

PROBLEMS OF DEVELOPMENT IN DAIJEELING
HILLS WITH SPECIAL REFERENCE TO RURAL
AREAS SINCE INDEPENDENCE

By

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INTRODUCTION

The Problem:

Balanced regional development is very much important for the elimination of regional disparities and promotion of national integration. But it is distressing to note that in spite of the importance of balanced regional development, regional disparity in development as well as the persistence of backward regions is a common characteristic in most of the countries, whether developed or under-developed and under different political and economic systems. Appalachia in the United States of America, the Uzbek Republic in the former USSR, Mezzugiors in Italy, the Slovak region of Czechoslovakia, the Montenegro region in Yugoslavia and the Scottish Highland may be cited as examples in this connection.

The Indian Subcontinent has become free from colonial rule with extreme regional variations in terms of the growth of the per capita income, the proportion of population living below the normative minimum, working population in agriculture, the percentage of urban population to total population, the percentage of workers in manufacturing industries and so forth. For this, in the post-independence period attention has been paid to remove this regional disparity in formulating various types of plans and policies. In spite of this fact, some states in India even to-day appear to be economically more advanced, while others are relatively backward. Besides, within each state, some regions are observed to be more developed while others are almost primitive.

In the state of West Bengal of India the hill areas of Darjeeling district, especially the rural areas of this region are acknowledged as one of the economically backward regions according to the indicators prescribed by different studies made by both government and non-government institutions to determine economic backwardness of specific regions in India. It is reported that till now about 90 per cent of the total population in this region are used to live in the rural areas, there exists a primitive rural and agrarian economy with lower productivity and, moreover, the infrastructural development in the rural areas, for example, road mileage, bank branches, electricity consumption per capita etc. is very low, inadequate or inconsequential.

These circumstances of the rural areas of the hill areas of Darjeeling district have naturally brought to the fore a number of research issues:

What are the characteristic features of the villages in terms of economic activities? What is the place of tea industry and agriculture in the economic life of the rural populace? What are the present problems of tea industry and what are their impacts on the rural economy of this region? What is the nature of agriculture and the extent of its development upto the recent years and what are the constraints in front of its development?

What is the importance of forestry in this region? What are the features of present forest policy and what are its impacts? What is the extent of development of different subsidiary activities

like animal husbandry, small-scale and cottage industries and sericulture and what are its problems? What is the magnitude of infrastructural development namely, communication, transport, power supply and so forth in the rural areas of this region? What is the nature of health and educational services to the rural people of this region?

All these along with other related questions still remain unanswered as no comprehensive study on the rural economy of the hill areas of this district has yet been made. In view of this, this study which is designed to provide answers to the aforesaid questions has been undertaken. And hence this study is expected to be very much important in the sense that it will throw light in the matter of framing appropriate strategies for removing economic backwardness not only of the rural areas of this region but also of the regions endowed with properties similar to those of the hill areas of Darjeeling district.

Objectives of the study:

Keeping the above issues in view, the following objectives have been framed in this study:

1. To reveal the geographical conditions of the hill areas of Darjeeling district.
2. To analyse the development of Darjeeling district in its historical perspective and the growth of population in the hill areas of this district.

3. To examine the nature of rural settlement in the hill areas of Darjeeling district and work out the major fields of development.
4. To analyse the growth of tea industry in the hill areas of Darjeeling district along with the problems confronted by this industry as well as their impact on the rural areas in the hill areas of Darjeeling district.
5. To explore the pattern of agriculture in the hill areas of this district.
6. To examine the nature of development of crop husbandry, horticulture, irrigation, soil conservation and agricultural marketing in the hill areas of Darjeeling district.
7. To make an evaluation of the forest policy in the pre-independence and post-independence period in terms of the nature of its impact on the hill areas of Darjeeling district.
8. To trace out the character of development of animal husbandry, small-scale and cottage industry along with sericulture in the rural areas of the hill areas of Darjeeling district.
9. To analyse the nature of development of communication, transport and power supply in the rural areas of the hill areas of Darjeeling district.
10. To find out the extent of development of health and educational services in the rural areas of the hill areas of Darjeeling district.

Scheme of the chapters of the Thesis:

Chapter - I deals with the discussion on geography, history of Darjeeling district and the growth as well as characteristics of population along with the nature of rural settlement in the hill areas of Darjeeling district. This chapter does also trace out the major fields of development of the rural areas in the hill areas of Darjeeling district.

Chapter - II evaluates the forest policy since independence in terms of the nature of its impacts on the hill areas of Darjeeling district and furnishes the discussion relating to the growth of tea industry along with its problems and their consequences on the rural economy in the hill areas of Darjeeling district.

Chapter-III examines the nature and efficacy of the developmental schemes and programmes undertaken so far on irrigation, soil conservation and agricultural marketing.

Chapter-IV presents the features of agriculture in the hill areas of Darjeeling district and also makes an evaluation of the nature of developmental schemes and programmes executed on crop husbandry and horticulture till the recent years for improving agriculture in the hill areas of Darjeeling district.

Chapter-V is designed to exhibit the nature of development of animal husbandry, small-scale and cottage industry along with sericulture in the hill areas of Darjeeling district.

Chapter-VI purports to examine the development of communication, transport, power supply, educational and health services in the hill areas of Darjeeling district.

Chapter-VII presents a summary of the entire work and tries to identify the problems relating to the development of the hill areas of Darjeeling district on the basis of the results and discussion.

Methodology:

For the purpose of carrying out this study, historical data relating to various issues have been collected from the secondary sources like the gazetteers, censuses, government reports etc. This study has been conducted with the application of tabular method of presenting quantitative data along with the associated statistical concepts.

Chapter-1

GEOGRAPHY, HISTORY, DEMOGRAPHY AND RURAL SETTLEMENT PATTERN OF THE HILL AREAS OF DARJEELING DISTRICT.

The word 'Darjeeling' which is the name of the northernmost district of Jalpaiguri Division of West Bengal has originated from the word 'Dorji - ling', where "ling" means place and 'Dorje' stands for the ecclesiastical sceptre or the double-headed thunder-bolt, which is caught hold of by the Lama in his hands during the service. Moreover, it is to be noted that the word 'Dorje'- ling' was the name of the Buddhist monastery that was once situated on the Observatory Hill overlooking the Mall, the nerve centre of the town.¹

1.1. Geographical Features:

1.1.1. Area, Location and Boundary:

The geographical area of the district of Darjeeling is 3379.137 sq. km.² This district is located between 27°13'05" and 26°27'10" north latitudes and 88°53'00" and 87°59'30" east longitudes.³

Among all the frontier districts of India the boundary of Darjeeling district appears to be hemmed in by international frontiers. The Darjeeling district is surrounded by Nepal in the West, by Sikkim, a state of India in the north, Bhutan and the district of Jalpaiguri in West Bengal in the east, and Bangladesh, North Dinajpur district of West Bengal and Purnea district of Bihar

in the south of this district.³

The hill areas of Darjeeling district is composed of three sub-divisions - Darjeeling, Kalimpong and Kurseong. The total area of the region is about 2417.25 sq. km, that is 74.24 per cent of the total area of the district and 2.72 per cent of the state of West Bengal.⁴

1.1.2. Natural Divisions:

Darjeeling district is composed of a portion of outlying hills of the lower Himalayas and a stretch of territory lying along their base which is known as the Terai. The hills seem to rise abruptly from the plains. The height of the hills increases north-west-ward. The mean height of the Terai is 300 feet (91.44 m.) above the sea level, while the elevation of some of the hills within the district are found to be more than 10,000 feet (300 m.) above the sea level. Within these two main natural divisions there exists a mosaic of micro-topographic units.⁵

The Terai portion of the district, lying between the mountains and the plains of India is crossed by numerous rivers and streams flowing down from the hills and by the upland ridges which mark their courses. This division is an unhealthy swampy tract which was formerly covered by dense malarious jungles. It has now become extensively cleared for tea gardens and settled tillage but it till now contains wide blocks of sal forest interspersed with cultivated land and villages as well as to some extent urban sites.⁶

From geological point of view it is a kind of neutral terrain which is neither composed of the alluvium of the plains nor of the rocks of the hills. Most of the parts of the Terai are found to be alternate beds of sands, gravel and boulders brought from the mountains. Botanically the Terai region is defined as the region of forestry. The Terai soil which is generally light, dry and gravelly varies in breadth from 10 miles along the Sikkim frontier to 30 or more miles on the Nepalese frontier. In between the river channels there lies the region of gravel beds extending 20 miles to the south from the base of the mountains in the Terai region.⁷

In the lower Himalayan region the mountains tower abruptly from the plains, which are here only about 300 feet above sea-level, in lofty spurs reaching to 6,000 and 10,000 feet and culminate in a series of long ridges and valleys. The mountains in 1830 were completely clothed with forest from the top to the very bottom, and formed rather a gloomy feature in the landscape, owing to the sameness of the former and want of break or variety on the surface. The slopes from about 6000 feet downwards are dotted with trim tea-gardens, interspersed with small tracts of land reserved for native cultivators. Above this level the mountains are full of dense forests through which torrents rush down. Their position is often only indicated by the dipping of the forest into their beds. But at the higher levels on the Singalila range there are wide grassy slopes broken here and there clothed with pine forests and masses of rhododendrons.⁸

1.1.3. Geological Divisions:

Darjeeling district is divided into four tracts from the geological point of view. These divisions are from north to south the hard rock area, the Bhabar belt, the Terai belt and the alluvial plains. In the hard rock region, the southern portion is covered with sedimentary rocks while the northern part is composed of metamorphic rocks. The Bhabar belt include rock fragments, big boulders and fine grained clastics derived from the hard rock area. This belt is also characterised by rather steep slopes, bouldery surfaces and forests of tall trees. The Terai belt is composed mostly of coarse granular materials alternating with finer clastics. The alluvium is composed of a succession of layers of sand, silt and clay with occasional gravel beds and lenses of peaty organic matter. Although there exists variability in the thickness of alluvium, it is supposed to increase towards south. The geological formations of the area are shown in Table 1.1 in an order of increasing antiquity.⁹

1.1.4. Soil Condition:

Heterogenous soil condition exists in different areas of Darjeeling district. The soil in the plains is composed mostly of sandy alluvium. Sandy and gravelly soils are also observed in some tracts of plains.¹⁰ The soil in the plains is dark and more fertile.¹¹ The greety soils in the hill areas are of three classifications - black, red and white. Of these, black soil is the most rich in terms of its nutrient contents for plants, white is the most poor and the red occupies intermediate position.¹² For a better understanding about the types of soil of cultivable area in

different blocks of Darjeeling district Table 1.1 is given. From Table 1.1 it is revealed that sandy loam is the predominant type of soil in all the blocks of Darjeeling district. Hence, in time it is to be noted that soils in the district are mostly acidic and have high base exchange capacity with lesser depth.¹³

1.1.5. Water Sources and River System:

The water sources, besides the supply of water from rainfall in Darjeeling district are classified into the following heads: (a) River, (b) Springs and spring heads, (c) Lakes, (d) Snow-fields, glaciers etc. and (e) Ground water. Among these the rivers are the major source of water supply in the district.

There exists six main rivers which are generally perennial, shallow and torrential with stony and sandy beds. Each of the rivers is fed by a considerable number of perennial streams or rivulets throughout the year and hundreds of monsoon streams.¹⁴

An important feature of the rivers in this region is that they are not navigable and are rarely utilised for irrigation purposes within the district itself although many of them have high potentialities of generating hydro-electric power and rearing of fishes. The names and lengths of the main rivers and their tributaries are given in Tables 1.2 and 1.3.

1.1.6. Forest Resources:

In some tracts of Darjeeling district there exist dense and vast forest species which are in fact probably found in few places

in the world. The total area of forests in the district is 1252.66 sq.kms, 39.78 per cent of the total geographical area of the district.¹⁵ This vast forest area is not uniform in nature in all the tracts of the district. There exists wide variation in the types of forests. The variation is mainly due to the variation of altitude and climate.

1.1.7. Mineral Resources:

There are valuable mineral deposits, namely, coal, copper, graphite, iron and lime in Darjeeling district. It is evident from Table 1.4 that Darjeeling district is very rich in terms of its mineral deposits. But none of these has so far been found to be exploited successfully due to the fact that modern large-scale exploitation in most of the cases has been found to be un-economic. But it seems to be encouraging to note that the Mines and Minerals Corporation is at present surveying the zinc deposit in Garubathan block and its findings may lead to the exploitation of the deposits for large-scale operations.¹⁶

1.1.8. Climate:

There prevails two distinct types of climatic conditions in the plains and in the hill areas of Darjeeling district. The climatic condition of the Terai plains of Siliguri sub-division is similar to that of the adjacent plain districts of West Bengal and Bihar. The temperature becomes highest in the month of May, when the temperature goes upto 42°C. The minimum temperature in

the winter is around 8°C in this area.

In the hills the temperature both at night and day is higher during the monsoon. The coldest month is January when the mean daily maximum and minimum temperatures are 8.6°C and 1.90°C respectively. Frost is common in winter and during occasional cold wave temperature is observed to go down to the maximum level of 1°C to 2°C .¹⁷

The variation in climate is strongly correlated with the variation in altitude. As there exists considerable variations in altitude of different segments within this region, the climate also varies sharply from one place to another. Table 1.5 presents the variation in climate. It shows notable variations both in minimum and maximum temperatures of different places within the hill region of the district.

On an average there are about 120 rainy days in a year in Darjeeling district. About 80 per cent of total rainfall is received during the months between May and September from the south-west monsoon and about 20 per cent during the remaining months. Like temperature rainfall varies within the district itself. Generally rainfall is heavier in the southern Terai region and ridges and slopes near the plains. Kurseong sub-division in the southern slopes gets about 160" of rainfall. Darjeeling receives 120" of rainfall while Kalimpong gets about 80" of it. The place to place variation in rainfall within the hill areas is evident from Table 1.6.¹⁸

1.2. History of Darjeeling District:

Before the extension of British rule Darjeeling was a part of the dominions of the Raja of Sikkim, a petty ruler, who was engaged for a long time in an unsuccessful struggle against the growing power of the war-like Gorkhas. After crossing the hills and the valleys of Nepal, they marched eastward into Sikkim in 1770, and during the next thirty years the country suffered repeatedly from their inroads. At the end of this period they overran Sikkim as far eastward as the Tista river and conquered and annexed the Terai, i.e., the belt of country lying along the lower hills between that river and the Mechi, which is now covered by the valuable tea gardens of Darjeeling planters. In the meantime the East India Company was engaged in unavailing remonstrances against the Nepalese aggression throughout the whole length of their northern frontier and finally war broke out in 1814. At the close of this war the tract which was annexed by the Nepalese from the Raja of Sikkim was given to the East India Company. The Raja of Sikkim who was driven out of his dominions was reinstated. And in 1817 a treaty was concluded at Titaliya under which the whole of the country between the Mechi and the Tista, a tract extending over 4,000 square miles (10359.96 sq.kms.) was restored to the Raja of Sikkim. Thus the sovereignty of the Raja had been guaranteed by the Company. The intervention which was made by the British became successful in preventing the Gorkhas from turning the whole of Sikkim and the hills, West and South of the Tista into an out-lying province of Nepal; and Sikkim; including the present district

of Darjeeling, was retained as a buffer state between Nepal and Bhutan.¹⁹

Under the treaty of Titaliya the East India Company assumed the position of the permanent power in Sikkim. The Raja of Sikkim was bound to seek the arbitration of the British Government in any dispute between his subjects and those of Nepal or of any other neighbouring state. Ten years after the treaty was signed, disputes arose on the Sikkim-Nepal frontier which according to the terms of the treaty were referred to the Governor General of India. Accordingly, in 1828 General (then Captain) Lloyed was deputed to effect a settlement. He started his journey taking Mr. J.W. Grant as a companion towards the Darjeeling hills which were still terra incognita to the British and arrived as far as Rinchingpong. During the journey General Lloyed was attracted by the advantageous position of Darjeeling as a centre which would engross all the trade of the country and as a place of great strategical importance, commanding the entrance into Nepal and Bhutan. On all grounds he strongly urged the importance of securing the possession of the place. At the same time Mr. Grant realised the numerous advantages promised by the establishment of a sanatorium at Darjeeling and strongly felt the need to occupy the place for military purposes as the key of a pass into the Nepal territory. In considering all these facts they reported to the then Governor General Lord William Bentinck.²⁰

These representations were accepted by Lord William Bentinck. He promptly deputed Captain Herbet, the then Deputy Surveyor

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General, to examine the country in company with Mr. Grant, observing the extreme earnestness in commending Darjeeling. The reports of Captain Herbert and Mr. Grant conclusively proved the feasibility of establishing a sanatorium at Darjeeling. The court of Directors approved the project on the ground that it might be a valuable depot for the temporary reception of European recruits, and even a permanent cantonment for a European regiment. General Lloyd was accordingly directed to open negotiations with the Raja of Sikkim on the first convenient occasion for the cession of Darjeeling in return for an equivalent in money and land. The opportunity occurred in 1834-35, when General Lloyd was deputed to enquire into the causes of the disturbance created due to an inroad of some Lepcha refugees in Nepal into the Sikkim Terai. The refugees were obliged to return to Nepal and the negotiations ended in the execution by the Raja of Sikkim of a deed of grant on the 1st of February, 1835.²¹

This deed of grant, which is commendably short, runs as follows - "The Governor-General having expressed his desire for the possession of the hill of Darjeeling on account of its cool climate, for the purpose of enabling the servants of his Government, suffering from sickness, to avail themselves of its advantages, I, the Sikkim-puttee Rajah, out of friendship for the said Governor General, hereby present Darjeeling to the East India Company, that is all the land south of the Great Rangit river, east of the Balasun, Kahail and little Rangit rivers, and west of the Rungno and Mahanadi rivers".²² This was an unconditional cession of what was

then a worthless uninhabited mountain, but in 1841 the Government granted the Raja an allowance of Rs. 3000 per annum as a compensation and raised the grant to Rs. 6,000 per annum in 1846.

After the cession General Lloyd and Dr. Chapman were sent in 1836 to explore the country, to ascertain the nature of the climate and to investigate the capabilities of the place. They spent the winter of 1836 and part of 1837, and on receipt of their reports it was finally decided to adopt Darjeeling as a sanatorium. General Lloyd was appointed the local agent with power to deal with the applications for land which soon began to pour in from the residency of Calcutta and the new settlement progressed rapidly. In 1836, when General Lloyd and Dr. Chapman visited Darjeeling they found some huts recently erected by the Raja of Sikkim. By 1840 a road had been made from Phankhabari; there was a staging bungalow and another at Mahaldiram; a hotel had been started at Kurseong and the second at Darjeeling and at the latter place some thirty private houses had been erected and nearly as many more locations had been taken up at Lebong.²³

Elsewhere, however, the country was still uncleared, the whole road from Pankhabari running through virgin forests with an almost impenetrable growth of underwood broken only here and there by a Lepcha clearing, a mountain slip or a slope cleared by fire. The country was practically uninhabited and one of the most important problems of administration was to attract native settlers.

In 1839 Dr. Campbell, a member of the Indian Medical Service and a British resident in Nepal was transferred to Darjeeling as Superintendent. He was also in charge of the political relationship with Sikkim and was entrusted with civil, criminal and fiscal administration of the district, besides being post-master, marriage registrar and administrator of the station fund, i.e., the income from the lands in and about the station which had been leased for building purposes. All these duties were discharged by him singlehanded but Dr. Campbell devoted himself with rare energy to the task of developing the station. He gave much encouragement to attract immigrants to cultivate the mountain slopes and to stimulate trade and commerce. His developmental efforts made immigrants attracted to Darjeeling from the neighbouring states of Nepal, Sikkim and Bhutan where slavery was prevalent. And as a result population rose from not more than 100 souls in 1839 and to about 10,000 in 1849.²⁴ About his activity an inspecting officer wrote in 1852, "whatever has been done here has been done by Dr. Campbell alone".²⁵

But the development of Darjeeling resulted in constant jealousy and annoyance to the Dewan, the Prime Minister of Sikkim, who was himself the monopolist of all trade in Sikkim and it was shared in by the Lamas and other notabilities, who lost their right over slaves settling as British subjects in Darjeeling. In order to restrict the development of Darjeeling the Dewan and his trading partners pursued the policies : (a) to frighten the British subjects in Darjeeling by spreading false reports and sending secret emissaries by declaring that the immigrants who were formerly

slaves, would be delivered up as escaped slaves to their former masters, (b) in every way by discouraging the immigration of the people of Sikkim to Darjeeling, (c) by kidnapping the British subjects of Darjeeling to sell as slaves, (d) by making frequent denials of aid in, capturing and surrendering criminals.²⁶

Apart from these as stated by Sir J. Hooker, "every obstacle was thrown in the way of a good understanding between Sikkim and the British Government. British subjects were rigorously excluded from Sikkim; every liberal offer for free trade and intercourse was rejected generally with insolence; merchandise was taxed, and notorious offenders, refugees from the British territories were harboured; despatches were detained; and the Vakil or Raja's representatives were chosen for their insolence and incapacity..." Due to such type of conduct displayed by the Dewan on behalf of the Raja of Sikkim the relation between the British Government and Sikkim had deteriorated. But in this regard the Raja was unable to do anything as he was old and infirm and a mere doll in the hands of his minister, i.e., Dewan Namguay, who was popularly known as the Pagla Dewan or the mad Prime Minister of Sikkim.²⁷

The bitterness reached its climax in November 1849, when Sir Joseph Hooker and Dr. Campbell were suddenly seized and made prisoners, while travelling in Sikkim with the permission both of the Raja and the British Government. The objects of the Dewan were to relinquish the claims for the surrender of criminals by forcing Dr. Campbell and making him, while in duress, agree to the dictation of the Dewan regarding the giving up of escaped slaves; and

to detain him until these enforced conditions should be sanctioned by the Government. But Dr. Campbell did not agree to and declared that whatever concessions extorted to Sikkim would be repudiated by the Government and added with this declaration the characteristic threat of the Governor General Lord Dalhousie, that the Raja's head should answer for it, if a hair of the head of either prisoner were hurt. The Sikkimese, as a result, released Dr. Campbell and Sir Joseph Hooker on 24th December, 1849, a little more than six weeks after their seizure.²⁸

The British Government replied to the insolency of the Raja of Sikkim as discussed above in 1850. The grant of Rs. 6,000 per annum which the Raja had been receiving since 1846 was withdrawn. The British annexed the Sikkim Terai, the only lucrative and fertile estate of the Raja of Sikkim. This was originally given to him as a free gift by the British Government. At the same time the portion of the Sikkim Hills bounded by the Ramman on the north, the Great Rangit and the Tista on the east, and by the Nepal frontier on the west, a tract of the country containing 5,000 people was also annexed. As a result;

(a) The Raja had been confined to the mountainous hinterland and isolated from all access to the plains except through the British territory. The new territory which was annexed from the Raja of Sikkim was placed under the management of the Superintendent of Darjeeling. The administration by him made Darjeeling a valuable asset in no time. As his efforts raised the population, Darjeeling had expanded the suitability of tea cultivation. The whole country

thus annexed at that time covered an area of 640 sq. miles (1657.59 Sq.Kms.).

(b) The annexation made the British boundary-mark with Nepal on the West and with Bhutan on the East, while it connected Darjeeling on the south with the British districts of Purnea and Jalpaiguri.

(c) The annexation brought about a significant change in the relationship between Sikkim and the British. Previously the district was an enclave in Sikkim territory and to reach it, the British had to pass through a country acknowledging the rule of a foreign, though dependent, potentate. But after the annexation of the country, the need to cross the foreign country had been removed as the territory in Darjeeling became continuous with the British districts Purnea and Rangpur in the plains. Sikkim Raja was cut off from access to the plains except through the British territory.²⁹

For some years after this, the relations between Sikkim and the British Government proceeded smoothly. The Dewan though apparently dismissed, soon worked his way into power through his wife and illegitimate daughter of the Raja. The former outrages were deliberately renewed by him. Constant raids were made upon the annexed territory, property was plundered, subjects were carried off and sold as slaves or detained in Sikkim and no redress could be obtained. As a consequence after six months of negotiations, reparation was refused and it was resolved to take possession of the portion of Sikkim lying to the north of Ramman and to the West of Great Rangit and to retain it till the British

subjects were restored, the offenders given up and security obtained against a recurrence of offences. In November 1860, Dr. Campbell crossed the Ramman with a small force and advanced as far as Rinchingpong. But he had only 160 natives and a complement of English and non-commissioned officers, and when attacked he was forced to retreat for lack of ammunition and to fall back on Darjeeling. Subsequently Colonel Gawler at the head of a force of 2600 men including 2 mountain howitzers and detachment of artillery with Sir Ashley Eden as Envoy and Special Commissioner started from Darjeeling on the 1st February, 1861 and reached Tamlong, the capital of Sikkim early in March, 1861. The Dewan fled, the British force dismantled the forts, the old Raja abdicated in favour of his son, and on the 28th March Sir Ashley Eden effected a treaty with the new Raja and according to the conditions of the treaty the new Raja was to provide:

- (a) full compensation to those of the British subjects who had either been kidnapped or pillaged by the Raja's people.
- (b) full indemnification for the losses sustained in Dr. Campbell's retreat.
- (c) the guarantee for opening up of the country to trade and the removal of all restrictions on travellers and merchants.
- (d) the guarantee for fixing the maximum rate of transit duties to be levied on goods between British India and Tibet and for the construction of roads and the security of those who favoured them.
- (e) lastly, the treaty contained provisions for the banishment of Dewan Namguay, and for the future good conduct of the Sikkim

Government. This treaty was of great importance to the interest of Darjeeling as it finally put an end to the long-term political dispute between the British Government and the Sikkim Government. During the period of occupation of Sikkim by the British a good road was constructed from Darjeeling to the Tista, while the remaining portion between the Chola pass and Tibet was completed by the Sikkim authority and thus the first step was taken to open trade with Tibet.³⁰

After the end of the disputes with Sikkim trouble arose soon with the adjacent state of Bhutan. The Bhutanese constantly engaged themselves to create the same kind of disturbances in Darjeeling as those were made by Dewan Namguay. Moreover, in the beginning of 1862 a news came to the British that the Bhutanese were making hostile preparations for the purpose of entering into the British territory and an attack on Darjeeling was anticipated. Troops were sent at once hurriedly from Dinapore and confidence on the frontier was restored. This was followed in 1863 by the despatch of a special mission to Bhutan under Sir Ashley Eden, who was charged with the proposals of a conciliatory character but was also instructed to demand the restoration of plundered property. But the proposals for the establishment of peace were insolently rejected by the Government of Bhutan and the British Envoy was openly insulted in the Durbar. Besides, as the only means of ensuring the safe return, the British Envoy was compelled to sign a document by which the Government of India was to renounce Bhutan Duars on the Assam frontier. At last Sir Ashley Eden, who had been treated with gross indignity succeeded with difficulty in

having Punakha during the night, and returned to Darjeeling in April, 1864.³¹

After further fruitless negotiations, the Government of India determined to annex the Bengal-Duars and so much to the hill territory including the forts of Dalimkote, Peshok and Dewangiri to prevent the hostile incursion of the Bhutanese into the Darjeeling district and the plains below. For that purpose a military force of sufficient strength was accordingly despatched into Bhutan in the winter 1864. The force captured the fortresses of the Bhutanese and the whole of the Duars by the middle of January 1865. In November 1865 the treaty extorted from Sir Ashley Eden was given up, and a fresh treaty was executed under which the Bhutan Duars with the passes leading into the hills were added to the British in return for an annual subsidy. Thus the whole of the Bhutia possessions in the plains were occupied by the British and a slip of British hill territory lying on the eastern bank of the Tista was interposed between Bhutan and Sikkim. In 1866 this tract bounded by the Ramman on the north, the Great Rangit and the Tista on the east and by the Nepal frontier on the west, at present known as Kalimpong sub-division was added to Darjeeling district. At the time of annexation the country contained 5000 people. This was the last addition to the district which thus acquired its present dimension.³²

Peace was thus established within the borders of Darjeeling and thenceforward began to march of progress and civilization. The

year 1866 is for this reason considered as marking an epoch in the history of Darjeeling.³³

The tract thus acquired by the British Government was named as the Darjeeling district. This district was included in the Rajshahi division until October 1905, when as a result of the partition of Bengal it was transferred to the Bhagalpur division. With the re-arrangement of the provinces it was retransferred to the Rajshahi division in March, 1912 and since then it remained in the jurisdiction of the said division until the year of independence of India, i.e., the 1947.³⁴

The district was divided into two sub-divisions in the earlier period of its administrative set up. These were the headquarters sub-division with an area of 960 sq. miles (2486.39 sq. kms.) including all the hills on both sides of Tista and the Terai sub-division with an area of 274 sq. miles (709.66 sq. kms.) including the whole of the country at the foot hills. The headquarters of the Terai sub-division were at Hanskhawa near Phansidewa from 1864 to 1880, when they were transferred to Siliguri, which was formerly in the Jalpaiguri district. Later on with a small surrounding area, Siliguri was transferred to Darjeeling district and made the headquarters of the Terai sub-division. In 1891 Kurseong, a new sub-division including both the Terai and the lower hills west of the Tista was formed. Kurseong had been made the head-quarters of this new sub-division. Later on in 1907, Siliguri was made a sub-division with the re-establishment of the Terai sub-division, which had in 1891 been absorbed

into the Kurseong sub-division. Upto 1907 there had been a Deputy Magistrate at Siliguri working under the sub-divisional officer, Kurseong and managing the Terai Government estates under Deputy Commissioner. From 1865 to 1916 Kalimpong was in the Sadar sub-division with a manager of the Khashmahal working in Kalimpong under the Deputy Commissioner, police work being controlled by an Inspector. In 1916 the Kalimpong sub-division was created as a preliminary to working out development schemes in Kalimpong. Thus with the formation of Kalimpong sub-division, in the year 1916 the district was divided into four sub-divisions, Sadar (Darjeeling), Kurseong, Kalimpong and Siliguri. In this sphere there had not taken place any change till the date.³⁵

There was only one urban centre namely Darjeeling in this hilly district upto 1879. In 1879 Kurseong municipality was formed and Kurseong town was treated as an urban area. Later on, since 1931 both Kalimpong and Siliguri were being treated as the other two urban centres of the district. Thus, there were four urban centres namely, Darjeeling, Kurseong, Kalimpong and Siliguri in the district since the year 1931.³⁶

1.3. Demographic change in the Hill Areas of Darjeeling district.

1.3.1. Growth of Population in the Hill Areas of Darjeeling District:

At present the hill areas and district as a whole are seen to be composed of the people of various races, religions and languages. There are inhabiting Nepalese, Bhutias, Lepchas, Tibetans, Anglo-Indians, Europeans, Rajasthanis, Punjabies and

Hindusthanis.³⁷ But once this tract was almost covered with forest. As stated earlier Darjeeling contained only 100 souls when British first acquired this territory in the year 1835. This state of affair was changed soon by Dr. Campbell, the first Superintendent, who made immigration in Darjeeling, attractive to the people of the neighbouring states namely, Nepal, Bhutan and Sikkim. Population rose from 100 souls to about 10,000 in the year 1849 chiefly by immigration. In the year 1869, when a rough census was taken of the inhabitants of this tract, the total population was found to be more than 22,000. This was due to the rapid influx of immigrants noted by Sir Josheph Hooker, when he visited Darjeeling about that time.³⁸

The census of population of this district has been carried on regularly since the year 1872. In order to understand the nature of growth of population in this region the population and the percentage increase at each census since 1872 upto 1981 are presented in Table 1.7.

Table 1.7 shows that population had increased remarkably during the years 1872-1881, 1881-91, 1891-1901, 1901-1911 and 1911-21, the region recorded a decline in the growth of population, followed by a further increase in the growth rate during the years 1921-1931, 1931-1941, 1941-1951 and 1951-1961 and since 1961 the growth rate had registered a drop to 18.57 per cent during 1961-1971 and a further drop to 8.75 per cent during 1971-1981.

The large increase in population in 1881 had been attributed partially to the incompleteness and inaccuracy of the first census. However, the phenomenal growth during the years 1871-81 and also during 1881-91 was mainly due to the large-scale immigration in the Darjeeling Hill areas at that time.³⁹ For the assessment of the extent of immigration affecting population of the hill areas of Darjeeling the percentages of immigrants to total population of the district since 1891 to 1961 are presented in Table 1.8. The table shows that the percentage of immigrants to total population exceeds the percentage of natural population in the census years 1881 and 1891. This implies that the rapid growth of population between 1872-1891 is mainly due to immigration.

The development of tea industry and the settlement for exploiting the waste lands of the area seem to be the main reason behind immigration. The importance of the tea industry in this respect can be understood from the data presented in Table 1.9. It is observed from Table 1.9 that between the years 1872 and 1891 the number of estates had increased by more than 140 per cent and the acreage under the tea cultivation had trebled. This rapid development of tea industry developed the scope for employment an enormous quantity of manual labour. But the local supply of labour was not sufficient to meet the rapidly increasing demand for labour in the tea estates, the result was then an unexampled immigration. As a result at the census of 1891 it was found that no less than 88,000 persons, resident in the district were born in Nepal.⁴⁰

The influx of agriculturists and its extent could be apparent from the exceptional growth of the population of the Kalimpong tract to the east of the Tista. This tract was over 401 square miles (1038.59 sq. kms) of which 213 square miles (551.67 sq. kms) were occupied by tea gardens, while the remainder 178 sq. miles (461.02 sq. kms.) had been reserved for native cultivation. The population of this tract had been estimated to be 3,530 souls, when in 1865 it was annexed from Bhutan. The number increased in 1881 to 12,683 and to 26,631 in 1881 or by 110 per cent in the decade. In 1901 the population had grown to 41,511 or by 55.9 per cent. This rapid expansion of population was entirely due to the immigration of agriculturists from Nepal.⁴¹

This large-scale influx of population from Nepal in order to settle in Darjeeling either as the labourers of tea estates or as the agriculturists was due to social, economic and political conditions prevailing in Nepal at that time.⁴²

The Shah kings were the rulers of Nepal. After the annexation of eastern part of Nepal they tried to settle upper caste Hindus in the land held by Kiratis who used to live in the eastern part of Nepal. They encouraged the upper caste Hindus to settle in those parts which were the exclusive preservers of different tribes for centuries. The Hindu settlers of those parts engaged themselves into struggle for land with tribals. The struggle for land between the Hindus and the tribals was not unique in Nepal,

in India too. Hindu settlers entered and acquired large stretches of aboriginal's land.⁴³

Further, they (Shah rulers) replaced the old system of land tenure namely, "Kipat", and brought all the tribal lands except those that belonged to the Limbus, under a new system of tenure known as "Raikar". Under this new land tenurial system, i.e., "Raikar", the rights of an individual to utilise and transfer land were recognised by the state so long as taxes were paid. In other words, the ownership of land had been related to the payment of tax. On bringing into practice the "Raikar" system of land tenure, the Shah ruler began gradually to force the "Kipat" holders confer land grants of the olden times called "Sonami" on the immigrants, who were mostly upper caste Hindus and also allowed them to convert the "Sonami" land into "Raikar" land with the introduction of a series of legislation. As a consequence of compelling the Kipat holder to confer land grants of the olden times, "Sonami" on the upper caste Hindu immigrants along with giving right to the said immigrants to convert "Sonami" land into "Raikar" land and the introduction of "Raikar" system of land tenure in place of "Kipat" system, Kipat was abolished, Kiratis became landless and powerless. The Limbus were only allowed to retain at least a portion of their ancestral land under the "Raikar" system of land tenure".⁴⁴

Besides, the above mentioned policies adopted by the Nepal Government, the upper caste Hindus tried to acquire lands of the

"Kipat" holders by giving loans to them, i.e., original tribes. As the economic conditions of the upper caste Hindus were better than that of the original tribes, they were the chief source of credit to the original tribes of Nepal. They had to pledge their lands to these upper caste Hindus in order to obtain loans. Under the system prevailing at that time the creditor in lieu of interest, obtained the right to cultivate the "Kipat" land for as long as the loan remained as outstanding. The Hindus for their part were anxious to have right to cultivate of these "Kipat" lands, since their own "Raikar" lands were short in supply. As a result of the defeat of the tribals in the struggle with the upper caste Hindus, introduction of "Raikar" system of land tenure, a pressure of the upper caste Hindus on the land occupied by tribal communities of the eastern part of Nepal was created. This pressure on land was further accentuated by the natural growth of population within the tribal communities itself. The resultant fact was the abolition of "Kipat", the origination of a class of landless, powerless poor miserable, tribal population.⁴⁵

But, for this class in the eastern part of Nepal there was no industry to be employed in, no opportunity being available in Government services, no scope for taking up any commercial vocation and no secondary means to fall back upon for economic livelihood. On the other hand by this time Darjeeling was flourishing under the British rule. The rapid development of tea industry created vast employment opportunity in the tea estates. In addition, the

British introduced a "progressive" land tenure system under which government was considered as the direct proprietor of the estate and there was no landlord, no Zamindar, no intermediaries between the government and the ryots. The laws regarding the transfer of land from the Nepalis to the other groups were made extremely stringent and it became impossible on behalf of the upper caste Hindus and money lenders (Kayahs) to purchase land from the Nepali cultivators. Thus there arose a situation in which the Nepalis obtained the opportunity to spend their time and energy on their lands without any fear of alienation to rich upper caste money lenders of the plains. These economic situations in Darjeeling attracted the landless, poor, tribals of the eastern part of Nepal to immigrate and settle in the hill areas of Darjeeling. So by 1891 the population of the Darjeeling hills had been more than trebled in comparison to that of 1872.⁴⁶

The observed declining trend in the rate of growth of population by the decades, 1891-1901, 1901-1911 and 1911-1921 is due to the fact that there happened a continuous decrease in the volume of immigration which may be cleared from Table 1.8. This decrease in the volume of immigration started because at the end of 1891 the tea industry followed a period of depression and its expansion was ceased.

Therefore the decline in the rate of growth of population since 1891 to 1921 might be attributed to the depression in the tea industry. Apart from this, the influenza epidemics causing a

great mortality in the hills between 1911-21 was partially responsible for the declining trend of rate of growth of population in the hill areas of Darjeeling district.

The higher rates of growth of population in the census years, 1931, 1941, 1951, 1961 in comparison to those of 1901, 1911 and 1921 were the result of immigration mainly from East Pakistan and Tibet on the one hand and the decline in the death rate since 1921 on the other.

In between 1971 and 1981 the rate of growth of population is noticed to be declining progressively. This is due to the fact that migration in the hill areas in the above mentioned period has become merely a trickle for the stagnancy of the hill economy with the traditional agrarian structure and practically having no industrial base.

1.3.2. Growth of Population in the Three Hill Sub-divisions:

The hill areas of Darjeeling are composed of three hill sub-divisions namely Darjeeling sadar, Kalimpong and Kurseong. Increases in the population in these three hill sub-divisions have not been found to follow the trend of the rate of growth of the population of the entire hill areas. Kalimpong sub-division has grown more than the other two sub-divisions. Table 1.10 exhibits the growth of population and inter-census percentage variation in each of the sub-division of the hill areas of Darjeeling district.

1.3.3. Growth of Rural Population in the Hill Areas:

A little more than three-fourth of the total population (77.19 per cent) in the hill areas of the Darjeeling district are found to live in the rural areas, comprised with the villages, which are different from the villages in the proper sense of the word. In fact, in the hill areas of Darjeeling district there exist no villages in the conventional sense but only homestead nestling on the hill sides or in the valleys. Occasionally, five or six houses are observed to be grouped together but generally, each homestead stands in its own land near the passage of cleared cultivation, clustered of houses which can be dignified by the designation of villages are only found in few bazars to which the people go for their weekly purchases.⁴⁷

The population and its decade variation along inter census percentage variation in population of the rural areas in the Darjeeling hills from 1872 are presented in table 1.11. It is observed that increases in population in the entire rural areas follow the trend like that for the hill areas as a whole. But the patterns of growth of population in the rural areas of the three hill sub-divisions are not similar to each other, which is evident from Table 1.12.

1.3.4. Growth of Urban Population:

There are three towns or urban centres namely Darjeeling, Kalimpong and Kurseong according to the criteria prescribed in the census of 1961;

(i) a population of not less than 5,000 persons, (ii) a density of at least 1,000 persons per sq. mile (2.59 sq. kms.), (iii) occupation of the three-fourth of the working population should be outside of agriculture and (iv) the place should have a few pronounced urban characteristics and amenities like location of educational, medical or public institutions, offices or trading centres in it.⁴⁸

These three hill towns are the most attractive tourist spots and as such population in these towns are subject to considerable seasonal variations. During the tourist season, these towns particularly Darjeeling are full to the capacity. In winter not only are there no visitors in these towns but many normal residents of these towns also go down to the plains and these towns get thinner in their population. These are the peculiar characteristics of the tourist hill resorts.⁴⁹

The growth of urban population in the hill areas of Darjeeling district as a whole and that for each urban centre are shown in Table 1.13 and 1.14 respectively. From Table 1.13 it is observed that the total urban population increases steadily over the decades with varying growth rates from one decade to another. The growth rates of urban population have not been found to follow any general pattern. But from the comparison of the index of growth of urban population, rural population and the total population of the hill areas it is clear that the urban areas are far above the rural areas as well as the hill areas as a whole. This higher rate of growth of

urban population is mainly due to the fact that the hill areas of Darjeeling opened up by the British gave a number of opportunities to the immigrants. With the establishment of tea gardens, new roads were constructed and new commercial centres as well as new settlements were started.

From Table 1.14 it appears that the growth rate of urban population has been negative in the case of Darjeeling and Kurseong towns in all the census years except 1931 for Darjeeling and 1891 for Kurseong. But the growth rate of urban population in the Kalimpong sub-division has been found to be increasing and Kurseong sub-divisions upto 1961. In the census years 1971 the growth rate in case of Kalimpong has been negative and in 1981 that was positive and greater than that of Darjeeling sub-division but less than that of Kurseong sub-division. The increasing trend in the growth rate of urban population in Kalimpong sub-division is the result of the opening of trade route between India and Tibet during 1951-1961 and the growing importance of Kalimpong town as a trading Centre. But with the closure of this trade route in 1961, Kalimpong lost its trading importance which resulted in the decrease of urban population of this sub-division.

Although Kalimpong and Kurseong towns show almost an increasing trend in the growth rate of urban population, the growth rate of urban population in the hill areas as a whole are found to be more or less stagnant during 1931-1961. The rate of growth has declined from 27.4 per cent in 1941 to 4.95 per cent in 1971. But again it has increased to 43.93 per cent in 1981. The increase in

the rate of growth of urban population can be explained by the recent increase in the employment opportunities.

But the decline in the rate of growth of urban population in the hill areas in 1971 and stagnancy from 1931-1961 is the result of the establishment of Siliguri town in the plain areas of the Darjeeling district in 1931. In the census of 1931, the percentage share of Siliguri town in the total urban population was 13.95 per cent, which increased to 57.80 per cent in 1981 due to immigration of the people from the urban areas of the hill areas of the district to Siliguri town of the plains for its vital strategic importance as a focal point in the transport and commerce lines in the North-Eastern India and its growing importance as a focus of communications between North-Indian states and other parts of the country. As because of these facts new job opportunities were created in Siliguri town of the plain areas of the district and for this reason the urban centres of the hill areas, where no developmental activity to create employment opportunities was undertaken, were gradually losing their importance to the towns like Siliguri. And for this fact, the percentage share of the urban centres of the hill areas to the total urban population and to the increases of it over decades were declining since 1931 upto the date. For understanding the fact Tables 1.15 and 1.16 are presented.

