them are physiography, historical factors, cropping system, accessibility and level of technological development. Favourable topography and better accessed villages near towns have registered higher levels of development. Out of the total 284 villages 9 villages are highly developed, of which 6 are found near the town of Darjeeling and Kurseong. With the increasing distance from towns, level of development tends to decrease. Richilichak is least developed village in the region. It is located at about 62 km. Away from the nearest town of Siliguri. The villages in higher altitudes and in forest lands are also less developed. Villages like Singla forest, Namla, Jhepi, Lamagaon, Dangia, Richilachak, Today Tangta and Thumsun forest etc. are less developed villages located above 1800 meters. Again the historical regional structure of growth and type of cash cropping have led to higher levels of development. Low level of modernisation and mechanisation in traditional agriculture have resulted in lower level of development in agriculturally dominated villages.

BIBLIOGRAPHY

Books

- Bhat, L.S. et al. 1976. *Micro Level Planning: A Case Study of Karnal Area, Haryana, India*, K.B. Publications, New Delhi.
- Bhutia, Yonah. 1996. *Socio-Economic Structure of different Ethnic Groups in Darjeeling Himalayas: A Comparative Study of Nepalis, Lepchas and Bhotiyas*, Unpublished Ph.D. Thesis, CSRD, JNU, New Delhi.
- Butola, B.S. 1992. *Political Economy of Underdevelopment: A Case Study of Uttar Pradesh Himalayas*, Har-Anand Publications, New Delhi.
- Dhar, T.N. 1992. *Himalayan Development and Environment*, Society for Himalayan Environmental Rehabilitation and Peoples' Action, Lucknow.
- Gosal, G.S. and Krishan, G.L. 1984. *Regional Disparities in Levels of Socio-Economic Development in Punjab*, Vishal Publications, Kurukshetra.
- Hooker, J.D. 1854. *HIMALAYAN JOURNALS or Notes of A Naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasia Mountains, &c.*, Ward, Lock & co. limited, London.
- Krishnaraj, M., Sudrshan, R.M. and Shariff, A. 1999. *Gender, Population and Development*, Oxford University Press, New Delhi.
- Kundu, A. 1980. *Measurement of Urban Processes: A Study in Regionalisation*, Popular Prakashan, Bombay.
- Lama, M.P. and Sarkar, R.L.(eds.).1986. *The Eastern Himalayas: Environment and Economy*, Atma Ram and Sons, Delhi.
- Lama, M.P. and Sarkar, R.L.(eds.).1986. *Tea Plantation Workers in the Eastern Himalayas- A Study on Wages, Employment and Living Standards*, Atma Ram and Sons, Delhi.
- Mahmood, A. 1977. *Statistical Methods in Geographical Studies*, Rajesh Publications, New Delhi.
- Mohan, M. 2000. *Ecology and Development*, Sage Publication, Delhi.
- Monkhouse, F, J. & Wilkinson, H. R. 1973. *Maps and Diagrams*, The Chaucer Press, Suffolk.
- Mukhopadhyay, S.C. 1982. *The Tista Basin: A Study in Fluvial Geomorphology*, K.P. Bagchi & company, Calcutta
- Papola, T.S. et. al.(eds.). 1983. *Development of Hill Areas: Issues and Approaches*, Himalayan Publishing House, Bombay.
- Pinn, F. 1986. *The Road to Destiny: Darjeeling Letters 1839*, Oxford University Press, Calcutta.
- Pipazizy, A. A. 1993. *Mountain Environment: Understanding the Change*, Ashish Publishing House, New Delhi.

- Pokhriyal, H.C. 1984. *Human Environment and Socio-Economic Development in the Himalayas*, B.R. Publishing Corporation, Delhi.
- Sarkar, R.L. and Lama, M.P. (eds.). 1986. *The Eastern Himalayas: Environment and Economy*, Atma Ram and Sons, Delhi.
- Sen, J. 1989. *Drjeeling: A Favoured Retreat*, Indus Publishing Company, New Delhi.
- Singh, Harjit. 1979. *Ladakh- Problem of Regional Development in the Context of Growth Point Strategy*, Unpublished Ph.D. Thesis, CSRD, JNU, New Delhi.
- Singh, Harjit. 1999. *Environment, Development and Planning in the Hill Areas of India*, Research Report No. 25, Oxford University.
- Subba, T.B. 1992. *Ethnicity, State and Development: A Case Study of Gorkhaland Movement in Darjeeling*, Har-Anand Publications, Delhi.
- Subba, T.B. 1989. *Dynamics of hill Society*, Mittal publications, Delhi.
- Tejvir, S. (eds.). 1980. *Studies in Himalayan Ecology and Development Studies*, The English Book Store, New Delhi.
- Articles**
- Bagchi, G.C., Some Socio-Economic Aspects of Stratification in the East Himalayan Society, *Man in India*, Vol. 57, No. 4, 1977, pp.363-367.
- Basu, S., "Effect of Modernisation on Darjeeling Himalaya", *Geographical Review of India*, Vol. 46, No. 3, September, 1984, pp. 42-46.
- Basu, S.K. and De, S.K., "Soil Loss and Its Conservation in the Balasan Basin, Darjeeling Himalayas", *Geographical Review of India*, Vol. 60, No.3, September, 1998, pp. 294 – 309.
- Berkes, F., Hunt, I. D. and Hunt, K. D., "Diversity of Common Property Resource Use and Diversity of Social Interests in the Western Indian Himalaya", *Mountain Research and Development*, Vol. 18, No. 1, 1998, pp. 19-33.
- Biswas, B. *Rural Development in the Hill Areas: A Study of Two Villages in Kalimpong*, Occasional Paper, Centre for Himalayan Studies, North Bengal University, Darjeeling, 1987.
- Bose, Ashish, "Ecology, Economy and Society in Himalayan Village", *Economic and Political Weekly*, July 29, 2002, pp.2707 – 2709.
- Chakravarty, P.K., "Habitat Economy and Society: A Study of the Darjeeling Hill Areas" in Sarkar and Lama ed., *The Eastern Himalayas: Environment and Economy*, Atma Ram and sons, Delhi, 1986, pp.21-31.
- Chattopadhyay, M., "Evolution of Tea Industry and Labour Relations in Darjeeling Terai", *Man and Development*, Vol. 7, 1985, pp.87-102.

- Dasgupta, M., "Forest Management in Darjeeling Hill Areas from British Raj to Swaraj" in Sarkar and Lama (eds.) *The Eastern Himalayas: Environment and Economy*, Atma Ram and sons, Delhi, 1986, pp.136 – 168.
- Dutta, S., "Migration and Development: The Nepalese in Northeast", *Economic and Political Weekly*, 16, 1981, pp. 1053-1055.
- Gardner, J. S., "Natural Hazard Risk in the Kullu District, Himachal Pradesh, India" *The Geographical Review*, "Mountain Geography", Vol. 92, No. 2, April, 2002, pp. 282-306.
- Ghatak, Tapas, "Darjeeling Landslides- A Geoplanning Exercise Through Geographical Information System For Future Development", *Asian Studies*, Vol. XIX, No.1, Jan-June, 2001, pp. 65-80.
- Gosh, G. N., "Sustainable Mountain Development", *Yojana*, Vol. 46, August, 2002, pp. 48-52.
- Gupta, R.K., "Alternative Strategies for Rural Development in Garhwal himalaya" in Tejvir Singh (eds.), *Studies in Himalayan Ecology and Development Studies*, The English Book Store, New Delhi, 1980, pp. 219-227.
- Jones, J.E., "Poverty, Land Care and Sustainable Livelihoods in Hillside and Mountain Regions", *Mountain Research and Development*, Vol. 19, No. 3, 1999, pp. 179-190.
- Kalapeshi, D.M., "Understanding Himalayan Ecology" in Tejvir, S. (eds.) *Studies in Himalayan Ecology and Development Studies*, The English Book Store, New Delhi, 1980, pp.10-26.
- Kant Surya, "Development and the Environment in an Indian Mountains State", *Geographical Review of India*, Vol. 57, No. 2, June, 1995, pp. 97-111.
- Karan, P.P., "Population Characteristics of the Himalayan Region", *Mountain Research and Development*, Vol. 7, no. 3, 1987, pp.271-274.
- Khawas, Vimal, "Environmental and Rural Development in Darjeeling Himalayas: Issues and Concerns", *Spatio-Economic Development Record*, Vol. 10, No. 2, Mar-Apr, 2003, pp.27-33.
- Kulshrestha, S.K., "Plight of Hill Areas", *Spatio-Economic Development Record*, Vol. 1, No. 1, March-April, 1994, p. 3.
- Kundu, A., "Construction of Indices for Regionalisation: An Enquiry into the Methods of Analysis", *Geographical Review of India*, Vol. 37, No. 1, 1975, pp. 21-29.
- Meshram, D. S. and Chotani, M. L., "An Approach to Hill Area Development", *Spatio-Economic Development Record*, Vol. 1, No. 1, March-April, 1994, pp. 4-8.
- Mukhia, H.C. "Darjeeling Tea Industry – Yesterday, Today and Tomorrow", unpublished paper, pp. 1-3.
- Muthoo, H. K., "Plight of Mountain Areas: Development Challenge and Suggested Approaches", *Spatio-Economic Development Record*, Vol. 9, No. 3, May-June, 2002, pp. 6-13.

- Nadkarni, M.V., "Poverty, Environment, Development: A Many Patterned Nexus", *Economic and Political Weekly*, Vol. XXXV, No. 14, April 1, 2000, pp. 1184-1190.
- Nath, V, "Regional Disparities in Economic and Social Development in India", *National Geographical Journal of India*, Vol. 44(1-4), March-December, 1998, pp. 27-48.
- Raja, Moonis and Singh, Harjit, "Problems of Regional Development in the Trans-Himalayas- A Case Study of Ladakh" in T.S. Papola (eds.) *Development of Hill Areas: Issues and Approaches*, Himalayan Publishing House, Bombay, 1983, pp. 238-269.
- Sankhyan, A. R., "Threats to Ecosystem to Kullu Valley: Some Measures", *Spatio-Economic Development Record*, Vol. 1, No. 1, March-April, 1994, pp. 14-16.
- Sanyal, B.M., "The Impact of Economic Development on Structural Composition of Working Force in Darjeeling Hill Areas" in Sarkar and Lama (eds.) *The Eastern Himalayas: Environment and Economy*, Atma Ram and Sons, Delhi, 1986, pp. 583-593.
- Sen, N., "Role of Forest Corporation in Darjeeling Hills" in Sarkar and Lama (eds.) *The Eastern Himalayas: Environment and Economy*, Atma Ram and Sons, Delhi, 1986, pp. 109 – 121.
- Sen, P.K., "Geographical Perspective in the Rural Socio-Economic Inequality in West Bengal", *Geographical Review of India*, Vol. 60, No. 4, pp. 432-447.
- Serkar, S. P. and Thirumeni, M., "Planning Strategies for hill Stations in Eco-sensitive Zones", *Spatio-Economic Development Record*, Vol. 9, No. 2, March- April, 2002, pp. 35-37.
- Siddioni, Agha M.A., "Spacio-Economic Development of Backward Regions Through Rural Roads: A Suggested Approach", *Spatio-Economic Development Record*, Vol. 9, No.1, January-February, 2002, pp. 41-42.
- Stadel, Christoph, "Environmental Stress and Sustainable Development in the Tropical Andes", *Mountain Research and Development*, Vol. 11, No. 3, 1991, pp. 213-223.
- Subba, T.B., "Caste and Agrarian Structure: A Study in Hill Darjeeling and Sikkim", *Man in India*, Vol. 64, No. 1, March, 1984, pp. 59-68.
- Yadava, S and Yadava, K.N.S., "Social, Economic, and Environmental Development and Population Growth: Prospects and Consequences", *Indian Journal of Social Development*, Vol. 2, 2000, pp. 1-16.

Government Publications and Documents

- Banerji, A. K. 1980. *West Bengal District Gazetteers*, Darjeeling, Government printing, Calcutta.
- Census of India. 1961. West Bengal, District Census Handbook, Darjeeling, Vol. 16, Part XI, Government Printing, Calcutta.
- Census of India. 1971. West Bengal, District Census Handbook, Darjeeling, Vol. 22, Part X-A and B, Government Printing, Calcutta.

Census of India. 1981. West Bengal, District Census Handbook, Darjeeling, Series 23, Part XIII-A and B, Government Printing, Calcutta.

Census of India. 1991. West Bengal, District Census Handbook, Darjeeling, Series 26, Part XII-A and B, Government Printing, Calcutta.

Census of India. 2001. West Bengal, Provisional Population Totals.

Dash, A.J. 1947. Bengal District Gazetteers, Darjeeling, Government Printing Press, Calcutta.

Directorate of Forest, Sixth Working Plan for the Forest Kurseong Subdivision, Hill Circle, West Bengal, Vol. 1, 1997-98 to 2017-18.

District Statistical Hand Book. 2001. Darjeeling, Bureau of Applied Economics and Statistics, Government of West Bengal.

<http://planningcommission.nic.in/fiveyr/8th/vol2/8v2ch17.htm>.

Hunter, W.W. 1876. *A Statistical Account of Bengal: District of Darjeeling and Jalpaiguri, and State of Kuch Behar*, Volume 10, Trubnes, London.

O'Malley, LSS. 1989. *Bengal District Gazetteers*, Darjeeling, Logos Press, New Delhi.

World Bank. 1992. *World Development Report: Development and the Environment*, Oxford University Press, New York.

Newspapers

The Statesman, "DGHC Plan Threatening Salamander's Habitat", 2:7:99.

The Statesman, "Villagers to Resist Deforestation in Singalila National Park Area", 7:1:2000.

The Statesman, "Water Misuse May Lead to Scarcity in hills", 29:1:2000.

The Telegraph, "Pine Trees Squeezing Darjeeling Dry", 1:5:99.

Appendix – I
Distribution of Mean Daily Maximum and Minimum Temperature
(in °C)

Station: Darjeeling			Station: Kalimpong	
Month	Max Temp	Min Temp	Max Temp	Min Temp
Jan	8.6	1.9	15.4	7.9
Feb	9	2.6	16.4	8.9
Mar	13.2	6.2	20.7	12.3
Apr	16.2	9.3	22.9	15
May	17.3	11.4	23.7	17.1
Jun	18.8	13.7	24.2	19.2
Jul	18.8	14.4	24.2	19.6
Aug	18.8	14.3	24.2	19.4
Sep	18.2	13.4	23.8	18.8
Oct	16.7	10.2	22.5	15.7
Nov	13.3	6.2	19.7	11.6
Dec	10.4	2.7	16.9	8.7

Source: Banerji, A.K. et. al., 1980.