1.4. Demographic characteristics in the Hill Areas of Darjeeling District.

1.4.1. Density of Population:

The term density of population implies the average number of persons residing per sq. mile or per sq. km. Here density of population is worked out per sq. mile. The number of persons per sq. mile or in a word the density of North Bengal in Jalpaiguri division is generally low in comparison to other districts of the state of West Bengal. Darjeeling district is observed to be the least populous district in the state and experiences a very low pressure on its soil specially in the hill areas of the district. On an average 598, 18203 and 815 persons are found to be living in one sq. mile of the rural, urban and the district as a whole respectively, while the corresponding figures of the state are 1197, 39609 and 1610 as per census of 1981.

The hill areas and the district itself are all along found to be most sparsely populated. In 1872 when the first census of the district was taken, the density of population in the district was found to be 81 persons per sq. mile. In 1901 its density increased a little above 200 and it had been going up from decade to decade. The density of population in the hill areas, plain areas and for the district as a whole are shown in Table 1.17. From this table it is observed that persons per sq. mile in the hill areas of the district are found to be lower than those of the plain areas. One can seek the explanation for the lower density of population in the hill areas of Darjeeling district from its geographical

conditions. The existence of large tracts of land under hills, forests and also under plantation is the main cause of lower density of population in this region.

The density of population is not only uneven between plain and hill areas of the district but there exists notable variation within the hill areas also. This variation may be cleared from Tables 1.18 and 1.19.

Tables 1.18 and 1.19 show that the sub-divisions and blocks of the western part of the river Tista experience higher density than the blocks and sub-divisions on the eastern part of the river. This is because most of the tea gardens of the hill areas are situated in the administrative divisions of the western side of the Tista. About 95 per cent of the total number of the tea gardens in the hill areas is spread over the areas of blocks of sub-divisions on the western side of the Tista, while the rest 5 per cent is found in Garubathan, Kalimpong blocks I and II of the Kalimpong sub-division, situated on the eastern bank of the Tista. As the tea plantation is assumed to be the industry to some extent, it may be said that the distribution of density of population has mainly been determined by the degree of industrialisation.

1.4.2. Sex Ratio:

Alike West Bengal and other states of India Darjeeling shows an excess of male births over female births. The three hill sub-divisions and the hill areas of Darjeeling district as a whole do not possess any exception without this general observance. It

is observed from Table 1.20 that in the case of urban areas of the hill areas of Darjeeling, there has been a substantial rise in the number of females for every 1,000 males during the decade 1961-1971. But it declined during the decade 1971-1981. The number of females per 1,000 male has declined from 933 in 1971 to 924 in 1981. The sex ratios are higher in the rural areas than in the urban areas. But the rural part shows a declining trend in its sex ratio during 1961-1981. The rise in the sex-ratio during the period from 1961 to 1981 in the urban areas clearly indicates the presence of sex-selective migration during the period. Table 1.20 indicates the number of females per 1,000 males in the hill areas of Darjeeling district.

1.4.3. Literacy Rates:

The extent of literacy in Darjeeling district is higher than that in other districts of North Bengal. It is also higher than the state's figure in 1981. This will be understood from Table 1.21. It appears from Table 1.21 that out of the five districts of North Bengal, four districts have witnessed the percentage of literacy, which is lower than the states average. It is only Darjeeling district where the literacy rate is higher than the other districts of North Bengal. It is quite well known that Darjeeling has a tradition of high literacy rate. Again, the extent of literacy in the urban and rural areas shows wide divergence and the literacy rate is higher in the Kurseong sub-division than in the other two sub-divisions in the hill areas. This can better be understood from Table 1.22. The literacy rate in the hill areas of Darjeeling district is going on increasing and the literacy

rate in the urban areas is higher than the corresponding figure in the rural areas of the hill region of Darjeeling district. The increasing rate of literacy may be explained by the higher rate of growth in the service sector and infrastructural development during the period 1961-1981.

1.5. Rural Settlement and its character in the Hill Areas of Darjeeling District*

1.5.1. Different Categories of Villages Comprising the Rural Settlement of the Hill Areas of Darjeeling District:

Approximately 99 per cent of the area of the hill region of Darjeeling District is rural in nature. Urbanization is of very lower degree in the hill areas due to the existence of hills and mountains over the larger part of narrow field for cultivation, poor returns from agriculture and lower level of economic and industrial development. The settlement pattern is as a result primarily rural in nature with only three urban centres namely, Darjeeling, Kalimpong and Kurseong.

As the settlement pattern of any region is intimately connected with the natural landscape, the rural areas of the Darjeeling hills are different in comparison to that of plains. The

* The data used in developing this part of the chapter are collected from the Census Hand Book of Darjeeling District, 1961, because the Census Hand Book of the District of this year presents data in disaggregated form as are required for this part.

settlements have no sound cultural and ethnic base. The mountainous terrain and the drainage pattern have influenced greatly the development and distribution of rural settlements. Alike plains there are no villages in the proper sense of the word, only homesteads are found to be nestling near by Jhoras and natural springs on the hill sides or in the valleys. As most of the rivers are rainfed, scarcity of water is a major problem in this region. Occasionally five or six houses each of which stands in its own land near the patches of cleared cultivation are found to be grouped together. Villages in the conventional sense having a corporate life and cluster of houses as found in the plains are observed to some extent in the coolie lines in various tea plantations and at a few market places where people go for their weekly purchases. As a general rule the settlement occurs in a scattered fashion isolated from one another. One or two houses which are not independent units from sociological and ethnological view points stand in an allotted manner to form the hamlets.⁵⁰

The villages which are comprised with these hamlets are the organs of the settlement in the rural areas of Darjeeling hills. Therefore, here it will be worthwhile to examine the distinctive features of the villages in view of having a distinct idea about the nature of rural settlement in this region. It is also important on the ground that it helps to identify the major economic activities on which the development of rural areas of Darjeeling hills is dependent.

As the villages throughout the rural areas are observed to be heterogeneous, the settlement in the rural areas contains a remarkable heterogeneity in itself. This heterogeneity of the villages arises basically from the varying livelihood pattern of the inhabitants. According to the occupational pattern the villages in the rural areas of Darjeeling hills are classified in different categories. The number of the villages, the total population in absolute and percentage terms under each category of villages are set out in Table 1.23.

From Table 1.23 it is observed that there are four categories of villages namely villages based on agriculture, villages based on plantation, villages around bazar and villages which are different from the above three categories. Among four categories of these villages, the villages based on plantation occupy the highest rank in terms of its share in the total number of villages and total population while the villages based on agriculture possess next position. The other two classes of villages though are not observed to occupy significant position in the categorical division of villages in terms of their shares in the total number of villages and in the total population, they can not be avoided from the analysis. It is because of their peculiar feature in respect of the occupational pattern of the inhabitants of those two types of villages.

1.5.2. Nature of the Villages under Each Category:

1.5.2.1. Nature of Plantation Villages:

The plantation villages as are visualised from Table 1.23 can be said to be the most significant among all the categories of villages. This category is composed of the following sub-categories of the villages, the nature of which is analysed one after another.

1.5.2.1. (a) Tea Villages:

These villages are formed around the tea gardens. The residents of these villages are mostly the workers of the tea gardens. In this respect it can be stated here that the coolie lines in the various tea plantations were the only villages when the hill part of Darjeeling contained nothing corresponding to a village in the ordinary sense of the term.⁵¹ The tea villages are observed to be predominant in Darjeeling and Kurseong sub-divisions while the concentration of these villages in Kalimpong sub-division is the lowest. The lower degree of concentration of tea villages in Kalimpong sub-division is the result of the British policy to keep the area for local cultivation and reserved forest. This was again due to the fact that when Kalimpong was annexed, the British government did not allow to use any portion of it for tea cultivation except very special reason.⁵² However the tea villages occupy 56.12 per cent of the plantation villages and 61.20 per cent of the total population inhabiting in the plantation villages which is observed from Table 1.24.

The economy of the tea villages is primarily dependent upon the tea gardens. The major per cent of the working population of these villages are observed to render their labour force in the production process within the purview of the tea gardens. One may have an idea about the economic feature of tea villages from Table 1.25 where percentage of working population under different occupations are presented in respect of different categories of plantation villages.

Besides, some other distinguishing features of the tea villages can be mentioned. These villages do not show the character of a close-knit society like an ordinary village community of the plains as most of the inhabitants of these villages have come from different parts of India. Different ethnic groups such as Gurungs, Rais, Limbus and Pradhans live together in the same village and work in the same garden. The resultant fact is the birth of a mixed culture which has no link with that of the region itself. Above all, it can be said that the tea villages are colonial by nature. This means that there remains complete absence of proper social commune, for which culturally it possesses little or no contribution in building up of an integrated social order in the region.

In the colonies formed around the tea gardens, there exist four categories of employees namely, management, staff, sub-staff, workers and coolies. Among them, the workers and coolies are the most important. They are directly involved in the process of

production. But they do not usually get the same facilities like the managerial classes. They are observed to live in a very sordid condition with the poor quality of health and life and inadequate sanitary facilities.⁵³

The physical appearance of the tea villages is semi-urban in nature rather than rural. There exists own township management. They have their own water supply, power house with their own generators, telephones, medical unit and well surfaced roads. Moreover, the pattern of rows of bazars for the labourers, the single and double family quarters for the office and factory employees, the managers' bungalows are the indicators of the semi-urban objective condition. Such an objective condition has increased the degree of accessibility into these villages to a great extent.⁵⁴

The society, which was developed by the British with the introduction of tea cultivation possessed a sound economic health due to the increasing demand for the product.

1.5.2.1. (b) Forest Villages:

The second most important rank among the plantation villages is occupied by the villages which have been grown within the confines of reserved forests. These type of villages are known as forest villages. The number of these villages is 54 and the percentage share of this category of villages in the total number of plantation villages is 38.85. The percentage share of these

villages in the total population in the plantation villages is 24.23 villages have been brought forth due to the administrative needs for maintaining and exploiting the forest resources economically.⁵⁵

Though the forest villages are different from the tea villages in respect of physiographic condition, they are to some extent similar to those villages in respect of occupational pattern. This is observed from Table 1.25. The table shows that 35.65 per cent of the total working population are engaged in occupation III, (i.e. mining, quarrying, livestock, forestry, fishing, hunting, orchard and allied activities).

Accordingly forest villages are termed as the plantation villages. But the share of the occupation I (i.e., cultivators) and IX (i.e., in other services) in the total working population cannot be treated as negligible. Although there does not exist the absolute dominance of the occupation III (i.e. mining, quarrying, livestock, forestry, fishing, hunting, orchards and allied activities) these are referred to as plantation villages. This is mainly because of the fact that these villages were basically formed by the people who were the workers in the forestry, i.e., who engaged themselves in the activities like conservation, planting new forest and replanting the denuded forest areas.⁵⁶ Therefore in this sense plantation in forest is the principal activity of the forest villagers. But in succession when the families of these villages became more and more crowded and the income earned from the plantation activities which was carried on for two to three months in a

year became insufficient to maintain themselves. So they began to cultivate land allotted to them by the forest department during the rest of the year and engaged themselves in other occupations, especially in the category IX. Thus the activities linked with agricultural and other occupations came to complement the principal occupation i.e., plantation activities.⁵⁷

Notwithstanding the existence of three major avenues namely agriculture, plantation and other services, the economic condition of inhabitants of the forest villages is very much poor. The total amount of wage bill for rendering service in the forestry combined with the earnings from land and other economic activities is so meagre that it can not maintain the subsistence level of living of the forest villagers throughout the year. As a matter of fact, most of the forest villagers are engaged in illegal business of lumbering and handling of wood and forest products to the plains for sale. Thus it is seen that the forest villages which are located in remote areas are poorly accessible and also added with extreme transportation difficulty and wounded with the severe attacks of poverty.⁵⁸

1.5.2.1.(c) Villages around Cinchona Plantation:

There are three cinchona plantations which are situated in Darjeeling, Kurseong and Kalimpong sub-divisions respectively. These plantations alike the tea plantations are the backgrounds of the growth of some kind of villages which are known as the villages based on cinchona plantations. These villages are more or less similar to the tea villages in respect of infrastructures and

compositions. But from the point of view of occupations these are observed to be different from tea villages but similar to forest villages. In these villages, also occupation III (i.e., mining, quarrying, livestock, forestry, fishing, hunting, orchards and allied activities) is not predominant which is clear from Table 1.25. From Table 1.25 it is seen that more than 50 per cent of the total working population of these villages had their livelihood from occupation I and II respectively while the percentage of the total working population under occupation III is slightly above 40. Thus it is observed that these villages stand in an intermediate position of tea and forest villages.

1.5.2.1. (d) Other Types of Plantation Villages:

These villages are not clearly defined in the census hand book of the district but in consideration of the occupational pattern these villages are approximate to the tea villages because from Table 1.25, it is observed that near 70 per cent of the total working population are engaged in occupation III whatever be its character regard to infrastructure and physiographic composition.

1.5.2.2. Nature of the Agricultural Villages:

Agricultural villages are classified into two heads namely, Khasmahal villages and others. Therefore in order to stress out the nature of the agricultural villages it will be reasonable to discuss the features of the Khasmahal villages and the villages other than Khasmahal separately.

1.5.2.2(a) Khashmahal Villages:

The estates escheated by Government are called Khashmahals. Villages set up in these estates are called Khashmahal villages. The percentage of the Khashmahal villages is 87.34 in the total number of agricultural villages in the rural areas of Darjeeling hills. These ^{villages} are mostly concentrated in the Kalimpong sub-division.

From Table 1.26 it is observed that 82.08 per cent and 6.48 per cent of the total working population of the villages are cultivators and agricultural labourers respectively. This implies that activities relating to agriculture are the most pre-dominant in these villages.

Although agriculture presents itself ~~as the~~ principal platform of the livelihood in these villages, it is mostly dependent on nature. That is why agriculture in these villages like most of the regions of India is nothing but a seasonal business which can not feed the entire hungers of the people of the Khashmahal villages. In a word the economic condition of the Khashmahal villages is poverty ridden.

1.5.2.2. (b) Agricultural Villages Other Than Khashmahal:

Besides the Khashmahal villages there are other types of villages in the rural areas of Darjeeling hills. The economy of these villages is mostly dependent on agriculture. The percentage share of these villages in the total number of agricultural villages is 12.66. These villages are mostly similar to the Khashmahal villages. But in these two types of agricultural villages the

degree of dependence on agriculture measured in terms of percentage of cultivators and percentage of agricultural labourers in the total working population varies remarkably. From Table 1.26 it is seen that in these villages 73.42 per cent and 2.96 per cent of the working population are cultivators and agricultural labourers, while in the Khashmahal villages the percentages of cultivators and that of agricultural labourers in the total working population are 82.08 and 6.48 respectively.

1.5.2.3. Bazar Villages:

These types of villages are entirely found in the Kalimpong sub-division. These are grown up centring around some bazars, i.e., market places. The number of these villages and the share of these villages in the total rural population are very much low. Although this claims a little as these villages possess different types of occupational pattern in comparison to those prevailing in the plantation villages and agricultural villages. From Table 1.27 it is evident that occupation IX is the most important followed by occupation VII and IV.

1.5.2.4. Villages Other Than Plantation, Agriculture and Bazar:

In the rural areas of Darjeeling hills there exist some other villages which are not included in the above three categories. The number of these villages is sixteen and these are scattered throughout whole of the rural areas of Darjeeling hills. The inhabitants of these villages are mostly dependent on occupation IX which is evident from Table 1.28. Besides, occupations III and I are also to some extent important. The percentage of total work-

ing population engaged in these two occupations are 13.75 and 11.29 respectively.

The analysis so far done shows that the rural settlement in the Darjeeling hills is not dependent absolutely only on one economic activity. The economy of the rural areas of Darjeeling hills is neither agricultural nor industrial. There has become an ad-mixture of the characteristics of an agrarian economy and an industrial economy resulting from the simultaneous existence of villages based on occupations relating to agriculture, plantation and other services.

Yet in terms of the percentage share of different categories of the villages in the total number, it is seen that this rural settlement is basically a subordinate of the agriculture and plantation because among the total number of villages, 58.01 and 32.97 per cent of the villages are based on these two activities respectively. Again among plantation villages 56.12 and 38.85 per cent of villages are based on tea plantation and forestry. So it may be stated that agriculture, tea plantation and forestry are the lives of the economy of the settlement grown up in the rural areas of Darjeeling hills. Therefore, the discussion relating to problems of development of rural areas of Darjeeling hills is nothing but an analysis of problems of development of agriculture, tea plantation and forestry on which the subset of Indian population inhabiting in this region is basically dependent. But the subsidiary occupations like animal husbandry, small-scale and cottage industry as well as sericulture have enormous importance in this region

like other rural regions of India. So the problems of development of this region is also to some extent related to these activities: animal husbandry, small-scale and cottage industry as well as sericulture. Besides, as development is not purely an economic phenomenon, it encompasses more than the material and financial side of people's lives and often refers to the development of some non-economic factors like, communication, transportation, power supply, educational and health services, so this study of the problems of development of rural areas in the hill areas of Darjeeling district is added with the discussion relating to the problems of development of communication, transport, power supply, educational and health services in the rural areas of the hill areas of Darjeeling district.

Table 1.1
 Classification of Type of Soil in Each Block
 of Darjeeling District

Name of the Blocks	Cultivable Area (in Hectare)	Types of Soil (in percentage term)				
		Sandy Loam	Sandy Loam	Loam	Clayee Loam	Clayee Boul- dry etc
1. Darjeeling- Pulbazar	9783.00	-	95	5		
2. Jorebunglow- Sukhiapokhri	2037.00	-	95	5		
3. Rangli- Rangliot	2958.00	-	95	5		
4. Kurseong	2023.00	-	60	-	-	40
5. Mirik	1130.00	-	60	-	-	40
6. Kalimpong I	7206.00	28	60	-	-	12
7. Kalimpong II	7120.00	28	60	-		12
8. Garubathan	4844.00	28	60			12
9. Siliguri- Naxalbari	11316.00		60	30	10	
10. Khoribari- Phansidewa	18,454.00		60	30	10	

Source : Annual Action Plan 1984-85 : Under Integrated Rural Development Programmes (District Rural Development Agency, Darjeeling).

Table 1.2
Names and Lengths of Main Rivers in
Darjeeling District

Names of the Rivers	Length (km)
1. Teesta	37.00
2. Balason	48.40
3. Great Rangit	18.57
4. Jaldhaka	19.47
5. Mahanadi (Mahananda)	91.70
6. Mechi	63.20

Source : Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85 : Mid-Term.

Review and Annual Plans 1983-84 & 1984-85
Volume I (Darjeeling : Development and Planning
Department : Hill Affairs Branch Secretariat).

Table 1.3

Names and Lengths of the Tributaries of the
Main Rivers of Darjeeling District

Names of the Tributaries	Length (km)
1. Chel Nala of Jaldhaka	10.46
2. Gish Nala of Jaldhaka	30.20
3. Lish Nala of Jaldhaka	12.10
4. Murti Nala of Jaldhaka	13.82
5. Neora Nala of Jaldhaka	27.46
6. Ni Chu of Jaldhaka	14.90
7. Ramman of Great Rangit	39.78
8. Rangnu Khola of Great Rangit	16.27
9. Chhota Rangit of Great Rangit	23.77
10. Rangpo Chu of Tista	9.66
11. Riyang Nala of Tista	18.70
12. Relli Nala of Tista	30.64
13. Rishi Chu, Rangpchu, Rishi Khola, Rishi Nala	17.36
14. Cheng Nala	62.58

Source: Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85 : Mid-Term Review and Annual Plans 1983-84 & 1984-85 : Volume I (Darjeeling : Development and Planning Department : Hill Affairs Branch Secretariat).

Table - 1.4
Mineral Resources in the Hill Areas of Darjeeling District

Name of Minerals	Name of Areas/Regions
Coal	<p>(a) Throughout the area extending from Pankhabari to the vicinity of Dalingkote, (b) Along the area from near Balason river in the West to Neora Nala in the east passing through Tindharia (26°5' : 88°20'), Lish Nala, Ramthi Nala & Lethi Nala as also further east in the Jalbhaka Road Section.</p>
Copper	<p>(a) In the Dalings, (b) At Kalimpong (27°5' N: 88°29' E) (c) At Pashok (27°05'N: 88°25'E) (d) At Chel river bed near Garubathan (26°57'N: 88°42'E) (e) At a place to the east of Mirik (26°58'N : 88°25E) (f) At least North east of Mahanadi (26°53'N : 88°25'E) (g) At Ranihat on the Western side of Mahanadi near the mouth of Baffupani (h) At a place on the east of bank of Tista (i) At due east of Mangpu (j) In the neighbourhood of Samther.</p>
Graphite	<p>(a) From the north of Gayabari (26°52'N: 88°19'E) on the Darjeeling Hill Cart Road to the West of Pashok (27°05'N: 88°25'E) passing through Mangpu (26°58'N:88°22'E) as also in the Schists of the Rakti Valley.</p>

Contd..

Table - 1.4 (Contd..)

Name of Minerals	Name of Areas/Regions
Iron	(a) At Lohagarh in the south-west part of the district ($26^{\circ}47'N : 88^{\circ}12'E$) (b) At Samalbary about a mile east-south east of Sikbaro to the east of the Tista (c) In the Kalimpong sub-division and in the northern part of the districts.
Lime	(a) Above Pankhabari (b) Within the Sinchal range on the Great Rungeet river, above the exit of the Rummai (f) In the great central Himalayan range.

Source : West Bengal District Gazetteers: Darjeeling, Government of West Bengal, 1980).

Table - 1.5

Average Temperature in the Hill Areas
of Darjeeling District

Name of the Town	Temperature (Average) (in centigrade)	
	Maximum	Minimum
1. Darjeeling	23.5	0.9
2. Kalimpong	28.7	4.5
3. Kurseong	33.0	5.0

Source: Annual Action Plan 1984-85: Under Integrated Rural Development - Programme (District Rural Development Agency : Darjeeling).

Table - 1.6

The Blockwise Average Annual Rainfall in the Hill Areas of Darjeeling District (in mm)

Name of the Block	Average Annual Rainfall
1. Darjeeling - Phulbazar	2286.00
2. Jore Bunglow-Sukhiapokhri	3352.80
3. Rangli-Rangliot	3606.80
4. Kurseong	2794.00
5. Mirik	2794.00
6. Kalimpong I	2387.60
7. Kalimpong II	2514.60
8. Garubathan	2641.60

Source: Annual Action Plan 1984-85 : Under Integrated Rural Development - Programme (District Rural Development Agency : Darjeeling).

Table - 1.7

Growth of Population in the Hill Areas of
Darjeeling District during 1872 to 1981

Years	Total Population	Decadal Variation	Decadal Variation (In per cent)
1872	46,727	-	-
1881	92,141	+45,414	+97.19
1891	150,321	+58,180	+63.14
1901	178,651	+28,330	+18.85
1911	193,304	+14,653	+ 8.20
1921	206,961	+13,657	+ 7.07
1931	239,377	+32,416	+15.66
1941	286,355	+46,978	+19.63
1951	328,785	+42,430	+14.82
1961	404,792	+76,007	+23.12
1971	479,978	+75,186	+18.57
1981	521,954	+41,976	+ 8.75

Sources: (i) O'Malley, L.S.S., Gazetteer of Darjeeling District

(Alipore : Bengal Government House, 1907).

(ii) Dash, A.J., Bengal District Gazetteers : Darjeeling

(Alipore : Bengal Government House, 1947).

(iii) Government of West Bengal, Census 1961, West Bengal District Census Handbook : Darjeeling.

(iv) Government of West Bengal, Census 1971, West Bengal District Census Handbook: Darjeeling.

(v) Census of India 1981, West Bengal, Final Population Totals

Table - 1.8

Immigration in Darjeeling District from
1891-1961 in Absolute and Relative Terms

Years	Total Number of Immigrants	Percentage to Total Population of the District
1891	119670	53.59
1901	113588	42.74
1911	111269	39.75
1921	101807	34.60
1931	100700	30.33
1941	95750	24.49
1951	100311	21.82
1961	169250	27.10

Source : Government of West Bengal, West Bengal District Gazetteers : Darjeeling, 1980).

Table - 1.9

Number and Acreage Under Tea Estates in the
Hill Areas of Darjeeling District from 1872 to 1891

Years	Number of Tea Estates	Acreage Under Tea Estates
1872	74	14,000
1881	153	30,000
1891	177	45,000

Source : O'Malley, L.S.S., Gazetter of Darjeeling District
(Alipore : Bengal Government House, 1907).

Table - 1.10
Sub-division-wise Growth of Population in the Hill Areas of
Darjeeling District

Years	Darjeeling Sadar Sub-division			Kalimpong Sub-division			Kurseong Sub-division		
	Total population	Decadal variation	Decadal Variation (In per cent)	Total Population	Decadal Variation	Decadal Variation (In per cent)	Total population	Decadal Variation	Decadal Variation (In per cent)
1872	46727								
1881	79458	+32731	+70.05	12683					
1891	79041	- 417	- 0.52	26631	+13948	+109.97	44649		
1901	91953	+12912	+16.34	41511	+14880	+ 55.87	45187	+538	+ 1.20
1911	102577	+10624	+11.55	49520	+ 8009	+19.29	41207	-3980	- 8.81
1921	106511	+ 3934	+ 3.84	60093	+10573	+21.35	40357	-850	- 2.06
1931	119178	+12667	+11.89	68203	+ 8110	+13.50	51996	+11639	+28.84
1941	147327	+28149	+23.62	79042	+10839	+15.89	59986	+7990	+15.37
1951	169631	+22304	+15.14	93441	+14399	+18.22	65713	+5727	+ 9.54

Contd..

Table - 1.10 (Contd..)

Years	Darjeeling Sadar Sub-division			Kalimpong Sub-division			Kurseong Sub-division		
	Total population	Decadal Variation	Decadal Variation (In per cent)	Total Population	Decadal Variation	Decadal Variation (In per cent)	Total population	Decadal Variation	Decadal Variation (In per cent)
1961	203523	+33892	+19.98	120526	+27085	+28.99	80743	+15030	+22.87
1971	245207	+41684	+20.48	134538	+14012	+11.63	100233	+19490	+24.14
1981	281346	+36139	+14.74	158726	+24188	+17.98	111302	+11069	+11.04

Sources: (i) Dash, A. J., Bengal District Gazetteers: Darjeeling (Alipore : Bengal Government House, 1947)

(ii) Government of West Bengal, Census 1961, West Bengal District Hand book: Darjeeling

(iii) Government of West Bengal, Census 1971, West Bengal District Census Handbook: Darjeeling, Series 22.

(iv) Census of India 1981, West Bengal, Final Population Totals.

Table - 1.11
Growth of Rural Population in the Hill Areas
of Darjeeling District during 1872-1981

Years	Total Population	Decadal Variation	Decadal Variation (In Per cent)
1872	43,570	-	-
1881	81,090	+37,520	+86.11
1891	1,32,654	+51,564	+63.59
1901	1,57,258	+24,604	+16.55
1911	1,68,725	+11,467	+ 7.29
1921	1,78,258	+ 9,533	+5.65
1931	2,01,965	+23,707	+13.30
1941	2,38,678	+36,713	+18.18
1951	2,66,784	+28,108	+11.78
1961	3,25,626	+58,842	+22.06
1971	3,97,250	+71,624	+22.00
1981	4,02,887	+ 5,637	+ 1.42

Sources: (i) Dash, A.J., Bengal District Gazetteers: Darjeeling
(Alipore: Bengal Government House, 1947).

(ii) Government of West Bengal, Census 1971, West Bengal
District Hand book : Darjeeling

(iii) Government of West Bengal, Census 1971, West Bengal
District Census Hand book: Darjeeling, Series 22.

(iv) Census of India 1981, West Bengal, Final
Population Totals.

Table - 1.12

Growth of Rural Population in the three Hill Sub-Divisions of
Darjeeling District

Years	Darjeeling Sub-division			Kalimpong Sub-division			Kurseong Sub-division		
	Total Rural population	Decadal Variation	Percentage Decade Variation	Total Rural Population	Decadal Variation	Percentage Decade Variation	Total Rural Population	Decadal Variation	Percentage Decade Variation
1872	43,570								
1881	72,440	+28,870	+66.26	12,683					
1891	64,896	- 7,544	-10.41	26,663	+13,948	+109.97	41,127		
1901	75,029	+10,133	+15.61	41,511	+14,880	+ 55.87	40,720	- 407	- 0.99
1911	83,572	+ 8,543	+11.39	49,520	+ 8,009	+ 19.29	35,633	-5,087	-12.49
1921	84,253	+ 681	+ 0.81	60,093	+10,573	+21.35	33,912	-1,721	- 4.83
1931	97,993	+13,740	+16.31	59,427	- 666	- 1.11	44,545	+10,633	+31.35
1941	1,20,103	+22,110	+22.56	67,084	+ 7,657	+12.88	51,491	+6,946	+15.59
1951	1,36,026	+15,923	+13.26	76,764	+ 9,680	+14.43	53,994	+2,503	+ 4.86
1961	1,62,872	+26,846	+19.74	95,421	+18,657	+24.30	67,333	+13,339	+24.70

Contd..

Table - 1.12 (Contd..)

Years	Darjeeling Sub-division			Kalimpong Sub-division			Kurseong Sub-division		
	Total Rural Population	Decadal Variation	Percentage Decade Variation	Total Rural Population	Decadal Variation	Percentage Decade Variation	Total Rural Population	Decadal Variation	Percentage Decade Variation
1971	2,02,334	+39,462	+24.23	1,11,108	+15,687	+16.44	83,808	+16,475	+24.47
1981	2,23,743	+21,409	+10.58	1,26,308	+15,200	+13.68	82,256	-1,552	- 1.85

- Sources: (i) Dash, A. J., Bengal District Gazetteers: Darjeeling (Alipore: Bengal Government House, 1947
- (ii) Government of West Bengal, Census 1961, West Bengal District Census Handbook: Darjeeling.
- (iii) Government of West Bengal, Census 1971, West Bengal District Census Handbook: Darjeeling, Series 22.
- (iv) Census of India 1981, West Bengal Final population Totals.

Table - 1.13

Growth of Population in the Hill Areas of Darjeeling District

Years	Total Urban Population	Decadal Variation	Percentage Decadal Variation	Index of Growth of Urban Population	Index of Growth of Rural Population	Index of Growth of Total Population
1872	3157	-	-	100	100	100
1881	11051	+7894	+250.00	350	186	197
1891	17667	+6616	+ 59.87	559	304	322
1901	21393	+3726	+ 21.09	577	360	382
1911	24579	+3187	+ 14.89	778	387	414
1921	28703	+4124	+ 16.78	909	409	443
1931	37412	+8709	+ 30.34	1185	463	512
1941	47677	+10265	+ 27.44	1510	547	613
1951	62001	+14324	+ 30.04	1963	612	704
1961	79166	+17165	+ 27.69	2507	747	866
1971	82728	+3562	+ 4.95	2620	911	1027
1981	119067	+36339	+ 43.93	3771	924	1117

- Sources: (i) O'Malley, L.S.S., Gazetteer of Darjeeling District (Alipore: Bengal Government House, 1907).
- (ii) Dash, A.J., Bengal District Gazetteers: Darjeeling (Alipore: Bengal Government House, 1947).
- (iii) Government of West Bengal, Census 1961, West Bengal District Census Hand book: Darjeeling
- (iv) Government of West Bengal, Census 1971, West Bengal District Census Hand book: Darjeeling, Series 22.
- (v) Census of India 1981, West Bengal, Final Population Totals

Table - 1.14

Sub-division-Wise Growth of Urban Population in the Hill Areas of Darjeeling District

Years	Darjeeling Sub-division			Kalimpong Sub-division			Kurseong Sub-division		
	Total Urban Population	Decadal Variation	Percentage Decadal Variation	Total Urban Population	Decadal Variation	Percentage Decadal Variation	Total Urban Population	Decadal Variation	Decadal variation (in per cent)
1872	3,157	-	-	-	-	-	-	-	-
1881	7,018	+3,861	+122.30	-	-	-	4,033	-	-
1891	14,145	+7,127	+101.55	-	-	-	3,522	-511	-12.67
1901	16,924	+2,779	+ 19.65	-	-	-	4,469	+947	+26.89
1911	19,005	+2,081	+ 12.30	-	-	-	5,574	+1,105	+24.73
1921	22,258	+3,253	+ 17.12	-	-	-	6,445	+ 871	+15.63
1931	21,185	-1,073	- 4.82	8,778	-	-	7,451	+1,006	+15.61
1941	27,224	+6,039	+ 28.51	11,958	+3,182	+36.26	8,495	+1,044	+14.01
1951	33,605	+6,381	+23.44	16,677	+4,719	+39.46	11,719	+3,224	+37.95

Contd..

Table - 1.14 (Contd..)

Years	<u>Darjeeling Sub-division</u>			<u>Kalimpong Sub-division</u>			<u>Kurseong Sub-division</u>		
	Total Urban Population	Decadal Variation	Decadal Percentage Variation	Total Urban Population	Decadal Variation	Percentage Decadal Variation	Total Urban Population	Decadal Variation	Decadal Variation (in per cent)
1961	40,651	+7,046	+20.97	25,105	+8,428	+50.54	13,410	+1,691	+14.43
1971	42,873	+2,222	+ 5.47	23,430	-1,675	- 6.67	16,425	+3,015	+22.48
1981	57,603	+14,730	+34.36	32,418	+8,988	+38.36	29,046	+12,621	+76.84

Sources: (i) Dash, A. J., Bengal District Gazetteers : Darjeeling (Alipore: Bengal Government House, 1947)

(ii) Government of West Bengal, Census 1961, West Bengal

(iii) Census of India 1981, West Bengal Final Population Totals.

Table - 1.15
Relative Shares of the Hill Areas and Plain Areas in the Urban
Population of Darjeeling District During 1931 to 1981

Years	Total Urban Population in the District	Total Urban Population in the Hill Areas	Total Urban Population in the Plain Areas	Percentage share of the Hill Areas in the Total Urban Population in the District	Percentage Share of the Plain Areas in the Total Urban Popu- lation in the District
1931	43,479	37,412	6,067	86.05	13.95
1941	58,164	47,677	10,487	81.97	18.03
1951	94,481	62,001	32,480	65.62	34.38
1961	144,637	79,166	65,471	54.73	45.27
1971	180,212	82,728	97,484	45.91	54.09
1981	282,153	119,067	163,086	42.20	57.80

- Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Handbook: Darjeeling.
- (ii) Government of West Bengal, Census 1971, West Bengal District Census Handbook: Darjeeling, Series 22.
- (iii) Census of India 1981 : West Bengal, Final Population Totals.

Table - 1.16

Relative Shares of the Hill Areas and Plain Areas in the Decadal Variation Since 1931 of the Total Urban Population in Darjeeling District

Years	Decadal Variation of the Total Urban Population in the District	Decadal Variation of the Total Urban Population in the Hill Areas	Decadal Variation of the Total Urban Population in the Plain Areas	Percentage Share of the Hill Areas in the Variations of the Urban Population of the District Over Decades	Percentage Share of the Plain Areas in the Variations of the Urban Population of the District Over Decades
1941	14,685	10,265	4,420	69.90	30.10
1951	36,317	14,324	21,993	39.44	60.56
1961	50,156	17,165	32,991	34.22	65.78
1971	35,575	35,62	32,013	10.01	89.99
1981	101,941	36,339	65,602	35.65	64.35

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Handbook: Darjeeling

(ii) Government of West Bengal, Census 1971, West Bengal District Census Handbook: Darjeeling, Series 22.

(iii) Census of India 1981: West Bengal, Final Population Totals.

Table - 1.17

Density of Population per Sq. Mile in the Hill Areas, Plain Areas
and of Darjeeling District as a Whole

Name of the Areas	Years									
	1901	1911	1921	1931	1941	1951	1961	1971	1981	
(A) Hill Areas of Darjeeling District	T	191	207	222	256	307	352	434	514	559
	R	170	183	193	219	258	289	352	430	436
	U	2252	2587	3021	3938	5019	6526	8333	8708	12533
(B) Plain Areas of Darjee- ling District	T	269	268	270	287	323	405	680	933	1463
	R	269	268	270	273	296	310	487	644	976
	U	-	-	-	1011	1748	5413	10912	16247	27181
(C) Darjeeling District as a Whole	T	212	223	234	264	311	366	497	622	815
	R	1241	197	214	233	268	294	387	485	598
	U	155	1380	1852	2805	3753	6096	9331	11627	18203

T= Density for the whole areas

R= Density for the rural areas

U= Density for the urban areas

- Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Handbook: Darjeeling.
- (ii) Government of West Bengal, Census 1971, West Bengal District Census Handbook: Darjeeling, Series 22.
- (iii) Census of India 1981 : West Bengal, Final Population Totals.

Table - 1.18

Sub-division-wise Density of Population per Sq. Mile in the Hill Areas of Darjeeling District

Name of the Sub-division	Years	1901	1911	1921	1931	1941	1951	1961	1971	1981
Darjeeling	T	255	284	295	330	408	470	563	679	779
	R	210	234	236	274	336	381	456	567	627
	U	4128	4635	5429	5167	6640	8196	9915	10457	14050
Kalimpong	T	102	121	147	167	194	229	295	330	389
	R	102	121	147	147	166	190	236	275	312
	U	-	-	-	2581	3517	4905	7384	6891	9535
Kurseong	T	275	251	246	317	265	400	492	610	678
	R	251	220	209	275	317	333	415	517	507
	U	2235	2787	3223	3726	4248	5860	6705	8213	14523

T = Density for the sub-division as a whole

R = Density for the rural areas

U = Density for the urban areas

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Hand book: Darjeeling.

(ii) Government of West Bengal, Census 1971, West Bengal District Census Hand book, Darjeeling, Series 22.

(iii) Census of India, 1981, West Bengal, Final Population Totals.

Table - 1.19
Block-wise Density of Population per Sq. Mile in the Hill Areas of
Darjeeling District

Name of the Block		Years								
		1901	1911	1921	1931	1941	1951	1961	1971	1981
1. Darjeeling-Pulbazar	T	513	572	594	665	750	965	1145	1319	1597
	R	347	385	372	458	480	633	743	899	1025
	U	4128	4635	5429	5167	6640	8196	9915	10457	14050
2. Sukhiapokhri- Jorebunglow	T	169	189	196	237	337	324	390	471	544
	R	-	-	-	-	-	-	-	-	-
	U	-	-	-	-	-	-	-	-	-
3. Rangli- Rangliot	T	159	177	184	184	227	264	324	436	431
	R	-	-	-	-	-	-	-	-	-
	U	-	-	-	-	-	-	-	-	-
4. Kurseong	T	259	234	231	298	339	392	467	566	647
	R	227	195	183	243	276	304	367	444	424
	U	2235	2787	3223	3726	4248	5860	6705	8213	14523
5. Mirik	T	331	302	295	381	454	429	576	758	782
	R	-	-	-	-	-	-	-	-	-
	U	-	-	-	-	-	-	-	-	-

Contd..

Table - 1.19 (Contd..)

Name of the Block		Years								
		1901	1911	1921	1931	1941	1951	1961	1971	1981
6. Kalimpong I- & II	T	145	174	211	233	271	325	408	434	504
	R	-	-	-	199	224	258	306	332	371
	U	-	-	-	2581	3517	4905	7384	6891	9535
7. Garubathan	T	42	50	61	77	88	98	142	187	233
	R	-	-	-	-	-	-	-	-	-
	U	-	-	-	-	-	-	-	-	-

T = Density for the block as a whole

R = Density for the rural areas of the block

U = Density for the urban areas of the block

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Hand-book, Darjeeling.

(ii) Government of West Bengal, Census 1971, West Bengal District Census Hand-book, Darjeeling, Series 22.

(iii) Census of India, 1981, West Bengal Final Population Totals.

Table - 1.20

Population by Sex-Ratio in the Hill Areas of
Darjeeling District during 1961-1981

(Females per 1,000 Males)

Name of the Sub-division		1961	1971	1981
1. Darjeeling	T	939	955	945
	R	981	975	969
	U	788	865	862
2. Kurseong	T	932	951	876
	R	947	964	864
	U	862	887	910
3. Kalimpong	T	863	881	919
	R	881	888	925
	U	800	848	894
Total Hill Areas of Darjeeling District	T	914	933	924
	R	943	947	935
	U	804	864	882

T = Sex-ratio. as a whole

R = Sex-ratio for the rural areas

U = Sex-ratio for the urban areas

- Sources: (i) A Techno-Economic Survey of the Hill Areas in Darjeeling District (Economic Planning Stream, Calcutta Metropolitan Planning Organisation and Siliguri Planning Organisation, Development and Planning (Town and Country Planning) Department, Government of West Bengal, 1975).
- (ii) Government of West Bengal, Census of India 1981: Series 23, West Bengal.

Table - 1.21
Literacy Level of the Districts of North Bengal
(In Percentage)

Name of the District	Literacy Level	
	1971	1981
1. Darjeeling	33.07	42.52
2. Coochbehar	21.92	29.99
3. Jalpaiguri	24.01	29.88
4. West Dinajpur	22.12	26.92
5. Malda	17.61	23.06
West Bengal as a Whole	33.20	40.88

Sources : (i) Government of West Bengal, Census 1971.
(ii) Government of West Bengal, Census 1981.

Table - 1.22
Distribution of Literacy in the Hill Areas of
Darjeeling District

Name of the Sub-division		Percentage of Literacy in the years		
		1961	1971	1981
(1) Darjeeling	T	30.0	34.4	44.7
	R	24.0	29.6	39.7
	U	54.1	57.3	64.2
(2) Kalimpong	T	26.8	34.6	43.8
	R	22.6	30.8	38.2
	U	43.0	56.5	64.7
(3) Kurseong	T	31.7	35.3	45.5
	R	27.3	30.8	36.9
	U	53.3	58.5	69.5

T = Percentage of Literacy for the Whole areas.

R = Percentage of Literacy for the Rural areas.

U = Percentage of Literacy for the Urban areas.

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Hand-book: Darjeeling.

(ii) Government of West Bengal, Census 1971, West Bengal District Census Handbook, Darjeeling.

(iii) Government of West Bengal, Census 1981, West Bengal District Census Hand-book, Darjeeling.

Table - 1.23

The Number of Villages and Total Population in Absolute and Percentage Terms Under Different Categories of Villages in the Hill Areas of Darjeeling District

Categories of Villages Under Each Settlement	Number of Villages	Total Population
1. Villages Based on Agriculture	79 (32.97)	62,621 (20.48)
2. Villages Based on Plantation	139 (58.01)	223,542 (73.10)
3. Villages Formed Around Market Centres	5 (2.09)	3,233 (1.06)
4. Villages Others than Above Categories	16 (6.95)	16,409 (5.36)
Total	239 (100.00)	305,805 (100.00)

Note : The figures in parentheses are the respective percentages

Source: Government of West Bengal, Census 1961 : West Bengal, District Census Hand Book : Darjeeling.

Table - 1.24

The Number and Population in Absolute and Percentage Terms Under Different Sub-Categories of Plantation Villages in the Hill Areas of Darjeeling District

Different Sub-Categories of Plantation Villages	Number of Villages Under Each Sub-Category	Population
1. Tea Villages	78 (56.12)	136805 (61.20)
2. Forest Villages	54 (38.85)	54163 (24.23)
3. Villages Based on Chinchona Plantation	3 (2.16)	22040 (9.86)
4. Others Type of Plantation Villages	4 (2.87)	10534 (4.71)
Total	139 (100.00)	223542 (100.00)

Note : The figures in the parentheses are the respective percentages.

Source: Government of West Bengal, Census 1961 ; West Bengal, District Census Hand Book : Darjeeling.

Table - 1.25

Occupational Pattern of Different Types of Villages Under Plantation Settlement in the Hill Areas of Darjeeling District

Villages Under Plantation Settlement	Nature of Occupation									Total Working Population
	I	II	III	IV	V	VI	VII	VIII	IX	
1. Tea Villages	5568 (9.69)	336 (0.58)	47606 (82.80)	408 (0.71)	35 (0.06)	79 (0.14)	612 (1.06)	601 (1.05)	2245 (3.91)	57490 (100.00)
2. Forest Villages	5123 (47.58)	174 (1.62)	3838 (35.65)	77 (0.72)	10 (0.09)	205 (1.90)	161 (1.50)	80 (0.74)	1099 (10.20)	10767 (100.00)
3. Villages Based on Cinchona Plantation	4405 (49.64)	159 (1.79)	3589 (40.44)	65 (0.73)	4 (0.05)	23 (0.26)	100 (1.13)	7 (0.08)	522 (5.88)	8874 (100.00)
4. Other Types of Villages	1013 (21.77)	15 (0.32)	3251 (69.83)	27 (0.58)	9 (0.19)	50 (1.07)	98 (2.10)	2 (0.04)	191 (4.10)	4656 (100.00)

Note : The figures in parentheses are the respective percentages

I = As Cultivators, II = As Agricultural Labourers, III = In Mining, Quarrying, Allied Activities, IV = At Household Industry, V = In Manufacturing other than Household Industry, VI = In Construction, VII = In Trade and Commerce, VIII = In Transport, Storage and Communications, IX = In Other Services.

Source: Government of West Bengal, Census 1961 : West Bengal District Census Hand-book, Darjeeling.

Table - 1.26
Nature of Occupation of Agricultural Villages in the Hill Areas of
Darjeeling District

Types of Agricultural Villages	Nature of Occupation									Total Working Population
	I	II	III	IV	V	VI	VII	VIII	IX	
1. Khasmahal Villages	24169 (82.08)	1908 (6.48)	14 (0.05)	303 (1.03)	30 (0.10)	1070 (3.63)	183 (0.62)	30 (0.10)	1739 (5.91)	29446 (100.00)
2. Others Type of Agricultural Villages	3174 (73.42)	128 (2.95)	291 (6.92)	82 (1.90)	17 (0.39)	8 (0.19)	187 (4.33)	63 (1.46)	373 (8.63)	4323 (100.00)
Total	27343 (80.97)	2036 (6.03)	305 (0.90)	385 (1.14)	47 (0.14)	1078 (3.19)	370 (1.10)	93 (0.28)	2112 (6.25)	33769 (100.00)

Note : The figures in parentheses are the respective percentages.

I = As Cultivators, II = As Agricultural Labourers, III = In Mining, Quarrying, Allied Activities, IV = At Household Industry, V = In Manufacturing other than Household Industry, VI = In Construction, VII = In Trade and Commerce, VIII = In Transport, Storage and Communications, IX = In other Services.

Source : Government of West Bengal, Census 1961 : West Bengal District Census Hand-book
Darjeeling.

Table - 1.27

Occupational Pattern of Bazar Villages in the Hill Areas of Darjeeling District

Name of the Different Occupations	Number of Working Population in Each Occupation	
	Absolute Number	Percentage
I. As Cultivator	45	3.38
II. As Agricultural Labourer	7	0.53
III. In Mining, Quarrying, Livestock, Forestry, Fishing, Hunting, Plantations, Orchards and Allied Activities	19	1.43
IV. At Household Industry	105	7.89
V. In Manufacturing Other than Household Industry	20	1.50
VI. In Construction	59	4.43
VII. In Trade and Commerce	402	30.20
VIII. In Transport, Storage and Communications	60	4.51
IX. In Other Services	614	46.13
Total	1331	100.00

Source : Government of West Bengal, Census 1961 : West Bengal District Census Hand-book, Darjeeling.

Table - 1.28

Occupational pattern of the Villages Except Plantation,
Agriculture and Bazar Villages in the Hill Areas of
Darjeeling District

Name of the Different Occupations	Number of Working Population in Each Occupation	
	Absolute Number	Percentage
I. As Cultivator	551	11.29
II. As Agricultural Labourer	18	0.37
III. In Mining, Quarrying, Livestock, Forestry, Fishing, Hunting, Plantations, Orchards and Allied Activities	671	13.75
IV. At Household Industry	171	3.50
V. In Manufacturing Other than Household Industry	8	0.16
VI. In Construction	88	1.80
VII. In Trade and Commerce	418	8.57
VIII. In Transport, Storage and Communications	189	3.87
IX. In Other Services	2765	56.69
Total	4879	100.00

Source: Government of West Bengal, Census 1961 : West Bengal
District Census Hand-book, Darjeeling.

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Notes :

- (i) Kipat : A system of land tenure under which an individual obtains the right to hold land by virtue of his membership in a series of nestling kin group, prevailed among tribals in the eastern part of Nepal before the conquest of the part by the Shah Kings.
- (ii) The Census of 1961 divides the general population of Darjeeling district into two broad categories; namely, workers and non-workers of which the former comprises people adopting the following nine types of livelihood:
- (I) Cultivation,
 - (II) Agricultural Labour,
 - (iii) Mining, quarrying, forestry, fishing, hunting and activities connected with livestock, plantations, orchards and allied spheres,
 - (IV) Household Industries,
 - (V) Manufacturing other than household industries,
 - (VI) Construction,
 - (VII) Trade & Commerce,
 - (VIII) Transport, Storage and Communications; and
 - (IX) Other Services.

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Chapter - 2

PROSPECTS AND PROBLEMS OF FORESTRY AND TEA INDUSTRY IN THE HILL AREAS OF DARJEELING DISTRICT

The objective of this chapter is to study the prospects and problems of Forestry and Tea Industry, the dominant economic pursuits besides agriculture in the hill areas of Darjeeling district. Alongside this chapter also discusses the implications of the said issues in the name of the impacts on the social and economic life in the hill areas of Darjeeling district.

2.1. Forestry in the Hill Areas of Darjeeling District

2.1.1. Preliminaries

Forests possess great economic importance in the hill areas of Darjeeling district. A remarkable percentage of population in the hill areas of Darjeeling district earn their livelihood engaging themselves in the activities relating to forest conservation. Tea estates also consume large quantities of firewood as well as some timber for box planking. Large quantities of bamboos are used for mats and baskets. The twon and larger part of this region satisfy their requirement for huge supplies of fire-wood and charcoal along with considerable quantities of timber for housing and other constructional purposes from these forests. Moreover a notable percentage of demand for forest produce, related with industry, railway and various constructional purposes in India as a whole is reported to be supplied from forests of the hill areas of Darjeeling district.

Besides local and global economic importance, the forests of this area has a great geophysical importance. These forests serve in conserving the soil locally and preventing fertility deterioration in the plains. Divisional forest officers of Darjeeling and Kalimpong stated in this respect long ago under British rule in the following manner:

"Apart from supplying local needs for forest produce, the forests in the Darjeeling hills have a very great indirect effect on the people of lower Bengal. No year passes without land slips occurring to a greater or smaller extent in this hills. They would have been a more numerous and serious if the hills were completely laid bare of trees. The trees in the forest not only cover the soil and hold the force of the torrential rain but their roots bind the soil and keep it porous thus allowing the droppings from the crown slowly to percolate and feed the springs continuously. Where there are no trees, rain water strikes the ground directly and quickly rushes down the slope. The soil gets hardened, the springs can not be fed due to lack of seepage and consequently dry up as soon as the rains are over. The streams in the neighbourhood are flooded after rain and become altogether dry once the rainy season is over. The surface soil from the cultivated slopes and from the land slips is carried down by rain water and deposited as a fine paste choking all the pores in the bed of the river. In course of time seepage is practically stopped and as further debris is deposited, the bed of the river begins to rise and the volume of water that used to flow down the channel then

over floods the banks causing great damage to cultivation. Further, when the rains are over, the river becomes dry and unnavigable and the country unhealthy. Though the wood-cutter on the hill hardly realises the effect of felling trees and laying bare the hill slopes, people hundreds of miles below suffer hardship. It is a great pity that the indirect effect of the existence of forests was not appreciated in olden days and instead of creating reserves on the hill tops and laying bare the whole hill down below, a more even distribution of the forest was not aimed at to prevent soil erosion and its deleterious effect on the rivers of Bengal. The real measure of the importance of the hill forests should always be in terms of their effect on water-supply to the springs and on their prevention of soil erosion".¹

"The dangers of soil erosion are becoming more and more evident in those parts of the Kalimpong Khash Mahal which have been given over to cultivation. Partly owing to the steepness of the ground and partly owing to the geological nature of the underlying rock round about Kalimpong town and in the catchments of the Rilli, the Lish, the Chel and their tributaries, erosion is liable to occur here to a greater extent than in other parts of the district. Where the forest has been cleared away in the course of the last 80 years, the protective covering of the deep soil which was the legacy of the primeval forest has now all been washed away, sheet erosion is rapidly taking place and in many places, gullies and landslides have started so that the evils of erosion, at first

insidious, are now forcing themselves upon men's attention. It is a more serious matter than is commonly recognised because the problem affects not only the few cultivators of the actual site of the erosion but also thousands of people in well populated districts such as Dacca and Mymensingh which are served by the rivers of which these hills are the catchments.....

The presence of large trees does not necessarily provide protection against erosion. Indeed a forest consisting of large trees only with no under growth and little soil may actually help erosion by guiding the rainfall along definite channels.

The principal protection is found in the deep and spongy forest soil which results from the decomposition, through centuries, of the leaves, twigs, roots, dead branches and stems of the vegetation, both large and small, of the herbs and shrubs of the undergrowths no less than of the big trees. When rain water falls on a forest, the force of the water is broken, first by the crowns of the trees and then by the litter on the ground. This prevents the raindrops from beating the soil particles into suspension and clogging the pores and reducing percolation. The water, therefore, instead of being washed away along the surface of the ground, largely enters the soil through infiltration. The spongy, soil, again, holds back the greater part of the water only allowing it to pass through in small quantities at a time. This is the reason why the catchment areas of the water supply in hill stations are

kept well wooded. Had this not been done, the rain water would have run off soon after it fell and there would be no water available in the dry season. The presence of the forest ensures a perennial supply. On the other hand, where deforestation has taken place, the soil, perhaps loosened by cultivation, is gradually carried off by rain and sheet-erosion begins. The next layer of soil is less absorbent, the amount of run off increases and the rate of erosion is accelerated. Little by little, the top cover disappears and there being no soil to hold the rainfall, it is immediately carried down into streams and rivers, swelling the rivers into floods perhaps hundreds of miles from the site of the rainfall.

It is an unfortunate fact that although the destruction of a forest and of the resultant soil-covering can be brought about comparatively easily and quickly, the re-establishment of a forest on such eroded land the formation of a depth of soil sufficient to give adequate protection must take many years to accomplish".²

Thus it is evident that the forests in the hill areas of Darjeeling district have an intra-regional as well as inter-regional economic and geo-physical importance. Considering this the following sections of this chapter discuss the state of forests in this areas before and after independence in terms of its area over time and the problems confronted. Along with the impacts of the problems on the development of the hill areas of Darjeeling district are also discussed here.

2.1.2 Area under Forests during the British Rule and After:

The area in the present Darjeeling, then known as "British Sikkim" was entirely covered with forest and practically uninhabited. Captain Herbert, the Deputy Surveyor General described, "the mountain in 1830 as clothed with forest from the very top to the bottom". General Lloyd in 1837 similarly described it as "clothed from the top of the hillsto the very bottom of the valleys with a dense forest". The forest existed in rather poor condition as it was subjected to all conceivable forms of maltreatment including shifting cultivation. After British occupation, conversion of these forests into cultivated lands and tea gardens as well as for colonisation rapidly started and there was an influx of settlers. Introduction of cultivation of tea, cinchona, potatoes and orange resulted in the clearance of large tracts of forests at favourable altitudes. Extensive fires raged in the summer months in the Terai and in the outer hills as well as in the Tista and the Great Rangit valleys caused destruction of forests. These fires sometimes originated from uncontrolled fires in cultivated land and then extended into adjoining forests.

Besides, during 1855 and 1861 large-scale felling took place to meet the heavy demand for railway sleepers. Rapid and continuous illicit felling, looping and unrestricted heavy grazing adversely affected the area, quality and density of forests. Cwing to the above facts the area under forests in the hill areas of Darjeeling district and the district as a whole did not remain

intact as that was at the time when the British stepped their feet on this land. Overtime the area under forests in this district showed a declining trend, although onwards 1865 the then British Govt. paid attention to reserve the forests for the conservation of timber and water-supply and for protection against erosion and also to eliminate jhum method of cultivation.³ The declining trend of area under forest in this district may be apparent from Table 2.1.

From Table 2.1 it is evident that before independence, under the British period in 1901, the area under forests was 1554.21 square km. which was 51.54 per cent of the total geographical area of the district. In the year 1911 there was neither any decline nor any rise in the area under forests, while that in the successive years before independence changed in descending order.

The area under forests increased marginally after independence. In the years 1951 and 1961, the area under forest was greater than that in 1941. But in the year 1971 and 1981 the area under forest declined and it became lower than that in 1941. As a result, there was a decline in the percentage of the area under forests to the total geographical area of the district. In 1981 it became 39.78 per cent which was marginally above the international standard of keeping minimum land under forest, i.e., 33.00 per cent of the total geographical area. Table 2.2 may help to understand all the matters stated above.

The above analysis reveals that the periods before independence and after independence are not different in character. The area under forest declined in both the time horizons. But that in the period after independence decreased at a rapid rate. The Table 2.3 may help to understand this. From Table 2.3 it is evident that in the period before independence, during the time scale of forty years, i.e., during 1901-1941 area under forest in the Darjeeling district decreased by 0.23 per cent per annum while in the period after independence during 30 years of time limit, i.e., during 1951-1981, the area under forest in the district reduced by 0.41 per cent per annum. Thus it is clear that in the period before independence the rate of decline in the area under forest was lower. On the other hand in the period after independence the rate of decline in the area under forest was higher.

The cause of the relatively slower rate of decline in the area under forests in Darjeeling district under British rule i.e., before independence and rapid rate of decline of the said area after independence may be attributed to the change in the objective of the forest management policy in the latter period.

2.1.3 Forest Management during the British Rule:

Prior to 1863 very little attention was paid to conservation of forests in Bengal. Forest demarcation and reservation proceeded fast after inauguration of forest conservancy in Bengal, 1964.⁴ No systematic attempt could be made due to paucity of fund and technical knowledge, yet after inauguration of forest conservancy.

Originally the forests were worked by selling of trees on permit system. This meant felling of best saleable trees with a fixed girth limit. This resulted in the removal of all the best trees. The hollow and defective trees which should have been removed on silvicultural grounds were allowed to accumulate in the forests. Departmental operations were under taken in the year 1865 and some Katus and Champ timber were sold to Railways for constructional purpose.⁵

Forest reservation received further impetus since 1872-73, when Dr. Schlich joined as Conservator of forests. Since 1872-73 practice of forest management underwent a slow but gradual change in the hill areas of Darjeeling district. Selective felling was the system of management to be practised in the hill areas. First working scheme (suggestion) for the hill forests was drawn up by Dr. Brandis in 1879 and revised by Sir William Schlich for the period 1880-1890. The method of treatment prescribed in Schlich's scheme was selective felling above 7500 ft. elevation and practically clear felling below that level. More specifically the method of treatment prescribed in Schlich were retention of all round, fairly straight trees likely to last for another rotation and felling of all other trees for forests above Ghum to Lepcha Jagat road and Rangbi road. It was also provided that the upper part of the ridge should not be cleared altogether and planting to be done in horizontal lines 20 ft. apart and the plants are to be 4 ft. apart in lines. For forests below the roads it prescribed that all

trees should be felled leaving only poles and saplings. Planting should be done in horizontal lines. Clearances were permitted along lower edge of forests, if future treatment as Coppice be desired. It also prescribed that the area, so cleared, should be planted closely in lines not more than 10 ft. apart. But it was found that clearances with a view to coppice along the lower edge of the forests were not made. The forests in the lower edge could not be disposed off due to difficulty of extraction. Thus the scheme did not yield desired results. As on the one hand under this scheme forests on the lower edge could not be felled and on the other hand practically no regeneration could be done as no definite silvicultural principle was followed. This led to the revision of the scheme by Manson.⁶

The problem of getting adequate regeneration received attention of the foresters in 1890's and considerable attention was paid by Manson in his plan, which was hitherto over looked. In Darjeeling hills the practice of selection felling systems did not yield the desired result so far as regeneration was concerned. Manson's working plan for Darjeeling hills for the period of 1892 to 1902 solved this problem to some extent. His plan prescribed a rotation of 160 years in five periods of 32 years, the first for regeneration periodic block and the fifth being closed to grazing. Periodic Blocks II to V were to be worked over by improvement (so called amelioration) fellings at the rate of one block annually in order to bring them into a more normal condition, while periodic

Block-I was to be regenerated by taking out half the crop over one sixteenth of the block annually in a regeneration felling. The remainder was to be left as a shelter wood over the young crop which it was anticipated, would consist of natural seedlings supplemented by sowing and planting. This shelter wood was to be removed later in a final felling.⁷

During the first ten year covered by Manson's Plan, regeneration fellings were done in the first 10 original coupes. But in respect of regeneration, it was successful in some cases whereas it resulted in invansion of inferior species and shrubs in other cases. It was found that partial opening of the soil surface or cover did not result in reproduction of tree species, but in some cases as a result of admission of more light the ground was completely occupied by inferior shrub and weeds. Thus artificial regeneration did yield desired degree of success due to neglect of regular cleaning for subsequent years after planting. It was found out that Manson's plan would have worked fairly well if the regeneration fellings actually had taken out at least half of the original crop including biggest stems with wide spreading crowns. It was actually happened that two third of the original crop was left to be taken out in final fellings and trees at the time of final fellings damaged the existing regeneration on the ground.

Mansons plan was duly undertaken by Osmaston and put in force since 1903. Under it the shelter wood was removed in a final felling from the ten original coupes successively but no new regeneration felling was undertaken. The only alteration in the "amelioration" felling prescribed that only hollow, dead and fallen stems were to be removed, except in periodic Block-V, where fellings approximating to regeneration fellings were allowed owing to the predominance of saplings partly natural and partly planted in blanks under a special provision of Manson plan. The final fellings like regeneration fellings were followed by planting and dibblings on which reliance had to be almost entirely. Osmaston recommended a revision after 10 years at which time it was to be considered whether removal of the whole crop in a single regeneration felling would be wise, seeing that in this case planting would have to be carried out without shelter of any kind.

Manson's plan with Osmaston's revision was in force for 20 years (i.e, for the period since 1892-1912) by which time ten out of sixteen coupes of periodic Block-I had been passed over by a regeneration and final felling, and were on the whole fairly successfully re-stocked. But the manner in which Mr. Manson's plan was carried out was the laying out of the first ten coupes in advance. The practice was not prescribed or even countenanced by the plan. These coupes were generally long narrow strips cut straight down the hill side from the top bottom of a compartment, the shape most liable to land slips and least convenient for inspection. Thus evil effects of laying out coupes down the

hill side from top to the bottom were felt for the first time.⁸

Since 1912 Grieve's plan was introduced mainly with the object of avoiding the second felling which had in so many cases destroyed the regeneration, established after the first felling. His plan was on the following lines : first, all unworkable areas were excluded from the scheme and opened to grazing. Second all areas, previously regenerated under Manson's and Osmaston's plans were kept into a 'plantation' working circle. Even in case of aged trees he was about to propose that they were unsuitable for selection system of felling. Third, the remaining high forest was put into a new working circle.

For the high forest (Darjeeling working circle) Grieve's original intention was to prescribe the selection system on a rotation of 150 years with a 25 years felling cycle; the possibility being determined by the number of trees, for which purpose complete enumerations had been made over the whole working circle. During the felling cycle one-half of the class-I trees were to be removed in groups, utilizing advance growth in the main but supplementing it by planting where necessary.

Grieve's working plan worked hardly for there were obvious difficulties. In the first place it was believed that Grieve was far too sanguine about natural reproduction, where as in practice artificial regeneration would have to be resorted to almost entirely. And as a result the selection system whether by groups or

by single trees was not adopted. Secondly, although experimental groups had been made before the plan came into operation where two or three class-I trees happened to be together. In practice the allocation of one half of the trees on a given area into anything that could be called groups would be extremely difficult, because, as calculations showed the over age distance between class-I trees were about 20.17 metres in the best and 32 metres in the worst areas respectively. Lastly, Grieve gave no indication as to the size of 'Group' intended. The use of the word 'group' was unfortunate and proved a stumbling block all through in as much as it was misinterpreted as having something to do with the group system of Europe. Thus it appeared that group felling proposed in Grieve's plan did not produce the desired result so far as regeneration was concerned. The system underwent gradual changes from selection felling by group to regeneration felling by group method and ultimately to some sort of clear felling with artificial regeneration. It was also found that Coppice fellings upto 1917 did not result in sufficient coppice growth to restock the area and thus it became clear that in order to produce a plantation containing a satisfactory proportion of good fuel species, extensive sowing and planting would be necessary.⁹

Meanwhile it was realised that (i) natural regeneration was too, too uncertain and insufficient in quantity for any reliance to be placed on it as the method of regenerating the forests after exploitation, (ii) there was no danger to the forest seedlings raised by artificial regeneration after clear-felling at an

elevation below 7000 feet where forests were never serious, (iii) retention of over wood caused more harm than benefit to the regenerated seedlings at the time of final fellings.

The outcome of all the above findings was Baker's Working Plan for the period 1912-1928. Baker in his plan prescribed clear-felling with artificial regeneration by 'Taungya', wherever possible. The prescription of this plan was carried out almost in full in all felling series except Batasi. The clear-fellings made from 1917 to 1928 resulted in no damage and restocking was generally done successfully. It was also found that problem of regeneration was simplified as a result of introduction of artificial regeneration after clear-felling by taungya. One difficulty of the plan was, however, noticed that the system of clear-felling in the hills across the contour from top to the bottom might lead to landslips.¹⁰

During the interim period between the ending of Baker's plan and the introduction of the new one, the forests of Darjeeling district would be managed under working scheme prepared by S. J. Curtis, the then Divisional Forest Officer, Darjeeling Division. The main change prescribed in Curtis's working scheme was the contour strip system of felling in the hill forests. Clear-fellings were carried out along contour and in strips not more than three chains in width down the slope on average ground. Shelter belts were retained between strips and also on spurs to provide protection from undue exposure. Curtis in his working scheme had drawn attention to the fact that many younger plantations seemed to take

a considerable time to establish themselves and form a close canopy. This, according to him, might be due to a variety of causes, namely, undue exposure to light frost and wind by clear-fellings being made in large compact areas whose depth down the slope was excessive.¹¹

At the end of 1928, the interim period, during which forests of Darjeeling hills were managed under Curtis Working scheme, Choudhuri's working plan was prepared for the period 1929-30 to 1936-37. It prescribed clear felling and artificial regeneration system in all the accessible areas except in the bulk of Tista Valley and Rangit Valley forests. The main prescription for these two areas was the selection felling. Another feature of the plan was the formation of a cryptomeria working circle, confined to the top ridges in the Ghum Simana Range, Topkedara Block spur. But the growth of species in the cryptomeria circle was not substantial due to elevation, poverty of soil and exposure. Again selection felling system did not lead to sufficient regeneration of useful species on the ground.¹²

Next to Choudhuri's working plan Macalpine's working plan was prepared for the period 1940-41 to 1959-60. It followed more or less general pattern of the prescription of Choudhuri's plan except that clear-felling with artificial regeneration was prescribed for the Tista Valley forests and rotation for fire wood species was increased to 60 from 50 years. Cryptomeria was not prescribed at all, its use being restricted to as a last resort or in infellings. Consequently cryptomeria of taungya, was prohibited for more

than two consecutive years in any area and restriction was imposed on the number of taungya villagers that was considered sufficient to regenerate any particular area. Clear-felling in strips along contour was prescribed, the width of each strip not exceeding three chains except where the gradient is easy. There was provision for retention of coppice shoots of species suitable for the objects of management.

On the whole Macalpine's plan was only a slight modification of Choudhuri's plan and its results were as follows:

i) Clear-felling along contour strips in three chains' width resulted in the length of the annual strips in some of the felling-series from one to more than two miles (3.64 kms.) long, covering more than one compartment with the result that the maintenance of boundaries of individual plantation had not been easy with consequent difficulties in management. It was therefore, felt that increase of the width from three to five or more chains might be conveniently done in suitable localities.

ii) The area in the cryptomeria working circle of Choudhuri's Plan was included under the Long Rotation Hill Working circle of Macalpine's plan with the hope of producing timber of a better quality under the Long Rotation. But Cryptomeria plantations were left unthinned for reducing the rate of growth in producing the timber of a better quality and it was found that under existing conditions the marketable sized tree of two feet diameter might be expected to be produced in sixty to seventy years. It was therefore

no longer considered necessary to retain this pure crop of 'Dhupi' under the Long Rotation Hill Working Circle.

iii) It was found that the practice of taungya in any area for more than one year had deleterious effect on the forests crop as well as on the soil of hills and necessity for restricting taungya for only one year in any area was felt. It was also felt necessary to make the broken terraced beds on which the forest crop was grown continuous, so that downward flow of rain water might be checked thereby reducing soil-wash.

iv) The inaccessible areas in the Tonglu and Singalila Ranges could not be worked as provided in the plan due to lack of communication.

v) The coppices of desirable species were not sufficient in the plantations for covering the areas and these of undesirable species interfered with the growth of seedlings of useful species and also increased the stock of inferior species.¹³

The preceding description of the major schemes and plans of forest management in the pre-independence period shows that the broad objective of forest management in the hill areas of Darjeeling district was conservation oriented. Before independence each plan was prepared with the modification of its previous one for tracing out more efficient method of conserving forest resources. But this policy of forest management went under a slow but gradual change after independence.

2.1.4. Forest Management Policy After Independence:

After independence, the abnormal and heavy rainfall in the year 1950 caused serious damage to the forests on the Tista, the Great Rangit and little Rangit valleys and also to the upper hill forests. This necessitated closure of clear felling in several areas. Macalpine's Working Plan was replaced by a new working plan, namely, Ninth working plan. This plan was prepared for the years 1952-53 to 1961-62. It divided the entire forest areas into seven working circles, viz, (i) Fuel-cum-Packing Timber, (ii) Hill Timber, (iii) Cryptomeria, (iv) Selection, (v) Protection, (vi) Senchal Pastur, (vii) Inaccessible. The main prescriptions of this working plan were:

- (i) Clear felling with artificial regeneration by taungya method,
- (ii) Selection-cum-improvement felling.¹⁴

The Ninth working plan expired on thirty first March, 1962 and for the following five years, i.e., from 1962-63 to 1966-67 clear felling and other subsidiary operations were carried out in accordance with the working schemes prepared on year to year basis. The working schemes followed the general principle of prescriptions laid down in the Ninth Working plan and clear fellings were prescribed in all the blocks of forests in Tista valleys, Rangit valleys, Jorepokhri, Barasenchal and other blocks were brought under regular felling.¹⁵

The practice of forest management according to the working schemes prepared on year to year basis was continued no longer after

1967. For the years 1967-68 to 1976-77 a new working plan, namely, Tenth Working Plan was prepared. This Plan abandoned the system of selection cum-improvement felling in case of the forest blocks where it did not lead to proper regeneration of desired species and adopted a regular method of management by clear felling with artificial regeneration for all the blocks of forests. Emphasis had been given in this plan on growing of valuable species like Teak in valley forests and also Teak conservation working circle was formed. For the production of soft wood, suitable for manufacture of pulp, soft-wood working circle mainly for growing long-fibred conifers was formed. Besides stress was also given on growing *Cryptomeria Japonica* by replacing its, broad leaved species for its very slow rate of growth. Inaccessible forests were tried to bring under regular method of management with the introduction of clear felling with artificial regeneration through the development of networks of communication system in the inaccessible forest areas.¹⁶

In the year 1972 the National Commission on Agriculture in its report on Production Forestry - Man made Forests recommended: "There should be a change over from the present conservation oriented forestry to a more dynamic programme of production forestry"¹⁷ Clearly the recommendations of the Commission was related with the following concepts:

1) to link up forest resources with the forest based industries on the basis of physiographic, industrial and economic catchment concepts,

ii) to link up forestry as a support of rural economy and to trigger off development through cottage, small, medium and large-scale industries in backward regions where forests happen to be the most important local natural resource;

iii) to develop infrastructure on the basis of developing an area so that cost of development can be shared by various sectors which will benefit from it; forestry is only one of the most important sectors.¹⁸

In view of satisfying the recommendation related with the above mentioned concepts the commission prescribed that low yielding forest conserved under old policy should be replaced by high yielding forests through clear felling and planting. As a cause behind this prescription it added that high yielding forests would supply high quality of timber and it would develop forest industry.¹⁹ For carrying out the recommendation of National Commission of Agriculture, West Bengal Forest Development Corporation was created on 02.11.1974 and since then the policy vis-a-vis system of management of the forests in the hill areas of Darjeeling district went under complete change from that in the preceding years.²⁰

Onwards 1974 working plans to manage forests in the hill areas of Darjeeling district were so prepared that these could maximise revenue and profit. As a consequence the revenue from the forest department increased from Rs. 9.00 lakhs in 1982. Again expenditure on forests in 1931-32 to 1935-36 was to the tune of about Rs. 6.00 lakhs, which in 1976-1977 mounted to Rs. 115.00 lakhs,

while the revenue during this period has shot up from Rs. 9.00 lakhs to about Rs. 500.00 lakhs. This implies that there is a wide gap between revenue and expenditure in forest management and this excess of revenue over expenditure instead of being ploughed back for protection, conservation and creation of forests, i.e., for regeneration and improvement of forest resources is treated as profit. It is worth to be noted in this respect that in order to raise the volume of revenue and profit West Bengal Forest Development Corporation intended to convert 1500 hectare of inaccessible forests annually so as to cover 45,000 hectares of accessible forests within thirty years. As this would give a financial return of Rs. 1.80 crores annually from third year onwards.²¹

Thus from the foregoing discussion it appears that objective and policy of forest management in the hill areas of Darjeeling district have related with a completely new concept, namely, 'Production Forestry' and accordingly gone under complete change since 1974. After independence during the years before 1974 the objective and policy of forest management in this areas of Darjeeling district were alike to those under British rule. Like the British Government during the said years after independence the aim of the government was to conserve forest resources and the policy or system of forest management was tried to be framed accordingly. In spite of this fact following changes in the system of forest management are noticed in the hill areas of Darjeeling district since independence during the years before 1974. These changes are not consistent with the then objective for forest

management but consistent with that after the establishment of West Bengal Forest Development Corporation in the year 1974.

The policy under the British rule about the forests in the upper layers of mountains was to keep intact and the British rulers would not allow to use these forests for commercial as well as for industrial purpose. As they perhaps felt that if forests in the upper layer of mountains were denuded, then ecological balance in these areas would surely be disturbed. But in the post independence period the policy regarding method of exploitation of forests in the upper layer was changed.²² Although, the objective of forest management during the years before 1974, after independence was conservation oriented, method of exploitation of forest resources changed before the said year especially in the upper layer of mountains. Alike the plan of the West Bengal Forest Development Corporation since 1974 to convert 1500 hectares of inaccessible forest areas at the higher altitude to man-made accessible forest areas annually in order to meet the demand arising from wood based industries in West Bengal, the upper layer of forests, i.e., inaccessible forest areas were taken for commercial cultivation since the inception of Tenth Working Plan in 1967. This may be disclosed from the nature of forest management in the inaccessible forest areas since 1967. Since the inception of Tenth Working Plan, in the year 1967 inaccessible working circle or upper layer of forests were covered by roads and further net-works of communication system were expected to be laid out in these areas during the currency of the Fourth and Fifth Five Year Plans for bringing

these areas under regular management by clear felling with artificial regeneration.

In the British period and also during the decade 1950-1960 Sal and Teak with longer cycles received importance in the plantation programmes in the hill areas of Darjeeling district. But this variety of species were begun to be replaced not only after 1974 but also from the seventy's by quick growing species like Eucalyptus, Conifers etc. As regards, the emphasis on replacing quick-growing species before 1974, it may be quoted from the prescriptions of Tenth Working Plan (1967-68 to 1976-77) as evidence - "(i) It is necessary to provide for production of soft-wood suitable for manufacture of pulp, (ii) Sufficient stress is necessary to put on growing of exotic conifers in the hill areas of Darjeeling district on a large scale in future". And according to the prescriptions given in the Tenth Working Plan soft-wood working circle mainly for growing long-fibred conifers was created immediately after the prescriptions given. The implied result of the creation of soft-wood working circle was the replacement of existing species of slow growing hard-wood namely Sal & Teak. Thus it appears that in respect of the variety of planted trees in the plantation emphasis shifted from hard wood i.e., Sal and Teak to soft wood, Eucalyptus, Conifers like *Pinus Patula* (in particular), *Cupressus Cashmiriana*, *C. lisitanica* etc. since the inception of Tenth Working Plan in 1967 and it was only accelerated since the setting up of West Bengal Forest Development Corporation in the year 1974.²³

Again a change in the system of forest management after independence is noticed. Similar to the forest management policy under the British rule, after independence during the both time scale before and after the setting up of West Bengal Forest Development Corporation regeneration of forests through replantation in the vacant areas, i.e., through afforestation was one of the major aims of the forest management policies. But the practice regarding afforestation was highly deviated from that before independence. Under the British rule very much high priority was given on afforestation programme in considering the geographical character of the Himalayan Range. At that time it was always tried to cover all the vacant forest areas by the forest species rapidly through natural replantation, artificial replantation with taungya method.

But the period since independence accounts for a wide gap between felling and replantation. Till 1970 only 21.6 per cent of the vacant forest area has been converted into plantation. In order to fill up the gap between felling and replantation 700 hectares should be replanted annually but the actual performance is only 200 hectares are on an average per annum.²⁴

The slow pace of replantation unveils the fact that conservation of forest resources through afforestation gets less importance in the post independence period. This lack of importance on afforestation may be obvious from Table 2.4 and 2.5. From Table 2.4 it is observed that out of the total expenditure on forest management only six to eleven per cent was allocated for regenera-

tion and planting during 1951-1965. On the other hand Table 2.5 shows that regeneration and plantation accounted for only four to nine per cent of the total expenditure on forest management during 1975-1981. Thus it is obvious that during 1951-65 and 1975-81 a negligible share of total expenditure on forest management was allotted for regeneration and plantation. This outrightly implies that in the period of independence during the years before and after the establishment of West Bengal Forest Development Corporation out of the total expenditure on forest management only a negligible fraction was allocated for afforestation. Such type of allocational pattern of total expenditure on forest management in the hill areas of Darjeeling district after independence brings to the light the fact that there was given less importance on afforestation through regeneration and plantation of vacant forest areas in the period after independence.

Apart from the above changes in the objective and policy of forest management in the post independence period, the forests in the hill areas of Darjeeling district has been degraded continuously by the increasing pressure of growing population and consequent unemployment. The geophysical condition of the hill areas restricts the extent of areas under cultivation. The pressure of population on land has increased further with the stagnation of tea industry. As a consequence the percentage of marginal farmers and landless labourers has increased remarkably. The increasing number of marginal farmers and landless labourers having no opportunity to employ themselves throughout the year and to earn income as per

their subsistence ^{level} / of living are engaged in illegal felling of trees from the reserved forests. This is because it fetches a high income from illegal market.²⁵

Besides encroaching upon the forest land by marginal farmers and landless labourers of rural areas, professional gang of operators, financed by the merchants cut the trees in the forest illegally. And then they send these products to registered, unregistered and licensed and unlicensed saw mills of Siliguri and Terai areas of Darjeeling district as well as to the distant places of the country. Even the forest guards and other officials of the forest department seems to be involved in the said illegal operation indirectly.²⁶

Thus from the preceding discussion it can briefly and clearly be said that in respect of forest management policy in the hill areas of Darjeeling district following changes have taken place in the post independence period:

(i) Inaccessible forests in the upper layer of mountains began to be accessible forests through clear felling and artificial regeneration.

(ii) Emphasis had shifted from the variety of hard wood to soft wood in planting trees.

(iii) The above two changes had accelerated with the change in the objective of forest management policy from conservation orientation to production orientation and revenue as well as profit

maximisation after 1974, when West Bengal Forest Development Corporation was set up.

(iv) Emphasis was given negligibly on regeneration and planting.

(v) Illegal felling of trees by the poverty driven marginal farmers, landless labourers and by the professional gang of operators financed by the merchants reveals the decline of administrative efficiency of the forest department in the hill areas of Darjeeling district after independence. So it can be said that after independence there have taken place five fold changes in respect of forest management in the hill areas of Darjeeling. These five fold changes are namely, (a) change in respect of administration, (b) change in respect of method of exploitation, (c) change in respect of variety of plantation, (d) change in respect of objective, (e) change in respect of regeneration and planting.

2.1.5. Impact of the Change in the objective and policy/system of Forest Management:

After independence the change in the objective of forest management, from conservation orientation to production orientation and revenue and profit maximisation along with the changes in the system of management relating to the different aspects of forest management namely, method of exploitation, plantation, regeneration and planting as well as administration in the hill areas of Darjeeling district has affected the area under forest in the Darjeeling district adversely. The area under forest has declined in the post

independence period than that before independence. From Table 2.1 and 2.2 , it is evident that the area under forest has reduced to 1252.66 square km. in 1981 while that was 1414.05 sq. km. in 1941. As a consequence the percentage of area under forest to the total geographical area of the district has reduced sharply from 45.80 per cent in 1941 to 39.78 per cent in 1981, as evident from Tables 2.1 and 2.2. Furthermore, it is worth to be noted that the aforesaid changes in respect of forest management in the post-independence period resulted in a more rapid rate of decline of forest areas in the post-independence period than that under the British rule. This fact is conveyed in Table 2.3. From Table 2.3 it is evident that under the British rule during forty years from 1901-1941 the area under forest declined by 0.23 per cent per year whereas that during thirty year from 1951 to 1981 after independence decreased by 0.41 per cent per year.

From the wide deforestation in the post-independence period thus resulted in, a number of indirect adverse effects have cropped up in the hill areas of Darjeeling district. In the vegetation map of West Bengal, Darjeeling is the only one where three types of vegetation, namely, tropical, temperate and sub-alpine raising upto an elevation of 12,000 feet are found. This mountainous range is very ideal region in West Bengal and India for botanical exploration and research by the various scientific institutions, universities and colleges in the country. But it is a tragic fact that since long before such botanical variety of this very important Himalayan region of West Bengal and also of India is being wiped out. Wide-scale deforestation has thus caused not only the dis-

appearance of or even extinction of unstudied plants but also of a large number of Himalayan fauna. As the natural habitat of these botanical species has become destroyed, so what was once the "Queen" of the hills is now fast turning into a mountainous desert.

The rapid disappearance of forests due to large-scale deforestation has brought forth ecological disbalance not only in the hill areas of Darjeeling district but also in the plain areas of this district as well as other adjacent districts. The large-scale deforestation resulted in frequent landslides in the rainy season in the hill areas of Darjeeling district. Landslips on the other hand cause denudation of hill slopes, which is the cause of increased water run off in the hills. And this increased water run off creates frequent floods in the adjacent plain areas in the rainy season with a little bit of shower. In the hill areas of Darjeeling it also causes less infiltration, which is the main reason of frequent droughts in the plains now-a-days. Thus deforestation spells ecological disaster in the hill areas as well as in the plain and other nearest districts.

Deforestation in wide-scale leads to the problem of water availability in the hill areas. Apart from protecting soil surface from the direct action of rain, stabilising the hill slopes, reducing the surface and sub-surface run off, regulating water flows, reducing the intensity of floods in the plains and soil wash in the plains and soil wash in the hills, forests provide an efficient mechanism of water management in the hill areas. Deforestation

in the catchment areas of the rivers leads to the drying up of many perennial springs. And due to this shortage vis-a-vis scarcity of even drinking water becomes a acute problem since near past in the hill areas of Darjeeling district.

Apart from the impacts discussed above relating to environment, the spread of deforestation in the hill areas of Darjeeling district gave birth to the following economic problems in the hill areas as well as in the plain areas of the district and in other adjacent districts.

(i) It is seen earlier in the Chapter I that a notable percentage of population in the hill areas of Darjeeling district is mostly used to live on the basis of earnings accrued from rendering their labour in the plantation activity in the forests. Deforestation with a little bit of care on regeneration planting in the hill areas crops up livelihood problem in the face of these population unaccustomed with adapting themselves in alternative profession.

(ii) The destruction of forests reduced the scenic beauty of the hills of Darjeeling district. As a result it has been losing its power to attract the tourists by little. The number of tourists coming to enjoy the beauty of the hills of Darjeeling district has been going on declining year after year. The inflow of tourists is an important source of money income to a certain percentage of population of the hill areas of Darjeeling district. The shrinkage of the number of tourists causes the reduction of income in the

hands of this section of people and their well being also.

(iii) Denudation of hill slopes from the frequent landslips, resulted from deforestation leads to damage of agricultural crops along with cultivable lands in the hill areas. Frequent floods and droughts in the adjacent plains arising out of the same reason cause again heavy damage of crops in every year.

In addition to these, deforestation also leads to the crisis of fodder required for livestock population. But the rearing of the livestock population has very much economic importance to the hill people in the rural areas as the agriculture in the hill areas is incapable of supporting them alone. The crisis of fodder due to large-scale deforestation has made it difficult to rear various livestock population and thus originated economic hardship to the people of rural areas in the hill areas of Darjeeling district. Above all, these adverse economic effects along with impacts on the ecology and botany arising out of the large-scale deforestation in the hill areas of Darjeeling district are injurious to the health of the economy and ecology of the nation respectively.

2.2. Tea Industry in the Hill Areas of Darjeeling District:

The industry relating to tea plantation is one of the oldest and well-organised industries in India. It has opened the scope of large-scale employment of rural people and given a stimulus to the development of means of communication along with transport. It

plays the role of an instrument of modernisation in the sense that it serves to open up previously backward regions and helps to transform primitive economies into money economies. In Chapter 1, it has already been seen that in the rural areas of Darjeeling hills, tea plantation occupies the most important place in terms of its potentiality to feed the rural people. In the following sections of this chapter attempt has been made to discuss the growth of tea industry in the hill areas of Darjeeling during the period before and after independence and to trace out its problem and the impacts thereof on the rural areas of Darjeeling hills.

2.2.1. Growth of Tea Industry before Independence:

In India Majore Bruce in 1821 and Mr. Scott in 1824 discovered tea bushes in Assam. But it was only in 1833 when emphasis was given to the development of tea industry in India after the loss incurred by the East India Company from its monopoly in China's tea trade. Government itself undertook the formation of plantation in Upper Assam and in the districts of Kumaun and Garhwal. In 1838 private speculation took the field and the Assam Company was formed. Tea cultivation was not confined to Assam only; gradually it spread to other parts of India.