Appendix - II
Distribution of Average Monthly Rainfall (in mm.)

Month Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Darjeeling	10.9	31.7	54.1	113	231.4	597.1	792.2	643.4	445.5	142.2	24.6	6.3	3092.4
Kalimpong	9.9	23.6	29.2	81.3	144.8	409.2	612.9	509.4	312.2	104.4	15.5	6.6	2259
Kurseong	14.2	28.2	43.7	107.4	273.8	825.7	1040.6	903.7	633	158.7	17	6.3	4052.3
Mungpo	13.5	32.5	57.7	136.9	245.6	661.9	820.7	622.7	431	123.2	21.8	6.1	3173.6
Pedong	14.5	31.5	50.3	121.2	242.6	466.6	638.1	558.8	357.1	111.8	22.1	8.9	2623.5

Source: Banerji, A.K. et. al., 1980.

Appendix – III
Population Characteristics and Economic Activities

Sl.No. (1)	Name of village (2)	Total pop- ulation (3)	% of Total literate (4)	% of Male literate (5)	% of Main workers (6)	% of Household workers (7)	% of Marginal workers (8)	% of Non workers (9)
1	Barnesbeg TG	1842	50.42	58.84	36.37	0.00	0.49	63.14
2	Singla TG	3058	35.70	46.63	40.16	0.33	0.26	59.58
3	Rangit Forest	2219	42.56	53.91	34.02	0.26	1.17	64.80
4	Badamtam TG	4759	57.76	69.64	34.29	0.37	0.00	65.71
5	Ging TG	4041	58.80	72.81	30.34	0.00	0.00	69.66
6	Banockburn TG	2603	49.95	54.14	25.16	0.00	0.00	74.84
7	Phutsering TG	2592	82.13	88.73	31.29	0.00	0.77	67.94
8	Rungeet TG	971	37.40	50.34	25.13	0.00	0.00	74.87
9	Pattabong TG	4276	36.98	47.04	35.97	0.00	0.00	64.03
10	Patlibas Forest	511	65.19	73.75	32.49	0.00	0.00	67.51
11	Tukvar TG	4208	68.99	82.63	39.14	0.73	2.09	58.77
12	Lebong TG	2102	63.57	77.04	38.39	0.00	0.00	61.61
13	Soom TG	2950	47.53	59.75	30.24	0.45	0.00	69.76
14	Sum Forest	575	32.81	44.73	36.00	0.00	0.00	64.00
15	Singtam TG	2685	43.65	59.70	27.75	0.00	1.38	70.88
16	Happy Valley TG	1291	40.83	47.04	20.79	0.00	0.23	78.97
17	Arya TG	1354	39.78	50.35	36.26	0.00	0.00	63.74
18	Rishihat TG	2246	56.34	72.76	38.33	0.00	0.00	61.67
19	Salu TG	1663	51.34	64.56	25.68	0.00	0.00	74.32
20	Rishihat Khasmahal	785	82.57	91.78	42.55	0.00	0.00	57.45
21	Barbatta Khasmahal	635	73.57	79.84	37.01	0.00	0.00	62.99
22	Bloom Field TG	2403	57.84	72.14	32.25	0.00	1.04	66.71
23	Darjeeling (rural)	1305	52.20	56.59	32.11	0.00	0.00	67.89
24	Alubari TG	3014	63.76	71.01	39.22	0.25	0.00	60.78
25	Lebong & Hot Spring TG	1598	68.04	77.30	27.16	0.00	0.25	72.59
26	Pandam TG	2560	77.01	85.71	26.84	0.44	0.00	73.16
27	Aloo Bari Busty	1117	69.49	77.00	26.95	0.33	0.09	72.96
28	Singalila Forest	5936	46.54	57.53	25.30	0.27	1.03	73.67
29	Rimbick	5673	50.31	64.39	44.19	0.56	0.49	55.31
30	Namla	757	35.44	41.30	49.41	0.00	0.00	50.59
31	Lodhama	3409	53.58	67.51	45.85	0.77	0.03	54.12
32	Hatta	1487	54.08	63.60	48.96	0.55	0.00	51.04
33	Kankibong	3154	51.15	65.83	37.35	0.59	0.00	62.65
34	Jhepi	1123	39.66	50.74	52.18	0.00	0.00	47.82
35	Lamagaon	1986	53.94	67.36	51.41	0.10	0.10	48.49
36	Relling	2821	55.59	66.56	46.19	0.08	0.00	53.81
37	Dangia	1456	38.28	51.42	44.23	0.78	0.00	55.77
38	Singbhum Dera	2231	55.48	67.94	41.95	1.18	0.58	57.46
39	Majua	1061	49.61	57.14	53.91	0.35	0.00	46.09
40	Kajalia	1760	43.34	53.03	48.24	0.24	0.00	51.76
41	Samalbong	2518	51.26	63.00	52.07	0.00	0.00	47.93
42	Kolbong	1482	74.79	84.09	17.81	10.23	1.62	80.57
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
43	Murmidong	1487	32.18	39.88	62.00	0.00	0.00	38.00

44	Karmi	1388	43.41	51.00	62.18	0.00	0.00	37.82
45	Goke	6230	53.46	65.85	45.52	0.56	0.03	54.45
46	Bijanbari	5469	65.81	73.81	34.03	0.59	2.16	63.81
47	Chontong TG	5180	41.90	51.66	33.63	1.84	0.50	65.87
48	Lizahill TG	1225	55.10	70.13	38.45	0.00	0.49	61.06
49	KambaTG	4864	49.46	62.78	29.75	0.41	2.12	68.13
50	Teestavalley Forest	3698	56.60	64.16	31.50	0.17	0.00	68.50
51	Lapchu TG	1498	66.29	78.56	25.77	0.00	1.67	72.56
52	Peshok TG	3560	41.88	51.64	40.76	0.41	1.71	57.53
53	Bara Mungwa	1406	51.64	56.97	30.94	0.00	0.07	68.99
54	Chhota Mangwa	1175	65.03	76.05	37.19	0.00	0.00	62.81
55	Takling khasmahal	1713	49.13	57.56	42.15	1.39	0.00	57.85
56	Soring Khasmahal	733	60.79	77.85	39.56	0.00	0.14	60.30
57	Chegra khasmahal	417	76.62	88.71	22.30	0.00	0.00	77.70
58	Kolbong Khasmahal	498	75.24	83.57	27.11	1.48	0.00	72.89
59	Rayak Khasmahal	278	72.51	84.87	7.91	0.00	0.00	92.09
60	Lingding Khasmahal	548	52.04	59.66	31.39	0.58	0.00	68.61
61	Humtukdaa Khasmahal	408	73.88	84.32	48.28	0.00	0.00	51.72
62	Tukdah Forest	2631	43.85	52.66	35.61	0.00	0.00	64.39
63	Lapchu Khasmahal	3076	54.84	64.62	26.66	1.71	1.01	72.33
64	Singringtam	779	62.83	73.98	25.03	0.51	0.00	74.97
65	Mandara	1225	37.82	46.40	24.73	4.62	0.00	75.27
66	Tukdak	959	90.98	95.07	28.78	0.36	0.00	71.22
67	Tukdah TG	3182	62.33	73.82	28.13	0.00	0.22	71.65
68	Dawaipani	966	65.29	79.21	26.81	0.77	2.69	70.50
69	Pubong Khasmahal	1465	52.09	61.75	30.03	1.36	0.00	69.97
70	Rangli Rangloit TG	3066	45.75	55.51	26.91	0.36	0.10	72.99
71	Gielie TG	2958	65.31	77.63	29.31	0.00	0.85	69.84
72	Teesta Valley TG	5132	51.43	64.91	22.99	0.25	0.00	77.01
73	Pumong TG	6072	41.11	49.58	26.15	0.13	0.03	73.81
74	Reshop Bazar	381	84.44	89.13	31.50	1.67	0.00	68.50
75	Labda Khasmahal	448	39.79	48.78	62.28	0.00	0.00	37.72
76	Mangpu Cinchona Pl	11771	59.49	68.92	22.04	0.35	2.80	75.17
77	Rongchong Khasmahal	435	35.56	41.97	28.05	1.64	0.23	71.72
78	Simanabasti	482	71.53	81.20	25.52	0.00	0.41	74.07
79	Sukhiapokhri	3376	84.06	91.04	28.20	0.95	1.81	69.99
80	Minnagri Range	1308	61.35	74.12	16.44	0.00	0.00	83.56
81	Achhal Hatta	2241	58.09	69.24	40.16	0.00	3.75	56.09
82	Chamu TG	2066	39.76	49.01	45.01	0.11	0.00	54.99
83	Soolbong TG	1992	51.03	63.55	30.12	0.00	0.00	69.88
84	Seyok TG	2161	57.06	71.99	43.91	0.11	0.00	56.09
85	Gopal Dhara TG	1818	43.24	53.45	29.23	0.00	0.00	70.77
86	Mangarjung TG	2413	59.94	73.14	32.74	0.25	0.00	67.26
87	Sagraru TG	1526	58.28	73.91	32.63	0.00	0.13	67.23
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
88	Tarzun TG	1813	57.99	69.37	31.33	0.00	0.22	68.45
89	Pokhribong Khasmahal	2956	91.08	64.71	20.20	0.50	2.88	76.93
90	Samrick TG	1088	62.26	75.58	33.36	0.00	2.39	64.25

91	Molatey TG	2528	27.74	36.43	35.01	0.00	0.00	64.99
92	Dhajea TG	874	49.80	64.46	32.27	0.00	0.00	67.73
93	Nagrifarm TG	3574	61.11	76.11	30.44	0.00	0.03	69.53
94	Dhajea Khasmahal	2727	63.49	69.11	32.89	0.00	0.04	67.07
95	Kael TG	1774	51.28	63.49	40.14	0.00	0.11	59.75
96	Mariabong TG	520	24.48	35.47	41.15	0.93	0.96	57.88
97	Lingia TG	1736	59.91	74.50	43.26	0.00	0.00	56.74
98	Tumsong TG	1611	62.26	76.28	33.64	0.00	1.86	64.49
99	Tumsong Khas	1301	38.43	26.96	14.45	0.00	9.61	75.94
100	Mim TG	2177	60.97	73.40	30.23	0.00	0.14	69.64
101	Parmaguri Khasmahal	1188	79.07	90.98	41.75	0.00	1.94	56.31
102	Ghoompahari Forest	1004	75.65	75.10	37.15	0.00	0.00	62.85
103	Pulungdong Khas	2179	61.97	70.72	51.72	0.35	2.85	45.43
104	Pulungdong TG	552	39.16	52.80	44.73	0.00	0.00	55.27
105	Pubong TG	1425	57.66	72.52	44.77	0.94	2.18	53.05
106	Kusumbong TG	1490	54.85	78.39	25.03	0.55	0.00	74.97
107	Jorebungalow	543	77.83	87.60	21.55	3.42	0.00	78.45
108	Senchal Forest	667	53.37	66.67	35.38	0.00	0.00	64.62
109	Rangaroong TG	635	66.90	80.99	33.39	0.00	0.00	66.61
110	Rangbul	3198	69.69	80.71	31.93	0.49	0.03	68.04
111	Hillcart Road	2084	81.89	88.54	29.99	0.32	0.10	69.91
112	Sonada Khasmahal	6967	69.08	77.89	31.86	1.22	1.09	67.04
113	Kalet Valley TG	3134	59.88	70.48	31.49	0.00	0.03	68.47
114	Dooteria TG	4367	39.45	51.53	27.25	0.08	0.05	72.70
115	Rongmookcheder TG	4705	50.21	66.25	39.13	0.54	0.04	60.83
116	Okas TG	1150	53.88	67.00	38.78	0.00	0.00	61.22
117	Moondakotee TG	3762	40.49	51.36	43.33	0.12	0.00	56.67
118	Ringtong TG	3242	48.81	64.97	34.27	0.18	0.03	65.70
119	Nahoria TG	2283	54.92	72.38	31.80	0.00	0.00	68.20
120	Ringtong TG(Magrett)	3675	58.17	72.44	29.20	0.19	0.76	70.04
121	Bhalukhop Foerst	821	62.48	55.23	34.35	0.35	1.10	64.56
122	D Ghams Homes	1839	78.01	88.64	22.57	0.00	0.00	77.43
123	Kaffi Foest	471	72.12	70.24	42.25	0.00	0.00	57.75
124	Kaffi Khasmahal	978	55.96	70.36	37.42	0.00	0.00	62.58
125	Kankibong	867	48.82	63.56	52.71	0.00	0.00	47.29
126	Icha	3256	75.03	85.51	32.03	1.53	0.00	67.97
127	Pudung	1433	64.95	75.19	26.59	0.26	0.00	73.41
128	Sindibong	3306	66.34	75.37	38.57	1.18	0.00	61.43
129	Dungra	3776	77.02	85.76	20.92	1.39	0.11	78.97
130	Bhalukhop	3639	52.18	57.52	43.28	0.19	0.05	56.66
131	Mangbe Forest	156	43.90	47.14	42.31	0.00	0.00	57.69
132	Tista Bazar	2203	67.66	77.72	31.59	0.57	0.18	68.23
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
133	Mangwa Froest	868	57.69	58.16	43.89	0.52	0.00	56.11
134	Tashiding Froest	62	39.62	32.43	46.77	0.00	0.00	53.23
135	Kalimpong	6829	63.71	71.40	34.97	0.04	0.01	65.02
136	Bong	3353	75.70	83.79	28.45	0.00	0.00	71.55
137	Yokpintam	852	58.44	67.44	56.46	0.00	0.00	43.54