The history of tea plantation in Darjeeling is the history of British adventurism and its mastery over the natural challenges. At the time of access of the British, Darjeeling was covered with dense forests, shrubs, thick creepers mounted on tree tops and jungle of thorns.²⁷ Dr. Campbell who was the maker of modern

Darjeeling brought China tea seeds from Kumaun and planted them at his residence of Darjeeling at a height of 7,000 feet in 1841. But Dr. Campbell's seeds and plants were continually injured by hell, frost, frog etc. others who followed Dr. Campbell at somewhat lower elevation around Lebong succeeded admirably and it was found that tea might be cultivated at a great profit and be of advantage in furthering trade with Tibet.

An account of the report on Darjeeling by Jackson in 1852 said that the reddish clay of the sides of hill of Lebong was more suitable for the plant than the black loam of Darjeeling where there was too much moisture and too little sun which seemed to make the cultivation of tea on a large-scale unprofitable. Nevertheless this objection was not applicable to the lower sides of Pankhabari and Kurseong where plants were in a highly thriving condition. Due to the variety of elevation and other aspects it could safely be presumed that tea cultivation in this tract would be capable to yield profits.²⁸

Before 1856 the growth of tea was on an experimental basis in the gardens of Dr. Campbell and other Englishmen. According to Rev. T. Booz tea plants had been successfully grown at Takvar, Kurseong and Hopetown by three Englishmen, namely, Captain Mason, Mr. Smith and Mr. Martin. The year 1856 may accordingly be taken as a date from which the industry became an enterprise. In that year the Alubari tea garden was opened by the Kurseong and Darjeeling

Tea Company and another on the Lebong spur by the Darjeeling Land Mortgage Bank. In 1859 the Dhutaria Garden was started by Dr. Brougham; and between 1860 and 1864 four gardens at Geing, Ambutia, Takdah and Phubsering were established by the Darjeeling Tea Company and the gardens at Takdar and Badamtam by the Lebong Tea Company. Other gardens which were started at that early period are now known as the Makaibari, Pandam and Steinthal tea estates. Gradually the planters turned their attention to the Terai, where the first garden was opened out at Champta in 1862 and by the end of 1866 a few more gardens had been opened out in the Terai.²⁹

There had been rapid development in the hills as the suitability of the soil and climate became apparent. Government offered land to investors on favourable terms and by the end of 1866 there were only 39 tea gardens with about 4,000 hectares under cultivation and the annual production of finished tea was 196365.5 kgs. In 1870 there were 56 gardens with 4,400 hectares under cultivation which employed 8,000 labourers and yielded nearly 774578 kgs. In 1874 the number of gardens had increased to 113 with 7552 hectares under the tea which yielded about 1781348 kgs with a labour force of 19,000. In other words, between 1866 and 1874 the number of tea gardens almost exactly trebled, the area under cultivation increased by 82 per cent, while outturn was nearly ten times. In 1905, the area under tea was 20247.2 hectares but the number of tea gardens was reduced to 148 from 186 in 1895 due to the amalgamation of several gardens. The output in 1905 was recorded at 5644941.25 kgs.³⁰

Out of 148 gardens in existence at that time, 71 with an area of 10320 hectares under tea were situated in the Darjeeling sub-division, which included the Kalimpong hills to the east of the Tista. The rest of the area of the then district, i.e., the western part of river Tista, was, however, almost entirely closed to tea as the greater part of the tract was a reserve forest and the remainder had been reserved for native cultivation. Nearly 30 square miles had been reserved for tea. But the land was so barren and precipitous that it was unsuitable for the growth of tea plant. Thus notwithstanding the eagerness for the grants of tea lands, little of it had been taken up and a few gardens, 46 with an area of 6760 hectares under tea were situated in Kurseong sub-division, i.e., on the lower hill slopes and 32 estates with an area of 3160 hectares under tea lain within Siliguri thana, i.e, within the Terai.³¹

In 1910 the total area under tea in lease increased to 49541.2 hectares out of which 20512.2 hectares were under tea. In 1920, the area under tea leased became 56860.8 hectares and 23742.4 hectares were under tea. In 1940 the corresponding figures increased to 67188.8 hectares and 25223.6 hectares respectively. In 1943, the area under tea rose to a maximum of 25290.8 hectares and the total area under tea lease was 66272 hectares.³²

Table 2.6 will help us to understand the development of tea industry during the British rule. The Table shows that there had

been a phenomenal growth of tea industry during the British period. The reasons behind this were : (i) the availability of cheap labour which was mainly due to large-scale immigration of Nepali workers to Darjeeling hills, (ii) the availability of land for tea cultivation as plenty of land was declared by the Government as Waste Lands unsuitable for ordinary cultivation mainly in the western side of river Tista.

It was for the above reasons that the tea industry developed quickly within a very short period in the hill areas of Darjeeling. The capital which was invested in this industry came almost entirely from Europe. This industry was developed by the European ownership and supervision, the difficulties of manufacturing tea and the need of large capital deterred the hill people for plantation of tea on their own account.

With the expansion of tea industry, great economic activities started in the hill areas of Darjeeling as well as in the Dooars. New gardens were added every year and employment began to increase. In this connection it should, however, be noted that the tea industry in the hill areas went through the experience of running the garden by individual lease. But this was a disaster. Inefficient management by the private owners led to a crisis in the period between 1865 and 1868.³³

2.2.2. Growth of Tea Industry in the Post-Independence Period:

The post-independence period practically records neither any addition to the area under tea nor to the number of new gardens in the tea industry, the engine of development for the hill areas of Darjeeling district. In 1943 there were 25290.8 hectares under tea with a total production of 12674475.00 kgs. and the yield rate was 501.15 kg. but these figures barely declined in 1951, when the area under tea, total production and the yield rate were 16569 hectares, 7838,000 kg and 473 kg respectively. Table 2.7 will help us to understand the nature of development of tea industry during the period 1951-1981. From the table it is evident that area under tea became higher in all the years beyond 1951 and the volume of production and the yield rate crossed the corresponding figures of 1951 and remained higher in all the years after 1951 except 1954. But it is remarkable to note that area under tea all along the period after 1951 upto 1981 was far lower than that of 1943. The volume of production was similarly lower in all the years except 1952, ¹⁹⁶⁰ and 1980. It was only the yield rate which crossed the level of that in 1943 in all the years beyond 1951 except 1954, 1962 and 1966.

The indexes of area under tea, production and the yield rate since 1951 have been shown in Table 2.8. The year 1951 has been taken as the base year and the values of the variables of that year have been taken as 100. From the table, it is observed that the area under tea virtually remained stagnant during the period 1951-1981, while the yield rate and the production increased during the

years 1971 and 1981. But in comparison to all-India levels, the yield rate and the production of Darjeeling tea are observed to be much lower even in the pick production years like 1960 and 1980, which is evident from Table 2.10. The stagnancy of area under tea, at far below the corresponding figure in 1943 and the relatively lower level of the yield rate and production in comparison to the corresponding figures of India as a whole, indicate that there was a depressing state of affair in Darjeeling Tea Industry.

In this context it may be noted that the stagnancy of area under tea was due to the absence of extension of planting. The lower levels of yield rate and production were mainly caused by the prevalence of old and aged plants.

As regards the age of tea bushes it is held that tea plants in the Darjeeling gardens by and large crossed the age of full bearing, which is evident from Table 2.10. It is seen from Table 2.10 that the total area under tea bushes aged over 50 years constitutes about 81.75 per cent of the total area at the end of the year 1985. Another 6.61 per cent is observed to be in the categories of 31 to 50 years. The percentage of tea bushes which crossed the mid point of their economic life was 88.36. It indicates an alarming state regarding the age of tea bushes in the Darjeeling Tea Industry.

Theoretically, a tea bush in a garden may live indefinitely if sufficient food, water and air are made available and adequate pest and disease control measures are applied carefully. In practice,

however, tea bushes of an age beyond a certain limit can rarely be of economic value and their existence might have only academic interest. Thus, the old and unproductive plants are responsible for the relatively lower yield rates in Darjeeling tea gardens.³⁴

Besides some other factors namely the existence of vacancy ratio as high as 15 per cent to 20 per cent, the substantially lower average plant population compared to other tea industries - the lower average application of nitrogenous fertilizers, pesticides and insecticides, the higher proportion of China variety bearing negative correlation with yield rate are coupled with the age composition to effect lower yield rate in this regard.³⁵

The problem relating to the stagnancy of area under tea and lower level of yield rate and production can be removed by the measures as follows:

- (i) Increasing the application of nitrogenous fertilizer over the existing average level.
- (ii) Using correct weedicides and pesticides.
- (iii) Using more irrigation and proper drainage system.
- (iv) Reducing the vacancy ratio through regular infilling programmes.
- (v) Adopting scientifically tested modern farm management methods like clonal propagation and high density planting.
- (vi) Applying the rejuvenation programme i.e., the programme involving heavy pruning with intensive block infilling.

(vii) Uprooting the existing bushes with lower productivity and replanting new ones with increased plant population.

(viii) Replacement planting with increased plant population per hectare.

(ix) Changing the existing uneconomic age-mix of plants to more economic proportions by (i) bringing new areas under tea and (ii) extending the size of plantation with increased plant population per hectare.

The first three measures will not bring about any qualitative change in the bush-mix at all. They merely act as a booster to the existing yield rate and production in the short-term. Measures (iv) to (ix) will change the bush-mix of the tea gardens with the use of different plant breeds with intrinsically higher yield rate and better quality potentials. Measures (viii) and (ix) require the availability of fresh land for the plantation, although measure (viii) would not increase total hectareage under tea.³⁶

But the lack of interest to invest in the above programme is a problem. It is mainly owing to the fact that the Darjeeling Tea Industry has been incurring negative profit over a decade as shown in Table 2.11, though it had a better price realisation compared to that of Assam valley mainly because of its unique flavour.

The negative profit has resulted from a relatively higher average cost of production confronted by the industry. The relatively higher cost of production was due to its nature. The nature of average cost of production in Darjeeling Tea Industry was such

that it assumed a break-up of 70 per cent : 30 per cent between the fixed and variable components. Nearly 40 per cent to 45 per cent of the average fixed cost was in the form of "man-power cost", i.e. wages, salaries, benefits to workers and staff, cost of providing amenities like hospitals, schools, food stuff etc. As 70 per cent of the cost of production in the Darjeeling Tea Industry was of a fixed nature and a major portion of this cost was in the form of man-power cost, average total cost of production per kg. of the increased at a lower level of production and sales which was again due to yield rate. Among the items constituting variable cost, cost on fuel, cost on transporting the made tea to Calcutta and levies imposed by the Government explained the higher average cost. Darjeeling Tea Industry was afflicted with the problem of huge transport cost of fuel, i.e. coal. It is reported that the garden located in high altitude hilly terrain had to pay over Rs. 480 per M.T. of coal whose pit head price was around Rs. 80/- (since increased considerably). Thus the transportation cost of coal raises the average total cost of production.³⁷

Unlike Assam almost all Darjeeling tea is sold at the Calcutta auction, which is evident from Table 2.12. This is a problem which is beyond the control of Darjeeling Tea Industry. But it certainly inflates its cost of production by adding a higher transportation cost than Assam Tea Industry.

In addition, the Darjeeling Tea Industry had to pay a number of tax levies per unit of output. Table 2.13 will help us to understand it for the fiscal year 1978-79. These tax levies excluding

tax on profits inflated per unit cost of production approximately to the extent of Rs. 2.13 per kg. in the fiscal year 1978-79.³⁸

These levies are fixed irrespective of the price of made tea. The price of tea is determined through the auction system by the forces of international demand and supply. There is no method by which tea producers in Darjeeling can simply determine the price on a cost plus mark-up basis, thereby passing tax on to the consumer. This is quite unlike other manufacturing industries where any increase in the tax structure is passed on the consumer forthwith. This depresses the profit margin by increasing the average cost per kg.

Besides the above levies in the indirect form, the Darjeeling Tea Industry has to pay a variety of direct taxes, viz. Income tax and agricultural income tax. The rates of these two taxes went up steeply after 1974-75. The increased rates of the said taxes affected adversely the development of the industry.³⁹

Besides the negative margin of profit explained by higher cost of production in comparison to corresponding level of prices, the Darjeeling Tea Industry entered in a disadvantageous position in respect of the nature of ownership and type of management which were also responsible for the decline of area under tea, yield rate and production.⁴⁰

The history of tea industry in India was originally associated with the British enterprise who established Sterling companies

registered in the United Kingdom. A Company located in London employed agents or secretaries in Calcutta to implement the policies and programmes formulated by the Board of Directors. Besides, some Companies had visiting agents who were experienced planters and they submitted reports regarding the existing position of the tea estates. In the subsequent periods these sponsored tea estates were registered in India with rupee capital in order to purchase some of the Sterling tea estates or to start a new one of their own. Thus there grew a large number of Rupee Companies managed by some managing agents who looked after the interest of the Sterling estates. In this way Indian business house began to participate in the tea plantation industry.⁴¹

The ownership pattern of tea industry underwent certain changes when the Great Depression of 1929 reduced tea consumption. The market was so depressed that it became unremunerative to all those who were engaged in tea industry. In this situation, some of the foreign tea companies were sold out to Indians.⁴² Changes in ownership pattern got further impetus after the termination of the World War II when the government set up a number of Reconstruction Committees to plan for the post war development. The reports on the progress of Reconstruction Planning in 1944 advocated the policy that profit motive might be harnessed to social needs.⁴³

The Capital issues (control) Act, 1947, imposed restrictions on all Companies registered in India or abroad in respect of bonus, issues of all types of securities (shares and debentures) etc. The

foreign tea companies were thus compelled to take permission to declare bonus. Besides, they were also adversely affected by the acts, the Foreign Exchange Control Act of 1947 and the Import - Export Control Act of 1947. These acts, therefore, helped to secure the domestic market for local producers and to utilise the foreign exchange in national manner. The foreign tea companies thus experienced difficulties in expanding tea cultivation and they sold out their tea estates to Indians.⁴⁴

The changes which thus came in the ownership pattern in Darjeeling Tea Industry between the years 1947 and 1970 is manifested in Table 2.14. It appears from the Table 2.14 that the proprietary estates declined and private and public Limited Companies increased in number during the period from 1947 to 1970. The British - proprietary estates virtually disappeared and their positions were taken over by Indian proprietors.

The increasing rate of Indian participation since 1947 and the simultaneous gradual disappearance of the Sterling Companies brought forth unsafe condition in the administration of tea gardens. Before independence the ownership and the control of the tea gardens were mainly in the hands of the British. But since independence, the ownership pattern had showed some changes in favour of the Indian community. Tea gardens were purchased by local tea traders or money lenders like the Goenka family in Kurseong or the Bhojraj family of Gangtok. Some Kanjee banias from Uttar Pradesh also purchased a few gardens.⁴⁵ These new owners of tea gardens were

neither planters nor industrialists. They came into the business either as outsiders or as money lenders or as suppliers of commodities. Some of them were speculators in real estate. Most of the owners used the gardens as a source of short-term profit. Under the new ownership gardens were neglected and it brought about a deterioration in the age composition leading to the downward trend in the productivity of the Darjeeling Tea Industry.⁴⁶

The pattern of sale of tea under the new ownership is that the owners sell a part of their produce directly to the retail shop keepers without coming into the auction market. In this way the new owners are evading tax and deprive the small tea share holders of their profit and the government of its revenue. Moreover, the new owners completely changed the quality of management of the gardens. In the last two decades there had been a phenomenal increase of salary of the managers of tea gardens all over India except Darjeeling. The salary of managers in the tea gardens in Darjeeling Hill Areas is much lower on an average than that in the tea plantations of Assam and other areas. Within Darjeeling also the salary of the managers of Indian owned gardens is lower than that of the British owned FERA or Sterling Companies. The relatively lower salary of the managers in the Darjeeling Tea Industry probably makes the quality of management poor.⁴⁷

With the poor management there came a centralised policy of management of tea gardens. Tea companies which are owned by Indian Directors try to control the management of the gardens from

a distance. This centralisation often goes beyond reasonable limits. The local managers are not authorised to take any decision regarding reinvestment and replantation, because Indian Merchant Directors are not accustomed to delegate powers to their local managers. Managerial talent in the Darjeeling Tea Industry, particularly in proprietary or partnership estates is not utilised properly for the long-term development of the industry due to the fact that the owners usually follow the policies for solving the short-term problem.⁴⁸

Since the sixties, the new owners of the tea gardens systematically stripped the gardens of their assets, drained off the surplus and siphoned it to other industries situated in Bombay, Delhi or in Rajasthan.

The British management never declared dividends of more than 20 per cent and the surplus was either kept in reserve funds or invested in the gardens. But under the new management dividends are declared at high rates in favourable conditions and no provision is made for the long-term development of the gardens. No resources are kept for the future development and for the maintenance of health of the gardens.⁴⁹

The type of management discussed above has affected Darjeeling Tea Industry in such a way that the gardens under this industry had been sick in the early part of the seventies. The size of the 'sick' gardens, in terms of planted area, varies from 29 hectares to 30 hectares at that time. It means a total loss to the industry of 1669 hectares, constituting about 10 per cent of the total

hectarage under tea. Again this sickness means a loss in terms of production of at least 0.48 million kgs. of tea in a year which is about 5 per cent of the total production of tea.⁵⁰

Apart from the bad management aggressiveness of the trade unions has increased. This is very much likely when the workers feel that the wealth of the gardens has been diverted to other places. But the leadership of the trade union movement can not channelise its organisation towards the healthy growth of the tea gardens. The leadership of the movement is mainly given by outsiders. The "peak" season of the union activities begins during the Durga Puja (from the last week of August) season with the demand of bonuses. After that they leave the gardens and the 'dull' season of the union activities starts. The trade union movement which gained momentum after independence did nothing subsequently on issues relating to social life of the workers in Darjeeling Tea Industry. Trade unions have failed in giving the labourers a proper role in the context of the sickness of the gardens in Darjeeling Tea Industry.⁵¹

Thus the inadequacy of re-investible surplus due to negative profit accrued to Darjeeling Tea Industry, the change in the objective of the ownership and management after independence, employment of substandard managers, centralised policy of management, draining surplus and siphoning it to other industries in other industrial zone of India, misplay of trade unions and labour unrest are observed to stand in the way of the short-term as well as long-term development of the Darjeeling Tea Industry and responsible

for its depressing condition after independence.

2.2.3. Impact of the Sickness of Tea Gardens on Rural Areas:

With the declining trend of tea industry, the pressure of population on land increased. The land-man ratio deteriorated further. More and more land was fragmented and more families fell from the status of the "middle farmers" to that of the "marginal farmers" which meant average land holding was less than 2.5 acres. This would better be understood from Table 2.15.

The increasing pressure of population in the rural areas due to the growth of population could not be accommodated further in the tea gardens of the hill areas. Hence more and more people are concentrated on the same piece of land. But it is known that fertile land is not easily available in the hill areas. In the absence of any other employment opportunity, a large number of people take recourse of cultivation for their livelihood which implies poverty of the rural people.

Plantation industry is the most important sector in the hill areas of Darjeeling. About 46 per cent income is generated from plantation and forestry. During the British period, the expanding tea industry offered scope for employment to the hill people in the plantation sector and served as an important vehicle of economic development. The economic condition of the hill people was much better than that of the plain areas at that time. But after independence due to the stagnation of tea industry the hill people are

getting less and less employment opportunity in the plantation sector and they are over-crowding the existing land. There is hardly any scope for bringing more land under cultivation. Consequently, a large number of people became agricultural labourers which was almost absent during the British period.

With the downward movement of tea industry the problem of unemployment becomes acute in the hill areas of Darjeeling. In the earlier censuses of 1931 and 1941 the entire population in the age group 15-59, were found to be engaged in some kind of work. The unemployment problem during that period was not remarkable. But the situation changed after independence. The size of non-working population increased abruptly overtime. This can better be understood from Table 2.16.

It appears from the table that the proportion of non-working population to total working population in the age group 15 to 59 is increasing over the decades after independence and is higher in all the urban and "tea areas" than the agricultural areas (i.e., Kalimpong I & II and Garubathan blocks) except Mirik Block in 1961. This means that a large number of people remained unemployed in tea areas. The proportion of non-working population in the employable age 15-59 is low in Kalimpong rural areas but it is high in urban and tea areas. This is because, a large number of people somehow got opportunities in the agricultural land which

simply helped to raise the number of working people by increasing the number of disguised unemployment. But at the same time it should be remembered that except tea, there is no other major or minor medium-sized industry which can absorb the surplus agricultural labour in the hill areas of Darjeeling district.

Table : 2.1

Areas Under Forests in the Hill Areas of
Darjeeling District before Independence

Years	Areas Under Forests (in sq. km.)	Percentage of Forests to Total Geographical Area of the District
1901	1554.21	51.54
1911	1553.98	51.54
1921	1481.31	49.13
1931	1427.23	45.47
1941	1414.05	45.80

Source: West Bengal Forests : Centenary Commemoration,
Volume D-25, Calcutta, 1964.

Table : 2.2

Areas Under Forests in the Hill Areas of
Darjeeling District After Independence

Years	Areas Under Forests (in sq. km.)	Percentage of Forests to Total Geographical Area
1951	1430.34	46.03
1961	1432.65	46.07
1971	1286.42	41.83
1981	1252.66	39.78

Sources: (i) West Bengal Forests : Centenary Commemoration, Volume D-25, Calcutta, 1964.

(ii) Roychoudhury, P.K., "Watershed Management/Protection of Environment" in The Eastern Himalayas: Environment and Economy ed. by Sarkar, R.L. & Lama, Mahendra P. (Atma Ram and Sons: Delhi, 1986).

(iii) Government of West Bengal, Census 1971: West Bengal District Census Hand book, Darjeeling, Series 22.

Table : 2.3
 Rate of Decline* of Forest Area Per Year in the
 Hill Areas of Darjeeling District during the
 period before and after Independence

Periods	Time-Scale	Rate of Decline per cent/per annum
Before Independence	1901-1941	0.23
After Independence	1951 to 1981	0.41

Source: Compiled from Tables 2.1 & 2.2

*Note : Rate of Decline = Absolute Value of Negative Rate of Growth,

Where Rate of Growth is defined as

$$r = \frac{1}{T-1} \times \left(\frac{x_T - x_1}{x_1} \right) \times 100$$

Where T is the end point of the time period.

1 is the beginning point of the time period.

x is the magnitude of variable.

Table : 2.4

Percentage Share of Expenditure Under the Head 'Regeneration and Plantation' in the Total Expenditures Incurred by the West Bengal Forest Department for Forest Management During 1952 to 1965 in the Hill Areas of Darjeeling District.

Years	Percentage Share of Expenditure on Regeneration and Plantation
1952	8.94
1953	8.10
1954	9.12
1955	9.79
1956	7.46
1957	6.86
1958	7.36
1959	8.64
1960	8.27
1961	7.20
1962	7.32
1963	7.34
1964	7.85
1965	11.12

Source: Compiled from the Source, Government of West Bengal, Directorate of Forests, Tenth Working Plan For the Darjeeling Division Northern Circle, 1967-68 to 1976-77, Volume-I.

Table : 2.5

Percentage Share of Expenditure Under the Head Regeneration and Plantation in Total Expenditure Incurred by the West Bengal Forest Development Corporation for the Forest Management in the Hill Areas of Darjeeling District during 1975 to 1981

Years	Percentage share of Expenditures on Regeneration and Plantation
1975	7.67
1976	7.93
1977	7.35
1978	7.93
1979	8.52
1980	6.68
1981	4.45

Compiled From the Source: Government of West Bengal, Forestry: in West Bengal - An Appraisal 1977-1982.

Table : 2.6

Number of Tea Gardens, Area under Tea, Total Production
and Yield rate of Tea in the Hill Areas of Darjeeling
District Before Independence

Year	No. of Tea Gardens	Area Under Tea (in Ha.)	Total Production of Tea (in kg.)	Yield rate of Tea in kg/Ha)
1866	39	4000.00	196365.50	49.09
1867	40	3685.60	262188.00	71.14
1869	44	4026.80	383197.05	95.16
1870	56	4400.00	774578.00	176.04
1872	74	5801.20	1322381.70	227.95
1873	87	6278.00	1330519.50	211.93
1874	113	7552.00	1781348.00	235.88
1885	175	15399.60	4090500.00	265.62
1895	186	19476.80	5271525.00	270.66
1905	148	20247.20	5644941.25	278.80
1910	148	20512.40	6361875.00	310.15
1915	148	21609.60	9137025.00	422.82
1920	148	23742.40	6907500.00	290.94
1925	148	23742.40	8429625.00	355.05
1930	148	23742.40	9391725.00	395.57
1935	148	23742.40	9461700.00	398.51
1940	142	25223.60	16074675.00	637.29
1941	N.A.	N.A.	N.A.	N.A.
1942	N.A.	N.A.	N.A.	N.A.
1943	N.A.	25290.80	12674475.00	501.15

Sources: (i) Dash, A.J., Bengal District Gazetteer: Darjeeling
(Alipore : Bengal Government House, 1947)

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(Delhi-35 : D.K. Publishing House, 1974).

Table : 2.7

Area Under Tea, Production of Tea and Yield rate of Tea
in the Hill Areas of Darjeeling District during 1951 and 1981

Year	Area under Tea (in Ha)	Production of Tea (in kg.)	Yield Rate (in kg/Ha)
1951	16569.00	7838000.00	473.05
1952	17623.00	12758170.85	723.95
1953	17523.00	9940797.90	567.30
1954	17123.00	6308626.89	368.43
1955	17223.00	9373617.75	544.25
1956	17323.00	9739510.29	562.23
1957	19211.22	10801508.44	562.25
1958	19284.77	11594389.41	601.22
1959	19368.90	12558020.00	648.36
1960	20240.66	13228890.56	653.58
1961	18605.00	10107000.00	543.24
1962	18359.00	9149000.00	498.34
1963	18337.00	10038000.00	547.42
1964	18517.00	10021000.00	541.18
1965	18381.00	9589000.00	521.68
1966	18357.00	8716000.00	474.81
1967	18462.00	10449000.00	565.97
1968	18559.00	10089000.00	543.62
1969	18253.00	9530000.00	522.11
1970	18067.00	10058000.00	556.71
1971	18245.00	10293000.00	564.15
1972	18204.00	11477000.00	630.47
1973	18173.00	11344000.00	624.22
1974	17679.00	11543000.00	652.92
1975	17940.00	10687000.00	595.71
1976	17958.00	11344000.00	631.70
1977	18134.00	11577000.00	638.41

Contd..

Table : 2.7 (Contd..)

Year	Area under Tea (in Ha)	Production of Tea (in kg.)	Yield Rate (in kg/Ha)
1978	18151.00	11529000.00	635.17
1979	18360.00	10812000.00	588.89
1980	19248.00	12689000.00	659.55
1981	19239.00	12226000.00	635.48

Sources: (i) Tea Statistics, 1961, Published by Tea Board, India
Collected from Census 1961 : West Bengal District
Census Hand Book, Darjeeling,

(ii) Tea Statistics : 1982-83, issued by the Tea
Board of India, Calcutta-1.

(iii) Tea Statistics : 1985-86, issued by the Tea
Board of India, Calcutta-1.

Table : 2.8

Indices of Growth of Area Under Tea, Production and Yield Rate of Tea in the Hill Areas of Darjeeling District, during 1951 and 1981

Year	Indices of Area	Indices of Production	Indices of Yield Rate
1951	100	100	100
1952	106	163	153
1953	106	127	120
1954	103	81	79
1955	104	120	115
1956	105	124	119
1957	116	138	119
1958	116	148	127
1959	117	160	137
1960	122	169	138
1961	112	129	115
1962	111	117	105
1963	111	128	116
1964	112	128	114
1965	111	122	110
1966	111	111	100
1967	111	133	120
1968	112	129	115
1969	110	122	110
1970	109	128	118
1971	110	131	119
1972	110	146	133
1973	110	145	132
1974	107	147	138

Contd..

Table : 2.8 (Contd..)

Year	Indices of Area	Indices of Production	Indices of Yield Rate
1975	108	136	126
1976	108	145	134
1977	109	148	135
1978	110	147	134
1979	111	138	124
1980	116	162	139
1981	116	156	134

Source: Indices are calculated on the basis of data present in Table 2.7 earlier.

Table : 2.9

Production & Yield Rate of Darjeeling Tea Industry Expressed As Percentage of Corresponding Figures in India As a Whole during 1951 to 1981

Year	Tea Production in Darjeeling (in million kg.)	Yield Rate in Darjeeling (in kg/Ha)	Tea Production in India As a Whole (in million kg).	Yield Rate in India as a Whole (in kg/Ha)	Percentage of Tea Production in Darjeeling to All India Level	Percentage of Yield Rate in Darjeeling to that in All-India Level
1951	7.84	473	285.40	901	2.74	52.50
1960	13.23	653	320.50	969	4.13	67.39
1961	10.11	543	354.40	1070	2.85	50.75
1971	10.29	564	435.47	1214	2.36	46.46
1980	12.69	659	569.17	1494	2.23	44.11
1981	12.23	635	560.43	1461	2.18	43.46

Sources: (i) Tea Statistics by J. Thomas & Co, Calcutta.

(ii) Tea Statistics by Tea Board, Calcutta

Collected from Techno-Economic Survey of Darjeeling Tea Industry : Tea Manufacturing and Marketing Consultants, prepared by TM & MC Pvt. Ltd. (Calcutta-17, October, 1979), p. 11.

Table : 2.10

Distribution of Area Under Different Age Group of Tea Bushes on the Hill Areas of Darjeeling District as on 31.12.1995

Age Groups of Tea Bushes	Area under Tea Bushes (in Ha.)	Area under Tea Bushes (in per cent)
≤ 5 years	502	2.88
5-10 years	292	1.67
11-20 years	533	3.06
21-30 years	703	4.03
31-40 years	520	2.98
41-50 years	634	3.63
50 ≤	14260	81.75
Total	17444	100.00

Source: Tea Statistics 1985-86, issued by the Tea Board of India, Calcutta-1.

Table : 2.11

Average cost of Production, Price and Profit Margin per kg. of Darjeeling Tea

Year	Price in Calcutta Auction (in Rs.)	Average cost of Profuction (in Rs.)	Profit Margin (in Rs.)
1970	12.23	11.65	+0.58
1973	14.23	15.00	-0.70
1975	17.22	19.30	-2.08
1980	28.37	30.15	-1.78
1981	26.38	32.00	-5.62
1982	28.22	35.00	-6.78

Source: Memorandum to the Commerce Minister, Government of India,
by the Tea Association of India, dated 20.12.82.

Table : 2.12

Volume of Sale of Darjeeling Tea and Assam Tea in Calcutta, Gauhati and Siliguri
Auction Markets

Years	Darjeeling Tea (Combined)				Assam Tea (Combined)			
	Volume of Sale in : (in-thousand kg)				Volume of Sale in : (in thousand kg)			
	Calcutta Market	Gauhati Market	Siliguri Market	Total	Calcutta Market	Gauhati Market	Siliguri Market	Total
1973	10028 (99.96)	4 (0.04)	-	10032 (100.00)	123360 (86.37)	19470 (13.63)	-	142830 (100.00)
1976	10856 (100.00)	-	-	10856 (100.00)	129968 (82.13)	28282 (17.87)	-	158250 (100.00)
1980	7608 (99.70)	23 (0.30)	-	7631 (100.00)	100672 (67.03)	49522 (32.97)	-	150194 (100.00)
1981	9396 (99.99)	1 (0.01)	-	9397 (100.00)	114631 (68.00)	53952 (32.00)	-	168583 (100.00)
1982	8466 (92.57)	1 (0.01)	679 (7.42)	9146 (100.00)	76998 (53.69)	66141 (46.12)	269 (0.19)	143408 (100.00)

Contd..

Table : 2.12 (Contd..)

Years	Darjeeling Tea (Combined) Volume of Sale in: (in thousand kg)				Assam Tea (Combined) Volume of Sale in: (in thousand kg)			
	Calcutta Market	Gauhati Market	Siliguri Market	Total	Calcutta Market	Gauhati Market	Siliguri Market	Total
1983	9437 (93.08)	- -	701 (6.92)	10138 (100.00)	74513 (52.96)	65809 (46.77)	374 (0.27)	140696 (100.00)
1984	9646 (95.20)	1 (0.009)	485 (4.79)	10132 (100.00)	101153 (57.15)	75496 (42.66)	351 (0.20)	177000 (100.00)
1985	9774 (94.10)	- -	612 (5.90)	10386 (100.00)	134029 (57.37)	99337 (42.52)	239 (0.11)	233605 (100.00)
1986	8335 (95.70)	- -	375 (4.30)	8710 (100.00)	102396 (46.90)	115682 (52.98)	258 (0.12)	218336 (100.00)

Source: Tea Statistics : 1985-86, issued by the Tea Board of India, Calcutta-1, pp. 28, 41, 53

Note: The figures in the parentheses are the respective percentages.

Table : 2.13

Incidence of Taxes on the cost of Production of one kg.
of Tea of Darjeeling Tea Industry in 1978-79

Types of Taxes	Tax Levies on the cost of production of one kg of Tea (in ₹.)
1. Land Rent & Cess	0.25
2. Entry Tax	0.14
3. Excise Duty	1.25
4. Special Duty (Central)	0.06
5. Cess	0.08
6. Electricity Generating Duty	0.03
7. State & Central Sales Tax on Stores Item	0.32
Total	2.13

Source: Techno Economic Survey of Darjeeling Tea Industry:
Tea Manufacturing and Marketing Consultants, Prepared by
TM & MC Pvt. Ltd. (Calcutta-17), October, 1979, p. 70.

Table : 2.14

Change in Ownership Pattern of the Tea Gardens
Under Darjeeling Tea Industry

Patterns of Ownership	Ownership in 1947		Ownership in 1970	
	Indian	Non-Indian	Indian	Non-Indian
1. Proprietary	31	8	32	-
2. Private Limited	1	-	12	-
3. Public Limited	21	10	41	-
4. Sterling	-	30	-	16
Total	53	48	85	16

Source: Das Gupta, M, "Sickness of Darjeeling Tea Industry" in North Bengal Economics, Vol. 1, No. 8-9, published from Alipurduar, District-Jalpaiguri.

Table : 2.15

Size-wise Percentage of Households Cultivating Land in the Hill Areas of Darjeeling District in the Year 1961, 1971 & 1981

Size of Holding	Year								
	1961			1971			1981		
	Darjeeling/ Sadar Sub- division	Kurseong Sub- division	Kalimpong Sub- division	Darjee- ling Sub- division	Kurseong Sub- division	Kalim- pong sub- division	Darjee- ling Sub- division	Kur- seong Sub- divi- sion	Kalim- pong Sub- divi- sion
Upto 2.5 Acres	26.70	44.00	17.45	43.40	51.51	45.62	83.07	81.38	47.95
2.5 to 5 Acres	16.30	14.00	16.40	36.40	24.78	24.68	10.57	9.51	22.92
5 to 10 Acres	20.60	18.00	31.60	14.90	18.46	21.54	4.31	6.21	20.52
10 Acres & above	36.40	24.00	34.55	5.30	5.23	8.16	2.05	2.90	8.61
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Das Gupta M., "An Audience Profile : Darjeeling District", A Paper submitted in the Media orientation Workshop in Mirik on dated 2nd-7th April, 1986, organised by United Nations International Children's Fund.

Table : 2.16

Number of Non-Working Population and Its Percentage to Total Working Population in the Age Group 15 to 59 in the Hill Areas of Darjeeling District in 1961 and 1971

Name of the Blocks/ Towns	No. Total Working Population (Age Group 15-59)		No. of Total Non- Working Population (Age Group 15-59)		Percentage of Non-Working Population to the Total Working Population (Age Group 15-59)	
	1961	1971	1961	1971	1961	1971
Darjeeling Town	23525	24778	10885	13501	46.27	54.49
Kalimpong Town	14498	13246	6205	7340	42.80	55.41
Kurseong Town	7244	9186	3653	5379	50.43	58.56
Darjeeling-Phulbazar Block	34664	43560	7737	14350	22.32	32.94
Sukhiapokhri-Jore Bungalow Block	30089	37809	6687	14766	22.22	39.05
Rangli-Rangliot Block	19764	28267	4691	10031	23.74	35.49
Kalimpong Block (I & II)	37743	44651	7404	14221	19.62	31.85
Garubathan Block	13521	17132	1776	4329	13.14	25.27
Kurseong Block	23735	29580	7025	12054	29.60	40.75
Mirik Block	10996	14867	1754	5012	15.95	33.71

Source: (i) Government of West Bengal, Census, 1961, West Bengal : District Census Hand Book, Darjeeling.

(ii) Government of West Bengal, Census, 1971, Series 22, West Bengal, District Census Hand Book, Darjeeling, Part X-C.

NOTES & REFERENCES

NOTES:

Artificial Regeneration: When a forest is under-stocked, or contains many mal-formed trees of several species only a few of which are utilisable as timber, and these are slow-growing or when on clear felling the existing growth of a new crop of the desired species does not come up naturally, the forest is regenerated artificially. Sometimes seed of valuable species is broadcasted in the forest if there is a reasonable chance of its germination. This is called artificial regeneration.

Natural Regeneration: It implies the alternation of desired species through studying the ecological conditions obtained on the forest floor to such an extent that regeneration is induced and then it survives and gets established.

Thinning: When plants of the principal species reach the sapling stage, competition intersets in and felling are needed to reduce congestion. The best stems are retained and given the optimum freedom for development. This operation is called 'thinning'. Technically it is defined as a felling made in an immature form for the purpose of improving the growth and form the trees that remain, without permanently breaking the canopy, viz., the cover of branches and foliage formed by the crowns of trees in a wood. Technically speaking, thinning is a felling made in an immature stand, beyond the sapling stage, for the purpose of improving the growth and form of the trees that are left without permanently breaking the canopy.

Pruning: This is removing live or dead branches or multiple leaders from standing trees for the improvement of the tree or its timber.

Girdling: It is cutting through the bark and outer living layers of wood in a continuous incision all round the bole of a tree. It is also sometimes called ringing.

Selection System: Extraction of trees economically from the forests in remote areas containing many species only a few of which are of large sized.

Felling Cycle: As the entire forest can not be gone over for removing marketable trees every year, it is generally divided into a number of sections, 15 to 30, one of which is worked in a year. This practice is called 'felling cycle'.

Selection-cum-Improvement System: Sometimes, besides the removal of marketable trees it is considered desirable to improve the condition of the forest to promote the development of younger trees of valuable species or to induce regeneration of these species. With this object in view of certain trees of lesser value, interfering with the growth of value species, are also removed. This is referred to as the 'selection-cum-Improvement System'.

Shelterwood Compartment System: When regeneration of the principal species is induced and established under the existing maturing crop by opening it gradually for say X years, so that eventually on clear-felling the Overwood, a crop varying in age from one to X years is obtained, the system is known as the 'Shelterwood Compartment System'.

Artificial Regeneration through Taungya: An agri-silvicultural method to reduce the cost of artificially restocking an area as also to produce some agricultural crop, as long as this can be done without interfering with the forest species. This is also used to wean the tribals of the baneful practice of shifting cultivation.

Vacancy Ratio: The ratio of the difference between the optimum number of plants per hectate and the actual number of plants per hectare to the optimum number of plants, i.e.,

$$\frac{(\text{optimum No. of plants per hectare} - \text{actual number of plants per hectare})}{\text{optimum number of plants per hectare}}$$

Replacement Planting: The process of extending tea cultivation on fallow land of the tea estate through replanting the tea plants from the tea fields of the estate concerned with higher number of plant population than the optimum number.

Fixed Cost : Typical fixed cost in any tea estate is constituted by wages to permanent workers, salaries to monthly staff, cost of cultivation, depreciation, fixed factory and administrative overheads.

Variable Cost: Typical variable cost items in any tea estate are plucking cost, excise, special duty, cess, tea chests, power and fuel, transport, brokerage and sampling.

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Chapter - 3

AN OUTLINE ON IRRIGATION, SOIL CONSERVATION AND AGRICULTURAL MARKETING IN THE HILL AREAS OF DARJEELING DISTRICT.

The period before independence showed the implementation of the strategies for agricultural development in the hill areas of Darjeeling district to a negligible extent in a disintegrated and unplanned manner. But the strategies for the development of agriculture in this areas of Darjeeling district were undertaken in an opposite way, i.e., in an integrated and planned manner solely after independence.

Planning for the hill areas of Darjeeling district started in a some what coordinated way with the setting up of the Hill Areas Development Council by the State Government of West Bengal in the year 1973-74. The Council headed by the Chief Minister of West Bengal is intended to be an advisory body to the state government in plan formulation; deciding priorities between various sectors of development and evaluation of various schemes. The state government's expenditure out of the state budget in the hill areas is matched every year by grants in lumpsum form from the central government by the way of central assistance. The broader outlines of planning and relative priorities between various sectors are decided by the district authorities in consultation with and under the guidance of the Planning Commission.¹

In case of agriculture the strategy for development has been as follows:

(i) to introduce high-yielding varieties of seeds in the entire area under crops in the phased manner, to intensify agriculture to the maximum extent by introducing multiple cropping and to take such other measures for better crop husbandry;

(ii) to extend the area under orchards and to rejuvenate the existing orchards;

(iii) to extend the irrigation facilities by taking up small and minor irrigation schemes;

(iv) to take up soil conservation measures to check soil erosion; and

(v) to increase the marketing facilities of agricultural produce in the hill areas of Darjeeling district.

In order to materialise the above strategies, a huge amount of expenditure has already been made every year in the Annual Plans of the hill areas of Darjeeling district. Prior to 1973-74, the departmental budget for the development of agriculture was too meagre to cope with the various problems facing this sector. During those years emphasis was given mainly on providing irrigation facilities and on soil conservation measures to a limited extent. The actual developmental work for agriculture has been started from 1973-74 under the Accelerated Hill Development Programme.²

Since then in the Annual Plans of the hill areas agriculture began to have emphasis and was designed to achieve a higher rate of growth in food production. Out of the total planned outlays in 1974-75, the different heads of agricultural development namely, crop husbandry, horticulture, irrigation, soil conservation and marketing have accounted for 21.4 per cent which increased to nearly 30 per cent in 1983-84. Again the year-wise outlays on agriculture have increased from Rs. 91.18 lakhs in 1974-75 to Rs. 667.49 lakhs in 1984-84. This is shown in Table 3.1. This rise in plan outlays on agriculture may be accounted for by the immediate increase in plan outlays on irrigation and soil conservation.

From Table 3.2 it appears that soil conservation occupied the topmost position from the point of view of expenditure on the development of agriculture in the hill areas during the period, 1974-75 to 1983-84. Out of the total expenditure of Rs. 2645.00 lakhs on agriculture, about Rs. 1153.98 lakhs i.e., 43.66 per cent had been spent on soil conservation. Higher priority was given on soil conservation, because the planners realised that without proper measures against soil erosion, developmental works would be meaningless in the hill areas of Darjeeling district.