138	Seokbir	1058	56.08	64.50	49.05	0.00	2.36	48.58
139	Samalbong	1890	66.82	77.54	39.21	3.10	6.77	54.02
140	Lolagaon	614	62.85	73.83	32.25	0.51	7.82	59.93
141	Lolagaon rorest	174	43.54	46.75	42.53	0.00	0.00	57.47
142	Pemling	1387	62.04	72.66	50.11	0.43	0.00	49.89
143	Nimbong	2440	53.99	71.74	48.32	0.00	0.00	51.68
144	Nobgaon	1113	25.58	29.86	45.73	0.00	0.00	54.27
145	Pabingtar	830	39.09	51.73	50.36	0.00	0.24	49.40
146	Samthar	1054	40.60	59.54	46.68	0.41	0.00	53.32
147	Singi	1020	73.38	86.33	39.31	4.24	7.35	53.33
148	Comesi Forest	628	35.42	37.82	45.54	0.00	0.00	54.46
149	Ringkingpong Forest	81	38.81	40.00	34.57	0.00	0.00	65.43
150	Truzam Forest	158	44.44	50.65	44.30	0.00	0.00	55.70
151	Rambi Bazar	405	79.88	96.99	20.99	0.00	0.00	79.01
152	Riyang Railway Stn	204	30.18	37.25	31.37	0.00	0.00	68.63
153	Birik Forest	406	52.11	61.50	58.37	0.00	0.00	41.63
154	Mazeok Foest	238	38.39	44.17	24.37	0.00	0.00	75.63
155	Suruk	1021	42.40	52.81	35.26	0.00	11.07	53.67
156	Yang Makum	1888	27.88	39.15	47.14	0.00	1.80	51.06
157	Panbu Forest	516	31.89	27.98	23.45	0.00	0.00	76.55
158	Mangpong Forest	503	49.73	45.93	43.94	0.00	0.00	56.06
159	Lish Forest	315	31.21	44.52	39.37	0.00	0.00	60.63
160	Chunbhatti Baza	302	33.07	43.08	32.45	0.00	0.00	67.55
161	Chuanthi Forest	352	68.12	81.02	28.13	0.00	0.00	71.88
162	Uttar Fulbari	223	46.20	46.02	46.64	0.00	0.00	53.36
163	Suntalay Khasmahal	112	61.62	67.35	25.00	0.00	0.00	75.00
164	Mansong Cinchonaina PI	7789	48.93	60.37	22.67	0.00	6.02	71.31
165	Kashone	2513	26.79	32.36	45.96	0.00	0.00	54.04
166	Pedong Bazar	1147	62.19	70.45	48.82	0.00	0.00	51.18
167	Pedong Khasmahal	3290	65.23	71.33	26.60	1.26	0.30	73.10
168	Kagay	2217	55.76	60.89	49.35	0.00	0.00	50.65
169	Marma	1644	82.16	89.64	28.71	2.75	0.30	70.99
170	Ladam	2006	62.71	73.94	43.07	0.00	0.00	56.93
171	Lindsay	2162	49.84	58.73	70.81	0.20	0.00	29.19
172	Lingsay	1601	40.40	47.57	40.91	1.22	15.43	43.66
173	Lava Bazar	766	21.66	26.50	66.84	0.00	0.00	33.16
174	Sakyong	5027	57.39	65.05	42.21	0.61	0.00	57.79
175	Algarah Bazar	1630	69.49	78.49	33.50	0.73	0.06	66.44
176	Sangser Forest	2800	48.44	55.96	42.71	0.00	5.96	51.32
177	Dalapchan	2247	66.62	76.15	30.75	0.29	0.00	69.25
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
178	Paiyong	4513	71.70	82.14	64.30	0.14	3.87	31.83
179	Santuk	1253	35.49	39.65	59.30	0.13	0.40	40.30
180	Gitbeong	1687	40.57	49.87	47.42	0.00	0.00	52.58
181	Gitdabling	2728	51.48	83.02	46.59	0.00	0.00	53.41
182	Pagang	610	60.80	70.28	49.18	0.00	0.00	50.82
183	Bokhim	680	60.57	75.17	52.94	0.00	0.00	47.06
184	Palla	1365	55.52	64.03	55.31	0.00	0.00	44.69

185	Lolay	1736	28.44	37.16	50.17	0.46	0.00	49.83
186	Richilachak	3	33.33	0.00	33.33	0.00	0.00	66.67
187	Today Tangta	1722	56.10	63.35	40.07	0.00	0.00	59.93
188	PatenGodak	3504	46.13	54.39	43.49	0.79	0.00	56.51
189	Paren Forest	247	49.76	69.72	31.58	0.00	0.00	68.42
190	Rango Forest	9697	44.19	54.90	27.22	0.08	0.80	71.98
191	Mo Forest	52	29.79	37.50	34.62	0.00	36.54	28.85
192	Thonsum Forest	426	48.84	59.12	39.44	0.00	0.00	60.56
193	Eastnar Forest	237	29.14	33.70	0.84	0.00	0.00	99.16
194	Samsing	1676	49.71	59.86	43.62	1.11	0.36	56.01
195	Kumai Forest	866	44.32	54.42	31.52	0.73	1.96	66.51
196	Kumai TG	3596	56.02	71.74	27.47	0.00	0.06	72.47
197	Kumai Forest	860	37.24	52.21	4.77	0.00	0.00	95.23
198	Pankhasari	1444	26.83	33.28	51.87	0.27	0.76	47.37
199	Samabiyong TG	759	8.82	9.91	66.67	0.00	0.00	33.33
200	Pashting Khasmahal	234	24.26	29.36	38.03	0.00	0.00	61.97
201	Nim Khasmahal	1292	52.46	65.91	59.21	0.00	0.00	40.79
202	Pagongbong	2235	33.37	44.30	61.12	0.00	0.00	38.88
203	Noam Forest	395	19.49	21.97	55.70	0.00	0.00	44.30
204	Lethi Forest	295	40.98	58.88	34.92	0.00	0.00	65.08
205	Pogu Forest	435	31.73	48.24	35.86	0.00	0.00	64.14
206	Upper Fagu TG	1910	48.99	58.30	45.39	0.69	0.00	54.61
207	Ambeok Forest	1065	56.49	75.73	45.63	0.82	0.00	54.37
208	Ambeok Forest	121	61.04	59.62	52.89	0.00	0.00	47.11
209	Dalingkot Forest	1585	22.41	27.72	49.78	0.00	1.26	48.96
210	Dalingma Khasmahal	614	40.00	52.21	29.48	0.00	0.00	70.52
211	Goubathan Khasmahal	4268	47.15	56.87	43.60	0.05	0.00	56.40
212	Mal khasmahal	806	47.01	56.99	32.63	1.14	0.00	67.37
213	Mal foest	481	48.20	70.62	58.18	0.00	0.00	41.82
214	Lowe Fagu TG	1204	32.12	33.40	21.94	0.00	0.00	78.06
215	DajeelingHD TG	849	24.32	30.46	51.35	0.00	0.00	48.65
216	Sakam Forest	407	45.66	64.78	47.91	0.00	0.00	52.09
217	Dayathang TG	1152	59.82	72.41	24.22	0.00	0.00	75.78
218	Maharani TG	1897	72.74	89.17	27.89	0.00	0.00	72.11
219	Eden Vale TG	152	78.29	94.12	32.89	0.00	0.00	67.11
220	Sepoydhura	605	62.93	74.90	37.69	0.00	0.00	62.31
221	Kharia Basti	1137	72.12	77.61	49.60	0.00	1.14	49.25
222	Singel	3879	68.32	80.97	29.13	0.27	0.36	70.51
(1)	(20	(3)	(4)	(5)	(6)	(7)	(8)	(9)
223	Montiviot	620	61.03	78.31	30.32	0.00	0.00	69.68
224	Karbia	579	67.71	80.85	30.57	0.00	0.00	69.43
225	Castleton	1425	64.64	76.02	32.70	0.00	0.00	67.30
226	Spring Side TG	611	54.20	71.26	35.19	0.00	0.00	64.81
227	Ambootia TG	2280	74.85	86.69	27.24	0.48	0.35	72.41
228	Makaibari TG	1555	42.37	57.33	45.85	0.00	0.00	54.15
229	Punkha Bari	515	66.29	73.24	23.11	0.00	0.00	76.89
230	Longview TG	3993	42.12	55.07	41.62	0.00	0.03	58.35
231	Jamadar Bhita Khas	2057	35.22	42.39	42.73	0.00	0.05	57.22

232	Gari Dhura	2047	30.21	43.17	55.11	0.00	0.00	44.89
233	Satiguri Khelghar TG	407	45.43	50.00	39.80	0.00	0.00	60.20
234	Pairi Kumari	229	33.86	50.47	46.29	0.00	0.44	53.28
235	Simulbari	2744	33.93	49.32	28.68	0.13	0.95	70.37
236	Bamonpokri Forest	262	38.99	37.80	56.87	0.00	0.00	43.13
237	Rohini	1909	46.60	71.29	38.61	0.00	0.00	61.39
238	Lama Gumba Forest	19	0.00	0.00	63.16	0.00	0.00	36.84
239	Selim Hill TG	621	75.56	90.53	45.73	0.00	1.13	53.14
240	South Sibkhola	115	33.01	44.90	44.35	0.00	0.00	55.65
241	Sukna Forest	4467	49.43	60.47	37.59	0.18	0.00	62.41
242	Sukna	596	76.98	83.51	28.52	0.00	0.17	71.31
243	Nurbang	912	48.49	72.78	43.86	0.00	0.44	55.70
244	Sepoydhua TG	914	43.03	56.22	45.40	0.00	0.00	54.60
245	Tindharia TG	736	43.45	58.36	53.53	0.00	0.00	46.47
246	Gayabari TG	445	67.20	84.62	35.28	0.64	0.22	64.49
247	Shibkhola Forest	143	64.29	67.61	62.24	0.00	0.00	37.76
248	Lizziepu TG	1298	41.23	55.43	48.38	0.00	0.00	51.62
249	Mahanadi TG	1118	87.98	97.44	38.73	0.00	0.00	61.27
250	Jungoana TG	790	52.99	71.79	53.29	0.00	0.00	46.71
251	Noth Shib Khola	1193	66.37	79.12	40.23	0.00	0.00	59.77
252	Bara Shib Khola	1029	47.62	49.28	26.43	0.00	0.00	73.57
253	Giddapahar	1503	84.31	94.78	21.96	0.00	0.07	77.98
254	St. Marys	1573	90.03	94.88	19.69	0.00	2.17	78.13
255	Goethals	918	57.02	74.32	33.77	0.00	0.00	66.23
256	Chaita Pani TG	752	66.67	81.55	39.63	0.34	0.00	60.37
257	Majua TG	961	66.38	82.16	47.66	0.00	0.00	52.34
258	Upper Mamring Khasmahal	718	62.48	78.33	30.22	0.00	0.14	69.64
259	Lower Mamring Kasmahal	809	60.63	69.78	34.98	0.00	0.00	65.02
260	Toryak Khasmahal	645	70.22	74.79	35.19	1.76	0.00	64.81
261	Mahaldaram Forest	923	49.87	49.29	57.85	0.00	0.00	42.15
262	Mahal Daram TG	591	56.17	73.80	35.53	0.00	12.35	52.12
263	Malitar TG	1006	39.31	61.89	29.03	0.00	0.00	70.97
264	Gitingay TG	353	59.38	75.97	39.38	0.00	6.80	53.82
265	Simring TG	781	34.83	48.82	33.55	0.00	0.00	66.45
266	Latpanchar Forest	1934	47.25	52.48	25.96	0.00	0.00	74.04
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
267	Sittong Khasmahal	1667	63.35	76.33	42.53	0.28	5.94	51.53
268	Barasittong Khasmahal	536	70.04	80.75	31.34	0.60	0.00	68.66
269	Mangpu Cinchona Pl	1318	62.90	84.02	28.98	0.00	0.08	70.94
270	Selpu Khasmahal	1374	68.51	76.89	40.17	0.18	0.00	59.83
271	Rola Khasmahal	831	62.26	71.18	47.77	0.00	0.48	51.74
272	Lonku Khasmahal	714	57.63	68.67	56.86	0.00	0.42	42.72
273	Sittong Forest	929	78.32	81.51	48.44	0.00	0.00	51.56
274	Okaity TG	3216	70.17	81.75	38.46	0.32	0.00	61.54
275	Bukim TG	4059	57.08	69.35	31.12	0.08	0.66	68.22
276	Paschim Phuguri	2707	71.06	68.02	21.13	0.00	1.03	77.84
277	Saurini Basti	3811	73.16	84.46	41.93	0.06	0.03	58.04
278	Mirik Khasmahal	3123	59.58	68.46	35.06	0.37	2.79	62.15

279	Marma TG	2019	53.42	65.29	34.08	0.15	2.77	63.15
280	Singbulli TG	5899	67.58	76.71	34.21	0.35	1.93	63.86
281	Purba Phuguri TG	1973	78.87	79.59	19.82	0.00	0.00	80.18
282	Tingling TG	1319	85.29	93.50	49.43	0.00	0.00	50.57
283	New Fallodi TG	3742	39.89	50.63	34.21	0.00	0.00	65.79
284	Patong TG	2133	54.02	63.15	22.13	0.42	0.14	77.73
	Towns							
1	Darjeeling	73062	83.04	88.14	24.88	1.46	0.21	74.91
2	Kalimpong	38832	79.12	84.19	25.72	2.98	0.31	73.96
3	Jaldhaka	3097	65.52	88.35	72.22	0.24	0.00	72.78
4	Kurseong	26758	83.80	74.12	24.43	1.03	0.22	75.55
5	Cart Town	13572	73.67	83.54	21.81	0.74	0.64	77.55
6	Mirik	7022	66.48	77.49	25.12	1.08	1.24	73.64

Source: Census of India, 1991, District Census Handbook, Darjeeling.