However, the annual expenditures on agricultural development schemes more or less increased steadily during the period from 1974-75 to 1983-84. From Rs. 122.35 lakhs in 1974-75 it

increased to Rs. 542.18 lakhs in 1983-84. The total amounts of expenditure on crop husbandry, horticulture, irrigation and marketing during the period were Rs. 718.80 lakhs, Rs. 114.95 lakhs, Rs. 604.23 lakhs and Rs. 52.09 lakhs respectively. The amounts were spent on the implementation of various schemes in order to attain higher rate of growth in agriculture in the hill areas of Darjeeling district. And in this context it may be worthwhile to evaluate the nature of the various schemes for the development of agriculture on which the expenditure was made. This chapter examines the nature and efficacy of the developmental schemes and programmes, undertaken so far on irrigation, soil conservation and agricultural marketing while the next chapter performs the same on the developmental schemes and programmes undertaken for improving crop husbandry and horticulture along with other related matters on agriculture.

3.1 Irrigation:

The development of agriculture is intimately connected with the development of irrigation. Actually, irrigation is the very line break of agriculture. The cropping-pattern, the intensity of cropping, the crop-combination as well as the yield — all depend on the extent of irrigation facilities. Besides, the adoption of improved agricultural practices, especially new varieties of seeds and chemical fertilizers, are closely associated with assured irrigation facilities.

As the scope of extending the areas under cultivation is limited in the hill areas of Darjeeling district due to rugged terrain, the introduction of high-yielding varieties of seeds, chemical fertilizers and improved technology plays an important role in increasing agricultural production. This lays emphasis on the optimal utilization of both surface and ground water. But the scope for the utilization of ground water is zero in this region.

The Geological Survey of India after analysing the geo-hydrological conditions submitted a note to the Government of West Bengal where it is stated that the part of the district which falls within the Himalayan mountainous range has very limited ground water at shallow depths of the mountainous slopes and hence unusable. The sub-mountainous zone from the foot of the Himalayas to about 10 km south is constituted of boulder and gravel terraces with minor sand or silt. In this zone ground water movement is quite fast and storage is highly variable so that in dry months the water table recedes considerably. The only source of irrigation in the hill areas of Darjeeling district is jhoras and streams.³

Rainfall, though it is heavy in the hill areas, is erratic in nature and occurs mainly from the months of May to Sept. Again, the rate of rainfall is not equal in all years. This may be understood from Table 3.3 which indicates that the rate of rainfall in the months of May to August in 1981 was relatively

lower than that in 1982 for the same months.

It is, therefore, obvious that to overcome the shortage of rainfall, irrigation is very essential. Irrigation is indispensable for the rabi cultivation and multiple cropping. As soil in the higher altitudes contains moisture and the climate and temperature are helpful for agriculture, irrigation will increase the productivity of agriculture. At an altitude between 2,000 feet and 5,000 feet, irrigation is needed for improving the yield of the rabi crops for HYV cultivation and for extension of multiple cropping.⁴ Irrigation systems in the hill areas are confined to small and minor irrigation. Water is first collected from the perennial streams (jhoras) and carried through G.I. pipes/channels to the storage reservoirs from which the water is conveyed in pipes/channels to the distributional reservoirs. From these reservoirs water is distributed to the agricultural fields. In the hill areas of Darjeeling district minor irrigation schemes are executed by the Irrigation and Waterways Department and the Agri-Irrigation Department. In addition, some small irrigation schemes are executed by the Agriculture Department through the Block Development Office.⁵

In the matter of irrigation, the hill areas of Darjeeling district are extremely backward. This may be evident from Table 3.4. Table 3.4 shows that out of the net cultivated area of 84884 acres, only 24147 acres, i.e., 20.84 per cent had irrigation facilities in 1973-74, i.e., at the end of Fourth Five-Year Plan.

Again from Table 3.5 it is seen that almost whole of the area is irrigated from the jhoras, private canals, Government canals and minor irrigation schemes are found to irrigate nil and negligible percentage of the area respectively in 1973-74. It may be attributed to the fact that both the State Government of West Bengal and Central Government of India gave negligible emphasis on irrigating the hill areas of Darjeeling district before 1974. Only seventeen minor irrigation schemes namely, Sonada and Plungdung in Shukiapokhri-Jorebunglow Block, Pudung, Bungbastry, Shepkhola, Koprington, Nobgaon and Sherpagaon in Kalimpong Block-I; Goleyjhora, Sakyang, Chamungkhola in Kalimpong Block-II, Barbotia in Darjeeling-Phulbazar, Rangbhanj, Manedasera in Rangli-Rangliot Block, Murmutkhola, Murmajhora in Mirik Block, Giddar Pahar in Kurseong Block, Parbalakhajhora, Dhodrary jhora and Dalimplataat in Garubathan Block in the hill areas with a total command area of about 565 acres were completed during 1965-74.

The irrigation facilities were begun to be extended in the hill areas of Darjeeling district by bringing more land under irrigation with the sanction and establishment of numerous minor and major irrigation schemes since the inception of Fifth Five-Year Plan (1974-79), when the Accelerated Hill Development Council was set up. The Hill Affairs Branch of the West Bengal Government sanctioned the following five minor irrigation schemes by the target date of 31st March, 1976. The schemes were lower Takling M. I. scheme in Darjeeling-Phulbazar Block, Bongklong M. I. Scheme in Mirik Block, Ghattakhola M. I. Scheme and Allaichikhola M. I. Scheme in Kalimpong P.S. covering about 715 acres of land.

These schemes were completed at the end of Fifth Five Year Plan. Two other schemes, namely, Rongdhongkhola M.I. Scheme and Sixmile Jhora M.I. Scheme were completed at the same time in Kalimpong Block-I under the Accelerated Food Production Programme.

Another ten small irrigation schemes, namely, Bhalukhop Pt. -I, Bhalukhop Pt. - II, Huiayadara, Devithan, Lower Gey chury, Simul Jhora, Simdhap Jhora (Rajgram), Simdhap Jhora Lower, rolak and Upper Chipla each covering a minimum of 10 acres and a maximum of 25 acres were sanctioned by the Deputy Commissioner and implemented through Block Development Officeg . All these schemes were completed within one year, i.e., 1974-75. Though the expenditure involved and the area commanded by the scheme were small, these small schemes served the needs of the villages scattered on the slopes of the hills in a better way. The Department of Irrigation and water ways of the Government of West Bengal was also engaged in the preparation and implementation of some other medium and minor irrigation schemes. The Geilkhola Irrigation Scheme in Rangli-Rangliot Block and the Cheil River Irrigation scheme in the Garubathan Block were taken up by the Department in the seventies. For these schemes a sum of Rs. 23.98 lakhs had been allotted during 1971-1982.⁶ The former, when completed, would benefit 400 acres under 'Kharif' crops and 400 acres under 'Rabi' crops and the latter would cover 400 acres of 'Kharif' and 452 acres of 'Rabi' crops. In addition to the two major irrigation schemes noted above the Directorate of Irrigation and Waterways

also proposed to take up the lower Mauza Irrigation scheme in Rangli-Rangloit Block in 1977-78. The estimated cost was initially Rs. 4.32 lakhs but increased to Rs. 5.32 lakhs and the entire amount had been allotted by 1982. This scheme would benefit 140 acres of agricultural land. The Malbusty M.I. Scheme was proposed by the Directorate in 1978-79 and was taken up in 1979-80. The estimated cost of this scheme Rs. 10 lakhs and the estimated area to be benefited was 200 acres of land. Besides these, survey and investigation works were completed by the Department of Irrigation and Waterways during 1974-79 for another ten minor irrigation schemes with an estimated command area of 1216 acres.⁷

The schemes started earlier by the Agri-Irrigation Department were completed in 1977-78 and 1978-79. Being encouraged by the feasibility report, the Department proposed to start work on upper Mamring, Saraswatikhola, Bhutia Gaon, Kalikhola and Ambeck M.I. Schemes in 1979-80 with an estimated cost of Rs. 23.68 lakhs and a total command area of 650 acres. Upto 1982 about Rs. 27.37 lakhs had been allotted on these schemes.

The small irrigation schemes executed by the Block Development Offices but sanctioned by the Agriculture Department during 1978-80 had the total potentiality of irrigating about 800 acres and the total estimated cost was Rs. 8 lakhs. In addition, the Small Farmer's Development Agency came out with subsidy-cum-loan finance schemes for the development of irrigation facilities

in the hill areas of Darjeeling district. The schemes were executed only to benefit the marginal and small farmers with land-holding not exceeding 5 acres. There were three kinds of irrigation schemes executed by the Agency. These are as follows:

(i) Individual Irrigation Schemes with $33\frac{1}{3}$ per cent subsidy from the Agency, the balance being borne by the farmers using their own resources or by taking loan from banks,

(ii) Community Irrigation Schemes with 50 per cent subsidy from the Agency and the balance as subsidy from the State Government.

(iii) Irrigation Schemes under Rural Works programmes of the Agency, full cost being borne by the Agency.

Under these three schemes, upto February, 1975 about 5184 acres were brought under irrigation giving benefit to 3680 farmers.⁸ About 41 community small irrigation schemes were sanctioned with a total cost of Rs. 4 lakhs for which 40 per cent SFDA subsidy was of Rs. 2 lakhs during 1979-80. The small irrigation schemes executed by the Agency would benefit the marginal and small farmers immediately and would create conditions for multiple cropping and raise their income and living standard on a permanent basis. At the start of Fifth Five-Year Plan (1974-79) the target was to raise the area under irrigation from 24147 acres to 50,000 acres. But actually irrigated area had raised to 30,000 acres during the said period. As a consequence the percentage of

irrigated area to net cultivated area increased from 20.84 in 1974 to 22.39 in 1979, i.e., only by 1.55 per cent. In other words, it may be said that increase of irrigated area from 24147 acres in 1974 to 30,000 acres in 1979 enhanced the irrigation facilities in the hill areas of Darjeeling district very negligibly. This may be evident from Table 3.6 . In order to remove this poor picture about irrigation potentiality in the hill areas of Darjeeling district again during the Sixth Five-Year Plan (1980-85), a comprehensive and ambitious programme was undertaken for creating irrigation potential of about another 25,000 acres. With a view to realising this objective, the Sixth Five-Year Plan proposed an outlay of about Rs. 815.16 lakhs. Out of the total target of 25,000 acres, 10330 acres were brought under irrigation during the period from 1980 to 1983 and another 14,670 acres were carried between 1983 to 1985.

With this increase of irrigated area by 10,330 acres during 1980-83 the total irrigated area in the hill areas of Darjeeling district raised upto 40,330 acres during 1974-75 to 1982-83. But it is found that 96.93 per cent of the grossed cropped area in 1982-83 was still un-irrigated. Irrigation facilities have not increased at the desired pace in the hill areas of Darjeeling district and this has exercised a different impact on the development of agriculture. The performance made by the government in regard to creation of additional irrigation potential in the hill areas of Darjeeling district is far from satisfactory.

It can be concluded that irrigation remains, perhaps, one of the most limiting factors to the increase of agricultural production in the hill areas of Darjeeling district. Due to the rugged terrain and physical geography of the region, the possibility of bringing more areas under cultivation is limited. Therefore, the only way of increasing food production is to bring more and more areas under multiple cropping and to transform traditional agriculture in the region into modern agriculture by introducing high-yielding varieties of seeds, fertilizers and other improved agricultural practices. Assured water supply to the farmers at the proper time is a pre-condition for undertaking such a programme. As this programme is the only way to increase agricultural production and productivity, the extension of artificial irrigation will continue to be vital to the economy of the hill areas of Darjeeling district. But the scope of extending the areas under irrigation is limited in the hill areas due to the environmental factors.

Although attempts are being made by the government to provide irrigation facilities through the execution of minor irrigation schemes on subsidy basis, these are not sufficient in comparison to the requirement. Hence it may be advisable that the government should provide more subsidies for the execution of larger number of minor irrigation schemes. If the irrigation programmes keeping all other inputs as constant, the

production of foodgrains in the hill areas of Darjeeling district will increase in the near future.

3.2 Soil Conservation:

The erosion of soil has been an acute problem for a long time in most countries where agriculture is practiced. Its effects are particularly noticed in the areas where high rainfall intensities are experienced in short periods just after a dry spell and where the terrain is undulating. In West Bengal this problem has been particularly acute in the hill areas of Darjeeling district. The Eastern Himalayan Range is considered to be, in geological terms, of comparatively recent origin. The Darjeeling Range which runs along the length of the entire district is essentially unstable in nature. Three major landslides have occurred in the hill areas of Darjeeling district over the last three decades.⁹

Landslides prior to 1899 are almost unrecorded. Sir Joseph Hooker in 1854 during his journey in the lower Himalayas came across a number of slides. The most prominent effect of the steepness of the valleys, he wrote, is the prevalence of landslides which sometimes descend for 3,000 feet carrying devastation along their course ; they are much increased in violence and effect by the heavy timber trees which sway forwards, loosen the earth of their roots, and give impetus to the mass. Within the purview of recorded history, the first event of major landslides

occurred in and around Darjeeling Town due to heavy rainfall on the 24th and 25th of September, 1899, which destroyed many human and animal lives and property in the hill areas of Darjeeling district. The Enquiry Committee appointed by the Government of Bengal at that time was of the view that instability of the hill-sides gradually increased due to progressive absorption of moisture and the cutting of hill slopes both for natural and artificial needs.

Another major incident of landslides occurred in Darjeeling town in 1950 due to excessive rainfall. The areas affected in 1899 again suffered from these landslides of 1950 with an addition to other new areas. The Hill Cart Road, the Gandhi Road, the Jalapahar Road, the Lebong Cart Road, the Pradhan Bustee, i.e., Convent Road, the East Mal Road and the East Birch Hill Road were the most affected areas of the town. A. Mitra describes these landslides in the following words:

"In June 1950 there occurred the most devastating series of landslides ever throughout the district. Between the 11th and 13th June of that year there was a heavy spell of rain after weeks of dry weather. In three days the rain gauge recorded 32.21" of rain. This resulted in an unprecedented series of bad landslides particularly in the Sadar Sub-division, while hillsides with buildings, farms and trees came down and hundreds of people were rendered homeless. The loss of life reported from the

district was 127 out of which 100 was in the sadar sub-division, i.e., Darjeeling sub-division alone. The town was cut off for about 5 days and the Siliguri-Kalimpong Railway line was washed away. Large portions of the Kurseong-Darjeeling Railway track were washed away and the Darjeeling line was not relaid until late in 1951. The Siliguri-Kalimpong line was closed for ever as the hillside in that region was considered unsafe for railways.¹⁰

The hill areas of Darjeeling district were again affected with large-scale soil erosion owing to heavy and incessant rainfall between the 3rd and 5th October, 1968. The Central Team, which visited Darjeeling after the landslides in 1968 reported that about 20,000 acres of cultivated land and another 15,000 acres of land were affected by these landslides.¹¹ The period between 1969 and 1979 was relatively undisturbed. But due to heavy and continuous rain on the 27th August and the 3rd and 4th September, 1980, widespread landslides again occurred in and around the Darjeeling town. The extent of damage done by these landslides can be understood from Table 3.7.

Landslides as observed from the description above are an annual feature in the hill areas of Darjeeling district. These cause considerable damage to arable land and other properties. Remedial measures against erosion as well as for conservation of soil have therefore been considered to be of paramount importance.

And in order to check landslides various soil conservation measures have been undertaken in the hill areas of Darjeeling district. Soil conservation measures have received top priority under the Accelerated Hill Development Programmes. From Table 3.2 it appears that Rs. 1153.98 lakhs had been spent on soil conservation works during the period from 1974-75 to 1983-84. The year-wise expenditure incurred on various schemes increased from Rs. 24.01 lakhs in 1974-75 to Rs. 254.80 lakhs in 1983-84. The Sixth Five-Year Plan (1980-85) was designed to ensure proper measures against soil erosion and various schemes to achieve this objective were included in it. It was envisaged that an area of over 10,500 acres of land would be protected against soil erosion during the Sixth Five-Year Plan period.¹² The soil conservation schemes in the hill areas of Darjeeling district are executed by the three agencies namely, (i) the Forest Department, (ii) The Irrigation and Waterways Department and (iii) The Agriculture Department.¹³ The various soil conservation schemes executed by these three department are as follows:

(i) The Forest Department: There are two Forest Soil Conservation Divisions in the hill areas of Darjeeling district viz : (a) The Kurseong Soil Conservation Division and (b) the Kalimpong Soil Conservation Division. The Kurseong Division covers the entire Darjeeling and Kurseong sub-divisions and the Kalimpong Division covers only Kalimpong sub-division.

The Forest Department takes up soil and water conservation measures within the forest areas to minimise landslides, protect hill slopes and prevent flood damage in the hills as well as in the plains. Further, work is being done by the soil conservation divisions in afforesting denuded hill slopes. Apart from extending the natural green cover, it also leads to greater ecological control in the hill areas of Darjeeling district. The Tista River Valley Project has been undertaken by the Forest Department in 1977-78 under Central assistance, which covered an area of 930 acres of land. Similarly soil conservation work in the catchment areas of the Jaldhaka, Mahanadi, Balasan and little Rangit has been undertaken by the Forest Department. By and large, the Forest Soil Conservation Circle has covered about 15,000 acres of land within the forest and adjoining areas at the start of the Sixth Five Year Plan period (1980-85). From 1980 to 1984 another 4965 acres have been covered by the Department.¹⁴

In addition, the West Bengal Forest Development Corporation has undertaken soil conservation measures in the Dudhkhola and Lethi catchments and in the Randong, Rung Jung and Dalimkhola mini-watersheds. From 1980 to 1985 the Corporation has taken up sixteen soil conservation projects out of which seven schemes have already been completed and the work of the others is in progress.

(ii) The Irrigation and Waterways Department:

The Irrigation and Waterways Department has taken up flood control and soil conservation works in order to check river erosion

in the hill areas of Darjeeling district. The Department executed three soil conservation schemes between 1956 and 1972. But rapid progress in this regards was possible after 1972, when larger financial assistance was made available of the soil conservation schemes, Phase-I of the Singeemari and Hermitage projects have been completed and two-third of the landslide areas are covered by the scheme.¹⁵ The Department also provides individual soil conservation measures in agricultural and other lands outside the forest areas through light engineering works in the eroded areas. The Irrigation and Waterways Department has extended the soil conservation measures over an area of 1257.10 acres of land other than the forest areas in the Teesta and Jaladhaka catchments. About 22 schemes have been completed by the Department during the period from 1974-75 to 1980-81.

(iii) The Agriculture Department:

The Agriculture Department executes minor soil conservation projects through the Block Development Offices. Apart from combating soil erosion, these scheme will increase the acreage of arable land through bench terracing.

Besides the above executing agencies individual schemes on soil conservation have also been undertaken by the Block Development Offices in accordance with priorities accorded by the Panchayat bodies. About 56 such schemes have been executed in the hill areas of Darjeeling district, whereby protective

measures have been undertaken over 1390 acres of land.¹⁶ In addition, about 8000 acres have been protected from landslides through individual projects in affected micro and mini-watersheds and other places in the hill areas of Darjeeling district during 1980 and 1983.

In spite of various measures undertaken by different authorities, soil erosion and landslides are still the major problems in the hill areas of Darjeeling district. The major road arteries connecting the agricultural zones with the district headquarters viz: the Hill Cart Road, the Moneybhanjyang-Ramman Road, the Ghoom-Bijanbari Road, the Darjeeling-Kalimpong Road, the Kalimpong-Gangtok Road etc. are vulnerable to landslides on a recurring scale.¹⁷ It has been estimated that 50 per cent of the farmers are unsafe in Rangli-Rangliot, Mirik and Darjeeling-Phulbazar blocks. In Garubathan nearly 48.1 per cent of the farmers are living under the constant threat of landslides. Out of the total rural population in the hill areas of Darjeeling district (3,97250 persons according to 1981 census) nearly 2,17,507 persons, i.e., about 55 per cent live in the face of landslides. Table 3.8 is presented to understand this. From Table 3.8 it is evident that all the blocks in the hill areas of Darjeeling district are facing the danger of landslides. The percentage of population, vulnerable to landslides all over the block is 54.75.

Thus it is clear that although various measures have been undertaken by different governmental agencies in order to check landslides, the hill areas of Darjeeling district have not been free from the danger of soil erosion through landslides. Still the hill areas of Darjeeling district are facing the constant threat of landslides. This is due to the fact that soil conservation measures have not yet been undertaken intensively and extensively. Inadequacy of capital on the part of the Government, non-availability of easy credit facilities, time lag between cash outlay for soil conservation measures and returns on the part of individual enterprise stand in the way of executing soil conservation measures. However, to remove the danger of soil erosion originating from landslides in the hill areas of Darjeeling district requires more stress.

3.3 Agricultural Marketing:

Agricultural marketing is as important as agricultural production. It is by far an established fact that all the efforts towards increasing the production of agriculture will not be sustained unless increasing production brings an increasing income to the farmers. This will be possible only by increasing marketing efficiency. Hence marketing efficiency means such a condition of market where farmers are not bound to sell their produce at the price dictated by the traders of agricultural commodities and the traders are not able to reap excessively high margin of profit.

3.3.1 Nature of Agricultural Marketing in the Hill Areas of Darjeeling District:

(a) Channels of Marketing the Major Agricultural Commodities:

Although a number of crops are grown in the hill areas of Darjeeling district, paddy, maize, Potato, Cardamom, Ginger and Millet are the main in the crop profile of the area. The channels of marketing of these crops are conveyed in Table 3.9. From Table 3.9 it is evident that the farmers in the hill areas of Darjeeling district sell their produce to farias, locally called kayahs. The farias or kayahs on the other hand sell the products to wholesalers in the secondary markets, situated in the urban areas like Siliguri etc.

(b) Location of Sale by the Farmers:

From Table 3.10 it is evident that in the hill areas of Darjeeling district farmers sell their produce in their own village at farm gate or in other words at the farm level and at primary markets locally called hats or shanties as well as at secondary markets situated in urban areas. Again, it is noticed from Table 3.10 that the volume of sale is significantly higher at the farm level in the farmers' own village than at the primary as well as secondary markets.

(c) Time of Sale of the Produce by the Farmers:

Among the pre-harvest, harvest and post harvest periods, the volume of sale of agricultural output by the farmers in the

hill areas of Darjeeling district is very much negligible in the post harvest period. All the farmers except some big farmers in this areas almost sell their entire output in the pre-harvest and harvest periods. Hence it is mentionable that the said fact is not only true for the agricultural products but it is also equally true for the main horticultural crop of the area, namely, orange. Pre-harvest sale is prevalent in the case of orange. The buyer first examines the garden for estimating the out-turn and on the basis of the expected market price, he offers the pre-harvest price. After the agreement, the buyer pays a part of the agreed amount as advance to the producer and the balance is paid later. The buyer arranges plucking, transporting, grading, packing etc. of the produce.¹⁸

(d) Method of Price Formation:

In the hill areas of Darjeeling district, irrespective of locations and times of sale, farmers sell the commodities to farias or kayahs at the price dictated by them. In fixing the price of any agricultural commodity farmers can not play any role. They are in a very much disadvantageous position in terms of their bargaining power with the farias. In fact, they have no bargaining power and it is because of this reason that they sell their produce at the price dictated by the farias. Farias or kayahs are the price-makers in the hill areas of Darjeeling district, whereas the farmers are only price-takers.¹⁹

(e) Farmer's Share in the Price Received by the Farias from the Wholesalers and the Profit Margin of Farias:

Farias or kayahs, the price-maker of agricultural commodities in the hill areas of Darjeeling district set price at the time of purchasing commodities from the farmers in such a manner that they can reap excessively high margin of profit. Accordingly, they offer a very much lower level of price to the farmers than that received by them from the wholesalers in the secondary market. Since the farmers are nothing but the price-taker in the hill areas of Darjeeling district, they sell their output to the farias, at that lower level of price dictated by the farias or kayahs. As a consequence, farmers' share in farias' price is very much low and faria's profit is excessively high. This may be evident from the Table 3.11. From Table 3.11 it is noticed that the percentage of farm-level price of different commodities, to the price (net of marketing cost) received by farias or kayahs from the wholesalers at Siliguri town is not above 25 in case of all the commodities noted in Table 3.11 except Ginger. The farm level price of it is 50 per cent of the price (net of marketing cost) received by farias from the wholesalers. Accordingly, the percentage of farias' profit margin to the price (net of marketing cost) received by them from the wholesalers is not below 75 in case of all the commodities noted in Table 3.11 except Ginger. Thus from the evidence cited in Table 3.11 it may be guessed that

the general tendency of farias or kayahs in the hill areas of Darjeeling district is to keep at least 75 per cent of the price (net of marketing cost) received by them from the wholesalers as the profit in their hands. From this it follows that farias or kayahs generally try to keep extremely large part of the price (net of marketing cost), received by them from the wholesalers as profit and offer a negligible part of the said price to the farmers in the hill areas of Darjeeling district. And farias or kayahs in the hill areas of Darjeeling district can successfully do so as they are price makers and farmers are only price-takers. So farm level price in this areas as a share of farias or kayahs' price (net of marketing cost) is very much low and farias' or kayahs' profit as a share of price (net of marketing cost), received by them from the wholesalers is extremely large in the hill areas of Darjeeling district. Or simply in other words it may be stated that in the hill areas of Darjeeling district farmers receive a very much lower price than the price received by farias or kayahs from the wholesales and generally its inevitable consequence is the accrual of extremely large margin of profit in the hands of farias or kayahs.

From the foregoing discussion about the nature of markets of major agricultural commodities produced in the hill areas of Darjeeling district it may be stated in brief that markets of agricultural commodities in this areas are indeed functionally

inefficient in generating better and remunerative prices and thereby increasing levels of income in the hands of the farmers. The factors responsible for inefficient functioning of agricultural marketing are as follows:

3.3.2 Main Factors Responsible for Inefficient Functioning of Markets of Agricultural Commodities in the Hill Areas of Darjeeling District:

(a) Lack of Transport Facilities:

In the three hill sub-divisions, the principal mode of transport is by road. There are very few notable village link roads. Due to this the farmers have to bring their produce from their farms to the assembling markets (locally called hats, i.e., weekly bazars) by walking long distances either by head-load or pony-load, which may be cleared from Table 3.12. This type of transportation is very much hazardous and costly. Farmers in the hill areas of Darjeeling district lack geographical mobility. They can not enjoy the benefits of higher prices prevailing in the primary assembling markets or hats and also that of secondary markets. Thus the absence of motorable roads compels the farmers in this area to sell their produce at the farm level in their own villages at a very low prices dictated by the Farias or Kayahs.²⁰

(b) Lack of Storage Facility:

There is absence of adequate storage facilities in the rural areas of the hill areas of Darjeeling district. The farmers, due to this fact, are compelled to sell their produce immediately

after harvest at the prevailing prices which are bound to be low. Such distress sale of farm products deprives the farmers of their legitimate incomes from higher prices. Further, farmers are compelled to store food grains and other products in impoverished substandard godowns which leads to deterioration of these commodities owing to dampness etc. often leading to complete wastage.

The godowns are mainly concentrated in the secondary markets and these are being utilised by the traders. Further, the godowns do not provide scientific storage facilities due to which the perishable goods can not be stored for a longer period. At the farm level, sometimes the big farmers store food grains in "gola" made of bamboo. The marginal and small farmers have no storage facilities and they are forced to sell the products immediately after the harvest. Cold storage which is very essential for perishable goods is virtually absent in the hill areas and also in the district as a whole. However, some storage facilities are available in Siliguri town, but the town is quite away from the majority of the hill areas.

(c) Lack of Finance Among the Farmers:

Almost all the farmers in the hill areas of Darjeeling district except a few medium and large farmers very often suffer from the scarcity of capital. With a view to performing agricultural operations and meeting up of consumption requirements in the pre-harvest period they depend on the supply of credit.

And the major source of credit in this area is farias or kayah. They give loans to the farmers for a very short period. In exchange of the loans given by the farias or kayahs, the farmers on the one hand are to pay exorbitantly high rate of interest and on the other are to sell almost their entire crop obligatorily immediately after the harvest to the farias or kayahs, at pre-agreed price, which is fixed by the farias or kayahs at a very lower level than that prevailing in the primary and secondary markets at the harvest period. Thus due to the scarcity of capital or lack of financial ability, the farmers in this area are compelled to sell their produce in advance and receive a very much lower price than that prevailing in the markets. Again owing to the financial disability vis-a-vis dependence on farias or kayahs, farmers are not able to store their crop for reaping the benefits of post harvest price rise. They are to sell almost their entire crops at a very lower price, dictated by the farias or kayahs immediately after the harvest to repay their loans to farias and to meet up the immediate cash needs.²¹

Thus from the above discussion it is evident that the major problems of the agricultural marketing in the hill areas of Darjeeling district are inadequate road transport linkages, lack of proper storing facilities and lack of finance. Due to these factors the markets of various agricultural commodities in this areas are functioning inefficiently. The trade and marketing in the rural areas relating to various agricultural commodities are

mainly controlled by the farias or kayahs. And as a consequence the farmers in this areas do not get remunerative prices for their produce.

3.3.3 Measures to Improve Efficiency of Marketing of Agricultural Commodities in the Hill Areas of Darjeeling District since Independence;

(a) Measures to Improve Co-operative Credit Structure;

In order to remove the dependence of the farmers in the hill areas of Darjeeling district for fund on the farias and kayahs a co-operative credit structure was set up in the year 1906 before independence. Since this year village primary co-operative credit societies were begun to be formed to supply loans to the farmers in this areas.²² And again in this period in order to co-ordinate the activities of rural co-operative credit societies and to finance them, the Kalimpong Central Co-operative Bank was set up in 1911 for societies in Kalimpong sub-division and the Darjeeling Central Co-operative Bank in 1914 for societies in the Darjeeling (Sadar) and Kurseong sub-division. In 1919, the Pedong Central Co-operative Bank came into being at Pedong in Kalimpong sub-division and it took over some of the work of the Kalimpong Central Co-operative Bank in the interest of efficiency.²³ Although the Government of that time tried to help the farmers by the setting up of the co-operative credit structure the Government's effort to do this had not been successful. Co-operative credit was supplied without due care with the result

that thriftlessness of the farmers was encouraged and a new burden on them was added to that of the private creditor. Co-operative credit loans were granted in a boom period and when the slump came recovery was attempted ineptly whereas private lenders were far more successful. They were more accommodating than Co-operative banks and a better judge of paying capacity. Again, they met the needs of the creditors better by supplying goods in their own shops and gave loans at the time when the farmers were urgently needed at exorbitant rate of interest and not to the extent demanded. In fact the borrowers found the private lender a real help in need.²⁴

After independence in order to make the efforts of helping the farmers in the hill areas of Darjeeling district through the supply of loans by the co-operative credit structure successful and to place co-operative credit structure on a strong base the following policies were materialised during the periods of First and Second Five-Year Plans i.e. during 1951-1961:

(i) During the First Five-Year Plan period (1951-1956) attention was paid to raise the number of village Primary Co-operative Credit Societies along with the number of their total membership and to pursue the policy of short-term finance for seasonal agricultural operations. But during this plan period no appreciable change took place in the sphere of increasing the number of village Primary Co-operative Credit Societies and

their members except in pursuing the policy of short-term finance for seasonal agricultural operations. The number of village Primary Co-operative Credit Societies rose to 238 with membership of 8,495 in 1956 while that was 223 with a total membership of 5,939 at the beginning of First Five-Year Plan period.²⁵

(ii) During the Second Five-Year Plan period (1956-1961) greater emphasis was given to strengthen the co-operative credit structure by formulating a number of schemes. An important step in this regard was to strengthen the financial structure of the village societies by organising large-sized credit societies. Five such societies were organised in the hill areas of Darjeeling district during this plan period.²⁶

Under the state government's scheme of re-organisation of Central Co-operative banks for supplying larger volume of credit to the farmers, the above mentioned three Central Co-operative banks of this area were amalgamated in 1959 in to one district level bank under the name of Darjeeling district Central Co-operative Bank Ltd. with jurisdiction over the whole district except Siliguri Sub-division which was looked after by the Jalpaiguri District Central Co-operative Bank Ltd. till 1st May, 1970. After the establishment of the Darjeeling Central Co-operative Bank Ltd. the volume of loan disbursed to the farmers in the hill areas rose to a great extent. This bank issued crop loans during 1964-65 amounting to Rs. 3,56400.00 as against Rs. 94,000.00

during 1959-60, i.e., immediately after amalgamation. Thus the district bank has been able to relieve a considerable number of farmers from the clutches of exploiting money-lenders namely, farias/kayahs/mahajans.²⁷

But the study team set up by the Reserve Bank of India in the beginning of the Fourth Five-Year Plan period, (1969-74), estimating the demand for short-term and medium-term credit from the part of farmers in the hill areas of Darjeeling district reported that there existed a wide gap between demand for and supply of credit. Considering such a situation, the said team proposed that a major portion of the credit gap both in short-term and medium-term loans would to be met by the Darjeeling District Central Co-operative Bank. Accordingly during the Fifth Five-Year Plan period (1974-1979), the Darjeeling District Central Co-operative Bank Ltd. proposed to meet at least 80% of the total requirement of the short-term and medium-term credit in the hill areas as well as plain areas of the district. With a view to executing the said proposal Darjeeling District Central Co-operative Bank Ltd. had been taken up for revitalisation since 1970-71.²⁸

The position of overdues as on 15.09.1972 was 50 per cent. The bank was therefore primarily expected to scale down its overdues below 40 per cent within 1972-73 under the revitalisation programme. Besides, under this programme, the bank was assisted with (a) State share capital contribution of Rs. 3 lakhs, (b) Loan

of Rs. 3 lakhs and (c) Special bad debt reserve fund of Rs. 2 lakhs. In order to fulfil its target of investment of Rs. 10 million at the end of Fifth Five Year plan period (1974 — 1979), the bank required adequate owned funds to increase its borrowing power. The bank had an accumulated loss of Rs. 4 lakhs and estimated bad debts amounting to Rs. 5.27 lakhs (Principal Rs. 2.66 lakhs and interest Rs. 2.61 lakhs) as per survey report of the study team. For this, the study team of the Reserve Bank of India on agricultural credit again recommended for further State share capital contribution of Rs. 10 lakhs and sanctioned special bad debt reserve of Rs. 2.39 lakhs. Thus a remarkably higher level of financial assistance, which is displayed in Table 3.13 was provided to Darjeeling District Central Co-operative Bank Ltd. during Fifth Five-Year Plan period to strengthen its financial position and borrowing power. Again during this plan period for ensuring a better coverage, mobilising rural deposits, for better supervision of the Primary Agricultural Co-operative Credit Societies and for quickest disposal of loan applications the Darjeeling District Central Co-operative Bank Ltd. opened five branch offices at Kurseong and Garubathan, Pedong, Bijanbari and Rimbick for the hill areas and one at Siliguri for the plain areas of the district. For making these six branches viable, at the initial stage managerial assistance on a tapering scale was provided to Darjeeling District Central Co-operative Bank Ltd. during the Fifth Five-Year Plan period.²⁹

Besides the revitalisation of the Darjeeling District Central Co-operative Bank Ltd., a programme for re-organisation and revitalisation of the village level Primary Agricultural Co-operative credit societies was undertaken since the beginning of the Fourth Five-Year Plan period (1969-1974) under the viability scheme. Out of 238 societies in the hill areas of Darjeeling district only 75 societies were found to be viable/potentially viable. These 75 viable/potentially viable societies were assisted through state share capital contribution of Rs. 10,000.00 each

during the Five-Year Plan period (1974-1979). In addition to share capital contribution, for their better function these viable/potentially viable societies were assisted with managerial subsidy during the Fifth Five-Year Plan period for maintaining a full time manager in each of these societies.

There was no primary Co-operative land mortgage bank in the Darjeeling district. A branch of the West Bengal Co-operative Land Mortgage Bank Ltd. was opened in December, 1969 at Darjeeling with its area of operation within three hill subdivisions of the district for supplying long-term credit to the farmers. Siliguri sub-division was also included in its area of operation with effect from September, 1971. The branch of this bank proposed to invest Rs. 20 lakhs and Rs. 120 lakhs during the Fourth and Fifth Five-Year Plan periods respectively, in the three hill sub-divisions of Darjeeling district.³⁰

The discussion made in the above paragraphs about the measures to improve co-operative credit structure along with its performance in the hill areas of Darjeeling district since independence may be presented in a summarised form with the aid of Table 3.14.

The measures, discussed above and presented in summarized form in Table 3.14 for the development of co-operative credit structure in the hill areas of Darjeeling district had the following momentary impact. The investment potentiality of this credit structure had increased enormously. For this, on the one hand till the end of Fifth Five-Year Plan period (1974-1979) the number of members benefited under Primary Agricultural Co-operative Credit Societies rose to 21,131 under 75 viable/potentially viable societies from 8,495 under 238 societies in 1955-56, i.e., at the end of First Five-Year Plan period (1951-56), on the other hand the Darjeeling District Central Co-operative Bank Ltd. in collaboration with the primary agricultural co-operative credit societies could raise the volume of supply of short and medium term credits to the farmers to the extent of Rs. 22.82 lakhs till April, 1976 as against 4.5 lakhs during 1964-65. And again the farmers in the hill areas of Darjeeling district had been able to have voluminous amount of long term credit since the time of opening of Darjeeling branch of West Bengal Co-operative Land Mortgage Bank Ltd. The extent of such credit was of Rs. 60 lakhs during 1969-1979, i.e., during Fourth and Fifth Five-Year Plan periods.³¹

From the above discussion about the impact of the measures undertaken to develop the co-operative credit structure in the hill areas of Darjeeling district, it may be conceived that the co-operative credit structure so developed till the end of the Fifth Five-Year Plan period, i.e., till 1979 has been capable of wiping out the influence of faria/kayah/mahajans as money lender on the farmers of this areas. And thus the dependence of the farmers on the private money lender has been removed completely. But in this respect often a completely reverse picture is observed. In spite of enormous increase in the investment potentiality of the co-operative credit structure and disbursement of voluminous amount of short-term, medium-term loan and long-term loans to the farmers in the hill areas of Darjeeling district, by it, farmers are observed heavily indebted to the faria/kayah/mahajans. The Table 3.15 may help to understand such dismal situation. From Table 3.15 it is observed that notwithstanding the development of co-operative credit structure in the hill areas of Darjeeling district, above 68 per cent of the loans are taken by the farmers from non-institutional sources namely, village money lenders-cum-shop-keepers, friends, relatives and others sources. It is also observed from Table 3.15 that the source namely unlicensed village money lender-cum-shop-keeper, i.e., faria/kayah/mahajan among all the agencies under institutional and non-institutional sources of supplying credit stand on the most top position in terms of its percentage share in the total amount of loans disbursed to the farmers by various agencies under both categories

of sources. So it may be said from this that although co-operative credit structure in the hill areas of Darjeeling district has developed remarkably since independence due to the execution of various measures discussed above, it has not been able to place itself at the position of principal source of supplying credit to the farmers. Farias/kayahs/mahajans, i.e., unlicensed village money-lender-cum-shop-keepers till now are the principal source of supplying credit. And that is why till the end of the Sixth Five-Year Plan period (1980-85), farmers in the hill areas of Darjeeling district are observed to be highly indebted to the village money lender, i.e., faria/kayah/mahajan.

The failure of co-operative credit structure to place itself at the position of principal source of supplying credit to the farmers and to wipe out the influence of faria/kayah/mahajan on the farmers in the hill areas of Darjeeling district is due to the following economic and non-economic factors.³²

(i) Economic Factors:

(a) Supply of credit by the co-operative credit institutions without any linkage with marketing of agricultural produce except some few cases of primary agricultural co-operative credit societies as stated earlier and the lack of proper supervision on the utilization of loans are the important reasons for the failure of co-operative credit institutions in this areas.

(b) The soundness of the co-operative credit structure, to a large extent, depends on the prompt recovery of loans. But the co-operative credit institutions in the hill areas of Darjeeling district have been suffering from slackness in recovery of loans resulting in chronic mounting overdues, which leads to the very much slow progress of this credit structure as it shrinks the fund for disposal of loans.

(ii) Non-Economic Factors:

(a) Most of the farmers in the hill areas of Darjeeling district are unconscious about the programmes provided by the co-operatives around them. Lack of proper initiative and motivation on the part of the farmers due to their unconsciousness are the important factor responsible for retarding the desired rate of achievement of co-operative credit institutions.

(b) Most of the primary agricultural co-operative credit societies are functioning under the guidance of political leaders, who always try to satisfy their narrow political interests. And accordingly they canalize the financial resources of the societies. As a result the financial resources are not utilized properly to reap the full economic benefits.

(c) The need to issue credit urgently in time without any delay is one of the fundamentals of a sound system of credit and it is one of the main objectives of the co-operative credit institutions. But a common complain about the co-operative credit institutions of this area is that they do not disburse loan in

time. There remains oftenly a wide time lag between the time of praying loan and its disbursement. Such delay of disbursement of loans hinders the borrowers to use them properly and for this reason the farmers in the hill areas of Darjeeling district are still highly dependent on the private money lenders.

Despite the existence of the economic and non-economic factors resulting in weak functioning of the co-operative credit structure, it does considerable service to the farmers in the hill areas of Darjeeling district by providing credit. So, basically in order to continue the service already reduced by this credit structure and secondarily to enhance the said service in the hill areas of Darjeeling district financial assistance similar to that of the Fourth and Fifth Five-Year Plan periods (1969-74 & 1974-1979) was proposed to be undertaken as and when necessary during Sixth Five-Year Plan period (1980-85).³³

(b) Setting up and Development of Agricultural Co-operative Marketing Societies:

From the above discussion it is observed that provision of financial assistance to the farmers in the hill areas of Darjeeling district through the co-operative institutions started before independence since the very beginning of twentieth century. But assistance to the farmers through marketing of agricultural produce with the formation of agricultural co-operative marketing societies and thereby yielding remunerative prices in their hands

were completely absent in this areas before independence. It was after independence during the Second Five-Year Plan period (1956-61) that such societies were begun to be organised in this areas for the first time, with a view to rescuing the farmers from total dependence on the farias/kayahs/mahajans for the marketing of agricultural produce.³⁴

During second and subsequent plan periods the following measures were undertaken to set up and develop a channel of marketing of agricultural produce in the hill areas of Darjeeling district through co-operative societies:

(i) During the Second Five-Year Plan (1956-1961) period fourteen Primary Small-sized Agricultural Co-operative Marketing Societies were organised.³⁵

(ii) During Third and Fourth Five-Year Plan periods (1961-66 & 1969-1974) five primary large-sized agricultural co-operative marketing societies were set up in order to render the benefits of marketing of agricultural produce through co-operative societies, in the hand of large number of farmers of the hill areas of Darjeeling district.³⁶

(iii) During the Fifth Five-Year Plan period (1974-79) a District level marketing federation of primary large-sized marketing societies was set up in order to strengthen financial base of the co-operative marketing societies and to tackle effectively the problem of marketing of main cash crops of the

hill and plain areas of Darjeeling district.³⁷ Besides setting up of the district-level marketing federation, a number of financial assistances were provided to the primary small and large-sized agricultural co-operative marketing societies by the state and central governments for strengthening their financial base.³⁸ Table 3.16 is presented to show the nature of financial assistances made to primary small and large sized agricultural co-operative marketing societies in the hill areas of Darjeeling district.

(iv) Viable/potentially viable primary agricultural co-operative credit societies as the allied institutions of agricultural co-operative marketing societies were also assigned to perform marketing of agricultural produce during the Fifth Five-Year Plan period (1974-1979). For this purpose and for others like distribution of fertilizers, inputs, consumers article etc. all these societies were assisted with the grant of working capital loan of Rs. 8.40 lakhs.³⁹

As a consequence of adopting measures discussed above, fruits of marketing of agricultural produce through agricultural co-operative marketing and allied societies have reached in the hands of a number of farmers in the hill areas of Darjeeling district. A number of farmers has been able to free them from the dependence on farias/kayahs/mahajans in marketing agricultural produce and to get higher prices than those given by farias/kayahs/mahajans. And again, this number has been increasing over the years which may be understood from Table 3.17. From Table

3.17 it appears that the total volume of various agricultural commodities handled by these societies has been increasing over the years during 1974-79. The acceptable explanation of this may be that a greater number of farmers in each year since 1974 has been receiving the facilities of selling their produce to agricultural co-operative marketing and allied societies. Therefore, it may be stated that the setting up and development of agricultural co-operative marketing societies in the hill areas of Darjeeling district has led to such a situation that a large number of farmers in each year has been able to escape them from the dependence on Faria/Kayah/Mahajan in selling their produce and to get higher prices than those offered to them by Faria/Kayah/Mahajan.

Though the number of farmers getting help from the agricultural co-operative marketing societies in marketing their produce has been increasing over years till it is very much negligible as a percentage of the total number of farmers in the hill areas of Darjeeling district. Defacto the agricultural co-operative marketing societies even today have not been able to diffuse their merits among a significantly large number of farmers throughout the entire hill areas of Darjeeling district. Their performance has not arrived at the desired level and for this farias/kayahs/mahajans play a dominant role in marketing agricultural produce till today.⁴⁰

The lag between anticipated and actual performances of the agricultural co-operative marketing societies in the hill areas of Darjeeling district is mainly due to following factors:

(i) Lack of adequate financial ability hinders the societies to handle commodities in larger volumes at a time and to make a larger number of farmers benefited.

(ii) Provision of marketing service without rendering credit services creates disinterests among the farmers to sell their produce to the agricultural co-operative marketing societies. As a result, farmers do not want to spoil the amity with the traditional source of credit, namely, farias/kayahs/mahajans who are always ready to satisfy urgent need of the farmers.

(iii) The agricultural co-operative marketing societies to some extent are observed to be controlled by local big producers and some traders, i.e., farias/kayahs/mahajans who always try to keep these institutions abstained from spreading their marketing services among the marginal and small farmers in the hill areas of Darjeeling district.

Nonetheless, it is true that the agricultural co-operative marketing societies so developed till the end of the Fifth Five-Year Plan period are able to give opportunity to a number of farmers in receiving better prices than those offered by the farias/kayahs/mahajans in each year despite the existence of contrariety originating from the above factors. And in order to

enhance the effectiveness of these societies by reducing the **contrariety** arisen especially from the factors, namely, lack of finance confronted by them the following three measures were proposed to be continued during the Sixth Five-Year Plan period:

(i) State share capital contribution to the large-sized primary agricultural co-operative marketing societies,

(ii) Working capital loan to the large-sized agricultural co-operative marketing societies,

(iii) Grant of truck purchase loan to large-sized primary agricultural co-operative marketing societies.⁴¹

(c) Development of Storage and Other Market Infrastructures:

It is an established fact that efficient functioning of marketing of agricultural commodities is not only related to the development of co-operative credit and marketing structures but also it requires the development of storage and other market infrastructures related to market yard, transportation, etc. Before independence no steps were observed to be taken in developing storage and other market infrastructures in the hill areas of Darjeeling district. After a long duration since independence, a number of measures were undertaken in developing storage and other market infrastructures in this area. Categorically speaking, emphasis was given in this regard since the establishment of the Accelerated Hill Development Council at the start of the Fifth Five-Year Plan in 1974. The Accelerated Hill Development Council,

under the Accelerated Hill Development Programme implemented the following schemes during the Fifth Five-Year Plan period:

- (i) Construction of godowns in the rural areas,
- (ii) Construction of marketing sheds,
- (iii) Supply of piped water and sanitation facilities in the markets/hats.⁴²

Of the above three schemes the first one was executed through the primary agricultural co-operative credit societies and the other two were implemented through the Agricultural Marketing Department, Darjeeling district. During the Fifth Five-Year Plan period (1974-1979) twenty godowns in different rural areas were constructed through primary agricultural co-operative societies at the cost of Rs. 9.68 lakhs. At the same time marketing sheds for market yard development were constructed along with the supply of piped water and sanitation facilities in a few markets/hats in the Darjeeling (Sadar) and Kalimpong sub-divisions. For this purpose Rs. 11.13 lakhs was spent during this period.⁴³ For widening the storage facilities and for diffusing the infrastructural development in the remaining markets in which no steps in developing infrastructures were possible to be undertaken during the Fifth Five-Year Plan period (1974-1979), the above schemes were continued during the Sixth Five-Year Plan period (1980-85). Within the years, 1980-1984, during the Sixth Five-Year Plan period in order to extend storage facilities for non-perishable

agricultural commodities five more godowns were constructed in the rural areas under the supervision of agricultural co-operative marketing societies at the cost of Rs. 2.25 lakhs. During these years for providing storage facilities relating to perishable agricultural commodities two cold stores were constructed in the hill areas of Darjeeling district at the cost of Rs. 10.00 lakhs under the supervision of the Agricultural Marketing Department. For developing infrastructures of the above types in the markets where these were still absent, the amount of Rs. 13.03 lakhs was spent during 1980-84. Again during these years within the Sixth Five-Year Plan period (1980-85) the Agricultural Marketing Department was given a grant of Rs. 6.00 lakhs to purchase trucks for reducing costs and hazards, borne by the farmers in this areas in transporting agricultural produce from the villages to the markets/hats. Duely the Department purchased a few trucks to transport farmers' produce from farms in the villages to markets/hats.⁴⁴

Table 3.18 is presented for a clear understanding of the above discussion about the schemes undertaken by the Accelerated Hill Development Council for developing storage facilities and other market infrastructures in the hill areas of Darjeeling district, during 1974-1984 within the range of Fifth and Sixth Five-Year Plan periods (1974-1979 & 1980-85).

In spite of undertaking and executing various schemes for developing storage facilities and other market infrastructures the problem of inefficient functioning of markets of agricultural produce in the Hill Areas of Darjeeling district, originating due to the absence of storage and other infrastructural facilities is solved negligibly. The storage facilities, which has originated in these areas with the construction of twenty-five rural godowns for non-perishable agricultural commodities and two cold stores for perishable agricultural commodities are very much inadequate in relation to the demand of these facilities. A very much negligible percentage of total production of both types of agricultural commodities can be stored with the capacity of these godowns and cold stores. Again, whatever be the capacity, these stores are mainly used for the preservation of agricultural commodities purchased by the agricultural co-operative marketing societies as these societies have no separate stores for preserving the commodities traded by them. So, these stores are principally used by the agricultural co-operative marketing societies and to a very minimum extent by the farmers. Besides, these godowns and cold stores are concentrated in the rural areas, adjacent to the urban centres. For this, the farmers of the hinterlands cannot seize the opportunity to store their produce in these godowns and cold stores, whatever be the extent of storing facilities provided to them. Thus, the inadequacy of the storing capacity of the godowns and cold stores constructed so far, the use of these mainly by the agricultural co-operative marketing societies

and concentration of these in the rural areas adjacent to urban centres are keeping away most of the farmers irrespective of categories from having the storing facilities, brought forth with the construction of twenty five rural godowns and two cold stores in the hill areas of Darjeeling district. As a consequence, sale of agricultural products at a very much lower price immediately after the harvest, by the farmers partly due to the scarcity of storage facilities is still now a widely practised phenomenon in the hill areas of Darjeeling district.

Although Rs. 24.16 lakhs have been spent on market yard development **through** the construction of marketing sheds and the supply of piped water along with sanitation facility during 1974-1980 under the Accelerated Hill Department Programme, in the markets/hats of Rangli-Rangliot, Garubathan, Kurseong and Mirik blocks, the said type of developmental scheme has not been executed during that period of time. The number of these markets/hats in percentage term is 41.38 and perhaps the non-implementation of the market yard developmental scheme may be due to lack of fund. However, the market yards of the markets/hats for which the market yard development scheme has not yet been carried out are in deteriorating condition at its highest level. For this, the farmers surrounding these markets/hats, even including those having ability to sell their produce in the markets/hats are compelled to sell at farm-level at a very much lower price to the farias/kayahs/mahajans especially in the rainy season for avoiding

the loss of quality and quantity arising due to rainfall.

The number of trucks which were purchased with the grant of Rs. 6.00 lakhs for rendering transport services to the farmers at a reasonably low cost is highly insufficient relative to the needs. This type of service is a rare incident to the farmers in the hinterlands. Because the number of trucks is so small it has only become possible to deliver the transport services at a reasonably low cost to the farmers residing in the rural areas nearer to urban centres and markets/hats. An extremely large number of farmers of the vast rural areas are out of the reach of this service. So, despite the expenditure made on supplying transport services to the farmers at a reasonably low cost by purchasing trucks, farmers of a vast rural areas distant from urban centres and markets/hats are still compelled to sell their produce to the farias/kayahs/mahajans at the farm level in their own villages at a very much lower prices than those prevailing in the markets/hats.

Thus finally it is observed that though expenditure has been accomplished in developing storage and other market infra-structural facilities for removing inefficient functioning of markets for agricultural commodities arising out of the infra-structural bottlenecks relating to agricultural markets in the hill areas of Darjeeling district inefficiency due to the said bottlenecks still remains to a great extent. This is due to the

fact that the development in respect of storage and other market infrastructural facilities has not been accomplished upto that level which is needed to reduce inefficiency of the agricultural markets critically in the hill areas of Darjeeling district. The lag between actual level and desired level of development in the said context is again owing to the lack of adequate funds for investment. This is again due to the fact that planners have given less importance to the development of storage and other market infrastructures and thereby to the development of an efficient market of agricultural commodities. Table 3.2 may clear this. From Table 3.2 it is evident that the Annual Plans prepared by the Accelerated Hill Development Council for the years between 1974 and 1984 within the range of the Fifth and Sixth Five-Year Plan periods (1974-79, 1980-85) show a marked ill-balanced allocation of investible funds for the head 'Marketing' as compared to other heads of development out of total allocation of Rs. 2645.00 lakhs for the development of agriculture, the marketing head is observed to receive only Rs. 52.09 lakhs (i.e., 1.97%).

So, in a few words, with the expenditure on developing storage and other market infrastructural facilities markets for agricultural commodities in the hill areas of Darjeeling district, the facilities are observed to function inefficiently to a great extent. This is due to the lag between actual level and

required level of development in the context of developing storage and other infrastructural facilities, which again is caused by the lack of funds for investment in respect of market development. This is again due to the fact that planners of the Accelerated Hill Development Council have given less importance on the marketing head compared to other heads in allocating investible funds for the development of agriculture in the hill areas of Darjeeling district.

Table - 3.1

Year-wise Total Estimated Plan Outlays and Share of Agricultural Outlays to Total Outlays in the Hill Areas of Darjeeling District (Rs. in lakhs)

Year	Total Plan Outlay	Total Outlay in Agriculture	Percentage of Agriculture to Total Outlay
1974-75	426.00	91.18	21.40
1975-76	845.10	206.40	24.34
1976-77	842.15	198.72	23.59
1977-78	1284.85	201.93	15.71
1978-79	1782.10	220.78	12.38
1979-80	1756.94	324.40	12.77
1980-81	1260.70	245.20	19.44
1981-82	1676.47	371.38	22.15
1982-83	1773.13	443.17	27.49
1983-84	2231.74	667.49	29.90
Total	13879.18	2970.65	21.40

Sources: (i) Government of West Bengal, Integrated Annual Plan 1975-76 For Darjeeling Hill Areas (Calcutta and Darjeeling Development and Planning Department, Hill Affairs Branch, April, 1975).

(ii) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85; Mid-Term Review and Annual Plans 1983-84 & 1984-85, Volume II.

(iii) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-81 (Darjeeling Development Planning Department, Hill Affairs Branch).

Table - 3.2

Actual Expenditures Incurred on the Development of Different Agricultural Schemes
During 1974-75 to 1983-84 in the Hill Areas of Darjeeling District (Rs. in lakhs)

Year	Amount Spent on Different Agricultural Schemes					Total Amount
	Crop Husbandry	Horticulture	Irrigation	Soil Conservation	Marketing	
1974-75	56.79 (46.42)	11.94 (9.76)	17.78 (14.53)	24.01 (19.62)	11.83 (9.67)	122.35 (100.00)
1975-76	59.67 (37.63)	15.69 (9.89)	45.58 (28.74)	34.67 (21.86)	2.98 (1.88)	158.59 (100.00)
1976-77	48.55 (26.86)	9.98 (5.52)	41.19 (22.79)	78.02 (43.17)	3.00 (1.67)	180.74 (100.00)
1977-78	58.58 (33.10)	14.54 (8.21)	32.82 (18.55)	68.03 (38.44)	3.00 (1.70)	176.97 (100.00)
1978-79	61.92 (34.80)	10.64 (5.98)	32.82 (18.45)	72.55 (40.77)	-	177.93 (100.00)
1979-80	133.19 (40.41)	21.49 (6.51)	27.72 (8.40)	147.25 (44.68)	-	329.60 (100.00)
1980-81	61.28 (21.96)	13.47 (4.81)	67.65 (24.24)	137.11 (48.96)	0.55 (0.20)	280.06 (100.00)
1981-82	58.88 (19.08)	4.45 (1.44)	68.34 (22.15)	175.89 (57.00)	100.00 (0.32)	308.56 (100.00)

Contd..

Table -3.2 (Contd..)

Year	Amount Spent on Different Agricultural Schemes					Total Amount
	Crop Husbandry	Horticulture	Irrigation	Soil Conservation	Marketing	
1982-83	88.47 (24.04)	4.75 (1.29)	104.92 (24.16)	162.65 (44.20)	7.23 (1.96)	368.02 (100.00)
1983-84	91.47 (16.87)	8.00 (1.48)	165.41 (30.51)	254.80 (47.00)	22.52 (4.15)	542.18 (100.00)
Total	718.80 (27.18)	114.95 (4.35)	604.23 (22.84)	1153.98 (43.66)	52.09 (1.97)	2645.00 (100.00)

(Figures in parentheses are the respective percentages).

Sources: (i) Government of West Bengal, Integrated Annual Plan 1975-76 for Darjeeling Hill Areas (Darjeeling Development and Planning Department, Hill Affairs Branch, April, 1975).

(ii) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85; Mid-Term Review and Annual Plans 1983-84 & 1984-85, Volume II.

(iii) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-81 For Darjeeling Hill Areas (Calcutta and Darjeeling Development Planning Department, Hill Affairs Branch).

Table - 3.3

Rainfall in the Hill Areas of Darjeeling District
during May to August 1981-1982

(In mm)

Months	Rainfall	
	1981	1982
May	160.9	175.0
June	359.1	477.0
July	953.0	401.0
August	407.4	241.0

Source : Madhu, J.B., "General Environmental consideration for the Development of Hill Areas", Paper presented in a Seminar on Environment and Socio-Economic Aspects of the Development of Hill Regions, Organised by the Indian Institute of Hill Economy, Darjeeling, in September, 15-17, 1984.

Table - 3.4
Irrigation Potential in the Hill Areas of
Darjeeling District during 1973-74

Items	Area of Each Item
1. Irrigated Area (in Acres)	24147 (20.84)
2. Unirrigated Area (in Acres)	60737 (79.16)
3. Net cultivated Area (in Acres)	84884 (100.00)

(Note: Figures in parentheses are the respective percentages).

Source: A Techno-Economic Survey of Hill Areas in Darjeeling District, prepared by Economic Planning Organisation and Siliguri Planning Organisation, Development and Planning (Town and Country Planning) Department, Government of West Bengal, September, 1975

Table - 3.5

Area Under Irrigation by Different Sources in
the Hill Areas of Darjeeling District in 1973-74

Sources of Irrigation	Area in Acres
1. Private Canal	Nil
2. Government Canal	Nil
3. Minor Irrigation Project executed by the Government	457 (1.90)
4. Jhora Irrigation	23680 (98.10)
Total of Hill Sources	24147 (100.00)

(Note: Figures in parentheses are the respective percentage).

Source: A Techno-Economic Survey of Hill Areas in Darjeeling District, prepared by Economic Planning Stream, Calcutta Metropolitan Planning Organisation and Siliguri Planning Organisation (Development and Planning (Town and Country Planning) Department, Government of West Bengal, September, 1975.

Table - 3.6
Increase in Irrigation Potential in Terms of Net
Cultivated Area in the Hill Areas of Darjeeling
District during 1974-1980

1. Irrigated Area in 1974 (in Acres)	24147
2. Irrigated Area in 1980 (in Acres)	30000
3. Net Cultivated Area in 1974 (in Acres)	84884
4. Net cultivated Area in 1980 (in Acres)	134000
5. Percentage of Irrigated Area to Net cultivated Area in 1974	20.84
6. Percentage of Irrigated Area to Net cultivated Area in 1980	22.39
7. Increase of Percentage of Irrigated to Net cultivated Area During (1974-80)	1.55

Sources: (i) A Techno-Economic Survey of Hill Areas in Darjeeling District, Prepared by Economic Planning Stream, Calcutta Metropolitan Planning Organisation and Siliguri Organisation (Development and Planning (Town and Country Planning) Department, Government of West Bengal, September, 1975.

(ii) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85 ; Mid-Term Review and Annual Plans 1983-84 & 1984-85: Volume I (Darjeeling: Development and Planning Department, Hill Affairs Branch, Darjeeling.)

Table - 3.7

The Damage Done by the Landslides during 1980 in
the Hill Areas of Darjeeling District

Name of the Sector	Amount of Damage Restoration Cost (in Rs. lakhs)
1. Livestocks	5.95
2. Dwelling Houses	18.30
3. Agricultural Crops	50.60
4. Minor Irrigation Protection Works	68.78
5. Roads and communication	239.21
6. Drinking Water Supply Schemes	23.05
7. Schools	2.95
8. Cattle Sheds	3.52
9. Tea	15.00
10. Forest	47.53
11. Border Road Task Force	20.00
12. Other Properties	10.00
13. Hydel Project	110.00
14. Small Irrigation Scheme	14.77
15. Cottage and Small Scale Unit	18.50
Total	647.96

Source: Chattopadhyaya, A., "A Survey on the Occurrence of Landslides and Their Impact on the Economy of Darjeeling District" a paper read in a Seminar on Environment and Socio-Economic Aspects of the Development of Hill Regions Organised by the Indian Institute of Hill Economy, Darjeeling, in collaboration with the Development and Planning Department, Government of West Bengal, Darjeeling, September 15-17, 1984.

Table - 3.8

Landslide-Prone Villages in the Hill Areas of Darjeeling District

Name of the Blocks	Area in sq. km.	Number of Inhabited Villages	Number of Villages Prone to Landslides	Percentage of Villages Prone to Landslides	*Percentage of Population Vulnerable to Landslides	Rank of Villages in Terms of Damage
1. Darjeeling Pul-bazar	231.29	23	16	13.79	69.57	III
2. Jorebunglow-Sukhiapokhri	285.91	39	10	8.62	25.64	VII
3. Rangli-Rangliot	307.69	20	15	12.93	75.00	I
4. Kalimpong I	100.01	72	12	10.34	16.67	VIII
5. Kalimpong II	600.88	64	23	19.83	35.94	VI
6. Garubathan	446.79	27	13	11.2	48.15	V
7. Kurseong	322.71	38	20	17.25	52.63	IV
8. Mirik	97.38	10	7	6.03	70.00	II
Total Hill Areas	2392.64	293	116	100.00	54.75	

Sources: (i) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85 : Mid Term Review and Annual Plans 1983-84, Volume I (Development and Planning Department, Hill Affairs Branch Secretariat : Darjeeling).

* (ii) Reports of the Respective S.D.O. to the Deputy Commissioner of Darjeeling about Landslide Prone Villages.

Table - 3.9

Channels of Marketing of Major Agricultural Produce in the Hill Areas of
Darjeeling District

Name of the Crops	Respective Channels		
Paddy	Farmer →	Faria / Kayah/Mahajan →	Wholesaler
Maize	Farmer →	Faria / Kayah/Mahajan →	Wholesaler
Potato	Farmer →	Faria / Kayah/Mahajan →	Wholesaler
Cardamom	Farmer →	Faria / Kayah/Mahajan →	Wholesaler
Ginger	Farmer →	Faria / Kayah/Mahajan →	Wholesaler
Millet	Farmer →	Faria / Kayah/Mahajan →	Wholesaler

- Sources: (i) A Techno-Economic Survey of the Hill Areas in Darjeeling District, Prepared by Economic Planning Stream, Calcutta Metropolitan Planning Organisation and Siliguri Planning Organisation (Development and Planning (Town and Country Planning) Department, Government of West Bengal, September, 1975
- (ii) Central Bank of India, District Credit Plan 1980-82 For Darjeeling District, 1981.

Table - 3.10

Location-Wise Percentage of Total Volumes of Sales of Different Agricultural Commodities by the Farmers in the Hill Areas of Darjeeling District.

Name of the Crops	Name of the Locations	
	At Farm Gate or Level	At Primary Market, Hat or Shantis and Secondary Market, at Urban Areas
Paddy	65%	35%
Maize	75%	25%
Potato	60%	40%
Cardamom	70%	30%
Ginger	80%	20%
Millet	70%	30%

Sources: (i) A Techno-Economic Survey of the Hill Areas in Darjeeling District Prepared by Economic Planning Stream, Calcutta Metropolitan Planning Organisation and Siliguri Planning Organisation (Development and Planning (Town and Country Planning) Department, Government of West Bengal, September, 1975.

(ii) Central Bank of India, District Credit Plan 1980-82 For Darjeeling District, 1981.

Table - 3.11

Farm Level Price and Profit Margin of Farias From the Trade of Different Agricultural Commodities in the Hill Areas of Darjeeling District in 1984.

Name of the Crops	Farm Level Price Expressed As a Percentage of Net Price Received by Farias from the Wholesalers of Siliguri Town	Profit Margin of Farias Expressed As a Percentage of Net Price Received by Farias from the Wholesalers of Siliguri Town
Cardamom	25.00	75.00
Ginger	50.00	50.00
Potato	25.00	75.00
Maize	20.00	80.00
Millet	22.22	77.78

Note : Net Price = Price received by Farias from the Wholesalers minus marketing costs namely, grading, weighment, packing, trading, loading-unloading and transporting, octroi, etc borne by the farias.

Source: Dasgupta, M., "Siliguri Town : Problems and Prospects of Development", A Draft Report Submitted to Chairman, SFDA, 1984.

Table - 3.12

Movement of Agricultural Commodities Through Various Modes of Transportation in the Hill Areas of Darjeeling District.

Name of the Commodity	Movement of Agricultural Commodities by Truck (in Percentage)	Movement of Agricultural Commodities by Head Load (in Percentage)
1. Cardamom	25	75
2. Ginger	25	75
3. Orange	25	75
4. Potato	30	70

Source : Government of West Bengal, A Brief Review on Agricultural Marketing in the District of Darjeeling : 1984.

Table - 3.13

Financial Assistance Provided for the Darjeeling District Central Co-operative Central Bank Ltd during the Fourth and Fifth Five-Year Plan periods (1969-1979).

Items of Financial Assistance	Amount of Financial Assistance (Rs in lakhs)
(I) State Share Capital Contribution	13
(II) Loan	3
(III) Special Bad Debt Reserve For Financing the weaker Section of the Members of the Co-operative Credit Societies	2
(IV) Subvention for Writing of Bad Assets	2.39

Source : Government of West Bengal, Annual Plan For Darjeeling Hill Areas : 1972-73.

Table - 3.14

Measures Undertaken to Improve Co-operative Credit Structure in the Hill Areas of Darjeeling District During the First and Fifth Five-Year Plan Periods (1951-1979)

Five Year Plan Periods	Reference Years	Measures Respective to Each Plan period
First Five-Year Plan Period	1950-51 - 1955-56	(i) The Number of Village Primary Co-operative Credit Societies along with the number of their total membership. (ii) To pursue the policy of Short term finance for seasonal agricultural operations.
Second Five-Year Plan Period	1956-57 - 1960-61	(i) To strengthen Co-operative credit structure Executing a number of schemes, the importance of which was to improve strength in the financial structure of the village primary co-operative credit societies by organising large sized credit societies. (ii) Amalgamation of the existing Central Co-operative Banks into a District Central Bank for supplying larger volume of credit to the farmers.
Third Five-Year Plan Period	1961-62 - 1965-66	Nil
1st Annual	1966-67	Nil
2nd Annual	1967-68	Nil
3rd Plan	1968- 69	Nil

Contd..

Table - 3.14 (Contd..)

Five Year Plan Periods	Reference Years	Measures Respective to Each Plan Period
Fourth Five-Year Plan Period	1969-70 - 1973-74	<ul style="list-style-type: none"> (i) Scale down the over due, of the Darjeeling District Central Co-operative Bank Ltd. (ii) Revitalisation of the Darjeeling District Central Co-operative Bank Ltd. through <ul style="list-style-type: none"> (a) Contribution of state share capital (b) Sanctioning bad debt Reserve (c) Subvention for writting of the bad assets (iii) Re-organisation & revitalisation of primary Agricultural co-operative credit societies through state share capital contribution providing full time manager in each such societies. (iv) Attribution of some other service functions like distribution of fertilizer, inputs, marketing of agricultural product etc. to the viable primary agricultrual co-operative credit societies, besides supply of loans to the farmers.

Contd..

Table - 3.14 (Contd..)

Five Year Plan Periods	Reference Years	Measures Respective to Each Plan Period
Fith Five Year Plan Period	1974-75 - 1978-79	Continuation of the measures (i) to (iv) undertaken during fourth five year plan along with supplying larger volume of long-term credit to the farmers through the Darjeeling Branch of West Bengal Co-operative Land Mortgage Bank.

Source: Central Bank of India, District Credit Plan 1983-85 and Annual Action Plan 1983
For Darjeeling District.

Table - 3.15

Percentage of Outstanding Loans Disbursed by Various Sources to the Farmers in Some Selected Villages in the Hill Areas of Darjeeling District in 1983-84

Name of the Sources	Percentage of Outstanding Disbursed to the Farmers
1. Co-operative Credit Institutions	29.57
2. Licenced Money Lenders	2.06
3. Unlicenced Village Money Lenders-cum-Shopkeepers (i.e. Farias/Kayahs/Mahajans)	40.63
4. Friends & Relatives	17.21
5. Miscellaneous Sources	10.53
6. Total of All Institutional Sources (1+2)	31.63
7. Total of All Non-Institutional Sources (3+4+5)	68.37
Grand Total	100.00

Source: Dasgupta, M., Samad, A. & Pal, A., "Socio-Economic Study of the Hill Areas of Darjeeling District with Special Reference to Kurseong Area" (An Unpublished Survey of the University of North Bengal).

Table - 3.16
 Financial Assistance Provided to Primary and Large-Sized
 Agricultural Marketing Societies in the Hill Areas of
 Darjeeling District During the Fifth Five-Year Plan Period
 (1974-75 — 1978-79)

Nature of Financial Assistance	Amount in Lakh Rs.
1. Loans to Primary Agricultural Co-operative Marketing Societies for handling Larger Volume of Crops	2.06
2. State Share Capital Contribution to Large-sized Agricultural Co-operative Marketing Societies @ Rs. 1.00 lakh to Each Such Society	5.00
3. Working Capital Loan to Large-sized Agricultural Co-operative Marketing Societies @ Rs. 0.40 lakh to Each Society	2.00
4. Truck Purchase Loan to Large-sized Agricultural Co-operative Marketing Societies @ Rs. 1.00 lakh to Each Society	5.00
Total	14.06

Sources: (i) Government of West Bengal, Integrated Annual Plan : 1981-82 For Darjeeling Hill Areas.

(ii) Government of West Bengal, Plan For Darjeeling Hill Areas 1980-85 : Mid-Term Review and Annual Plans 1983-84 & 1984-85 : Volume I.

Table - 3.17

Total Volume of Some Crops, Marketed by the Farmers through Various Agricultural Marketing Societies during the Fifth Five Year Plan Period (1974-1979) in the Hill Areas of Darjeeling District

Years	Name of the Crops			
	Paddy Quantity in M.T.	Ginger Quantity in M.T.	Potato Seed Quantity in M.T.	Cardamom Quantity in M.T.
1974-75	500	400	20	10
1975-76	700	600	40	15
1976-77	900	800	60	20
1977-78	1200	1000	80	25
1978-79	1500	1200	100	30

Source: Government of West Bengal, Annual Plan For Darjeeling Hill Areas : 1979-80.

Table - 3.18

Expenditures Incurred on Different Schemes Undertaken
By the Accelerated Hill Development Council for
Developing Storage Facilities and Market Infrastructures
of Other Types in the Hill Areas of Darjeeling District
During 1974-1984

Name of the Schemes	Expenditures in Lakh Rs.
1. Construction of Twenty five Go-downs in the Rural Areas	11.93
2. Construction of Two Cold Stores	10.00
3. Construction of Sheds and Supply of Piped Water and Sanitation Facilities for Market Yard Development	24.16
4. Sanction of Grant for Purchasing a Number of Trucks to Transport Farmers' Produce from Farms to Markets/Hats at a Reasonably Lower Cost	6.00
Total	52.09

Source : Government of West Bengal, Annual Plan For Darjeeling
Hill Areas ; 1982-83.

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Chapter - 4

SOME ASPECTS ON AGRICULTURE AND HORTICULTURE IN THE HILL AREAS OF DARJEELING DISTRICT.

Agriculture was virtually absent in the hill areas of Darjeeling district before 1835. The growth of agriculture on a commercial basis started with the help of Nepalese immigration after the area had come under British administration. At the time when the district was first taken over by British administration the hill portion was almost entirely under forest. The only cultivation was of the primitive type called Jhumming or burning down forests in the interior of the hills by the Bhutias and the Lepchas and on the foothills by the Meches and other aboriginal tribes. The Terai was to some extent under plain cultivation but there were then vast uncultivated grass, forests and riverian areas.

Expansion of cultivation was rapid in the middle of the last century. Jhum cultivation began to disappear owing to forest reservation, appropriation of land for tea cultivation and extension of plough cultivation by the relatively more assiduous and skilful Nepalese. The Nepalese immigrants took agriculture just not as a way of life but as a flourishing business and began to cultivate different crops, viz., rice, wheat, millet (kodo), maize, mustard, cardamom and spices, fruits, potatoes etc.¹

The agriculture in the hill areas of Darjeeling district, however, began to develop differently from that of the plain areas. This is mainly because of the peculiar physical features of the area. The physical geography of the district makes conditions for agriculture extremely diverse. Many of the slopes are so stony and precipitous that nothing can thrive on them except scrub jungle.

Though much of the land in the hill areas is unsuitable for cultivation of any kind, the soil on the gentler slopes has often wonderful fertility. The altitude and aspect have important effects on agriculture. No crops are grown above 9,500 feet of the sea level in the hill areas owing to excessive cold. Potatoes can, however, be grown up to that height but for rice, maize and millet it is at a much lower level. Again below 2,500 feet much of the ground is steep and unsuitable for cultivation. The temperature here is too high to suit many of the crops grown in the colder altitudes. Thus just above the foot-hills in between 1000 feet and 2,500 feet there is comparatively little cultivation and most of the area is under forest.²

With these natural constraints, the agriculture which developed throughout more than a century is heavily biased on the production of food stuff only. The major cash crops like jute, cotton, sugarcane, pulses etc. are not grown due to the adversity of soil and climatic condition of the area.

The method of cultivation is as primitive as it was hundred years back. Land which is not too steep is ploughed, otherwise hoes (kodali) are used. Weeding and harvesting are generally done by the cultivator and his family with the assistance of neighbours, to whom help is given in turn. This labour exchange system is called purma. Hired labourers are employed only when it is absolutely necessary.³ Bullocks and tractors are not used for ploughing the soil due to the rugged mountainous terrain of the region.

It has been already noticed that agriculture has an important role in the rural economy of the hill areas of Darjeeling district. Of the total number of workers 34.17 per cent are engaged in agriculture in this areas. Thus, in this chapter an attempt has been made to examine the features of agriculture in the hill areas of Darjeeling district in order to explore its problems and the nature of developmental schemes and programmes undertaken on crop husbandry and horticulture till the recent years for bringing forth improvement of agriculture in this areas.

4.1 Certain Peculiar Features of Agriculture in the Hill Areas of Darjeeling District:

Land available per capita for cultivation is extremely low, only 0.18 acre is available according to the Census of 1981. From Table 4.1 it is observed that out of the total geographical area of the region (5.97 lakh acres), only 13.0 per cent is available for cultivation. Forests occupy about 48.3 per cent of the total area and areas not available for cultivation amount to

25.4 per cent. Tea gardens occupy about 8.0 per cent, cultivable wastes and current fallows constitute about 5.3 per cent. Nowhere else in West Bengal the land-man ratio is so low.⁴

A peculiar feature of agriculture in the hill areas of Darjeeling district is that most of the farms are small in size, fragmented and highly uneconomical to sustain a sizeable family. Around 84 per cent of the agricultural households belongs to the category of holding less than five acres and half of the total cultivating households has land less than one acre.⁵ With the rise in population, the average size of farm continued to diminish further and the cultivators were still in the midst of poverty.

4.2 The Nature of Land-Holding:

The British Government adopted a land policy in the hill areas of Darjeeling district which was absent in other parts of Bengal. They thought that the average size of holding of a rayat should be controlled properly. It was controlled by the policies followed for regulating the transfer of holding to a great extent.

Transfer of land which increased the size of holding above 20 acres or reduced it below 5 acres was not sanctioned. The result was that the average size of holding was about 5.6 acres in the west Tista and Relling Khash mahals and 7.5 acres in the Samatang estate even as late as 1941. Similarly, in the Kalimpong government estate the average size was 6.00 acres. In

other words, the problem of marginal and small farmers which is very acute after independence was totally absent during the British period in the hill areas of Darjeeling district.⁶

If the land-man ratios of pre- and post-independence periods are compared, it will be noticed from Table 4.2 that the land available for cultivation per cultivating household decreased over the years. Table 4.2 indicates that the pressure on land increased and the land-holding per cultivating household decreased from 7.21 acres in 1931 to 1.01 acres in 1981. It can be said that land was fragmented and more and more people went down from the level of small farmers to the marginal farmers and big farmers to small farmers. The nature of the problem in the hill areas can better be understood from the distribution of land-holdings in different periods given in Table 4.3.

It is clear from Table 4.3 that over the twenty years (1961-1981) the proportion of marginal holdings increased in the hill areas of Darjeeling. The proportion of big farmers came down from 24.00 per cent, 36.40 per cent and 34.55 per cent in Darjeeling, Kurseong and Kalimpong sub-divisions in 1961 to 2.90 per cent, 2.05 per cent and 8.60 per cent respectively in 1981. In other words, it can be said that under the pressure of population growth and in the absence of any other large-scale industries except tea, more people were concentrated on the same plot of

land which resulted in poor economic condition of the rural masses in the hill areas of Darjeeling district.

4.3 Agricultural Occupation and Per Capita Land:

The occupational pattern in the hill areas of Darjeeling district is heavily biased towards agriculture and allied activities which is evident from Table 4.4. In the absence of heavy industries a major part of the total population is dependent on the primary sector. It is observed that agriculture and allied activities, i.e., the primary sector, predominates in the occupational pattern. But it is also apparent that the primary sector has been losing its popularity. The dependence on the primary sector gradually declined from 75.3 per cent in 1961 to 66.1 per cent in 1981. In other words, over twenty years, the dependence on the primary sector declined by 9.2 per cent, while that on the secondary and tertiary sectors increased by 4.6 per cent and 4.7 per cent respectively.

Although agriculture is a very important source of income in the rural areas, it is relatively less important as a source of employment compared to other districts of the plains in North Bengal. Table 4.5 illustrates this.

It appears from Table 4.5 that compared to other districts of North Bengal a relatively lower proportion of people was engaged in cultivation not only in the hill areas of Darjeeling

district but also in the district as a whole. Similarly, the proportion of agricultural labourers was also less in the hill areas. The corresponding figures were only 32.4 per cent and 8.2 per cent respectively in 1971, whereas in the other districts of North Bengal the proportions of people engaged as cultivators and agricultural labourers were much higher.

But it has already been noted that the number of agricultural labourers was nearly zero during the British period. It was only since, 1961, that the proportion of agricultural labourers had increased 3 to 4 times in the hill areas. These aggregative figures, however, do not reflect the importance of agriculture in the different parts of the hill areas of Darjeeling district. The comparative shift of these two categories are shown in Table 4.6.

From Table 4.6 it appears that the proportion of agricultural labourers increased more within the period from 1961 to 1981 in all the blocks except Garubathan of the hill areas. This may imply that due to the lack of any other alternative occupation in the rural areas a large number of people has been turned into agricultural labourers under the pressure of population. Again, it can be said that as soon as the expansion of tea industry was stagnant and the employment opportunities in this sector became closed a large number of people engaged themselves as agricultural labourers.⁷

Another feature in this region is that more than 78 per cent of the total population lived in rural areas. In the absence of any other favourable occupation the pressure on land gradually increased. As a result, per capita land available for cultivation was reduced from 0.20 acre in 1971 to 0.18 acre in 1981. Consequently, a large number of people shared the output from each acre of land, and resulted in a low level of income to each worker.⁸

There is, however, very little scope to reduce the pressure of population on land. It is mainly owing to the limited possibility of the development of large-scale industries in this region which could divert a sizeable portion of the agricultural population towards the industrial sector. In this respect, the economic betterment of the rural hill people depends on the higher level of productivity through phased programmes of agricultural development.

4.4 Land-use pattern in the Hill Areas of Darjeeling District:

The land utilization statistics given in Table 4.1 implies that the agriculture in the hill areas of Darjeeling district is of poor condition.

From Table 4.7 it is evident that the area available for cultivation in the hill areas of Darjeeling district is much lower than those in other districts of North Bengal as well as West Bengal as a whole. Areas available for cultivation constitutes

about 13.0 per cent of the total area in this region whereas in West Bengal as a whole it is 63.00 per cent. In other districts of North Bengal it is much higher.

Forests, on the other hand, occupy 48.3 per cent of the total area of the hill areas of Darjeeling district, while it is only 27.35 per cent in West Bengal as a whole. This larger share of forests in the total areas of Darjeeling hills restricts the availability of the area under cultivation.

As the extension of area under cultivation by reducing the forest land may produce an unfavourable environmental condition in the hill areas, it is not possible to destroy forest for this purpose. The scope for the expansion of cultivable land is thus very limited in the hill areas of Darjeeling district. Under these circumstances the area under cultivable wastes and current fallows which constitutes about 5.3 per cent of the total geographical area has a very significant role in the hill areas of Darjeeling district.⁹ Cultivable waste land, on the other hand, is out of cultivation due to some limitations but it can be brought under cultivation if initial investment and effective steps are taken by the government.

4.5 Cropping Pattern and Intensity of Cropping:

Cropping-pattern and cropping-intensity give an indication about how far a region is developed in agriculture. They are dependent upon a number of factors like climate, soil, availability

of water, access to the market etc. In order to obtain a picture of crops grown, the study of land utilization is made with reference to the allocation of land under cultivation of various crops.

The cropping-pattern followed in the hill areas of Darjeeling district is displayed in Table 4.8 for the period from 1972-73 to 1983-84. It appears from Table 4.8 that maize occupied the largest area under cultivation. Next came millet, paddy, wheat, potato etc. arranged in descending order. Moreover, it is also revealed that the present cropping-pattern in the hill areas of Darjeeling district owes its origin to the traditional system of agriculture with heavy bias to the cultivation of food crops.

The reasons for the predominance of food crop cultivation and the lack of diversification in the cropping pattern in the hill areas of Darjeeling district can easily be explained by the peculiar agrarian character of the region. As most of the agricultural farms are small in size and the peasants are poor, subsistence farming is still in vogue. Besides, the large part of the rural economy even today remains non monetised. The primary concern of the peasants is to produce their own food in their own household farm. Only a few peasants can afford to divert their land to cash crops, because the cost of food items in the hill areas is high, supply is uncertain and prices fluctuate. Accordingly, only relatively big farmers after producing their annual requirements of food, put the remaining part of the land to the

production of other crops.

In view of the fact that the big farmers allocate the remaining part of their land to the production of other crops after satisfying their food requirement, there took place a change in the cropping pattern between the years 1972-73 and 1983-84 as shown in Table 4.9.

It is observed from Table 4.9 that between the years 1972-73 and 1983-84 the areas under wheat, barley, soyabean and paddy increased by 220.30 per cent, 160.00 per cent, 135.00 per cent and 20.65 per cent respectively, whereas, the areas under maize and vegetables decreased by 10.75 per cent and 10.43 per cent respectively. But the area under cardamom remained constant during the said period.

Among the non-food crops in this regard remarkable change took place in the case of orange and temperate fruits. Increase in areas under fruits in the hill areas of Darjeeling district has a far-reaching significance inasmuch as it will generate more income and employment for the hill people. This change in the cropping pattern cannot, however, be said to be significant as the relative position of the crops in the crop profile remained more or less constant. A tendency to bring more areas under cash/non-food crops was noticed. It is remarkable to note that the area under maize decreased by 10.75 per cent during the period and

the areas under fruits including oranges, wheat, barley, soyabean and paddy increased considerably.

Land is being a very scarce factor, multiple cropping is the major alternative to increase effective area under agriculture. The extent of multiple-cropping as reflected in the intensity of cropping in different blocks of the hill areas of Darjeeling district is set out in Table 4.10. There remains wide inter-block variation in cropping-intensity. It is very low in all the blocks except Phulbazar, Rangli-Rangliot and Kalimpong-I. It is to be, however, remembered that the possibility of increasing the cropping intensity is extremely limited in this area owing to the restricted scope of irrigation.

4.6 Yield Rates and Production of Principal Crops:

The yield rates and the production of agricultural commodities vary from place to place with variation of soil, altitude and climatic conditions. The yield rates of principal crops were very low for a long time in the hill areas of Darjeeling district due to the non-availability of agricultural inputs, the traditional methods of cultivation etc. It is only in recent years that the yield rates of major food crops increased. Again, the yield rates of different crops were not uniform within the three hill subdivisions.

In order to assess the progress and expansion of the agricultural sector, an attempt has been made to study the crop-wise production and yield rates during the period from 1972-73 to 1983-84. For this purpose the important crops, i.e., maize, millet, paddy, wheat, barley, soyabean, ginger, cardamom, potatoes, fruits and vegetables have been taken into account. The percentage changes with regard to production and productivities i.e., yield rates over a period of 12 years have been given in Table 4.9.

One of the striking features observed from Table 4.9 is that though the area under maize went down by 10.75 per cent, the production increased by 253.30 per cent. This rise in production can be explained by the increase in the yield rates which is due to the introduction of high-yielding varieties of maize. The yield rate of maize increased by 294.7 per cent. The yield rates of paddy, wheat, barley, soyabean and marwa increased by 600.00 per cent, 311.1 per cent, 587.5 per cent, 50.00 per cent and 180.00 per cent respectively. In the case of orange and temperate fruits it is not, however, possible to compare the production levels during the period due to the lack of data. The production of potato increased by 93.98 per cent during the period.