Appendix – IV
Levels of Social and Demographic Development

Sl. No. (1)	Name of village (2)	Population Growth (3)	Literacy Growth (4)	Sex Ratio (5)	Percentage of Literates (6)	Percentage of Female Literates (7)	Composite Index (8)
1	Barnesbeg TG	-1.50	-0.96	1.04	0.93	0.93	0.45
2	Singla TG	4.31	2.73	1.00	0.66	0.55	9.25
3	Rangit Forest	2.29	0.50	1.18	0.79	0.63	5.38
4	Badamtam TG	1.23	1.14	0.96	1.07	1.04	5.45
5	Ging TG	0.43	0.84	0.95	1.09	1.02	4.32
6	Banockburn TG	0.99	0.43	1.01	0.92	1.03	4.40
7	Phubtsering TG	0.77	2.07	0.89	1.52	1.73	6.97
8	Rungeet TG	0.50	1.03	0.97	0.69	0.54	3.73
9	Pattabong TG	1.36	1.03	0.97	0.68	0.61	4.64
10	Patlibas Forest	4.40	2.15	1.16	1.20	1.23	10.15
11	Tukvar TG	2.69	2.51	0.95	1.27	1.25	8.67
12	Lebong TG	-1.17	0.25	0.97	1.17	1.14	2.35
13	Soom TG	1.35	0.42	0.97	0.88	0.80	4.42
14	Sum Forest	4.35	2.21	1.11	0.61	0.44	8.71
15	Singtam TG	-0.26	0.45	0.93	0.81	0.64	2.56
16	Happy Valley TG	2.14	1.77	0.90	0.75	0.79	6.35
17	Arya TG	3.90	1.42	0.88	0.73	0.68	7.61
18	Rishihat TG	3.28	2.30	0.93	1.04	0.92	8.46
19	Salu TG	0.43	-0.78	0.84	0.95	0.90	2.34
20	Rishihat Khasmahal	0.61	1.91	0.96	1.52	1.67	6.67
21	Barbatta Khasmahal	-2.34	-0.06	0.94	1.36	1.53	1.44
22	Bloom Field TG	2.20	2.32	0.90	1.07	1.01	7.50
23	Darjeeling (rural)	-0.09	0.29	0.94	0.96	1.08	3.18
24	Alubari TG	0.02	0.21	0.99	1.18	1.28	3.67
25	Lebong & Hot Spring TG	0.91	0.78	1.04	1.26	1.32	5.30
26	Pandam TG	3.13	2.96	0.98	1.42	1.54	10.04
27	Aloo Bari Busty	3.05	1.63	0.94	1.28	1.41	8.31
28	Singalila Forest	4.20	3.27	1.06	0.86	0.78	10.16
29	Rimbick	2.32	2.07	0.98	0.93	0.80	7.10
30	Namla	-0.04	0.28	1.03	0.65	0.66	2.59
31	Lodhama	1.13	1.06	1.06	0.99	0.85	5.09
32	Hatta	0.53	0.86	1.09	1.00	0.97	4.44
33	Kankibong	1.36	2.14	1.02	0.94	0.79	6.26
34	Jhepi	-0.49	0.48	0.91	0.73	0.64	2.28
35	Lamagaon	0.65	2.13	1.05	1.00	0.87	5.70
36	Relling	0.81	1.18	1.06	1.03	0.98	5.06
37	Dangia	2.63	1.56	1.00	0.71	0.54	6.43
38	Singbhum Dera	1.74	1.30	1.14	1.02	0.91	6.11
39	Majua	1.31	2.22	1.02	0.92	0.95	6.41
40	Kaijalia	1.44	1.46	0.99	0.80	0.76	5.45
41	Samalbong	0.03	0.63	1.04	0.95	0.87	3.51
42	Kolbong	4.10	3.76	1.01	1.38	1.47	11.72
43	Murmidong	1.24	-1.08	1.00	0.59	0.54	2.30
44	Karmi	-1.24	-0.32	0.99	0.80	0.80	1.03
45	Goke	2.50	1.72	0.98	0.99	0.92	7.10
46	Bijanbari	0.81	0.68	1.03	1.21	1.29	5.03

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
47	Chontong TG	0.04	0.62	0.95	0.77	0.73	3.11
48	Lizahill TG	-1.94	-0.62	0.97	1.02	0.90	0.33
49	KambaTG	2.67	2.12	0.99	0.91	0.80	7.49
50	Teestavalley Forest	8.29	4.64	1.02	1.04	1.10	16.09
51	Lapchu TG	1.60	2.13	0.92	1.22	1.24	7.11
52	Peshok TG	0.48	0.26	0.98	0.77	0.73	3.22
53	Bara Mungwa	0.18	0.33	1.09	0.95	1.03	3.59
54	Chhota Mangwa	1.78	1.37	1.01	1.20	1.20	6.56
55	Takling khasmahal	-0.19	-0.39	1.07	0.91	0.90	2.30
56	Soring Khasmahal	-4.99	-1.87	0.83	1.12	1.04	-3.86
57	Chegra khasmahal	-2.66	0.07	1.04	1.41	1.44	1.30
58	Kolbong Khasmahal	-4.05	-1.07	0.87	1.39	1.53	-1.33
59	Rayak Khasmahal	-3.92	-1.85	0.84	1.34	1.39	-2.20
60	Lingding Khasmahal	-0.87	-1.15	0.93	0.96	1.01	0.88
61	Humtukdaa Khasmahal	-5.94	-2.79	1.06	1.36	1.42	-4.88
62	Tukdah Forest	4.68	3.28	1.06	0.81	0.76	10.60
63	Lapchu Khasmahal	2.83	1.75	1.03	1.01	1.01	7.62
64	Singringtam	3.89	3.24	0.94	1.16	1.17	10.40
65	Mandara	2.17	1.03	1.02	0.70	0.65	5.57
66	Tukdak	-4.47	-0.57	0.98	1.68	1.97	-0.41
67	Tukdah TG	9.66	5.35	1.03	1.15	1.13	18.33
68	Dawaipani	0.61	0.82	1.06	1.21	1.14	4.84
69	Pubong Khasmahal	-1.12	-0.47	1.05	0.96	0.94	1.36
70	Rangli Rangloit TG	1.33	2.11	0.98	0.84	0.81	6.07
71	Gielie TG	6.27	3.78	0.92	1.21	1.20	13.39
72	Teesta Valley TG	0.69	0.43	0.95	0.95	0.87	3.88
73	Pumong TG	0.82	0.17	0.91	0.76	0.75	3.41
74	Reshop Bazar	-5.00	-2.04	1.12	1.56	1.80	-2.56
75	Labda Khasmahal	-4.88	-2.78	1.02	0.73	0.67	-5.23
76	Mangpu Cinchona Pl	1.81	1.43	0.98	1.10	1.13	6.45
77	Rongchong Khasmahal	1.39	-0.93	1.08	0.66	0.64	2.83
78	Simanabasti	1.58	1.11	1.24	1.32	1.35	6.59
79	Sukhiapokhri	1.17	1.12	1.07	1.55	1.73	6.64
80	Minnagri Range	0.14	0.27	1.03	1.13	1.08	3.65
81	Achhal Hatta	1.86	1.21	0.93	1.07	1.06	6.14
82	Chamu TG	1.21	0.04	0.90	0.73	0.70	3.58
83	Soolbong TG	0.95	1.75	0.86	0.94	0.90	5.41
84	Seyok TG	1.64	1.24	0.91	1.05	0.96	5.80
85	Gopal Dhara TG	0.97	-0.30	0.91	0.80	0.76	3.14
86	Mangarjung TG	-0.82	0.32	0.93	1.11	1.06	2.59
87	Sagraru TG	-0.33	-0.31	0.79	1.08	1.03	2.26
88	Tarzun TG	2.78	2.07	0.99	1.07	1.04	7.95
89	Pokhribong Khasmahal	1.70	0.88	0.99	1.68	5.08	10.33
90	Samrick TG	0.11	0.81	0.98	1.15	1.10	4.15
91	Molatey TG	0.14	-1.10	1.00	0.51	0.42	0.97
92	Dhajea TG	-0.06	0.36	1.02	0.92	0.78	3.02
93	Nagrifarm TG	1.70	1.43	0.91	1.13	1.05	6.23
94	Dhajea Khasmahal	0.93	1.11	0.85	1.17	1.33	5.39
95	Kael TG	0.03	-0.49	0.96	0.95	0.88	2.34

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
96	Mariabong TG	-3.16	-2.41	0.90	0.45	0.33	-3.89
97	Lingia TG	0.09	0.26	0.93	1.11	1.02	3.41
98	Tumsong TG	-1.70	-0.21	0.99	1.15	1.08	1.31
99	Tumsong Khas	-0.20	-1.22	0.66	0.71	1.06	1.01
100	Mim TG	0.22	0.50	0.95	1.13	1.10	3.89
101	Parmaguri Khasmahal	0.99	1.98	0.96	1.46	1.52	6.91
102	Ghoompahari Forest	0.42	1.40	1.36	1.40	1.74	6.32
103	Pulungdong Khas	0.99	0.86	1.02	1.14	1.19	5.20
104	Pulungdong TG	0.28	0.52	0.96	0.72	0.58	3.06
105	Pubong TG	2.94	1.98	0.98	1.06	0.96	7.93
106	Kusumbong TG	-1.68	-0.69	0.72	1.01	0.87	0.23
107	Jorebungalow	-0.19	0.74	1.01	1.44	1.52	4.52
108	Senchal Forest	-3.17	-1.59	1.04	0.99	0.87	-1.86
109	Rangaroon TG	-2.17	-0.27	0.97	1.24	1.20	0.97
110	Rangbul	1.76	1.28	0.95	1.29	1.33	6.61
111	hillcart Road	1.70	1.20	1.02	1.51	1.70	7.13
112	Sonada Khasmahal	2.12	1.76	1.00	1.28	1.35	7.51
113	Kalet Valley TG	1.43	1.68	0.87	1.11	1.14	6.24
114	Dooteria TG	0.62	-0.03	1.03	0.73	0.59	2.95
115	Rongmookcheder TG	0.55	0.46	0.94	0.93	0.78	3.65
116	Okas TG	0.29	1.41	0.98	0.99	0.92	4.59
117	Moondakotee TG	3.41	1.57	0.97	0.75	0.67	7.36
118	Ringtong TG	1.09	0.59	0.95	0.90	0.74	4.27
119	Nahoria TG	0.51	1.39	0.92	1.01	0.86	4.69
120	Ringtong TG(Magrett)	0.31	0.26	0.98	1.07	0.98	3.60
121	Bhalukhop Foerst	0.77	0.01	1.40	1.15	1.70	5.04
122	D Ghams Homes	-0.60	0.35	0.76	1.44	1.58	3.53
123	Kaffi Foest	0.93	1.86	1.00	1.33	1.69	6.81
124	Kaffi Khasmahal	5.40	3.26	0.95	1.03	0.94	11.58
125	Kankibong	4.53	2.16	1.01	0.90	0.74	9.34
126	Icha	0.95	1.14	0.96	1.39	1.46	5.89
127	Pudung	-0.43	0.48	0.98	1.20	1.23	3.47
128	Sindibong	0.70	0.49	1.06	1.22	1.27	4.74
129	Dungra	0.57	1.01	0.89	1.42	1.56	5.45
130	Bhalukhop	2.11	1.51	0.98	0.96	1.06	6.61
131	Mangbe Forest	0.95	0.89	1.10	0.81	0.90	4.64
132	Tista Baza	1.45	1.00	1.12	1.25	1.25	6.07
133	Mangwa Froest	0.76	2.22	1.20	1.07	1.30	6.55
134	Tashiding Froest	1.27	-0.23	1.71	0.73	1.28	4.77
135	Kalimpong	0.83	0.60	0.96	1.18	1.27	4.84
136	Bong	0.86	1.16	1.01	1.40	1.52	5.94
137	Yokpintam	0.81	1.13	0.87	1.08	1.13	5.02
138	Seokbir	0.67	0.76	0.99	1.04	1.07	4.53
139	Samabong	0.98	0.66	0.98	1.23	1.27	5.12
140	Lolagaon	0.09	0.54	0.95	1.16	1.17	3.92
141	Lolagaon rorest	0.71	0.04	1.08	0.80	0.91	3.54
142	Pemling	1.15	2.24	0.94	1.15	1.16	6.64
143	Nimbong	1.36	2.26	0.97	1.00	0.79	6.37
144	Nobgaon	-0.08	-0.51	0.98	0.47	0.48	1.34
145	Pabingtar	-1.24	0.16	1.09	0.72	0.52	1.25
146	Samthar	-1.29	-0.84	0.84	0.75	0.54	0.00

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
147	Singi	0.13	0.76	0.92	1.35	1.40	4.57
148	Comesi	0.93	-0.40	1.31	0.65	0.73	3.22
149	Ringkingpong Forest	0.94	0.54	1.07	0.72	0.85	4.12
150	Truzam Forest	1.50	0.27	1.22	0.82	0.82	4.62
151	Rambi Bazar	-2.05	-0.68	0.94	1.47	1.44	1.13
152	Riyang Railway Stn	1.80	0.21	1.27	0.56	0.44	4.28
153	Birik Forest	0.36	2.35	1.38	0.96	0.86	5.91
154	Mazeok Foest	0.97	11.10	1.17	0.71	0.70	14.65
155	Suruk	-0.30	0.22	0.86	0.78	0.75	2.32
156	Yang Makum	0.81	1.18	0.92	0.51	0.39	3.82
157	Panbu forest	1.07	1.48	1.17	0.59	0.83	5.15
158	Mangpong Forest	4.33	7.95	1.42	0.92	1.30	15.91
159	Lish Forest	0.68	2.01	1.08	0.58	0.38	4.72
160	Chunbhatti Baza	0.56	-1.65	1.01	0.61	0.52	1.05
161	Chuanthi Forest	-0.22	0.08	1.02	1.26	1.26	3.40
162	Uttar Fulbari	0.52	-0.12	1.34	0.85	1.06	3.65
163	Suntalay Khasmahal	1.74	1.71	0.85	1.14	1.27	6.71
164	Mansong Cinchonaina PI	0.35	0.62	0.98	0.90	0.84	3.69
165	Kashone	3.30	0.51	1.02	0.49	0.47	5.79
166	Pedong Baza	0.70	1.10	0.98	1.15	1.22	5.15
167	Pedong Khasmahal	1.24	0.21	1.16	1.20	1.31	5.12
168	Kagay	1.23	1.01	1.01	1.03	1.14	5.41
169	Mama	2.60	3.10	1.12	1.52	1.66	9.99
170	Ladam	-0.24	0.73	1.06	1.16	1.14	3.85
171	Lindsay	2.63	2.12	0.99	0.92	0.92	7.58
172	Lingsay	-0.92	-0.44	1.02	0.75	0.74	1.15
173	Lava Bazar	1.80	-1.06	2.20	0.40	0.19	3.52
174	Sakyong	1.90	1.39	1.01	1.06	1.12	6.48
175	Algarah Bazar	0.91	0.43	1.18	1.28	1.32	5.12
176	Sangser Forest	1.24	1.04	1.03	0.89	0.91	5.11
177	Dalapchan	0.55	0.54	1.00	1.23	1.28	4.60
178	Paiyong	1.09	1.18	0.98	1.32	1.38	5.95
179	Santuk	1.92	0.15	1.04	0.66	0.70	4.47
180	Gitbeong	0.42	-0.23	1.06	0.75	0.68	2.67
181	Gitdabling	1.01	0.75	1.06	0.95	0.70	4.47
182	Pagang	0.67	0.84	0.87	1.12	1.19	4.69
183	Bokhim	2.12	1.22	0.96	1.12	1.02	6.45
184	Palla	0.32	1.00	1.06	1.02	1.04	4.45
185	Lolay	2.29	-0.90	0.93	0.52	0.45	3.30
186	Richilachak	-7.30	-4.92	0.47	0.62	1.14	10.00
187	Today Tangta	1.44	2.46	1.11	1.04	1.08	7.13
188	PatenGodak	2.07	1.12	1.06	0.85	0.83	5.95
189	Paren Forest	1.69	0.32	1.08	0.92	0.62	4.62
190	Rango Forest	1.59	0.77	1.01	0.82	0.75	4.93
191	Mo Forest	1.43	3.17	1.94	0.55	0.30	7.39
192	Thonsum Forest	0.96	3.13	0.99	0.90	0.85	6.84
193	Eastnar Forest	2.62	-0.14	0.97	0.54	0.55	4.53
194	Samsing	0.01	0.91	1.02	0.92	0.87	3.73
195	Kumai	0.55	1.49	1.01	0.82	0.76	4.63
196	kumai TG	-0.35	0.77	0.98	1.03	0.89	3.33

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
197	Kumai Foest	0.69	2.45	0.98	0.69	0.49	5.30
198	Pankhasari	-2.25	-0.50	1.10	0.50	0.43	-0.72
199	Samabiyong TG	-1.16	-2.51	1.04	0.16	0.17	-2.30
200	Pashting Khasmahal	-0.02	0.16	1.04	0.45	0.42	2.05
201	Nim Khasmahal	0.27	0.87	1.05	0.97	0.86	4.02
202	Pagongbong	1.53	0.15	1.05	0.62	0.48	3.83
203	Noam Forest	0.43	-0.42	1.09	0.36	0.37	1.84
204	Lethi Forest	0.84	0.50	0.95	0.76	0.49	3.53
205	Pogu Forest	1.07	0.99	1.00	0.59	0.27	3.91
206	Uppe Fagu TG	0.27	0.93	1.00	0.90	0.88	3.99
207	Ambeok Forest	0.49	1.11	0.95	1.04	0.85	4.44
208	Ambeok Forest	2.38	0.22	1.54	1.13	1.45	6.72
209	Dalingkot Foest	0.11	-1.84	1.02	0.41	0.37	0.07
210	Dalingma Khasmahal	1.50	1.16	0.98	0.74	0.60	4.99
211	Goubathan Khasmahal	3.16	1.80	1.05	0.87	0.82	7.70
212	Mal khasmahal	1.55	0.46	1.12	0.87	0.79	4.79
213	Mal foest	0.46	0.44	0.99	0.89	0.57	3.34
214	Lowe Fagu TG	-0.80	-0.95	0.92	0.59	0.68	0.45
215	DajeelingHD TG	-0.82	-1.15	0.93	0.45	0.41	-0.18
216	Sakam Forest	0.45	0.60	0.98	0.84	0.58	3.46
217	Dayathang TG	-1.47	-0.52	1.03	1.10	1.04	1.18
218	Maharani TG	0.81	0.90	1.01	1.34	1.25	5.32
219	Eden Vale TG	0.45	0.44	0.99	1.45	1.38	4.70
220	Sepoydhura	0.79	1.25	0.96	1.16	1.15	5.31
221	Kharia Basti	2.06	0.80	0.67	1.33	1.55	6.41
222	Singel	2.27	1.81	0.96	1.26	1.26	7.57
223	Montiviot	0.88	0.06	0.92	1.13	0.99	3.98
224	Karbia	3.18	4.19	0.93	1.25	1.25	10.79
225	Castleton	3.38	2.98	1.05	1.19	1.16	9.76
226	Sping Side TG	1.46	3.02	0.90	1.00	0.87	7.24
227	Ambootia TG	2.07	2.35	0.90	1.38	1.45	8.15
228	Makaibari TG	1.48	0.42	0.92	0.78	0.64	4.23
229	Punkha Bari	0.00	0.13	0.88	1.22	1.36	3.59
230	Longview TG	2.24	2.01	1.02	0.78	0.63	6.69
231	Jamadar Bhita Khas	9.95	5.37	1.03	0.65	0.62	17.62
232	Gari Dhua	2.80	2.50	1.00	0.56	0.36	7.22
233	Satiguri Khelghar TG	1.04	5.55	1.14	0.84	0.91	9.49
234	Pairi Kumari	0.50	1.60	1.22	0.63	0.28	4.22
235	Simulbari	3.37	2.95	0.97	0.63	0.41	8.32
236	Bamonpokri Forest	1.30	0.97	1.17	0.72	0.92	5.07
237	Rohini	1.39	1.29	0.92	0.86	0.51	4.97
238	Lama Gumba Forest	6.65	2.02	1.30	0.00	0.00	9.96
239	Selim Hill TG	-1.71	0.29	1.11	1.40	1.32	2.41
240	South Sibkhola	-3.45	-1.97	0.86	0.61	0.51	-3.44
241	Sukna Forest	12.70	5.58	1.25	0.91	0.78	21.22
242	Sukna	2.12	0.71	1.17	1.42	1.56	6.99
243	Nurbang	-3.30	-2.79	0.95	0.90	0.58	-3.67
244	Sepoydhua TG	0.53	0.58	1.01	0.79	0.66	3.57
245	Tindharia TG	-6.60	-3.89	0.92	0.80	0.67	-8.10
246	Gayabari TG	-6.32	-3.71	0.95	1.24	1.11	-6.72
247	Shibkhola Forest	1.26	1.54	1.23	1.19	1.36	6.58

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
248	Lizziepu TG	3.75	1.98	0.92	0.76	0.63	8.04
249	Mahanadi TG	-0.89	1.86	0.88	1.62	1.79	5.27
250	Jungoana TG	3.52	1.72	1.00	0.98	0.74	7.94
251	Noth Shib Khola	6.34	3.94	0.97	1.23	1.20	13.68
252	Bara Shib Khola	0.59	-0.63	1.04	0.88	1.04	2.92
253	Giddapahar	6.29	3.94	0.96	1.56	1.68	14.42
254	St. Marys	0.69	0.34	1.15	1.66	1.91	5.75
255	Goethals	3.57	1.95	0.54	1.05	1.07	8.18
256	Chaita Pani TG	1.67	0.81	0.91	1.23	1.23	5.84
257	Majua TG	0.66	3.63	0.95	1.23	1.16	7.62
258	Upper Mamring Khasmahal	0.77	1.09	1.05	1.15	1.02	5.09
259	Lower Mamring Kasmahal	1.10	0.28	1.10	1.12	1.13	4.72
260	Toryak Khasmahal	0.19	0.38	0.87	1.30	1.50	4.23
261	Mahaldaram Forest	0.55	1.24	1.07	0.92	1.15	4.93
262	Mahal Daram TG	-4.17	-1.17	0.85	1.04	0.92	-2.52
263	Malitar TG	0.87	2.02	1.08	0.73	0.30	5.00
264	Gitingay TG	0.94	2.60	1.07	1.10	0.92	6.63
265	Simring TG	6.91	5.67	1.05	0.64	0.41	14.69
266	Latpanchar Forest	0.15	0.64	0.97	0.87	0.95	3.58
267	Sittong Khasmahal	1.51	1.84	1.16	1.17	1.08	6.76
268	Barasittong Khasmahal	1.03	1.12	0.98	1.29	1.32	5.74
269	Mangpu Cinchona Pl	-5.31	-3.45	0.85	1.16	0.98	-5.77
270	Selpu Khasmahal	4.11	3.03	1.16	1.26	1.33	10.89
271	Rola Khasmahal	0.85	1.63	0.94	1.15	1.21	5.78
272	Lonku Khasmahal	3.21	2.91	1.10	1.06	1.02	9.30
273	Sittong Forest	5.55	5.57	0.96	1.45	1.71	15.23
274	Okaity TG	1.47	1.55	1.20	1.30	1.26	6.77
275	Bukim TG	-2.73	-0.68	0.97	1.05	1.01	-0.36
276	Paschim Phuguri	1.69	1.51	0.74	1.31	1.70	6.96
277	Saurini Basti	1.47	1.85	1.37	1.35	1.29	7.32
278	Mirik Khasmahal	-1.77	-0.88	1.05	1.10	1.13	0.63
279	Marma TG	8.90	5.48	0.87	0.99	0.95	17.19
280	Singbulli TG	4.58	3.71	0.96	1.25	1.32	11.82
281	Purba Phuguri TG	1.28	1.59	0.68	1.46	1.78	6.79
282	Tingling TG	1.01	2.87	2.38	1.57	1.43	9.26
283	New Fallodi TG	1.42	0.71	0.93	0.74	0.66	4.46
284	Patong TG	2.15	2.41	1.05	1.00	1.00	7.60

Source: Census of India, 1981 and 1991, District Census Handbook, Darjeeling.

Appendix –V
Levels of Economic Development

Sl. No. (1)	Name of village (2)	Cultivated land (3)	Irrigated land (4)	Main Workers (5)	Non-primary Workers (6)	Composite Index (7)
1	Barnesbeg TG	1.48	0.00	0.97	1.60	4.05
2	Singla TG	1.21	0.00	1.07	0.07	2.34
3	Rangit Forest	0.00	0.00	0.91	2.52	3.42
4	Badamtam TG	1.32	0.00	0.91	0.48	2.71
5	Ging TG	1.26	0.00	0.81	0.55	2.63
6	Banockburn TG	1.30	0.00	0.67	1.29	3.26
7	Phutsering TG	1.34	0.00	0.83	0.44	2.62
8	Rungeet TG	1.14	0.00	0.67	1.74	3.54
9	Pattabong TG	1.39	0.00	0.96	3.77	6.11
10	Patlibas Forest	0.97	0.00	0.87	4.52	6.35
11	Tukvar TG	1.44	0.00	1.04	1.29	3.77
12	Lebong TG	0.00	0.00	1.02	0.39	1.41
13	Soom TG	1.42	0.00	0.81	0.17	2.40
14	Sum Forest	0.00	0.00	0.96	3.51	4.47
15	Singtam TG	1.19	0.00	0.74	1.08	3.01
16	Happy Valley TG	1.47	0.00	0.55	0.59	2.61
17	Arya TG	1.38	0.00	0.97	0.54	2.89
18	Rishihat TG	1.45	0.00	1.02	0.27	2.73
19	Salu Tg	1.64	0.00	0.68	2.39	4.72
20	Rishihat Khasmahal	1.65	2.27	1.13	0.44	5.50
21	Barbatta Khasmahal	1.66	2.02	0.99	0.47	5.13
22	Bloom Field TG	1.64	0.00	0.86	0.59	3.09
23	Darjeeling (rural)	1.53	0.00	0.86	3.45	5.83
24	Alubari TG	1.42	0.00	1.05	0.64	3.11
25	Lebong & Hot Dpring TG	1.64	2.31	0.72	1.22	5.89
26	Pandam TG	1.41	0.00	0.72	2.47	4.60
27	Allo Bari Busty	1.40	2.31	0.72	1.39	5.81
28	Singalila Forest	0.00	0.00	0.67	0.41	1.08
29	Rimbick	1.48	1.31	1.18	0.54	4.51
30	Namla	1.65	2.32	1.32	0.14	5.43
31	Lodhama	1.67	2.05	1.22	1.27	6.21
32	Hatta	1.64	2.04	1.30	0.27	5.26
33	Kankibong	1.45	3.62	1.00	0.50	6.57
34	Jhepi	1.62	2.53	1.39	0.04	5.58
35	Lamagaon	1.69	2.24	1.37	0.31	5.61
36	Relling	1.54	3.90	1.23	0.55	7.22
37	Dangia	1.59	3.02	1.18	0.23	6.02
38	Singbhum Dera	1.61	2.15	1.12	0.47	5.35
39	Majua	1.65	2.33	1.44	0.08	5.50
40	Kaijalia	1.57	2.56	1.29	0.36	5.78
41	Samalbong	1.57	3.10	1.39	0.29	6.35
42	Kolbong	1.60	3.24	0.47	3.90	9.22
43	Murmidong	1.65	3.40	1.65	0.10	6.81
44	Karmi	1.54	2.42	1.66	0.03	5.64
45	Goke	1.58	2.43	1.21	0.37	5.58
46	Bijanbari	1.63	3.46	0.91	1.90	7.90
47	Chontong TG	1.41	0.00	0.90	0.77	3.08
48	Lizahill TG	1.51	0.00	1.02	0.45	2.98
49	KambaTG	0.91	1.26	0.79	1.35	4.32
50	Teestavalley Forest	0.47	0.27	0.84	1.06	2.65
51	Lapchu TG	0.86	0.37	0.69	2.60	4.51
52	Peshok TG	1.10	0.07	1.09	0.86	3.12