From Table 4.9 it can be said that the production of all the crops except cardamom increased during the said period. This increase is most striking in the case of ginger for its production went up by 5486.46 per cent. The rise in production thus evident

is basically due to the rise in yield rates rather than the increase in areas. Increase in yield rates of major agricultural crops is the outcome of various developmental schemes launched under the 'Accelerated Hill Developmental Programmes' of the Government of West Bengal.

4.7 Crop Husbandry:

4.7.1. Multiple cropping Programme:

In order to increase the production and productivity of agriculture, it was proposed to introduce double and multiple cropping in the hill areas of Darjeeling district during the Fourth Plan period (1969-74). The essence of the programme was to develop new climatic conditions and facilities in the hill areas of Darjeeling district. It was estimated that this programme would increase the yield of land within one calendar year. Under the crop husbandry programme the multiple-cropping scheme aimed to adopt a new and economic cropping-pattern in the hill areas of Darjeeling district.¹¹

With the Fifth Five-Year Plan period (1974-79) it was targeted to introduce multiple-cropping on about 6000 acres of land. The excellent achievement of the programme in Sukhiapokhri block had naturally encouraged the extension of the work to all other blocks in the hill areas but it covered 5,403 acres, of land during the Fifth Five-Year Plan period. Over the six years of Hill Development Programme, i.e., during (1974-80) multiple-

cropping demonstrations had covered more than 5,800 acres in this region. It is to be noted that a 50 per cent subsidy has been provided to the farmers for inputs in this programme.¹²

4.7.2. Introduction of High-Yielding Varieties of Seeds and High value but Low volume crops:

In order to derive the maximum return from a single unit of land, high yielding varieties of seeds were introduced in the hill areas along with the multiple-cropping programme. At the start of the Fifth Five-Year Plan period (1974-79), it was proposed to introduce the high-yielding varieties in the entire paddy, wheat and maize growing areas. Prior to 1974-75, high yielding varieties of seeds covered only some of the paddy growing areas and about 10,111 acres of maize-growing areas. But no substantial impact was created by this programme because only the big farmers were benefited by this programme.¹³ It is found that the average yield of local maize is only 3.5 quintals to 4 quintals per acre while the high-yielding varieties give an average yield of 10 quintals to 14 quintals per acre from the same piece of land.

The area under high-yielding variety in case of maize had been steadily rising during the period from 1974-75 to 1981-82. About 60 per cent of the area under maize was covered by the high-yielding varieties till 1982. In 1982-83 it was proposed to cover another 13,642 acres of land at cost of Rs. 16.03 lakhs. The programme also covered the entire wheat growing area and the yield rate increased substantially. But in the case of paddy,

HYVP (High-Yielding Varieties Programme) could not make any success. No significant improvement was also noticed in the yield rates of maize. It was only negligibly above that of traditional variety of maize. It was only 5.6 quintals, 5.5 quintals and 6.0 quintals per acre in Darjeeling, Kurseong and Kalimpong subdivisions respectively.

In this context it is to be noted that HYVP responds well only if, water and fertilizers are supplied in prescribed quantities along with the measures to protect the crops from pests and diseases, which are not available in the hill areas of Darjeeling district. It can be said that the HYVP in such areas may prove to be a waste unless the required irrigation facilities, chemical fertilizers, pesticides and fungicides are made available by the Government. In the absence of these inputs, it would be better if the people of these hill areas are not disturbed by providing with high-yielding varieties of seeds.¹⁴

In addition to the introduction of high-value but low-volume crops among the small and marginal farmers in this region led to the popularisation of new crops like mushrooms, sugarbeet, black pepper, cocoa and other minor species. This programme was implemented by the District Rural Development Agency (DRDA) and the Agricultural Department of State Government. From 1980 to 1983 about 263400 seedlings of sugar-beet and 4,000 seedlings of cocoa had been distributed among 1,647 and 566 cultivators

respectively. In addition, about 105 demonstrations of mushroom cultivation were carried out in these areas, which provided a successful supplementary source of income to about 2,300 small and marginal farmers.¹⁵

4.7.3. Soyabean, Potato and Cardamom Development Schemes:

(i) Soyabean Development Scheme:

There is tremendous scope for expanding the area under soyabean cultivation in the hill areas of Darjeeling district. In recent years the demand for soyabean is rising rapidly all over the country. Accordingly soyabean cultivation was expected to an area of 10,000 acres during the Fifth Five-Year Plan period (1974-79). But only 6,174 acres were brought under soyabean cultivation. The yield rate for this crop was very poor in the hill areas of Darjeeling district. It is only 4.5 quintals per acre and the farmers are not interested in cultivating the crop because of its poor yield rate.

(ii) Potato Development Scheme:

Potatoes are one of the important cash crops in the hill areas of Darjeeling district. It covered over an area of 9,837.3 acres of land. In order to raise the yield rate of potatoes an integrated programme has been undertaken since 1974-75 to distribute disease-free seeds, pesticides and fertilizers among the farmers at the rate of 50 per cent subsidy. Out of the total target

of 10,000 acres to be covered by the scheme during the Fifth Five-Year Plan period (1974-79), only 712.5 acres were covered by the scheme upto the end of the aforesaid plan period. Another 3,035 acres were brought under this scheme during 1980-81 to 1982-83 and about 2200 acres were expected to be covered during the year 1983-84. As a result of this developmental scheme, the yield rate of potato, in the land which has been covered by this scheme, has increased from 50 quintals to 106.5 quintals per acre.

(iii) Cardamom Development Scheme:

Cardamom is a valuable cash crop grown in the hill areas. The scheme for rejuvenation of cardamom plantation is very important as cardamom has both intra-national and international markets. The area under cardamom at the start of Fifth Five-Year Plan (1974-79) was about 3880 acres only. The production of cardamom had been adversely affected due to heavy droughts in the past and a considerable area becomes afflicted every year by the disease "Furki". These have resulted in gradual decline in the area under cardamom. In order to put a check on the decay of cardamom plantation and to improve the productivity rejuvenation of cardamom plantations by uprooting the diseased and dried clumps and replanting was aimed to be done in the Fifth Five-Year Plan period (1974-89). Again in order to keep the plants disease free fungicides and insecticides and pesticides were provided to the cardamom growers in the said period at 50 per cent subsidy. Although the target of the scheme was to cover the entire 3880

acres during the years 1974 to 1979, significantly a vast area under cardamom was not yet covered by the programmes undertaken in the aforesaid scheme.¹⁶

4.7.4. Development of Local Manurial Resources and Plant Protection Measures and Improvement of Quality of Production.

(i) Development of Local Manurial Resources:

Fertilizers play an important role in the development of agriculture. The increase in consumption of fertilizer is a pre-condition in having a break-through in the yield rates as well as agricultural activities. The soil in the hill areas of Darjeeling district is lacking in nutritive value due to its inherent characteristics and requires heavy doses of fertilizer and manure. But the consumption of fertilizer is negligible in the hill areas and this is responsible for the poor returns of agriculture. The performance of the Fertilizer Corporation of India which supplies fertilizers through private agencies is far from satisfactory. The high cost of transportation has made fertilizer a luxury item for the farmers in the hill areas of Darjeeling district. The difficulties of communication restrict the movement of fertilizer within the hill areas. The annual consumption of fertilizer was only 10 M.T. (Metric Ton) for the entire hill areas at the end of the Fourth Five-Year Plan (1969-74) period.

In order to solve the problem of soil fertility emphasis has been given on exploiting the local manurial resources to the fullest possible extent. In the hill areas of Darjeeling district

cattle rearing is the main subsidiary occupation which has been further intensified during the Fifth Five-Year Plan period (1974-79). It is observed that a large amount of cowdung is used as a fuel in our country. The fertility of soil can be improved by preserving and utilising cowdung and urine. A scheme has been undertaken for the development of local manurial resources in the hill areas by providing "Pucca" Cattle sheds, floors with urine tanks and composed tanks to the farmers. It was estimated that each unit would produce about 13 M.T. of composed within a year. Although the target was to construct over 1,000 such cowsheds during the Fifth Five-Year Plan period (1974-79), it increased to about 2,500 on account of its popularity among the farmers and utility to the development of agriculture.¹⁷

(ii) Plant Protection Measures and Improvement of Quantity and Quality of Production:

Regarding plant protection measures, the decade of the sixties witnessed some changes in India. Since then plant protection measures had been introduced in the hill as well as plain areas of Darjeeling district. Farmers of both the areas had been familiar with the use of various insecticides and pesticides. As a result, it is observed that in 1965-66, 6,286 acres of arable land of the district as a whole was brought under plant protection measures and about 27,215 kg of pesticides were spent on them while in 1966-67 some 36,365 kg. of pesticides were

utilized for benefiting 6,646 acres of cropped land all over the district. This implies that during the period of independence the cultivators of the hill areas of Darjeeling district have become aware about the modern techniques of plant protection.¹⁸

In order to improve the quality and quantity of production the following activities were performed by the various agencies in the post-independence period:-

(a) In 1963-64 there were set up 614 Result Demonstration Centres over hill and plain areas of Darjeeling district to offer practical demonstrations to all interested persons about the efficacy of improved cultivation techniques. Besides, these small units, a few 42-acre demonstration centres have also been opened onwards 1963-1964 at different places of the hill and plain areas of Darjeeling district to achieve the same objectives on a wider scale.

(b) The District Seed Farm, Kalimpong, started in October, 1928, when the following research schemes were undertaken after independence. The All India Coordinated Maize Improvement Scheme was taken up in 1950. The work envisages the testing and selection of promising germ-plasms of maize and hybrids which has resulted in the sponsoring of A - de - Cuba, a composite variety, and Himalayan-123, a hybrid, for general cultivation. The former has also been found suitable for the plains yielding about 50 maunds (20 quintals) of grains per acre while the latter is very popular

in the hills with an average yield of 70 maunds (28 quintals) per acre. Apart from these, top crosses and mass selection work have also been going on progress.

As regards experiments with paddy, various germ-plasms and selected lines from hybrids have been going on testing to evolve strains suitable for the hill areas. The development of high-yielding varieties of paddy, namely, Kalimpong-I, Kalimpong-II, NC-678 and Taichung Native-I, through numerous field trials, has already been done during the Third Five-Year Plan period (1961-66) after independence. Improvement of local varieties has also been made and two selections MPRS-I and MPRS-II have been recommended for general cultivation in the hills. In 1967-68, there were established five Block Seed Farms in the district. Of these farms three are located at Pulbazar, Punungdongand and Garubathan in the hill areas and two are located at Kharibari and Salbari in plain areas. These farms are established for multiplication of improved seeds. The foundation seeds produced by the District Seed Farm and also by these farms are given, in the first instance, to registered growers for multiplication and the multiplied seeds are purchased by the Government for subsequent distribution amongst other cultivators in the following years.

Among other researches in the District Seed Farm, mention may be made of the standardization of the technique for cauliflower seed production and the introduction of improved strains of peas, beans, cabbages, radish, tomato, carrot, lady's finger,

etc. Two other schemes are undertaken recently for the improvement of temperate and sub-tropical fruits like orange, peach, plum, apple, etc. for which cuttings from Kashmir and other places are procured and distributed to the farmers. A separate station for these schemes has been started at Dhalapchan, a few miles from Kalimpong. Special attention is being paid to immunize the orange crop from pests and diseases. Research is also in progress for developing better strains of black pepper and cardamom, which are important cash crops and foreign exchange earners. There is established a Pine Apple Research Station attached to the Block Seed Farm at Salbari, near Sukna. Here, research on the improvement of this fruit is in progress and its multiplication through stem-slices has opened a new horizon for its economic propagation.¹⁹

(c) The Potato Research Station in the hills at Bhanjang, which was started in the year 1944, on 5 acres of land was converted into the State Potato Experimental Farm immediately after independence to conduct breeding and agronomic research for finding out better varieties of potato in respect of yield, quality and resistance to diseases as also to ascertain the optimum cultural and manurial requirements of the crop. Its cultivable area now exceeds 18 acres on which various experiments are performed. There is also constructed an insect-proof glass-house and a small field laboratory. The improved potato strains evolved at this farm are 'Ackersegon', 'B-1965', and 'ultimus' which are suitable both for the hills and the plains, and 'P₁inpernel' which does well at elevations above 5,000 feet. During the 1967

crop season, three varieties of potato were evolved which showed promise for resistance to the devastating blight disease.

Along with the extension and modernization of the Potato Research Centre at Bhanjang for evolving improved variety of potato seed, in December 1947, the State Government established a State Potato Seed Multiplication Farm at Rungbull, a small village near Ghum in the hill areas of Darjeeling district. This farm now stands on 356 acres of land at altitudes between 5,500 and 7,000 feet. The actual area under potato was about 100 acres in 1968. To produce seeds of disease-free and wart-immune potatoes, highly technical control is necessary at every stage of cultivation and this is being done at the farm. With further extension of cropped area it is expected to be one of the largest potato farms in Asia. At present it is multiplying seven kinds of seed potatoes imported from foreign countries, especially Holland, of which a white-skinned variety called 'Acker;segen' and a red-skinned variety called 'Pinpernel', evolved by the potato Research Station at Bhanjang. The multiplied seeds of Rungbull farm are more immune from diseases and are in heavy demand throughout India. Since 1965, import of seed potatoes from Burma (known as 'Rangoon' seeds) has virtually stopped owing to the fact that the shortfall of seed potato in potato growing zones in India is being largely made up by the produce of the Rungbull farm.²⁰

4.8 Horticulture:

The term "Horticulture" generally implies a group of flowers, fruits and vegetables which is separate from other crops in its broad variety. The role of fruits and vegetables in the balanced diet hardly needs to be emphasised. Fruits and vegetables constitute an important source of vitamins and minerals and hence are called protection foods. Being nutritionally important, the horticultural crops play an important role in the economic sphere of the country. Horticultural crops being highly labour-intensive can to some extent help to solve the problem of under-employment. Their inclusion in crop rotation can also help the cultivators to increase their returns.²¹

With varying types of altitude, soil and climate virtually gifted by the Himalayas, the hill areas of Darjeeling district offer an excellent potential for growing horticultural crops like fruits, vegetables, spices and flowers.²² From the horticultural point of view, the hill areas of Darjeeling district can be divided into two distinct zones viz : (i) sub-tropical zone ranging from 2,000 feet to 3,500 feet altitude and (ii) temperate zone ranging from 3,500 feet to higher altitude. The hill slopes which are not suitable for the cultivation of food crops can best be utilised for the development of horticulture.

The best pine apples and the best mandarin oranges of India are grown in the hill areas of Darjeeling district. Similarly, temperate fruits and vegetables can be grown at an altitude.

of 3,500 feet and above. The small holdings of agricultural land can successfully be utilized for horticulture. In considering its importance in the hill areas of Darjeeling district, special emphasis has been given on the development of horticulture after independence.

4.8.1. Development of Horticulture in the Hill Areas of Darjeeling District:

Although the hill areas of Darjeeling district have an excellent potentiality for the cultivation of sub-tropical and temperate fruits, no integrated programme was undertaken before independence and also after independence upto 1973-74 except the distribution of soil conditioners and seedlings among the farmers. It was only in 1974-75, that an integrated programme was undertaken for the development of horticulture in the hill areas of Darjeeling district.²³ The amount of investment as well as the amount actually received during the years between 1974-75 and 1983-84 for the development of horticulture has already been shown in Table 3.2 in the preceding chapter. Out of the total allocation of Rs.264.00 lakhs for the development of agriculture, only Rs. 114.95 lakhs, i.e., 4.35 per cent were spent on horticulture. The year-wise allocation on horticulture was not also made evenly and progressively.

The orange orchard in the hill areas is facing deterioration and decay because of infestation by pests and diseases. Most of the orchards are 30 to 40 years old and are in need of replantation.

Dr. K.M. Aiyappa, a project co-ordinator of the Horticultural Research Institute, Bangalore, visited the hill areas of Darjeeling district in the third week of December, 1974 and suggested some short and long-term remedies to overcome the said problems.²⁴ Several schemes have been undertaken for the development of horticulture under the Accelerated Hill Development Programmes on the basis of Dr. Aiyappa's suggestions. The schemes along with their impact are as follows:

(i) Fertilizers, micro-nutrients, fungicides etc, were supplied to the orange growers at the rate of 50 per cent subsidy in order to prevent the decay of orange orchards. As a result, the yield rates increased to a considerable extent. For example, the case of Rolok Busty can be mentioned here. In case of Rolok Busty an additional yield of about 63,500 fruits was raised in 1975-76 over the production of 1973-74. This scheme covered about 5,304 acres and 10,608 farmers were benefited by it.²⁵

(ii) Along with this short-term measure, steps were also taken to extend the areas under orange in compact areas where various types of fruits and vegetables are grown. This scheme provided some facilities to the farmers owning 35 acres of orange orchards in each of the hill blocks in compact areas, particularly to the marginal and small farmers. Consequently, the total acreage under orange orchards was raised from 2028 acres in 1972-73 to 4654 acres in 1983-84 and about 1855 farmers were benefited by this scheme.²⁶

(iii) Just like the orange orchards where only oranges are grown a scheme was undertaken in 1975-76 for the establishment of temperate fruit orchards in compact blocks for the cultivation of temperate fruits like Apple, Plum, walnut etc. As a result, the area under temperate fruits increased from 370 acres in 1974-75 to 1585 acres in 1983-84.

(iv) By considering its urgency and importance, the Directorate of Agriculture, Government of West Bengal, established a separate horticultural wing for Darjeeling district under its Research Branch in 1977-78. The object of this horticultural wing is to solve various horticultural problems faced by the farmers by conducting scientific trials and to transfer the solutions of these problems and other latest technology to the farmers.²⁷

(v) The marketing of horticultural products is the most important problem faced by the farmers in the hill areas of Darjeeling district. The poor orchard owners are not receiving the remunerative price for their products. In order to attain a direct linkage between the rural farmers and the urban consumers a pilot study project has been undertaken by the Mirik Primary Agricultural Marketing Co-operative Board in collaboration with National Dairy Development Board. About nine million oranges were procured directly from the farmers by the project and sold to the consumers in attractive consumer packs through the Mother Dairy retail network in Calcutta every year. The farmers, as a result, now

receive a price at their fields which is almost three to four times higher than what they received from the intermediaries previously. Besides, this project provides new technology in the field of pre and post harvest operation, packaging, preservation and processing to the farmers. This will no doubt encourage the farmers to expand the areas under the cultivation of orange.²⁸

(vi) The Small Farmers Development Agency (S.F.D.A.) also formulated some schemes for plantation and development of sub-tropical and temperate fruits for the participating farmers. About 67 farmers were assisted with subsidy amounting to Rs. 0.50 lakhs for plantation and development of orange, pine apple and temperate fruits covering an area of 131.98 acres, during 1978 and 1979. Due to various developmental schemes, the areas under fruits and vegetables have steadily increased every year in the hill areas of Darjeeling district during 1974-75 and 1983-84. This is evident from Table 4.11.

It is observed from Table 4.11 that orange is the most important fruit in the hill areas so far as the areas under fruits are concerned. The orange orchards are almost distributed over the entire region. The areas under orange increased from 2002 acres in 1974-75 to 4654 acres in 1983-84 (i.e. 132 per cent increase). In case of temperate fruits the area increased from 370 acres in 1974-75 to 1585 acres, in 1983-84 (i.e., 329 per cent increase) and the area under vegetables increased from 2530 acres in 1978-79 to 3835 acres, in 1983-84. Although the areas

under fruits and vegetables increased during the period from 1974-75 to 1983-84, the yield rate remained constant during the period. They were 12.5 M.T. and 15.0 M.T. per acre in case of orange and pine apple respectively. There is still a vast scope for increasing the areas and yield rates of both the fruits and vegetables in the hill areas of Darjeeling district. For achieving these, it is necessary to remove the following constraints which stand on their development.

4.8.2 Constraints to the Development of Horticulture:

The hill areas of Darjeeling district have a high potentiality for the development of horticulture which will contribute to the development of the region to a great extent. The large-scale development of horticulture will not only meet the needs of the local people but also help the farmers to earn money by exporting them to other places in the country and outside. Consequently, the economic condition of the farmers will improve. Besides, horticulture provides a higher return to farmers than agriculture and forestry. Considering its comparative profitability and suitability in this region the areas and yield rates of fruits as well as vegetables are extremely meagre. The constraints of development of horticulture may be understood from the typical features of orange cultivation in the hill areas of Darjeeling district. These are as follows:

(i) The orange cultivation in the hill areas of Darjeeling district mostly occurs in homesteads or in small orchards. More than 70 per cent of the orchards have less than 50 plants per orchard. The small-sized orchards are mostly concentrated in two blocks, namely, Kalimpong and Garubathan. The distribution pattern of orange orchards is shown in Table 4.12.

(ii) The location of the orchards is mostly above 2500 feet altitude. About 80 per cent of the orchards are located above 2,500 feet and only 20 per cent of them are located below 2500 feet. The distribution pattern presented in Table 4.13 may be noted in this regard. As most of the orchards are situated at higher altitude, production of orange involves a number of problems like transporting the crop from the farm to the market. It is in this context that the middlemen become very important in the hill areas of Darjeeling district.

(iii) There is considerable variation in the age composition of the orange orchards in the hill areas of Darjeeling district. This can be understood from Table 4.14.

It is quite clear from Table 4.14 that the largest number of orchards are relatively young in the hill areas. The orchards which were planted at least 20 years back form nearly one-third of the total plants. However, orchards at Kalimpong are mostly old. Orchards having both young and old plants are significant in number.

(iv) About 80 per cent of the orange orchards in the hill areas of Darjeeling district have no irrigation facilities. Only 20 per cent of the orchards have some kind of irrigation facilities. The situation is more or less similar in all the blocks of the hill areas of Darjeeling district. Table 4.15 illustrates this.

(v) The data on the extent of fertilizer and manure application clearly reveals that nearly 30 per cent of orchards are going without any application of fertilizers and manures. Another 60 per cent of orchard owners are in the habit of applying cowdung manure at a low rate. A very poor percentage of the owners (i.e. 0.50 per cent) of the orchards use fertilizers. This can be understood from Table 4.16.

(vi) The orchards in the hill areas of Darjeeling district have been suffering from many diseases. But the orchard owners hardly apply either insecticides or pesticides. This is illustrated in Table 4.17.

It appears from Table 4.17 that nearly 90 per cent of the orchard owners do not use any pesticides in the hill areas of Darjeeling district. Only 9.86 per cent of them use pesticides and insecticides.

The extreme poverty of marginal and small farmers in the hill areas poses a great problem for any programme of extension of orange cultivation or rejuvenation of the existing orchards. Such farmers are unable to incur any capital expenditure for the above purposes. The high initial cost worth more than Rs. 1000.00 per acre, which was worth Rs. 750.00 per acre in 1975, is undoubtedly a big problem to the poor farmers. Of course the Small Farmers' Development Agency (S.F.D.A.), the Co-operative Societies and a few banks are supplying funds in recent years for the purpose. But it has been found that very often such funds are finally used by the borrowers to meet some urgent family needs thus defeating the main purpose.²⁹

(vii) The absence of cold storage and marketing facilities makes fruit growing a risky proposition to the farmers. It is estimated that in adequate packaging, transport, and processing facilities lead to a loss of 50 to 60 per cent of total production in our country. In advanced countries 40 to 60 per cent of total production finds its place in cans and bottles as against 0.2 per cent in our country.³⁰ This meagre amount may still be smaller in the hill areas of Darjeeling district.

Lack of finance among the farmers is the most important problem in the hill areas of Darjeeling district. Sometimes the middlemen supply loans at a very high rate of interest and on the condition that the produce of the farmers will be sold to them at the dictated price which is much lower than the market price. Due

to inadequate transport, the growers face the problem of disposal of their produce after the harvest. This also compels them to sell the produce at the dictated price. Distress sell of the crop stands on the ways of changing the economic condition of the growers. So, the marginal and small farmers remain poor in spite of the fact that the hill areas of Darjeeling district have a great potentiality in orange and other fruit cultivation which may contribute to the over all development of the economy.

Table : 4.1

Classification of Land in the Hill Areas of Darjeeling
District in 1981

Uses of Land	In per cent of Total
1. Waste Land not Available for Cultivation	25.4
2. Forest Land	48.3
3. Land Under Cultivable Waste and Current Fallows	5.3
4. Plantation	8.0
5. Area Under Cultivation	13.0
Total Land	100.00

Source: Government of West Bengal, Plan For Darjeeling Hill Areas, 1980-85; Mid-Term Review and Annual Plans 1983-84 and 1984-85 : Volume I (Darjeeling : Development and Planning Department, Hill Affairs Branch Secretariat).

Table : 4.2

Cultivable Land Per Household in the Hill Areas
of Darjeeling District during 1931-1981

Year	Cultivable Land Per Cultivating Household (In Acres)
1931	7.21
1941	5.21
1971	1.91
1981	1.01

Source : Dasgupta, M., "An Audience Profile : Darjeeling District", A paper presented in the Media Orientation Workshop in Mirik held in 2nd - 7th April, 1986, Organised by United Nations International Children's Fund.

Table : 4.3

Nature of Land-Holdings in the Hill Areas of Darjeeling District during 1961-81

Area in Acres	Number of Land-Holdings (In per cent)								
	Darjeeling Sub-Division			Kurseong Sub-division			Kalimpong sub-division		
	1961	1971	1981	1961	1971	1981	1961	1971	1981
Marginal Holding (Upto 2.5 Acres)	44.00	51.25	81.30	26.70	43.38	82.95	17.45	45.62	47.90
Small Holding (2.5 acres to 5 Acres)	14.00	24.60	9.50	16.30	36.40	10.55	16.40	24.68	22.90
Medium Holding (5 Acres to 10 Acres)	18.00	18.27	6.20	20.60	14.90	4.30	31.60	21.24	20.50
Big Holdings (10 Acres & Above)	24.00	5.22	2.90	36.40	5.32	2.05	34.55	8.16	8.60

source : Dasgupta, M., "An Audience Profile : Darjeeling District", A paper presented in the Media Orientation Workshop in Mirik held in 2nd-7th April, 1986, Organised by United Nations International Children's Fund.

Table : 4.4

Occupational Pattern in the Hill Areas of Darjeeling District from 1961 to 1981

Name of the Sector	Working Population 1961	Working Population 1971	Working Population 1981
1. Primary	1,32,876 (75.28)	1,30,349 (71.64)	1,34,543 (66.07)
2. Secondary	5,620 (3.18)	10,599 (5.82)	15,711 (7.71)
3. Tertiary	38,012 (21.54)	41,013 (22.54)	53,419 (26.23)
Total Working Population	1,76,508 (100.00)	1,81,961 (100.00)	2,03,673 (100.00)

Note: Figures in parentheses are the respective percentages.

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Hand book : Darjeeling.

(ii) Government of West Bengal, Census 1971, West Bengal District Census Hand Book : Darjeeling.

(iii) Government of West Bengal, Census 1981, West Bengal District Census Hand book : Darjeeling.

Table : 4.5

Distribution of Workers among Cultivators and Agricultural Labourers in the Hill Areas of Darjeeling District and Other Districts of North Bengal in 1971 & 1981.

Name of the Districts/ Areas	Percentage of People as Culti- vators		Percentage of People as Agri- cultural Labourers	
	1971	1981	1971	1981
1. Hill Areas of Darjeeling	32.4	36.75	8.2	5.39
2. Darjeeling District	42.3	34.23	9.5	11.47
3. Jalpaiguri "	43.0	36.94	10.2	17.77
4. Cooch Behar "	68.0	55.32	15.6	28.91
5. West Dinajpur District	57.0	51.17	28.2	37.44
6. Malda District	45.6	41.65	33.9	35.79
North Bengal AS a Whole	48.9	44.71	20.1	27.94

Source: Integrated Rural Development Programme : Annual Action Plan 1982-83 & Five-Year Perspective Plan 1982-85 for the Remaining Period of the 6th Five Year Plan: Darjeeling District (Darjeeling : Darjeeling Rural Development Agency, October 1982).

Table : 4.6
Occupational Shift in the Hill Areas of Darjeeling
District during 1961-1981

Name of the Blocks	Number of Culti- vators (In Percentage)			Number of Agricul- tural Labourers (In Percentage)		
	1961	1971	1981	1961	1971	1981
1. Darjeeling- Phulbazar	47.0	39.4	41.7	2.7	7.4	5.7
2. Sukhiapokhri- Jorebunglow	23.4	15.6	17.5	1.7	7.4	5.3
3. Rangli- Rangliot	40.3	34.5	30.4	1.1	7.9	4.1
4. Kalimpong	60.5	61.4	66.4	5.1	15.4	8.8
5. Garubathan	45.4	51.4	42.9	3.4	4.7	2.6
6. Kurseong	27.5	18.8	16.9	0.3	7.8	3.2
7. Mirik	32.6	18.2	12.7	2.3	9.2	4.2

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Hand book : Darjeeling.

(ii) Government of West Bengal, Census 1971, West Bengal District Census Hand book : Darjeeling.

(iii) Government of West Bengal, Census 1981, West Bengal District Census Hand book : Darjeeling.

Table : 4.7

Percentage of Cultivable Area to Total Geographical Area, 1971 in the Hill Areas of Darjeeling District and Other Districts of North Bengal as well as West Bengal as a whole in 1971

Name of the Area/Districts/ State	Percentage of Cultivable area
1. Hill Areas of Darjeeling	13.00
2. Jalpaiguri District	50.00
3. Cooch Behar District	67.00
4. Malda District	75.00
5. West Dinajpur District	84.00
6. West Bengal	63.00

Source: A Techno-Economic Survey of the Hill Areas in Darjeeling District, prepared by Economic Planning Stream, Calcutta Metropolitan Planning Organisation and Siliguri Planning Organisation (Development and Planning (Town and Country Planning) Department, Government of West Bengal, September, 1975.

Table : 4.8

Areas Under Major Food Crops in the Hill Areas of Darjeeling District from 1972-73 to 1983-84

Year	(Area in Acres)												Total Crops
	Maize	Marwar	Paddy	Wheat	Name of the Crops		Potato	Ginger	Cardamom	Vegetables	Orange	Temperate Fruits	
1972-73	72847.0 (53.58)	23241.0 (17.09)	19042.0 (14.00)	871.0 (0.64)	567.0 (0.42)	405.0 (0.30)	7146.0 (5.26)	1536.0 (1.13)	3880.0 (2.85)	4282.0 (3.15)	2028.0 (1.49)	127.0 (0.09)	135972.0 (100.00)
1973-74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1974-75	65000.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	2002.0	370.0	
1975-76	65000.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	2252.0	370.0	
1976-77	55000.0 (42.97)	27044.5 (21.13)	20761.7 (16.22)	2096.2 (1.64)	1551.0 (1.21)	1491.2 (1.16)	8064.5 (6.30)	1606.7 (1.26)	3901.7 (3.05)	3467.2 (2.70)	2452.0 (1.92)	570.0 (0.45)	128006.7 (100.0)
1977-78	56380.0 (44.13)	24258.0 (19.00)	20795.0 (16.28)	2128.0 (1.67)	1554.0 (1.22)	940.0 (0.74)	9379.0 (7.34)	2326.0 (1.82)	3680.0 (3.04)	2530.0 (1.98)	2652.0 (2.08)	900.0 (0.70)	127722.0 (100.00)
1978-79	56408.0 (44.39)	21478.0 (16.83)	22544.0 (17.75)	2205.0 (1.75)	1589.0 (1.26)	940.0 (0.75)	9630.0 (7.59)	1936.0 (1.53)	3880.0 (3.06)	2530.0 (1.99)	2852.0 (2.25)	1078.0 (0.85)	127070.0 (100.0)
1979-80	56533.0 (52.37)	23250.0 (21.54)	NA	2302.0 (2.14)	1616.0 (1.50)	690.0 (0.64)	10274.0 (9.52)	1786.0 (1.65)	3880.0 (3.59)	2610.0 (2.42)	3727.0 (3.45)	1278.0 (1.18)	107946.0 (100.0)
1980-81	64375.0 (42.29)	36298.0 (23.85)	20678.0 (13.59)	2522.0 (1.66)	1580.0 (1.04)	940.0 (0.62)	10969.0 (7.21)	2667.5 (1.75)	3880.0 (2.55)	2924.0 (1.92)	4077.0 (2.68)	1278.0 (0.64)	152188.5 (100.0)
1981-82	64625.0 (44.03)	30298.0 (20.64)	20523.0 (13.98)	2100.0 (1.43)	1585.0 (1.08)	940.0 (0.64)	11137.0 (7.59)	2980.0 (2.03)	3931.0 (2.68)	2931.0 (2.00)	4277.0 (2.92)	1443.0 (0.98)	146770.0 (100.0)
1982-83	65018.0 (56.89)	NA	18425.0 (16.12)	2866.0 (2.51)	1535.5 (1.34)	NA	10752.0 (9.41)	2866.0 (2.51)	3880.0 (3.39)	3048.0 (2.67)	4463.0 (3.90)	1443.0 (1.26)	114296.5 (100.0)
1983-84	65017.0 (44.02)	24620.0 (17.05)	22975.0 (15.91)	2790.0 (1.93)	1475.0 (1.02)	953.0 (0.66)	9837.5 (6.81)	2785.0 (1.93)	3880.0 (2.69)	3855.0 (2.66)	4654.0 (3.22)	1585.0 (1.10)	144406.5 (100.0)

Note: Figures in parentheses are the respective percentages

Sources: (i) Principal Agricultural Office, Darjeeling.

(ii) Agriculture General Information : Darjeeling, 1977-78, Issued from the District Agricultural Office, Darjeeling.

Table : 4.9

Areas Under Cultivation, Production and Yield Rate of the Principal Crops in the Hill Areas of Darjeeling District during 1972-73 to 1983-84

Name of the Crops	Year	Area (in Acres)	Percentage Change in Area Over 1972-73	Production (in Quintals)	Percentage Change in Production Over 1972-73	Yield Rate (Per Acre in Quintal)	Percentage Change in Yield Rate Over 1972-73
1. Maize	1972-73	72847		276818.6		3.8	
	1983-84	65017	-10.75	975255.0	+253.3	15.0	+294.7
2. Marwa (Millet)	1972-73	23241		58102.5		2.5	
	1983-84	24620	+ 5.93	172340.0	+196.6	7.0	+180.0
3. Paddy	1972-73	19042		95210.0		5.0	
	1983-84	22975	+20.65	270317.5	+183.9	35.0	+600.0
4. Wheat	1972-73	871		3919.5		4.5	
	1983-84	2790	+220.3	51615.0	+1217.0	18.5	+311.1
5. Barley	1972-73	567		1814.4		3.2	
	1983-84	1475	+160.0	32450.0	+1688.4	22.0	+587.5
6. Soyabean	1972-73	450		1215.0		3.0	
	1983-84	953	+135.0	4288.5	+252.96	4.5	+ 50.0
7. Potato	1972-73	7146		192942.0		27.0	
	1983-84	9837	+37.66	373111.5	+ 93.38	94.6	+250.56
8. Ginger	1972-73	1536		5683.2		37.0	
	1983-84	2785	+81.31	317490.0	+5486.46	144.0	+2981.0
9. Cardamom	1972-73	3880		5820.0		1.5	
	1983-84	3880	0	5820.0	0	1.5	0
10. Vegetables	1972-73	4282		411072.0		96.0	
	1983-84	3835	-10.43	421840.0	+ 2.62	110.0	+ 14. 5
11. Orange	1972-73	2028		1046955.0		NA	
	1983-84	4654	+129.4	NA	NA	NA	NA
12. Temperate Fruits	1972-73	127		NA		NA	
	1983-84	1585	+1148.0	NA	NA	NA	NA

Source: Principal Agricultural Office, Darjeeling.

Table : 4.10

Cropping-Intensity in the Hill Areas of
Darjeeling District in 1981

Name of the Blocks	Percentage of Double Cropped Area to Net Sown Area
1. Darjeeling-Pulbazar	55.2
2. Jorebunglow-Sukhiapokhri	36.5
3. Rangli-Rangliot	69.2
3. Kurseong	29.3
5. Mirik	23.9
6. Kalimpong-I	74.0
7. Kalimpong-II	35.3
8. Garubathan	28.7

Source: Central Bank of India, District Credit Plan 1980-82
for Darjeeling District, West Bengal.

Table : 4.11

Areas under Fruits and Vegetables in the
Hill Areas of Darjeeling District

(Areas in Acres)

Year	Areas Under Orange	Areas Under Temperate Fruits	Areas under Vegetables
1974-75	2002	370	NA
1975-76	2252	370	NA
1976-77	2452	570	NA
1977-78	2652	900	NA
1978-79	2852	1078	2530
1979-80	3727	1278	2610
1980-81	4077	1278	2924
1981-82	4277	1443	2931
1982-83	4463	1443	3048
1983-84	4654	1585	3835

Source: Office of the Separate Horticultural Wing For
Darjeeling District (Research Branch), Darjeeling.

Table : 4.12

Size of the Orange Orchards in Terms of Plants
in the Hill Areas of Darjeeling District.

Name of the Block	Below 50 Trees (Percentage Over Block)	Above 50 Trees (Percentage Over Block)	Total
1. Kalimpong-I	90.31	9.69	100.00
2. Kalimpong-II	78.22	21.78	100.00
3. Garubathan	87.24	12.76	100.00
4. Darjeeling-Bijanbari	46.88	53.12	100.00
5. Mirik	62.86	37.14	100.00
6. Kurseong	62.86	37.14	100.00
Total Hill Areas	74.85	25.15	100.00

Source: Survey on the conditions of the Citrus Orchards in Darjeeling District, Citrus Dieback Mapping Project, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, March, 1984.

Table : 4.13

Aspects of Altitude of Mandrarin Orange
Cultivation in the Hill Areas of Darjeeling District.

Name of the Orchards Block	Orchards Below 2500' (Percentage)	Orchards Above 2500' (Percentage)	Total
1. Kalimpong-I	22.89	77.11	100.00
2. Kalimpong-II	29.05	70.95	100.00
3. Garubathan	13.30	86.70	100.00
4. Darjeeling-Bijanbari	100.00	100.00	100.00
5. Mirik	16.84	83.16	100.00
6. Kurseong	12.14	87.86	100.00
Total Hill Areas	20.00	800.00	100.00

Source: Survey on the Conditions of the Citrus Orchards in Darjeeling District, Citrus Dieback Mapping Project, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, March 1984.

Table : 4.14

Age-Composition of the Orange Orchards in the Hill Areas of Darjeeling District.

Name of the Block	Upto 20 years of Age (Percent)	Above 20 years of Age (Percent)	Total
1. Kalimpong-I	48.83	51.17	100.00
2. Kalimpong-II	88.61	11.39	100.00
3. Garubathan	90.95	9.05	100.00
4. Darjeeling- Bijanbari	76.43	23.57	100.00
5. Mirik	89.04	10.96	100.00
6. Kurseong	92.00	8.00	100.00
Total Hill Areas	71.63	28.37	100.00

Source: Survey on the Conditions of the Citrus Orchards in Darjeeling District, Citrus Dieback Mapping Project, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, March, 1984.

Table : 4.15

Irrigation Facilities for Mandarin Orange Orchards
in the Hill Areas of Darjeeling District

Name of the Sub-division	Percentage of Orchards Having Irrigation	Percentage of Orchards Without Irrigation	Total
1. Kalimpong	22.00	78.00	100.00
2. Darjeeling	30.00	70.00	100.00
3. Kurseong	11.00	89.00	100.00
Total Hill Areas	20.00	80.00	100.00

Source: Survey on the Conditions of the Citrus Orchards in Darjeeling District, Citrus Dieback Mapping Project, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, March, 1984.

Table : 4.16

Extent of Application of Manures and Fertilizers
in Orange Orchards in the Hill Areas of Darjeeling
District

(In percent)

Name of the Block	Neither Manure Nor Fertilizer Applied	Manure Applied	Fertilizer Applied	Total
1. Kalimpong I	27.34	72.43	0.23	100.00
2. Kalimpong II	13.80	86.20	-	100.00
3. Garubathan	5.73	92.07	2.20	100.00
4. Takdah	90.70	8.00	1.30	100.00
5. Bijanbari	87.65	12.35	-	100.00
6. Mirik	4.52	94.92	0.56	100.00
7. Kurseong	10.78	89.22	-	100.00
Total Hill Areas	30.96	68.54	0.50	100.00

Source: Survey on the conditions of the Citrus Orchards in Darjeeling District, Citrus Dieback Mapping Project, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, March, 1984.

Table : 4.17

Pesticide Use Pattern of Mandarin Orange Orchards
in the Hill Areas of Darjeeling District

(In Percent)

Name of the Block	No Application	Pesticides Applied		Total
		Insecti- cides	Fuñgi- cides	
1. Kalimpong I	91.17	8.43	0.40	100.00
2. Kalimpong II	88.39	11.41	0.20	100.00
3. Garubathan	88.21	11.79	-	100.00
4. Takdah	95.86	2.90	1.24	100.00
5. Bijanbari	100.00	-	-	100.00
6. Mirik	51.14	41.48	7.38	100.00
7. Kurseong	88.12	11.09	0.79	100.00
Total Hill Areas 89.32		9.86	0.82	100.00

Source: Survey on the Conditions of the Citrus Orchards in Darjeeling District, Citrus Dieback Mapping Project, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, March, 1984.

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Chapter - 5

DEVELOPMENT OF ANIMAL HUSBANDRY, SMALL SCALE & COTTAGE INDUSTRY AND SERICULTURE IN THE HILL AREAS OF DARJEELING DISTRICT.

The integration of animal husbandry practices with crop husbandry inflates the level of income and employment. The setting up of local resource-based small-scale & cottage industries along with sericulture practices also offers a large scope of employment and generates income in the hands of unemployed and underemployed.

So, development in the sense of local initiative and self-help gets very much large support from them. Considering this view in this chapter an attempt has been made to discuss the extent of development of animal husbandry, small-scale & cottage industry and sericulture practices in the rural areas of the hill region of Darjeeling district since independence.

5.1 Animal Husbandry:

There were four veterinary hospitals with four veterinary assistant surgeons at Darjeeling, Ghum, Kurseong and Kalimpong before independence in the hill areas of Darjeeling district for treating non-contagious diseases and wounds of animals. For the prevention and control of infectious diseases there was one itinerant veterinary assistant surgeon in each of the hospitals at Kurseong, Kalimpong and Ghum. Besides there were an assistant

superintendent and a glanders inspector attached to the veterinary vaccine establishment at Kurseong for examining pathological specimens and preparation of rinderpest vaccine and other biological products. Each veterinary hospital would treat about 1,500 to 2,000 animals as out-patients and 300 to 400 animals as in-patients in the course of a year. Itinerant veterinary assistant surgeons would also treat a large number of animals and carry out propaganca on the precautions against epidemics. The four officers were under the sole control of the Provincial Government but the others were under the dual control of the District Board and the Provincial Government.¹

The officers mentioned above were observed to work in close co-operation with the Darjeeling Himalayan Society for the prevention of cruelty to animals. The society was organised in 1917 and impelled by the energy of Mrs. Lennox and her daughter, both of Ghumti Tea Estate. It continued effectively to prevent cruelty to animals and to secure them proper treatment and better conditions. There were an infirmary for sick and injured animals in Darjeeling and hospitals at Ghum, Kurseong and Kalimpong and dressing stations at Mirik, Pankhabari and Sukhiapokri on the Nepal frontier. It also devised a pack pony saddle, based on the army model but costing only a small sum within the reach of the poorest.²

Besides, it is mentionable here that in the year 1891, Kalimpong mela, an annual agricultural and livestock exhibition was started by Dr. Graham. It would show the way to many improvements and had made Kalimpong the headquarters of departmental demonstrations not only of the hill areas but also of Darjeeling district as a whole.³

The hill areas of Darjeeling district is on the whole a favourable area for the development of livestock on a commercial basis and for industries making animal products. As because of this fact a number of farms under individual control were well established in this area. Among these farms Keventer's farm at Ghum was prominent. This farm was started in a very small way in the late 90's by Mr. Edward Keventer, a Swede, who had already farms in Calcutta, Delhi, Aligarh and Simla. In the early stage of its development a few Siri cows and a few yaks were kept there. But, since 1924 the farm began to develop rapidly. Modern cattlesheds were built, up-to-date dairy machinery was installed and the farm became able to produce first class pasturised milk. In the year 1935 a modern pig farm was started in conjunction with the dairy. English Middle White Pigs and Australian Large White Pigs were imported in this year. About 1947, it had 200 cows and several hundred pure-bred English and Australian Pigs. It was also observed to breed its own cattle and pigs and to supply daily large quantities of pure pasturised milk, excellent farm butter, cheese, ham, bacon, pork and sansages. Having over

200 cows and several hundred pure-breed English Pigs. pedigree bulls and boars were frequently imported by the farm.⁴

Thus it is clear that before independence almost no governmental measure was adopted to improve animal husbandry in the hill areas of Darjeeling district except the provision of veterinary aid. And again, there was no practice of animal husbandry from the commercial view point among the hill people except some farms like Keventer's farm organised by private ownership.