(1)	(2)	(3)	(4)	(5)	(6)	(7)
53	Bara Mungwa	1.52	2.32	0.82	1.36	6.03
54	Chhota Mangwa	1.10	0.00	0.99	0.25	2.34
55	Takling khasmahal	1.34	1.00	1.12	0.61	4.07
56	Soring Khasmahal	1.45	0.00	1.05	0.33	2.84
57	Chegra khasmahal	1.41	0.00	0.59	0.45	2.45
58	Kolbong Khasmahal	1.35	0.00	0.72	0.95	3.03
59	Rayak Khasmahal	1.38	2.30	0.21	3.77	7.65
60	Lingding Khasmahal	1.58	1.31	0.84	0.13	3.86
61	Humtukdaa Khasmahal	1.37	0.27	1.29	0.14	3.07
62	Tukdah Forest	0.76	0.18	0.95	0.81	2.69
63	Lapchu Khasmahal	0.89	0.00	0.71	1.13	2.73
64	Singringtam	1.08	2.53	0.67	0.99	5.27
65	Mandara	1.22	2.34	0.66	0.43	4.64
66	Tukdak	1.28	0.31	0.77	2.25	4.60
67	Tukdah TG	1.19	1.09	0.75	0.70	3.73
68	Dawaipani	1.21	3.11	0.71	0.39	5.43
69	Pubong Khasmahal	1.46	2.13	0.80	0.53	4.92
70	Rangli Rangloit TG	1.17	0.40	0.72	1.63	3.92
71	Gielie TG	0.99	0.67	0.78	0.95	3.39
72	Teesta Valley TG	1.06	1.12	0.61	0.87	3.66
73	Pumong TG	1.08	0.85	0.70	0.72	3.34
74	Reshop Bazar	0.00	0.00	0.84	3.76	4.60
75	Labda Khasmahal	1.34	0.59	1.66	0.12	3.70
76	Mangpu Cinchona Pl	1.12	0.09	0.59	0.59	2.39
77	Rongchong Khasmahal	1.09	0.51	0.75	1.62	3.97
78	Simanabasti	0.39	0.00	0.68	3.78	4.85
79	Sukhiapokhri	0.00	0.00	0.75	4.39	5.15
80	Minnagri Range	0.47	0.00	0.44	3.81	4.72
81	Achhal Hatta	1.08	2.64	1.07	0.34	5.13
82	Chamu TG	1.18	0.57	1.20	0.15	3.10
83	Soolbong TG	1.05	0.00	0.80	0.56	2.41
84	Seyok TG	1.18	0.00	1.17	0.28	2.63
85	Gopal Dhara TG	0.89	2.07	0.78	0.59	4.34
86	Mangarjung TG	1.51	0.10	0.87	0.45	2.93
87	Sagraru TG	1.23	0.00	0.87	0.29	2.39
88	Tarzun TG	1.50	0.00	0.83	0.59	2.93
89	Pokhribong Khasmahal	1.04	3.45	0.54	1.34	6.37
90	Samrick TG	1.00	0.00	0.89	0.53	2.42
91	Molatey TG	0.86	0.00	0.93	0.10	1.89
92	Dhajea TG	1.19	0.84	0.86	0.23	3.12
93	Nagrifarm TG	1.11	1.01	0.81	0.71	3.63
94	Dhajea Khasmahal	1.17	2.56	0.88	0.85	5.46
95	Kael TG	1.21	0.93	1.07	0.52	3.73
96	Mariabong TG	1.11	2.16	1.10	0.90	5.27
97	Lingia TG	1.09	0.00	1.15	0.29	2.53
98	Tumsong TG	1.40	0.00	0.90	0.45	2.75
99	Tumsong Khas	1.19	2.76	0.39	2.37	6.70
100	Mim TG	1.10	0.00	0.81	0.53	2.44
101	Parmaguri Khasmahal	1.00	2.47	1.11	0.33	4.91
102	Ghoompahari Forest	0.58	1.00	0.99	2.28	4.85
103	Pulungdong Khas	1.20	2.87	1.38	0.33	5.78
104	Pulungdong TG	0.82	0.00	1.19	0.77	2.78
105	Pubong TG	0.51	0.00	1.19	0.38	2.08
106	Kusumbong TG	1.40	0.00	0.67	1.80	3.86
107	Jorebungalow	0.46	1.61	0.57	1.73	4.37
108	Senchal Forest	0.13	0.00	0.94	1.17	2.24
109	Rangaroong TG	1.12	0.00	0.89	0.35	2.36

(1)	(2)	(3)	(4)	(5)	(6)	(7)
110	Rangbul	1.11	0.98	0.85	2.37	5.31
111	hillcart Road	0.45	0.00	0.80	3.14	4.38
112	Sonada Khasmahal	1.03	1.46	0.85	2.59	5.94
113	Kalet Valley TG	1.05	1.08	0.84	0.54	3.52
114	Dooteria TG	0.90	0.68	0.73	0.81	3.12
115	Rongmookcheder TG	1.31	0.00	1.04	1.45	3.81
116	Okas TG	1.09	0.00	1.03	0.35	2.47
117	Moondakotee TG	1.48	1.75	1.15	0.44	4.83
118	Ringtong TG	0.87	0.00	0.91	0.59	2.37
119	Nahoria TG	0.76	0.98	0.85	0.53	3.12
120	Ringtong TG(Magrett)	1.09	0.00	0.78	0.69	2.56
121	Bhalukhop Foerst	0.00	0.00	0.92	3.39	4.31
122	D Ghams Homes	1.36	0.00	0.60	3.50	5.47
123	Kaffi Foest	0.00	0.00	1.13	0.23	1.36
124	Kaffi Khasmahal	1.74	2.92	1.00	0.14	5.79
125	Kankibong	1.74	2.19	1.40	0.15	5.48
126	Icha	1.69	1.11	0.85	1.09	4.73
127	Pudung	1.72	2.39	0.71	1.33	6.14
128	Sindibong	1.66	2.79	1.03	1.00	6.47
129	Dungra	1.70	3.53	0.56	2.41	8.20
130	Bhalukhop	1.62	0.09	1.15	1.04	3.91
131	Mangbe Forest	0.00	0.00	1.13	0.00	1.13
132	Tista Baza	0.14	0.00	0.84	2.77	3.76
133	Mangwa Froest	0.00	0.00	1.17	0.92	2.09
134	Tashiding Froest	0.00	0.00	1.25	0.00	1.25
135	Kalimpong	1.47	1.54	0.93	1.24	5.19
136	Bong	1.59	3.22	0.76	1.50	7.07
137	Yokpintam	1.34	1.30	1.50	0.20	4.34
138	Seokbir	1.65	1.36	1.31	0.24	4.56
139	Samalbong	1.34	3.20	1.04	0.64	6.23
140	Lolagaon	1.54	0.33	0.86	0.46	3.19
141	Lolagaon rorest	0.00	0.00	1.13	0.00	1.13
142	Pemling	1.09	0.84	1.34	0.07	3.34
143	Nimbong	1.35	0.64	1.29	0.16	3.44
144	Nobgaon	0.78	0.00	1.22	0.08	2.08
145	Pabingtar	0.94	0.98	1.34	0.26	3.53
146	Samthar	1.44	2.34	1.24	0.43	5.45
147	Singi	1.50	2.18	1.05	0.65	5.38
148	Comesi	0.00	0.00	1.21	0.00	1.21
149	Ringkingpong Forest	0.00	0.00	0.92	1.31	2.24
150	Truzam Forest	0.00	0.00	1.18	0.00	1.18
151	Rambi Bazar	0.00	0.00	0.56	4.55	5.11
152	Riyang Railway Stn	1.14	0.00	0.84	4.17	6.15
153	Birik Forest	0.00	0.00	1.56	0.00	1.56
154	Mazeok Foest	0.00	0.00	0.65	4.60	5.25
155	Suruk	1.67	0.31	0.94	0.17	3.09
156	Yang Makum	1.32	0.00	1.26	0.10	2.67
157	Panbu forest	0.00	0.00	0.62	0.00	0.62
158	Mangpong Forest	0.00	0.00	1.17	0.00	1.17
159	Lish Forest	0.00	0.00	1.05	0.00	1.05
160	Chunbhatti Baza	0.00	0.00	0.86	0.00	0.86
161	Chuanthi Forest	0.00	0.00	0.75	3.39	4.14
162	Uttar Fulbari	0.00	0.00	1.24	0.00	1.24
163	Suntalay Khasmahal	0.00	0.00	0.67	4.44	5.10
164	Mansong Cinchonaina PI	0.15	2.30	0.60	0.49	3.54
165	Kashone	0.52	2.30	1.22	0.25	4.30
166	Pedong Baza	0.53	2.30	1.30	0.15	4.28

(1)	(2)	(3)	(4)	(5)	(6)	(7)
167	Pedong Khasmahal	0.52	2.30	0.71	1.29	4.82
168	Kagay	0.52	2.30	1.32	0.11	4.25
169	Mama	0.65	2.30	0.77	3.88	7.59
170	Ladam	0.52	2.30	1.15	0.09	4.05
171	Lindsay	0.52	2.30	1.89	0.05	4.76
172	Lingsay	0.52	2.30	1.09	0.15	4.06
173	Lava Bazar	0.52	2.30	1.78	4.52	9.12
174	Sakyong	0.52	2.30	1.13	0.53	4.48
175	Algarah Bazar	0.33	4.22	0.89	4.56	10.01
176	Sangser Forest	0.00	0.00	1.14	0.20	1.33
177	Dalapchan	0.33	4.23	0.82	0.85	6.23
178	Paiyong	0.33	4.23	1.71	3.33	9.60
179	Santuk	0.33	4.23	1.58	0.06	6.20
180	Gitbeong	0.33	4.23	1.26	0.10	5.93
181	Gitdabling	0.33	4.23	1.24	0.35	6.16
182	Pagang	0.33	4.23	1.31	0.29	6.16
183	Bokhim	0.33	4.23	1.41	0.14	6.11
184	Palla	0.33	4.23	1.47	0.08	6.11
185	Lolay	0.33	4.23	1.34	0.17	6.07
186	Richilachak	1.19	0.00	0.89	0.00	2.08
187	Today Tangta	1.13	0.86	1.07	0.11	3.16
188	PatenGodak	0.95	1.19	1.16	0.68	3.98
189	Paren Forest	0.07	0.00	0.84	0.53	1.44
190	Rango Forest	1.46	0.00	0.73	0.30	2.49
191	Mo Forest	0.04	0.00	0.92	0.00	0.97
192	Thonsum Forest	0.25	0.00	1.05	1.07	2.37
193	Eastnar Forest	0.20	0.00	0.02	4.60	4.82
194	Samsing	1.02	0.57	1.16	0.27	3.02
195	Kumai	0.86	0.71	0.84	0.30	2.71
196	kumai TG	1.17	0.00	0.73	0.49	2.40
197	Kumai Foest	0.55	0.00	0.13	2.24	2.92
198	Pankhasari	1.13	0.13	1.38	0.13	2.77
199	Samabiyong TG	0.87	0.00	1.78	0.03	2.68
200	Pashting Khasmahal	1.17	1.70	1.01	0.05	3.94
201	Nim Khasmahal	1.16	1.75	1.58	0.05	4.54
202	Pagongbong	1.52	2.32	1.63	0.05	5.52
203	Noam Forest	0.26	0.00	1.48	0.00	1.74
204	Lethi Forest	0.23	0.00	0.93	0.00	1.16
205	Pogu Forest	0.29	0.00	0.96	0.27	1.51
206	Uppe Fagu TG	1.45	0.00	1.21	0.98	3.64
207	Ambeok Forest	0.91	0.00	1.22	0.26	2.38
208	Ambeok Forest	0.74	0.00	1.41	0.00	2.15
209	Dalingkot Foest	0.96	0.00	1.33	0.00	2.28
210	Dalingma Khasmahal	0.55	1.11	0.79	0.00	2.45
211	Goubathan Khasmahal	1.19	2.73	1.16	0.46	5.55
212	Mal khasmahal	0.89	2.30	0.87	1.71	5.78
213	Mal foest	0.22	0.00	1.55	0.03	1.81
214	Lowe Fagu TG	1.49	0.00	0.58	0.18	2.25
215	DajeelingHD TG	0.97	0.00	1.37	0.00	2.34
216	Sakam Forest	0.63	0.00	1.28	0.00	1.91
217	Dayathang TG	1.74	0.00	0.65	0.48	2.86
218	Maharani TG	1.74	0.00	0.74	0.74	3.22
219	Eden Vale TG	1.11	0.00	0.88	0.92	2.91
220	Sepoydhura	0.86	0.00	1.00	0.65	2.51
221	Kharia Basti	1.33	1.32	1.32	3.13	7.11
222	Singel	1.16	0.00	0.78	2.18	4.11
223	Montiviot	1.25	0.00	0.81	0.29	2.35

(1)	(2)	(3)	(4)	(5)	(6)	(7)
224	Karbia	1.32	0.00	0.81	1.17	3.31
225	Castleton	1.00	0.00	0.87	1.55	3.42
226	Sping Side TG	1.16	0.00	0.94	4.32	6.42
227	Ambootia TG	1.01	1.78	0.73	1.55	5.07
228	Makaibari TG	1.49	1.24	1.22	1.63	5.58
229	Punkha Bari	0.63	0.00	0.62	2.67	3.92
230	Longview TG	1.07	1.28	1.11	0.36	3.82
231	Jamadar Bhita Khas	1.07	0.00	1.14	1.17	3.39
232	Gari Dhua	1.38	1.17	1.47	0.53	4.55
233	Satiguri Khelghar TG	1.10	0.70	1.06	0.00	2.86
234	Pairi Kumari	1.60	0.27	1.23	1.87	4.97
235	Simulbari	0.74	0.00	0.76	1.68	3.19
236	Bamonpokri Forest	1.07	0.00	1.52	0.00	2.58
237	Rohini	1.36	0.58	1.03	0.39	3.37
238	Lama Gumba Forest	0.25	0.00	1.68	0.00	1.93
239	Selim Hill TG	0.69	2.70	1.22	0.65	5.25
240	South Sibkhola	0.74	0.00	1.18	0.72	2.65
241	Sukna Forest	0.45	0.00	1.00	0.48	1.94
242	Sukna	0.50	0.00	0.76	3.84	5.10
243	Nurbang	1.35	1.58	1.17	0.40	4.51
244	Sepoydhua TG	0.44	0.00	1.21	0.03	1.68
245	Tindharia TG	0.51	0.00	1.43	0.09	2.03
246	Gayabari TG	0.92	0.89	0.94	0.62	3.37
247	Shibkhola Forest	0.62	0.00	1.66	0.00	2.27
248	Lizziepu TG	0.23	0.00	1.29	0.23	1.76
249	Mahanadi TG	0.35	2.11	1.03	0.22	3.71
250	Jungoana TG	1.43	0.00	1.42	0.17	3.02
251	Noth Shib Khola	1.21	0.00	1.07	0.58	2.86
252	Bara Shib Khola	0.49	0.00	0.70	1.81	3.01
253	Giddapahar	1.31	3.32	0.59	2.44	7.65
254	St. Marys	0.84	1.72	0.52	4.32	7.40
255	Goethals	1.41	0.92	0.90	4.26	7.49
256	Chaita Pani TG	0.62	0.00	1.06	0.97	2.65
257	Majua TG	1.05	0.00	1.27	1.22	3.53
258	Upper Mamring Khasi	1.62	1.58	0.81	0.98	4.99
259	Lower Mamring Khasi	1.52	2.78	0.93	0.47	5.71
260	Toryak khasmahal	1.73	3.31	0.94	0.67	6.65
261	Mahaldaram Forest	0.50	0.00	1.54	0.00	2.04
262	Mahal Daram TG	1.28	0.00	0.95	0.77	3.00
263	Malitar TG	1.08	1.31	0.77	0.00	3.17
264	Gitingay TG	0.98	0.00	1.05	0.30	2.32
265	Simring TG	1.25	1.03	0.89	0.02	3.19
266	Latpancha Forest	0.98	0.95	0.69	0.00	2.62
267	Sittong Khasmahal	1.35	3.04	1.13	0.20	5.73
268	Barasittong khasmahal	1.14	1.25	0.84	1.07	4.30
269	Mangpu cinchona	1.12	0.09	0.77	0.55	2.54
270	Selpu khasmahal	1.59	2.73	1.07	0.72	6.11
271	Rola khasmahal	1.49	3.39	1.27	0.12	6.27
272	Lonku Khasmahal	1.04	2.30	1.52	0.61	5.47
273	Sittong Forest	0.25	4.53	1.29	0.12	6.19
274	Okaity TG	1.00	0.00	1.03	1.93	3.95
275	Bukim TG	1.43	0.00	0.83	0.56	2.82
276	Paschim Phuguri	1.33	0.00	0.56	1.13	3.03
277	Saurini Basti	1.45	0.73	1.12	2.58	5.87
278	Mirik Khasmahal	1.44	1.10	0.93	0.69	4.17
279	Mama TG	0.78	0.00	0.91	0.32	2.01
280	Singbulli TG	1.74	0.00	0.91	0.88	3.53

(1)	(2)	(3)	(4)	(5)	(6)	(7)
281	Purba Phuguri TG	1.74	0.00	0.53	2.07	4.34
282	Tingling TG	1.74	0.00	1.32	3.66	6.72
283	New Fallodi TG	1.74	0.00	0.91	0.30	2.95
284	Patong TG	1.74	0.00	0.59	0.88	3.20

Source: Census of India, 1991, District Census Handbook, Darjeeling.

Appendix – VI
Levels of Infrastructure and Overall Development

Sl. No. (1)	Name of village (2)	Education (3)	Medical (4)	Postal (5)	Connectivity (road) (6)	Distance from the town (7)	Power supply (8)	C. I. of Infrastructure Development (9)	C. I. of Overall development (10)
1	Barnesbeg TG	1.7	0	0	2.76	1.74	0	6.2	10.7
2	Singla TG	0.85	0	0	2.76	1.31	0	4.91	16.5
3	Rangit Forest	0.85	0	0	0	1.31	0	2.16	10.96
4	Badamtam TG	1.7	0	0	2.76	1.31	2.1	7.87	16.03
5	Ging TG	2.55	1.62	0	2.76	1.74	2.1	10.78	17.73
6	Banockburn TG	0.85	1.62	0	2.76	2.61	0	7.84	15.5
7	Phubtsering TG	0.85	1.62	0	2.76	1.74	0	6.97	16.56
8	Rungeet TG	0.85	0	0	0	5.22	2.1	8.18	15.45
9	Pattabong TG	0.85	0	0	0	5.22	2.1	8.18	18.93
10	Patlibas Forest	0	0	0	2.76	2.61	2.1	7.47	23.97
11	Tukvar TG	2.55	1.62	2.39	2.76	1.31	0	10.62	23.06
12	Lebong TG	0.85	4.87	2.39	2.76	3.26	2.1	16.23	19.99
13	Soom TG	0.85	0	0	2.76	1.74	0	5.35	12.17
14	Sum Forest	0	0	0	2.76	2.61	0	5.37	18.55
15	Singtam TG	0.85	1.62	0	0	1.31	0	3.78	9.35
16	Happy Valley TG	0.85	0	0	0	5.22	0	6.07	15.03
17	Arya TG	0.85	1.62	0	0	1.74	0	4.21	14.71
18	Rishihat TG	2.55	0	2.39	2.76	1.31	0	9	20.19
19	Salu Tg	0.85	0	2.39	2.76	1.31	0	7.3	14.36
20	Rishihat Khasmahal	0.85	1.62	2.39	0	1.31	0	6.17	18.34
21	Barbatta Khasmahal	0.85	1.62	0	0	2.61	0	5.09	11.66
22	Bloom Field TG	0.85	0	0	0	2.61	0	3.46	14.05
23	Darjeeling (rural)	0.85	1.62	2.39	2.76	13.06	0	20.68	29.69
24	Alubari TG	0.85	1.62	0	2.76	5.22	2.1	12.56	19.34
25	Lebong & Hot Dpring TG	0.85	1.62	2.39	2.76	2.61	2.1	12.33	23.52
26	Pandam TG	0.85	0	0	2.76	2.61	0	6.22	20.86
27	Aloo Bari Busty	0.85	1.62	0	2.76	5.22	2.1	12.56	26.68
28	Singalila Forest	0.85	0	0	0	0.27	0	1.12	12.36
29	Rimbick	2.55	1.62	2.39	2.76	0.34	0	9.66	21.27
30	Namla	0.85	1.62	0	0	0.37	0	2.85	10.87
31	Lodhama	1.7	1.62	2.39	2.76	0.36	2.1	10.93	22.23
32	Hatta	0.85	1.62	0	2.76	0.4	0	5.63	15.33
33	Kankibong	0.85	1.62	0	0	0.49	0	2.97	15.8
34	Jhepi	0.85	1.62	2.39	0	0.52	0	5.38	13.24
35	Lamagaon	0.85	1.62	0	0	0.49	0	2.97	14.28
36	Relling	2.55	1.62	2.39	2.76	0.56	2.1	11.98	24.26
37	Dangia	0.85	1.62	0	0	0.5	2.1	5.08	17.53
38	Singbhum Dera	0.85	1.62	0	0	0.65	0	3.13	14.59
39	Majua	0.85	1.62	0	0	0.75	0	3.22	15.13
40	Kaijalia	0.85	3.25	2.39	2.76	0.53	2.1	11.88	23.11
41	Samalbong	0.85	1.62	0	0	0.47	0	2.95	12.81

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
42	Kolbong	0.85	1.62	2.39	0	0.44	0	5.3	26.24
43	Murmidong	0.85	1.62	0	0	0.44	0	2.91	12.02
44	Karmi	0.85	1.62	0	0	0.47	0	2.95	9.62
45	Goke	1.7	1.62	2.39	0	0.52	2.1	8.34	21.02
46	Bijanbari	3.4	3.25	2.39	2.76	0.67	2.1	14.56	27.49
47	Chontong TG	2.55	1.62	0	0	2.61	2.1	8.89	15.08
48	Lizahill TG	0.85	1.62	0	0	2.61	2.1	7.19	10.5
49	KambaTG	0.85	4.87	2.39	2.76	0.97	2.1	13.93	25.74
50	Teestavalley Forest	0.85	0	0	0	0.82	2.1	3.77	22.51
51	Lapchu TG	1.7	4.87	2.39	0	1.04	2.1	12.1	23.72
52	Peshok TG	0.85	1.62	2.39	2.76	1.04	2.1	10.77	17.11
53	Bara Mungwa	0.85	0	0	2.76	1.31	2.1	7.02	16.64
54	Chhota Mangwa	0.85	0	0	0	1.31	2.1	4.26	13.16
55	Takling khasmahal	1.7	4.87	2.39	0	1.31	2.1	12.37	18.74
56	Soring Khasmahal	1.7	4.87	0	0	1.19	2.1	9.86	8.84
57	Chegra khasmahal	0.85	0	0	0	1.04	2.1	4	7.75
58	Kolbong Khasmahal	0.85	0	0	0	0.69	2.1	3.64	5.34
59	Rayak Khasmahal	1.7	0	0	0	0.71	2.1	4.51	9.96
60	Lingding Khasmahal	1.7	0	0	0	0.73	2.1	4.53	9.27
61	Humtukdaa Khasmahal	0.85	0	0	0	0.75	2.1	3.7	1.89
62	Tukdah Forest	0	0	0	0	0.71	2.1	2.81	16.1
63	Lapchu Khasmahal	2.55	0	0	0	0.69	2.1	5.34	15.69
64	Singringtam	1.7	1.62	2.39	0	0.64	2.1	8.45	24.12
65	Mandara	0.85	0	0	0	0.62	2.1	3.58	13.79
66	Tukdak	1.7	0	0	0	0.9	2.1	4.7	8.89
67	Tukdah TG	0.85	4.87	2.39	0	1.04	2.1	11.25	33.31
68	Dawaipani	0.85	0	0	0	1	2.1	3.96	14.23
69	Pubong Khasmahal	1.7	0	0	0	1.09	0	2.79	9.07
70	Rangli Rangloit TG	0.85	0	0	0	1.04	2.1	4	13.99
71	Gielie TG	1.7	1.62	2.39	0	1.31	2.1	9.12	25.9
72	Teesta Valley TG	0.85	0	0	0	0.82	2.1	3.77	11.31
73	Pumong TG	1.7	1.62	2.39	2.76	0.75	2.1	11.32	18.07
74	Reshop Bazar	1.7	0	2.39	2.76	0.97	0	7.81	9.85
75	Labda Khasmahal	1.7	3.25	0	0	1.09	0	6.03	4.5
76	Mangpu Cinchona Pl	1.7	4.87	2.39	0	0.9	2.1	11.96	20.8
77	Rongchong Khasmahal	0.85	0	0	0	0.67	0	1.52	8.32
78	Simanabasti	0.85	0	2.39	2.76	0.97	2.1	9.07	20.51
79	Sukhiapokhri	3.4	3.25	2.39	2.76	0.97	2.1	14.86	26.65
80	Minnagri Range	0.85	1.62	0	2.76	0.65	0	5.88	14.25
81	Achhal Hatta	1.7	0	2.39	2.76	0.65	2.1	9.6	20.87
82	Chamu TG	0.85	1.62	2.39	0	0.65	2.1	7.62	14.3
83	Soolbong TG	0.85	1.62	2.39	0	0.75	2.1	7.71	15.53
84	Seyok TG	0.85	1.62	2.39	2.76	0.62	2.1	10.34	18.77
85	Gopal Dhara TG	1.7	1.62	2.39	0	0.57	2.1	8.38	15.86
86	Mangarjung TG	0.85	1.62	2.39	0	0.58	2.1	7.54	13.06

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
87	Sagraru TG	0.85	1.62	2.39	0	0.69	2.1	7.65	12.3
88	Tarzun TG	0.85	1.62	2.39	2.76	0.87	2.1	10.59	21.47
89	Pokhribong Khasmahal	1.7	1.62	2.39	2.76	0.87	2.1	11.44	28.14
90	Samrick TG	0.85	1.62	2.39	0	0.75	2.1	7.71	14.28
91	Molatey TG	0.85	1.62	2.39	0	0.65	2.1	7.62	10.48
92	Dhajea TG	1.7	1.62	2.39	2.76	0.47	2.1	11.05	17.19
93	Nagrifarm TG	3.4	1.62	2.39	2.76	0.58	2.1	12.85	22.71
94	Dhajea Khasmahal	0.85	1.62	2.39	2.76	0.44	2.1	10.16	21.01
95	Kael TG	0	0	0	2.76	1.45	2.1	6.31	12.38
96	Mariabong TG	1.7	1.62	2.39	0	1.04	2.1	8.86	10.24
97	Lingia TG	0.85	1.62	2.39	2.76	1.09	2.1	10.81	16.75
98	Tumsong TG	0.85	1.62	2.39	2.76	0.84	2.1	10.56	14.62
99	Tumsong Khas	0.85	1.62	2.39	0	0.9	2.1	7.86	15.57
100	Mim TG	0.85	1.62	2.39	0	0.93	2.1	7.9	14.23
101	Parmaguri Khasmahal	0.85	0	0	0	0.97	0	1.82	13.64
102	Ghoompahari Forest	0	0	0	0	2.61	2.1	4.72	15.89
103	Pulungdong Khas	1.7	3.25	2.39	0	0.93	2.1	10.37	21.35
104	Pulungdong TG	0.85	1.62	2.39	0	0.93	2.1	7.9	13.74
105	Pubong TG	0.85	1.62	2.39	0	1.31	2.1	8.27	18.28
106	Kusumbong TG	0.85	1.62	2.39	0	1.37	2.1	8.34	12.43
107	Jorebungalow	0.85	0	0	0	2.37	0	3.22	12.11
108	Senchal Forest	0	0	0	0	1.63	2.1	3.74	4.12
109	Rangaroong TG	0.85	1.62	0	0	1.63	2.1	6.21	9.54
110	Rangbul	0.85	0	2.39	2.76	1.74	2.1	9.84	21.76
111	Hillcart Road	0.85	3.25	2.39	2.76	1.37	2.1	12.72	24.23
112	Sonada Khasmahal	2.55	1.62	2.39	0	1.09	2.1	9.75	23.2
113	Kalet Valley TG	0.85	0	2.39	0	1.31	2.1	6.65	16.41
114	Dooteria TG	1.7	1.62	2.39	0	1.37	2.1	9.19	15.26
115	Rongmookcheder TG	1.7	1.62	2.39	0	0.97	2.1	8.78	16.24
116	Okas TG	0.85	1.62	2.39	0	1.19	2.1	8.15	15.21
117	Moondakotee TG	1.7	1.62	2.39	0	0.9	2.1	8.71	20.9
118	Ringtong TG	0.85	0	2.39	0	0.97	2.1	6.31	12.95
119	Nahoria TG	0.85	1.62	2.39	0	0.9	2.1	7.86	15.67
120	Ringtong TG(Magrett)	1.7	3.25	2.39	0	1	2.1	10.44	16.6
121	Bhalukhop Foerst	0.85	0	0	2.76	1.31	0	4.91	14.26
122	D Ghams Homes	3.4	1.62	0	2.76	5.22	2.1	15.11	24.11
123	Kaffi Foest	0.85	0	0	0	1.19	0	2.04	10.21
124	Kaffi Khasmahal	0.85	0	0	0	1.31	0	2.16	19.53
125	Kankibong	0.85	0	0	0	1.74	0	2.59	17.41
126	Icha	2.55	0	2.39	2.76	2.61	2.1	12.41	23.03
127	Pudung	0.85	0	2.39	2.76	2.61	2.1	10.71	20.32
128	Sindibong	0.85	0	2.39	2.76	3.73	2.1	11.83	23.04
129	Dungra	0.85	0	2.39	2.76	5.22	2.1	13.32	26.97
130	Bhalukhop	0.85	0	0	0	6.53	2.1	9.48	20
131	Mangbe Forest	0	0	0	0	3.26	0	3.26	9.03

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
132	Tista Bazar	2.55	3.25	2.39	2.76	1.74	2.1	14.79	24.62
133	Mangwa Froest	0.85	0	0	2.76	1.63	0	5.24	13.88
134	Tashiding Froest	0	0	0	0	1.74	0	1.74	7.76
135	Kalimpong	0.85	0	2.39	2.76	3.73	2.1	11.83	21.86
136	Bong	2.55	0	0	2.76	5.22	2.1	12.64	25.65
137	Yokpintam	0.85	0	0	0	1.74	0	2.59	11.95
138	Seokbir	1.7	3.25	2.39	0	1.31	0	8.64	17.73
139	Samalbong	0.85	0	0	0	1.31	0	2.16	13.51
140	Lolagaon	0.85	0	0	0	1.19	0	2.04	9.15
141	Lolagaon rorest	0	0	0	0	1.31	0	1.31	5.98
142	Pemling	0.85	0	0	0	1.31	0	2.16	12.14
143	Nimbong	0.85	3.25	2.39	0	0.87	0	7.35	17.16
144	Nobgaon	0.85	0	0	0	0.87	0	1.72	5.14
145	Pabingtar	1.7	0	0	0	0.87	0	2.57	7.35
146	Samthar	1.7	3.25	2.39	0	0.87	0	8.2	13.65
147	Singi	2.55	1.62	2.39	0	1.31	0	7.87	17.82
148	Comesi Forest	0	0	0	0	1.87	0	1.87	6.3
149	Ringkingpong Forest	0	0	0	0	0.87	0	0.87	7.23
150	Truzam Forest	0	0	0	0	0.97	0	0.97	6.77
151	Rambi Bazar	1.7	0	2.39	2.76	0.75	2.1	9.69	15.93
152	Riyang Railway Stn	0	0	0	0	0.87	0	0.87	11.3
153	Birik Forest	0	0	0	2.76	0.75	0	3.5	10.97
154	Mazeok Foest	0.85	0	0	0	0.87	0	1.72	21.62
155	Suruk	1.7	1.62	0	0	0.75	0	4.07	9.48
156	Yang Makum	0.85	0	0	0	0.65	0	1.5	7.99
157	Panbu Forest	0	0	0	0	0.87	0	0.87	6.64
158	Mangpong Forest	0.85	0	0	2.76	1.04	0	4.65	21.73
159	Lish Forest	0	0	0	0	0.79	0	0.79	6.56
160	Chunbhatti Baza	2.55	0	0	2.76	1.04	2.1	8.46	10.37
161	Chuanthi Forest	0.85	0	0	0	0.57	0	1.42	8.96
162	Uttar Fulbari	0	0	0	0	0.65	0	0.65	5.54
163	Suntalay Khasmahal	0	0	0	2.76	0.87	0	3.63	15.44
164	Mansong Cinchonaina Pl	0	0	0	2.76	1.19	0	3.94	11.17
165	Kashone	0.85	0	0	0	0.87	0	1.72	11.81
166	Pedong Bazar	0.85	0	0	2.76	1.37	0	4.98	14.41
167	Pedong Khasmahal	3.4	0	2.39	0	1.04	0	6.83	16.77
168	Kagay	0.85	1.62	2.39	0	0.65	0	5.51	15.17
169	Mrama	0.85	1.62	0	0	0.65	0	3.13	20.71
170	Ladam	0.85	0	0	0	0.62	0	1.47	9.37
171	Lindsay	0.85	0	0	0	0.52	0	1.37	13.71
172	Lingsay	0.85	0	0	0	0.52	0	1.37	6.58
173	Lava Bazar	0	0	2.39	2.76	0.73	0	5.87	18.51
174	Sakyong	0.85	0	2.39	0	1.04	0	4.28	15.24
175	Algarah Bazar	0.85	1.62	2.39	2.76	1.74	0	9.36	24.49
176	Sangser Forest	0	0	0	0	1.31	0	1.31	7.75

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
177	Dalapchan	0	0	0	0	2.61	0	2.61	13.44
178	Paiyong	1.7	0	0	0	1.63	0	3.33	18.88
179	Santuk	0.85	0	0	0	1.04	0	1.9	12.57
180	Gitbeong	0.85	0	0	2.76	0.93	0	4.54	13.14
181	Gitdabling	2.55	3.25	2.39	2.76	0.53	0	11.47	22.1
182	Pagang	0	0	0	0	0.51	0	0.51	11.36
183	Bokhim	0	0	0	2.76	0.51	0	3.27	15.83
184	Palla	1.7	0	0	0	0.58	0	2.28	12.84
185	Lolay	0.85	0	0	0	0.65	0	1.5	10.87
186	Richilachak	0	0	0	0	1.54	0	1.54	-6.38
187	Today Tangta	0.85	0	0	0	0.46	0	1.31	11.6
188	PatenGodak	2.55	3.25	0	2.76	0.75	0	9.3	19.23
189	Paren Forest	0	0	0	0	1.31	2.1	3.41	9.47
190	Rango Forest	2.55	4.87	2.39	2.76	0.75	2.1	15.41	22.83
191	Mo Forest	0	0	0	0	0.93	0	0.93	9.29
192	Thonsum Forest	0	0	0	0	0.93	0	0.93	10.14
193	Eastnar Forest	0	0	0	0	0.58	0	0.58	9.93
194	Samsing	0.85	0	2.39	0	0.47	0	3.7	10.45
195	Kumai Khasmahal	0.85	0	0	0	0.87	0	1.72	9.06
196	Kumai TG	0.85	0	0	0	0.75	0	1.6	7.33
197	Kumai Forest	0	0	0	0	0.87	0	0.87	9.09
198	Pankhasari	0.85	3.25	2.39	2.76	0.75	0	9.99	12.04
199	Samabiyong TG	0.85	0	0	0	0.65	0	1.5	1.88
200	Pashting Khasmahal	0.85	0	0	0	0.65	0	1.5	7.49
201	Nim Khasmahal	0.85	0	0	0	0.87	0	1.72	10.28
202	Pagongbong	0.85	1.62	0	0	0.65	0	3.13	12.48
203	Noam Forest	0	0	0	0	2.61	0	2.61	6.19
204	Lethi Forest	0	0	0	0	1.45	0	1.45	6.14
205	Pogu Forest	0.85	0	0	0	1.19	0	2.04	7.46
206	Upper Fagu TG	0.85	0	2.39	2.76	1	2.1	9.1	16.73
207	Ambeok Forest	0	1.62	2.39	0	0.44	0	4.44	11.26
208	Ambeok Forest	0	0	0	0	0.42	0	0.42	9.29
209	Dalingkot Forest	0	0	0	0	0.84	0	0.84	3.19
210	Dalingma Khasmahal	1.7	0	0	0	0.97	0	2.67	10.11
211	Goubathan Khasmahal	2.55	3.25	2.39	2.76	1.31	2.1	14.35	27.6
212	Mal khasmahal	0	0	0	2.76	1.31	2.1	6.17	16.74
213	Mal forest	0.85	0	0	0	0.82	0	1.67	6.82
214	Lowe Fagu TG	0.85	4.87	0	0	1.19	2.1	9.01	11.71
215	DajeelingHD TG	0	4.87	0	0	0.97	2.1	7.94	10.1
216	Sakam Forest	0	0	0	0	0.54	0	0.54	5.91
217	Dayathang TG	0.85	1.62	2.39	2.76	2.61	2.1	12.33	16.37
218	Maharani TG	0	0	2.39	0	2.18	2.1	6.67	15.21
219	Eden Vale TG	0	0	0	0	2.61	0	2.61	10.22
220	Sepoydhura	0	0	0	0	4.35	2.1	6.46	14.28
221	Kharia Basti	0.85	0	0	0	4.35	2.1	7.31	20.83

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
222	Singel	0.85	1.62	0	2.76	8.71	2.1	16.04	27.72
223	Montiviot	0.85	0	2.39	2.76	13.06	2.1	21.16	27.49
224	Karbia	0.85	0	0	0	13.06	2.1	16.01	30.11
225	Castleton	0	1.62	2.39	2.76	13.06	2.1	21.93	35.11
226	Spring Side TG	0	0	0	2.76	13.06	2.1	17.92	31.58
227	Ambootia TG	0.85	1.62	2.39	2.76	3.26	2.1	12.99	26.21
228	Makaibari TG	0.85	1.62	2.39	2.76	8.71	2.1	18.43	28.24
229	Punkha Bari	2.55	3.25	2.39	2.76	1.74	2.1	14.79	22.3
230	Longview TG	0.85	4.87	2.39	2.76	13.06	2.1	26.03	36.54
231	Jamadar Bhita Khas	0.85	0	0	2.76	1.31	2.1	7.02	28.03
232	Gari Dhura	0.85	3.25	2.39	2.76	1.45	2.1	12.79	24.56
233	Satiguri Khelghar TG	0	1.62	0	0	1.04	0	2.67	15.02
234	Pairi Kumari	0.85	0	0	0	1.74	0	2.59	11.78
235	Simulbari	0.85	3.25	2.39	2.76	1.74	2.1	13.08	24.59
236	Bamonpokri Forest	0.85	0	0	0	1.74	0	2.59	10.24
237	Rohini	0.85	0	0	0	1.31	0	2.16	10.5
238	Lama Gumba Forest	0	0	0	0	1.87	0	1.87	13.76
239	Selim Hill TG	0.85	1.62	2.39	2.76	1.87	2.1	11.59	19.25
240	South Sibkhola	0	0	0	0	2.01	0	2.01	1.22
241	Sukna Forest	0.85	3.25	2.39	2.76	2.18	0	11.42	34.58
242	Sukna	0.85	0	0	2.76	2.01	0	5.62	17.71
243	Nurbang	0.85	1.62	2.39	0	1.09	0	5.95	6.79
244	Sepoydhua TG	0.85	1.62	2.39	2.76	1.04	2.1	10.77	16.02
245	Tindharia TG	0	1.62	0	0	2.01	2.1	5.74	-0.33
246	Gayabari TG	0.85	1.62	2.39	2.76	1.45	0	9.07	5.72
247	Shibkhola Forest	0	0	0	0	1.54	0	1.54	10.39
248	Lizziepu TG	0.85	0	2.39	0	1.87	2.1	7.21	17.01
249	Mahanadi TG	0.85	4.87	2.39	2.76	3.26	2.1	16.23	25.21
250	Jungoana TG	0.85	1.62	2.39	0	1.87	2.1	8.83	19.79
251	Noth Shib Khola	0	0	0	0	2.9	0	2.9	19.44
252	Bara Shib Khola	0	0	0	0	3.26	0	3.26	9.19
253	Giddapahar	0.85	0	2.39	2.76	5.22	2.1	13.32	35.39
254	St. Marys	0.85	1.62	2.39	2.76	8.71	2.1	18.43	31.58
255	Goethals	2.55	0	0	2.76	6.53	2.1	13.94	29.61
256	Chaita Pani TG	0.85	0	0	0	3.26	0	4.12	12.61
257	Majua TG	0.85	0	0	0	2.9	0	3.75	14.9
258	Upper Mamring Khasmahal	0.85	0	0	0	1.37	0	2.23	12.31
259	Lower Mamring Kasmahal	0.85	0	0	0	1.19	0	2.04	12.47
260	Toryak Khasmahal	0.85	0	0	0	1.19	0	2.04	12.92
261	Mahaldaram Forest	0	0	0	0	1.31	0	1.31	8.28
262	Mahal Daram TG	0.85	1.62	2.39	0	1.37	0	6.23	6.71
263	Malitar TG	0.85	1.62	2.39	0	1.04	0	5.9	14.07
264	Gitingay TG	0	0	0	0	1.19	0	1.19	10.14
265	Simring TG	0.85	0	0	0	0.87	0	1.72	19.6

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
266	Latpanchar Forest	1.7	1.62	2.39	2.76	0.75	0	9.21	15.41
267	Sittong Khasmahal	0.85	3.25	2.39	0	1.31	0	7.79	20.28
268	Barasitong Khasmahal	2.55	0	0	0	0.93	0	3.48	13.52
269	Mangpu Cinchona Pl	0.85	1.62	2.39	2.76	1.31	0	8.92	5.69
270	Selpu Khasmahal	0.85	0	0	0	0.65	0	1.5	18.5
271	Rola Khasmahal	0.85	0	0	0	0.65	0	1.5	13.55
272	Lonku Khasmahal	0.85	0	0	0	0.65	0	1.5	16.27
273	Sittong Forest	0	0	0	0	0.87	0	0.87	22.29
274	Okaity TG	0.85	3.25	2.39	2.76	0.87	2.1	12.21	22.93
275	Bukim TG	2.55	3.25	0	2.76	0.75	2.1	11.4	13.86
276	Paschim Phuguri	2.55	1.62	2.39	2.76	0.82	2.1	12.24	22.23
277	Saurini Basti	2.55	3.25	2.39	2.76	0.75	2.1	13.79	26.98
278	Mirik Khasmahal	2.55	3.25	2.39	2.76	0.71	0	11.65	16.45
279	Marma TG	2.55	1.62	2.39	0	0.65	2.1	9.32	28.52
280	Singbulli TG	0.85	0	2.39	0	1.87	2.1	7.21	22.56
281	Purba Phuguri TG	0.85	0	2.39	0	2.61	2.1	7.95	19.08
282	Tingling TG	0.85	1.62	2.39	2.76	2.01	2.1	11.73	27.71
283	New Fallodi TG	0.85	0	2.39	2.76	2.18	2.1	10.27	17.68
284	Patong TG	2.55	0	2.39	2.76	1.63	2.1	11.43	22.23

Source: Census of India, 1991 District Census Hand Book, Darjeeling.