But after independence attempts have been made in a co-ordinated manner for the development of animal husbandry practices among the people of the hill areas on the commercial basis for augmenting their income through the utilization of their leisure in this activity by the Central and State Governments. The developmental work relating to animal husbandry in this region after independence consists of the following programmes:

- (i) Cattle Development,
- (ii) Piggery Development,
- (iii) Poultry Development,
- (iv) Development of Sheep Rearing,
- (v) Development of Veterinary Services.

5.1.1. Cattle Development Programmes:

Cattle Development Programmes in the hill areas of Darjeeling district since independence were composed of :

- (a) measures to improve quality of breeds,
- (b) measures to improve fodder supply,
- (c) measures to improve milk marketing.

5.1.1. (a) Measures to improve quality of breeds:

In the past, i.e., before independence, cross fertilisation of cattle with improved breeds was introduced in the hill areas of this district by the farms, owned privately like Keventer's farm at Ghum, missionaries and others. After independence, during the years 1956-1961, a scheme to upgrade local stock with Jersey strain, through artificial insemination was introduced covering a number of places in Darjeeling and Kalimpong subdivisions. In the year 1963-64, a new scheme, namely, Hill Cattle Development Scheme was undertaken with the objective of intensive and extensive implementation of artificial insemination with Jersey strain for upgradation of local stock.⁵

Under this scheme, one central semen collection station and two A. I. (Artificial Insemination) centres with nineteen sub-centres were set up in order to provide necessary infrastructure for raising the quantity of qualitative stock of cattle in the hill areas during 1963-1974.⁶

But a majority of interior villages till then were not covered with this scheme. For raising the genetic progeny of the cattle stock mostly in the villages, supply of infrastructure was tried to be expanded by opening more main A. I. centres and

A.I. sub-centres in the hill areas after 1974 under the Accelerated Hill Development Programme. Under this programme one additional central semen collection station, six A.I. main centres and fifty two A.I. sub-centres were established during 1974-81.

However, a large number of villages were out of the reach of the facilities provided with A.I. sub-centres. For the hilly terrain and unsatisfactory road communication it was difficult to reach the remote rural areas with biological products. As such upgrading work was taken up by placing improved bulls in the selected rural areas for taking up natural services. In order to satisfy this demand one heifer as well as bull rearing unit was established in the hill areas in the year 1974-75.⁷

Thus from the above analysis it is evident that since independence for the upgradation of genetic progeny of the cattle stock in the hill areas, one heifer-cum-bull rearing unit, two central semen collection stations, eight main A.I. centres and seventy-one A.I. sub-centres were opened upto the year 1981.

In this context it should be mentioned that one A.I. sub-centre can work efficiently utmost within the range of five kms, if and only if there remains an efficient system of communication. So in respect of the hill areas of Darjeeling district, due to its inefficient communication system and disorderly location of the villages, seventy-one A.I. sub-centres are not sufficient to raise the quality of cattle stock in all the villages. Also,

one heifer-cum-bull rearing unit is not capable of supplying the bulls in accordance with their demand for the desired level of upgradation of the cattle stock. So, in this area more central semen collection stations, A.I. main centres, A.I. sub-centres and heifer-cum-bull rearing units should be established in the near future.

5.1.1(b) Measures to improve fodder supply:

Cattle development is intimately connected with the expansion of fodder cultivation and its supply. Before independence cattle stock in the hill areas was fed with natural fodder from the forest and crop residues of cultivated cereals like paddy, maize, wheat etc.

But it was realised that nutritional requirement of a high yielding milch cow could not be fully satisfied with the fodder only from forest and crop residues. For the scarcity of cultivable land in the hill areas, it is not desirable to bring large areas under independent fodder crops. However after independence the following measures were taken with a view to raising the supply of qualitative fodder to the hill people.

(i) Seed multiplication-cum-fodder demonstration farms were established in each block of the hill areas during 1951-1981. The total number of such farms in the hill areas were ten till 1981. Among them two at Pedong and one at Algarh of Kalimpong sub-division, were established during 1951-1961.⁸

(ii) Improved varieties of fodder seeds and cuttings were begun to be distributed to the farmers at subsidised rates since 1961.⁹

(iii) Improved varieties of fodder seeds, fodder demonstration plots, chaff-cutter, silopits etc were started to be distributed since 1976-1977.¹⁰

(iv) Five hundred fodder demonstration plots spread all over the area were established during 1976-1981.¹¹

(v) Two feed mixing units were set up in Kalimpong and Kurseong respectively during 1974-1977 in order to cater to the feed requirement of the animals of the farmers in the hill areas of Darjeeling district.¹² The measures, furnished above, developed fodder position remarkably after independence.

5.1.1. (c) Measures to improve milk marketing:

Integral to cattle development programme is to set up an efficient market mechanism, which ensures fuller utilization of the existing production level through remunerative prices and linked inputs. In the period before independence two attempts were taken in this field.

In the year 1930, the Darjeeling Milk Union with societies at Sukhiapokhri, Rungbull, Dilram and Sonada was established. The societies were supplied with cream separators and the union would market milk and butter. But the union ceased to function after

five years of its inauguration due to economic non-viability. A second attempt was made during the Second World War under the leadership of one Swaraj Bose. In this time no separate milk societies were set up, but the milk was being procured through the existing primary credit societies. The co-operative received no financial assistance from the Government or credit from the banks and this venture also collapsed within three years of its establishment.¹³

After independence the Himalayan Milk Producer's Co-operative Union was set up under Operation Flood-1. The union's operational area covered whole of the Darjeeling district and parts of the neighbouring districts namely, Jalpaiguri and West Dinajpur. Till the year 1980, under the leadership of the union the following activities were performed:

(i) A 60,000 LPD Dairy Plant with 10 M.T. per day milk drying capacity was established at Matigarah of Siliguri subdivision of Darjeeling district.

(ii) Six chilling centres each with a capacity varying from 2000-4000 litres per day (LPD) totalling 15,000 to 20,000 LPD were installed.

(iii) Organisation of 500 village Milk Producer's Co-operative Societies (MPCS) were attempted to be affiliated to a District Co-operative Milk Producers Union. Relating to this context the year-wise progress of this union in the case of hill areas of Darjeeling district is furnished in Table 5.1.

(iv) In order to enhance milk production a technical input drive programme, comprised with the sub-programmes, namely, animal health care, artificial insemination service, balanced cattle feed, fodder seeds and dairy extension services to the milk producers was implemented by the union through the village co-operatives. About 1,50,000 milch animals were envisaged as being brought within the co-operative ambit.

(v) Suitable milk procurement and marketing infrastructure were created.¹⁴

Thus the establishment of the Himalayan Milk Producers' Co-operative Union has brought about a major improvement in milk marketing by providing remunerative prices to the producers. The producers have been assisted in freeing themselves from the clutches of intermediary interests and received through a primary co-operative network quality based prices that are more than three times in excess of what they have received from intermediaries prior to the setting up of the union. Besides, the programmes for breed improvement, animal health coverage, utilization of semen technology for breed improvement, provision of linked inputs of concentrated cattle feed, extension services, training of animal husbandry workers etc. raised the quality of the livestock and the volume of milk production of the farmer members of the MPCCs in the hill areas of Darjeeling district.¹⁵

But the functioning of the union in the hill areas is confronted with various problems as outlined below:

The first and the most important problem is the cow fat and s.n.f. content in the milk produced. From a study, undertaken independently by the union in mid 1978 on producers' animals selected randomly in different locations in the hill areas, it was revealed that the average fat and s.n.f. contents were 3.77 per cent and 7.7 per cent respectively. For this it was difficult to determine quality limits for the purchase of milk without penalizing the producers unfairly. Again, it imposed a burden on the union for reconstituting the milk to acceptable standards under P.F. Act before marketing the milk. Random experiments conducted by the union indicated that low standards of fat was due to the wholetime confinement in stalls. When the animals were regularly exercised, the percentage of fat improved perceptibly. However, this remedial measure will not be feasible in most of the societies for the topographical difficulties in the hill areas of Darjeeling district.¹⁶

The second major problem confronted by the union is related to the cost of transportation of milk. The milk is usually transported by head-load from the societies to the reach-point, from where milk is collected by hired motor vehicles and brought to the chilling plants. After the completion of chilling operation it is further transported by motor vehicles to the dairy located

in the foothills. For the hill contour, four wheeled Jeeps or Landrovers have to be engaged for the first phase of transportation of milk from the societies to the chilling plants. This raises the cost of transportation. During the year 1977-78, the union incurred a cost of Rs. 0.06 per litre on head load charges and Rs. 0.25 per litre on motor transport. In these days of rising prices of fuel, this huge cost of transportation is likely to go up further unless the chilling stations in the hill areas of Darjeeling district are converted into mini-dairies, where separation, pasteurisations and packaging of milk can be done.¹⁷

Despite the problems outlined above there is enthusiasm and hope among the members of the societies. A few societies are procuring 500-800 litres of milk per day. Some of the societies in Peshok, Darjeeling sub-division have done well enough to buy their own Jeep for transporting milk. Another in the village of Chottapobong, Darjeeling sub-division has been able to set up a school, library and knitting centre out of the funds generated by the Milk Producers Co-operative Society.¹⁸

5.1.2. Piggery Development Programme:

There is a good demand for the meat of pig in the hill areas of Darjeeling district. The conversion of feed into meat by pigs is much better in the cool climate of the hills than in the torrid weather of the plains. It was observed in the period before independence that pigs were not numerous in the rural areas

of the hill region and were only reared by a limited number of castes namely, Mangars, Rais, Limbus, Tamangs, Lepchas and Bhutanese, in insanitary conditions mainly for meeting family requirements. Besides, at that time, there were some piggeries in the hill areas and in the district as a whole, breeding from imported Yorkshire and Berkshire animals and some of these piggeries were observed to maintain adequate sanitary precautions. But in this period there was not observed any attempt from the Government's part to develop and popularise pig rearing in the rural belts of the hill areas of Darjeeling district.¹⁹

After independence during 1956-1961, i.e., during the Second Five-Year Plan period six pig-rearing units were set up in different locations of Darjeeling district including the hill areas of the district with funds allotted by the 'Tribal Welfare Department'. Besides, a bigger pig breeding farm was established at Dungra in Kalimpong sub-division, from where improved varieties of piglets were made available to the farmers for stock upgradation.²⁰

Since the inception of the Fifth Five-Year Plan, i.e., since 1974, the year of formation of the Accelerated Hill Development Council, much emphasis was given on improving the breedable stock of pigs in the hill areas under the 'Accelerated Hill Development Programme', guided by the said council. With a view to satisfying this objective ten exotic pig farms were established in different blocks of the hill areas and from these farms it was

begun to distribute improved varieties of piglets among the target groups. It was sought thereby to generate surplus income in the hands of the target groups by enabling them to sell improved cross-breed varieties of pigs. Again, in order to develop market mechanism of pigs, a processing-cum-backon factory was set up at Kalimpong by the West Bengal Livestock Processing Developing Corporation. This factory purchases improved varieties of pigs from the target groups according to the body weight per pig and processes a portion of meat to manufacture pork products and sells the remainder as green meat within the hill areas.²¹

These programmes since independence in this field, has popularized pig rearing in the hill areas of Darjeeling district to a very great extent and for this pig population has become much higher than that before independence.

5.1.3. Poultry Development Programme:

The hill areas of Darjeeling district have the potentialities of developing poultry farming as an employment-oriented commercial project for the small and marginal farmers. The climate and other factors of the hill areas make conditions for poultry development schemes highly encouraging and the achievement so far in this direction is quite impressive. The reason behind the popularity of poultry keeping in the hill areas is largely due to the quick returns without involving any great risk or large capital involvement.

Before independence two kinds of indigenous domestic fowls namely Sikkimay and Syakinay were observed to be domesticated for the family needs in the hill areas of Darjeeling district. White Leghorns, Black Minorcas and Rhode Island Reds were imported by a number of persons interested in poultry farming but it was delicate, not entirely suitable for local conditions and susceptible to diseases. But this period showed no evidence of undertaking any programme of development of poultry farming on the commercial basis in the hill areas by the then Government or any other agency sponsored by the Government.²²

In the earlier years of independence, during the First (1951-1956) and Second (1956-1961) Five-Year Plans a total of 4,668 poultry birds-Rhode Island Red and White Leghorn were distributed at different places of Darjeeling district including hill areas for the upgradation of poultry stock. It was the period of the Third Five-Year Plan (1961-1966), since when poultry keeping received considerable impetus in the hill areas of Darjeeling district. From this time intensive poultry development work through the supply of improved varieties of exotic breeds regularly in the selected areas of the hill region was undertaken. This assured reasonable returns to the poultry keepers.²³

Onward seventy's, the Small Farmers' Development Agency (SFDA) within the Fourth Five-Year Plan period (1969-74) had undertaken steps to popularise the poultry schemes as an alternative occupation among the small and marginal farmers. Moreover, the

agency had negotiated to co-operative institutions and other institutions concerned with profitable marketing of the poultry products in this area. After the beginning of 'Accelerated Hill Development Programme', under the supervision of "Accelerated Hill Development Council", i.e., since the beginning year of the Fifth Five-Year Plan (1974-1979), three poultry farms at Darjeeling, Kalimpong and Kurseong respectively were established by the Animal Husbandry Department of the Government of West Bengal in order to distribute chick, table eggs and birds among the target groups. Besides, within the above mentioned period, i.e., 1974-1979 a poultry co-operative was set up in Kurseong for improving the market mechanism of poultry products under the guidance of "Accelerated Hill Development Council".²⁴

In spite of the above-mentioned schemes poultry farming in the hill areas has not arrived at the desired level of development till the end of the Fifth Five-Year Plan, i.e., 1979 due to unavailability of regular supply of balanced feed, lack of attention towards health-care, which are also aggravated by the problems of transport and communication in respect of interior villages in the hill areas of Darjeeling district. Therefore, poultry keeping can be successful only if it is practised in a more scientific and efficient manner than that at present, through the supply of linked inputs, like, balanced feed and health care etc.

5.1.4 Sheep Rearing Programme:

Sheep rearing programme has enormous importance in the economy of the hill areas of Darjeeling district. It is an important occupation of a section of the hill people. It has been popular among the small and marginal farmers and the agricultural labourers as well due to low intake and maintenance cost.

Sheep rearing although important, no emphasis was given for its development in the period before independence. Even relatively less importance was attributed on it in the period after independence. Only two sheep breeding farms at Kashone and Pedong of Kalimpong sub-division were established during the Third Five-Year Plan (1961-66).²⁵

In the absence of sufficient knowledge of modern method of elective breeding and sheering among the sheep-rearers in this area, the quality of wool obtained from the sheeps reared is inferior and yield is very low. Again lack of required emphasis on it has obstructed it's development. However, there is a large scope for the development of sheep rearing in the hill areas especially in most of the areas in Kalimpong sub-division and in some parts of Bijanbari block in Darjeeling sub-division.

5.1.5. Development of Veterinary Services:

In the earlier part of this chapter it is observed that the supply of veterinary services in the hill areas of Darjeeling

district was almost meagre under the British rule. The period after independence shows a notable change in this field. The sketch of development of veterinary services in this area of the district for the period after independence may better be presented by separating the period into two parts as in Table 5.2.

The first of these refers to the period involving the years between 1951-1966, i.e., between the First Five-Year Plan and the Third Five-Year Plan. The second refer to the period 1974-1981 during which various new developmental works relating to the strategies for intensive supply of veterinary services in the hill areas of Darjeeling district were performed under the 'Accelerated Hill Development Programmes'.

From Table 5.2, it is observed that after independence, the development programmes relating to veterinary services were taken in such a manner that the difficulties connected with transport, communication and topography of the region in the way of veterinary extension services could be outweighed. During 1951-1966, emphasis was given to extend the supply of veterinary aids and services, and to remove the inadequacy in this regard existing before independence only through setting up of a few few hospitals, dispensaries and other related institutions. But in course of time it was realised that the development of veterinary services till 1966 only through the establishment of some kinds of veterinary service institutions was not sufficient to remove its inadequacy in the face of the problems arising from the

topographic character of the region. For this under the 'Accelerated Hill Development Programmes' developmental strategy in this field was undertaken in such a manner that it was not confined only in setting up veterinary servicing institutions like hospitals, dispensaries etc. but also were taken some other completely different types of strategies, as evident from the item Nos. III, VI, VIII of the second column in the Table 5.2. As a consequence, the supply of veterinary services had become so intensive that those were available at the door steps of the livestock owners in the hill areas of Darjeeling district and the inadequacy in its supply existing till 1966 was outrightly obviated.

5.2. Small-scale and Cottage Industries and Sericulture Practices:

5.2.1. Small-scale and Cottage Industry:

Although the small-scale and cottage industries, have an immeasurable importance in the context of the economy of the hill areas of Darjeeling district, there was almost no sign of development in this respect for a long time either before or after the occupation of this area by the British.

There were some traditional village handcraft industries supplying simple needs of the local rural people before the advent of the British. The products of these handicrafts were blankets, woolen knitted articles, woven cotton and wool fabrics, kukris, various tools, pottery, bamboo products (baskets, mats, ghooms,

etc.) and ropes. The production operation of these products was hereditarily confined among a few households as cottage industries.²⁶

Under the British rule no attempt was observed in developing cottage industries and inculcating the habit of industry amongst the local people except the establishment of the Kalimpong Industrial School. The school was established by Mrs. Graham, wife of the very Rev. J.A. Graham D.D., C.I.E., in the year 1897. In the year 1924, the school was registered under the Companies Act as the Kalimpong Mission Industries Association. With the setting up of this school it was started to teach lace making among the local hill women in order to supplement their family income from agriculture. Later on, carpentry, embroidery, tailoring and carpet making were added to the school curriculum and on the eve of independence there were twelve separate departments including weaving, dying, leather craft, knitting, painting, fabric-printing and building. As a consequence of the establishment of this school, the local hill people had had an opportunity to send their children for learning various crafts and thereby entrepreneurial skill among some hill people had developed.²⁷

The period since independence registers much emphasis on developing a strong base of small-scale and cottage industries in the rural areas of the hill region of Darjeeling district. In this period attempts had been made to create an atmosphere conducive to a notable development in this field. In view of achieving the

goal government aimed at increasing the efficiency of the existing industrial units and establishing new industrial units lack of entrepreneurial skill and lack of incentives to the entrepreneurs were in this period chalked out as the major constraints in the path of development of small-scale and cottage industries in this areas. In order to remove these constraints the following strategies were undertaken in this period:

(i) Crreation of enough entrepreneurial skill:

In order to develop a sound industrial base of either type in an area, the prime requirement is to develop entrepreneurial skill among the people of the area concerned. Accordingly in the hill areas of Darjeeling district much emphasis was given on spreading technical education and training in different trades with the establishment of a number of technical educational institutes since independence. In the year 1949-50 the Industrial Training Centre/Institute at Tung was established as a joint project of the Union and State Governments on a 60 : 40 expense sharing basis, especially for the benefit of the hill people. It imparts training on some engineering trades, namely, fitters, electricians, wireman, motor-mechanics, carpenters, black-smiths etc. and some non-engineering trades like, printing machine operators, press, compositors, proof-readers, tailors, book-binders, woollen - goods weavers etc.²⁸ In addition to this institute fifteen other training centres had been set up at different blocks of the hill areas of the district during 1951-

1970 in the post-independence period. The names of these centres are:

(i) The cutlery servicing station at Kurseong to render assistance by way of heat-treatment, grinding, polishing, electro-planting, supply of modern machinery, improved raw materials, power and technical know-how to traditional artisans manufacturing tea garden implements locally.

(ii) Cane and Bamboo Training Centre at Kalimpong,

(iii) Wool and Cotton Weaving Centre at Darjeeling,

(iv) The Foot-wear Centre at Kurseong,

(v) The Carpentry Training Centres at Bijanbari, Mirik and Pedong,

(vi) The Bee-keeping Centres at Kalimpong, Relling and Bijanbari,

(vii) The Bristle Dressing and Brush-ware Training Centre at Bijanbari,

(viii) Polytechnic School at Kurseong,

(ix) Technical School at Kalimpong,

(x) Arts and Crafts Industrial Co-operative Society at Kalimpong.²⁹

Onwards 1970 no new technical education and training institute had been established due to government instruction, not to open any new training centre.³⁰

Although government has issued instruction not to open any new training centre, our experience tells whenever new scheme for industrial development has to be introduced, some types of

training are unavoidable. As far as practicable these trainings are supposed to be imparted in the regular training centres, like Industrial Training Centre at Tung and other production centres.³¹

It is worth noting that in the case of impracticability to fill up the gap of entrepreneurial skill with the help of existing set up of Technical Education and Training, the entrepreneurial skill is tried to develop by providing in plan training and education to the selected candidates at places where such training will be conducive to the development of new industries in the hill areas. Even sometimes skilled personnel are also brought from outside area to provide suitable nucleus for development. Thus in the post independence period, there has developed sufficient entrepreneurial skill in the hill areas of Darjeeling district.

(ii) Incentives to the Entrepreneurs:

Local entrepreneurs in the hill areas are extremely shy. This causes difficulties in the establishment along with the development of industries in this area. In order to overcome this bottleneck government had given incentives to the local talents in the following forms:

(a) Financial Aids to the Entrepreneurs/Industries:

Financial aids in the form of loans and subsidies were advanced to the entrepreneurs and artisans of this area by the government through the following institutions since 1951:

(i) District Industries Centres, which gives short-term, medium-term and long-term loans upto one lakh and subsidies to the entrepreneurs and artisans under 'Bengal State Aid to Industries (BSAI) Act,

(ii) West Bengal Khadi and Village Industries Board, which advances financial help to various cottage industries,

(iii) Rural Industries Project, which was launched in Darjeeling district in 1963 by the 'Planning Commission' for promoting the rural industries exclusively by giving financial help to the rural artisans,

(iv) Block Development Officer, District Industrial Officer, Deputy Commissioner/Magistrate, the Project Officer, Rural Industries Project and Registrar of Co-operative Societies are empowered to sanction loans under B.S.A.I Act. Among them B.D.O. can sanction loan upto Rs. 400.00, D.I.O. upto Rs. 2000.00 and the latter authorities can sanction it upto Rs. 10,000.00.

(v) West Bengal Finance Corporation, Siliguri branch, which serves the need for fixed capital loan requirement of industrial entrepreneurs.

(b) Establishment of Pilot Project:

In order to remove shyness of the local entrepreneurs in the hill areas and to develop new industries in this area by the local talents the Government gives initiative to them through setting up of industrial units. These units are ultimately handed over to those who are involved in the project from the very

beginning. A suitable agreement in such cases is made mainly to ensure that on the completion of the gestation period, the units handed over are paid for in easy instalments.³²

(c) Provision of Margin Money:

Various financial institutions are invited by the government to encourage local entrepreneurs by providing incentive in the form of margin money. Margin money varies from 40 per cent to 50 per cent of the total capital requirement according to the merit of the case.³³

(d) Establishment of Industrial Estates and Sheds:

Besides financial incentives the Government provides some other facilities to the entrepreneurs of the hill areas of Darjeeling district so that they can come forward to set up industries. These facilities are the establishment of industrial estates and sheds, sales emporia in suitable places of the hill areas of the district, from where the entrepreneurs can have easy transport and marketing facilities. It is worth mentioning that meanwhile big industrial estates out of state budget, three small industrial sheds with control assistance were established in different places in the hill areas of Darjeeling district. In addition to these five sales emporia of which four at Darjeeling and one at Kalimpong were set up in order to popularize the handicrafts of the hill areas and of the district as a whole.³⁴

Owing to the above strategies undertaken by the Government since independence there has taken place a breakthrough in the field of small-scale and cottage industries in the hill areas of Darjeeling district. Local resource based various small-scale and cottage industries e.g. furniture, handicraft, woodcraft, blacksmithy, shoe-making, bamboo works, wool-knitting, cane-works, tailoring, blanket wearing, etc. have been opened and run under three types of enterprise, namely, Public (Governmental), Private and Co-operative.³⁵

Although the number of small-scale and cottage industries has increased remarkably in this area, they have been suffering from the following constraints, which prevent them from smooth functioning.

There remains lack of co-ordination among the activities of the agencies/institutions, which undertake various schemes to develop new industrial units as well as to assist old ones. Owing to this fact most of the artisans, craftsman and small entrepreneurs are observed to suffer from inadequate assistance, services and especially scarce raw materials.

Relatively limited size of market poses another problem in the way of successful working of the small-scale units in the hill areas. Specially the market in the hill areas is too small and inadequate to clear up the output of these units.

Irregular supply of raw materials of some kind is a serious problem, standing opposite to the small-scale and cottage industries in the hill areas of Darjeeling district. The reason behind this is mainly the transport bottleneck in this area.

Lack of regular supply of power and credit are other retrograding factors behind small-scale and cottage industries of this area. A particular unit may have enough demand for its products but lack of regular supply of power as well as lack of sufficient funds for purchasing raw materials hinders production.

As a consequence of the problems discussed above the small-scale and cottage industries have not flourished in this area as it is desired by the Government of independent India. Therefore, in order to augment the level of employment and income of the people in the rural areas of this region through the development of small-scale and cottage industries, measures of the following types should be taken for removing the aforesaid problems:

(i) Regular supply of raw materials and reducing the cost of raw materials by linking small-scale and cottage industries of this area intensively to the locally available raw materials or to those which are not scarce and can easily be transported,

(ii) Supply of working capital as and when necessary and reduction of the cost of borrowing,

(iii) Provision of facilities for storage and marketing,

(iv) Increasing artisans' retention capacity and ensuring better returns for their products,

(v) Co-ordinating the schemes undertaken by various agencies/institution for the development of small-scale and cottage industries in the hill areas of Darjeeling district.

5.2.2. Sericulture Practice:

Sericulture is a special type of cottage industry. It is related with the cultivation of mulberry for raising silk-worms producing cocoons and with some other practices, concerned with rearing of silkworms and weaving of silk fabrics. It is a labour-intensive agro-based industry, which provides gainful supplementary employment to the rural people.

Before independence a little bit of stress was given by the Government to develop this industry. Under the British rule the credit of introducing sericulture as a subject in the school curriculum went to Mr. Southerland, Principal of the Scottish Mission Institution at Kalimpong. One of his students later started private rearing of cocoons at Kalimpong. It was, however, not until the year 1917, when positive steps were undertaken by the Government to introduce sericulture in the hill as well as in the plain areas of the district. In that year the present Kurseong Nursery was established in the hill areas of Darjeeling district to rear silkworm breeds on the basis of the recommendations of

Prof. H.M. Maxwell Letroy, who had carried on an investigation into the causes of decline of sericulture in India at the instance of the then Government of India.³⁶

In fact, the expansion of sericulture in the hill areas of Darjeeling district started significantly since independence. After independence, during the First Five-Year Plan, i.e., between 1951-55, a scheme was introduced for the expansion of mulberry cultivation in the hill areas of the district and accordingly a mulberry nursery was started at Matigara near Siliguri.³⁷

During the Second Five-Year Plan (1956-61), it was envisaged that the hill areas of the district possessing a favourable climatic condition could be utilised for rearing high-yielding exotic races of silkworm throughout the year. The same work could only be carried on during the winter season in the plains. It was further realised that the seeds of high-yielding exotic races could also be crossed with hard indigenous races and F-1 hybrids for commercial rearing. Accordingly, with financial assistance from the Central Government received through the Central Silk Board, the following three schemes were implemented in the district in order to expand sericulture in the hill as well as in the plain areas of the district during Second Five-Year Plan period (1956-61).³⁸

(1) A Foreign Race Seed Station was set up at Kalimpong, with the objective of studying the nature and feed of silk-worm

of high-yielding exotic varieties besides supplying basic layings for multiplication and evolving cross breed races suitable for summer season of the plain areas. Presently several races from Japan and European countries are being maintained at this station and one high-yielding silk-worm race suitable for summer season has already been evolved. About 500 kg of seed cocoon are being produced here annually.

(ii) Two seed multiplication stations were set up at Kalimpong and Matigara for multiplying silkworm races of exotic varieties to meet the demand of the plain districts. It is reported that at these centres about 2000 kgs. of seed cocoons are being produced annually.

(iii) With a view to improving the food plant by grafting Japanese varieties with indigenous stocks, a scheme was taken up and introduced by the Government at Matigara. Again with the objectives of preparing silkworm eggs by using both exotic and indigenous races, a grainage was set up at Matigara. At this centre about 5 lakh layings of silk worm are being produced annually.³⁹

In addition to the aforesaid schemes implemented by the Government, there were set up seven new sericulture training centres in the hill areas of Darjeeling District during 1951-61 in the post-independence period. Among these, centres at Tripai,

Kalimpong block Relling-Bijanbari block, and the Kalimpong Nursery, Kalimpong block are being run by the Directorate of Small-Scale and Cottage Industries, while those at Mirik Block, Kurseong Block, seventh-Mile at Kalimpong block are under Tribal Welfare Department and the centre at Garubathan at Kalimpong block is under Tribal Welfare Department and the centre at Garubathan block is managed by the Department of Agriculture and Community Development. Along with implementing training programmes, the distribution of mulberry plants has been going on in every year among the villagers and trainers free of cost since 1964-1965. To follow up the extension work in the interior villages where local people have no past tradition of sericulture work, an extension wing under the Directorate of Cottage and Small-Scale Industries of West Bengal State Government was set up during 1956-1961 at Siliguri, under the direct supervision of the Superintendent of Sericulture, Siliguri, Darjeeling district. Besides a sericulture sub-research station of the Central Government was established at Kalimpong within the said period with a view to stimulating basic research on mulberry cultivation.⁴⁰

In spite of implementing the above schemes the hill areas of Darjeeling district are observed to meet only 10 per cent of the state-wide total demand for bivoltine silk-worm seeds in the beginning of the Fifth Five-Year Plan period i.e., 1974-79, while there is practically unlimited scope for increasing seed production capacity in this areas.⁴¹

With a view to removing such position of sericulture work in the hill areas of Darjeeling district and utilising favourable climatic conditions for rearing exotic breed of silk-worms, yielding higher percentage of silky matter, a broad objective was taken at the start of the Fifth Five-Year Plan period (1974-79) under the supervision of 'Accelerated Hill Development Council', to ensure production of 20,000 kgs. of seed cocoons, worth Rs. 5.00 lakhs and supply of 30 lakh bivoltine laying annually.⁴² In order to attain this objective two servicing units to cater the needs of the seed growers, nine large and three small demonstration farms vis-a-vis servicing units to meet the needs of technical know-how and other factors, relating to sericulture and one state grainage for the production of 10 lakhs d.f. layings annually were established at different strategic locations concerned with sericulture work in the hill areas of Darjeeling district.⁴³ Apart from these, following specific programmes were undertaken by the 'Accelerated Hill Development Council' to reach the said goal:

(i) To bring 200 cultivators and 100 acres of land under mulberry cultivation for seed cocoon production,

(ii) To bring 1500 cultivators and 750 acres of land under mulberry cultivation for commercial cocoon production,

(iii) To assist the cultivators of the hill areas by giving incentive in the form of financial help to the tune of Rs. 4000.00

per farmer, i.e., for $\frac{1}{2}$ acre mulberry plantation on 50 per cent loan and 50 per cent grant basis,

(iv) To give necessary technical assistance to the cultivators for successful harvest of crops and help them in the disposal of their produce.⁴⁴

As a result, within the Fifth Five-Year Plan period, i.e., during 1974-79, 100 acres of land were brought under mulberry cultivation for seed cocoon production in the seed zone. This had again brought forth the following consequences:

- (a) production of 1000 kgs eggs, i.e., 30 lakh lays was ascertained annually,
- (b) direct self-employment of 200 persons and indirect to equal number were generated,
- (c) production of 20,000 kgs of high grade seed cocoons worth Rs. 6 lakh was ensured,
- (d) supply of quality bivoltine eggs to the traditional cocoon rearing districts of West Bengal, namely, Malda, Murshidabad and Birbhum was increased.⁴⁵

However, a point is to be mentioned here that though there had taken place broad changes in respect of high grade seed cocoon production onwards 1974, but the programme to bring 1500 cultivators as well as 750 acres of land under mulberry cultivation for commercial cocoon production was not materialised only

of the subsequent years during this plan period and even in the sixth Plan period (1980-1985). This fact may be cleared from the data presented in Table 5.3. To this effect it may be stated that the said programme was very much important for its feasibility in raising the level of employment and income in the rural areas of the hill region of Darjeeling district. Its partial embodiment, which was due to ignorance and disinterestedness of the cultivators in the hill areas about the sericulture practice prevented employment and income in the rural areas to reach the level which would likely be accrued from the full-fledged implementation of the programme, to bring 1500 cultivators and 750 acres of land under mulberry cultivation for commercial cocoon production. Therefore, in order to raise the level of employment and income in the rural areas, by bringing cultivators of the hill areas of Darjeeling district in the fold of mulberry cultivation for commercial cocoon production, their ignorance and disinterestedness about this practice should be removed through publicity about its potentiality to generate employment and income.

Table : 5.1

Year-Wise Progress in the Organisation of Milk Producers Co-operative Societies (MPCS)* in the Hill Areas of Darjeeling District

Particulars	Pre-Project (1969-1970)	1975-76	1976-77	1977-78	1978-79	1979-80	(January 81)
MPCS Organised		88	196	227	254	272	266
Farmer members ('000)		2.2	4.0	5.7	6.5	6.9	7.0
Average Daily Milk Procurement ('000 LPD) during the year		0.05	4.4	12.4	13.7	11.2	15.0
Average Price Paid (Rs/Litre)		0.60	1.02	1.17	1.33	1.28	1.31

*Note: All Societies are of Anand Pattern.

Source: Government of West Bengal and National Dairy Development Board, Project Report of Darjeeling Milk-shed, Indian Dairy Development Corporation, 1980.

Table : 5.2

Period-Wise Development of Supplies of Veterinary Services in the Hill Areas of Darjeeling District.

Items of Veterinary Services	
Column (1) Period 1951-1966	Column (2) Period 1974-1981
i) Existing Veterinary Hospitals provincialised	i) One Veterinary Assistant Surgeon was posted in each block to look after the prophylaxis of the livestock of the area and also to attend the outdowcases of the Hospital.
ii) Six Veterinary Dispensaries at Garubathan, Mirik, Darjeeling, Tindharia and Kalimpong each under an itinerant veterinary Assistant Surgeon were established.	ii) 32 Veterinary aid centres were established to cover the entire rural areas of the Darjeeling hills.
iii) Nine Peripatetic service centres were established at Bijanbari, Sukhiapokhri, Takdah, Kalimpong, Algarah, Mirik & Garubathan	iii) Ambulatory clinic van services were provided for each block of the three Hill subdivisions of Darjeeling district for prompt veterinary aid at door-step of Live-stock owners.
iv) Three quarantine stations were established to check and vaccinate cattle entering or leaving the Area.	iv) Parasitic control unit was established for systematic and intensive survey to control parasitic diseases.
v) Government Veterinary Hospitals at Kalimpong and Kurseong were reconstructed	v) A Central Medical stores sub-Depot at Ghoom was established to solve the problem of supply of medicine and surgical instruments.
vi) Eight new Veterinary Hospitals were established	vi) Mobile sterility prevention camp was established to check reproductive failure.

Contd..

Table : 5.2 (Contd..)

1	2
vii. An Isolation shed at Pedong was established	vii) A Central Diagnostic, Forensic, and Bio Chemical laboratory was set up to deal with Forensic and Biological problems.
	viii) Mobile clinical and spot diagnosis laboratory was established as a part of static laboratory for spot diagnosis, collecting of samples for further investigation and extending veterinary aids.
	ix) Veterinary dispensaries in each block were strengthened with the construction of new buildings and posting additional staff.
	x) State Veterinary Hospitals in Darjeeling was reconstructed for the elimination of its accommodation problem and inefficiency of it arising therefrom.

Sources : (i) West Bengal District Gazetteers: Darjeeling, Government of West Bengal, 1980.

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Table : 5.3

Progress of Area Under mulberry cultivation and Number of Cultivators Associated with Commercial Cocoon Production in the Hill Areas of Darjeeling District.

Year	Area Under Mulberry Cultivation in Acres	Number of Cultivators
1974-75	73.34	N.A.
1975-76	50.50	101
1976-77	176.00	352
1977-78	272.50	345
1978-79	163.00	326
1979-80	104.50	392
1980-81	123.00	435
1981-82	127.50	394
1982-83	111.50	324
1983-84	124.50	241

Source : Office of the Deputy Director of Sericulture, Darjeeling.

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Chapter - 6

DEVELOPMENT OF COMMUNICATION, TRANSPORT, POWER SUPPLY, EDUCATIONAL AND HEALTH SERVICES IN THE HILL AREAS OF DARJEELING DISTRICT.

The spectrum of development includes not only the progress of economic activities but also the progress of communication, transport, power supply, education, health and other social services. In this chapter an attempt has been made to examine the prospect of development of communication, transportation, power supply, educational and health services in the hill areas of Darjeeling district.

6.1 Communication:

Means of communication in the hill areas of Darjeeling district and in the district as a whole were very rudimentary before the occupation by the British in 1835. A few narrow rough tracks through forest and occasional cane bridges over torrents were all that existed.¹

The modern means of communication started to develop in this region after the advent of the British. Between 1865 and 1869 Darjeeling Cart Road, i.e., the Hill Cart Road (79.38 km.) was constructed to connect the hill areas with the plain areas of the district. This road connected Darjeeling with Siliguri via Kurseong and replaced the old Military Road, which was built

between 1839 and 1842 being unsuitable for wheeled traffic. To set up a link between Kalimpong and Siliguri a road with length of 72.09 km. was constructed shortly after 1850. Besides these two roads, the hill and the plain areas were connected with the construction of a narrow gauge railway between Darjeeling and Siliguri via Kurseong during 1879 and 1881. The name of this railway is Darjeeling Himalayan Railway and the length of it is 82.62 km. Simultaneously with setting up of modern means of communication between the hill areas and plain areas of the district, impetus had been given to construct a strong communication system within the hill areas itself. A large number of metalled and unmetalled roads were built within the hill areas during the British rule.²

For a distinct understanding about the development of roadway communication within the hill areas during the British rule Table 6.1 is presented.

After independence, the length of railway had not increased and also no other ways besides Hill Cart Road and Kalimpong to Siliguri Road had been constructed to connect Darjeeling with Siliguri via Kurseong and Kalimpong with Siliguri. It was only the communication network, developed during the British rule within the hill areas with the construction of metalled and unmetalled roads, which had increased remarkably. But here too for a long time there was no progress in this field. More speci-

fically, the years between 1947 and 1961 did not show any increase in the length of both metalled and unmetalled roads. It was only after 1961 the increase in the length of said communication was noticed. Table 6.2 may help to understand this more clearly. It is exhibited from Table 6.2 that during the years 1961-1981 after independence the total length of roadway (both metalled & unmetalled) increased remarkably.

This increase has created the advantage to all the villages in the hill areas of Darjeeling district to reach under the road communication facility. But Table 6.3 conveys that most of the villages in all the blocks are approached by unmetalled road except Darjeeling - Phulbazar, Shukiapokhri-Jorebunglow and Mirik blocks. The percentage of villages in the total hill areas approached by unmetalled road is 56.19. This is due to the fact that the percentage share of unmetalled road in the total length of road in this areas is much higher than that of metalled road- which is evident from Table 6.2.

The lower share of metalled road along with higher percentage of villages approached with unmetalled roads indicates that most of the roads are not fit for four-wheeled traffic and can not create so much benefits to the farmers in respect of marketing of agricultural produce as the metalled roads fit for four wheeled traffic can do. Therefore, it may be stated that the road communication system so far developed in the hill areas of

Darjeeling district is to a great extent economically inefficient.

6.2 Transportation:

The transport system in the hill areas of Darjeeling district is principally based on railway and roadway. Along with these two means of transport, the method of transporting goods from lower altitude to higher altitude and vice versa through rope ways plays an important role. There does not prevail any system of transportation through river way due to the usual feature of the area except lower reaches of the major rivers where small country boats or dug-outs are used for crossing them. So in this part of the chapter attention is paid to discuss the development of transportation system in the hill areas related with railway, road and ropeway.

6.2.1. Railway:

In the year 1878 the railway line from Calcutta to Siliguri was opened. Since then large number of travellers began to come to Darjeeling. They performed the journey from Siliguri to Darjeeling by tonga. The disadvantages of these means of transport led to a proposal for laying of a steam tramway which was accepted by the then Governor. The construction started in 1879 and by March 1880 the line upto Tindharia had been opened. By the end of 1880 it was completed upto Kurseong and in July 1881 it was opened for traffic to Darjeeling. This system was

owned by the Darjeeling Himalayan Railway Company for which the Managing Agents were Messers, Gillanders Arbuthnot & Co.³

For many years the railway had practically a monopoly of handling of import and export trade in the hill areas of the district. It had also a monopoly in carrying passengers to and from the hill areas of the district. The only competition had to face was bullock cart traffic which was only appreciable in the Tista Valley and in the Terai.⁴

The advent of modern motor vehicles from about 1930 coupled with the improvements in road communication became a competing factor with the railway. And the competition between railway and roadway was so severe that the railway after fifty years of prosperity (from 1881 to 1930) entered into a very depressing condition even after the restrictions imposed by the government on the number of lorries and buses plying for hire. The actual effects of this controlled competition may be understood from Table 6.4 . From the said table it is clear that since 1929-30, the rail-road competition had begun to be more and more severe. The tonnage of goods and number of passengers, carried through this traffic began to diminish year after year since 1929-30 whereas those through traffic by road began to increase since 1929-30. Only the years 1941-42 and 1942-43 showed a sudden increase of the magnitude of tonnage of goods and number of passengers. This was due to the fact that railway had to carry

temporarily increased war time population as well as the essential commodities of the Darjeeling town.⁵

After independence rail-road competition became more acute. The railway having a long period of usefulness in the past came to a disadvantageous position and incurred losses. It may be evident from Table 6.5.

This disadvantageous situation is due to the fact that road transport is comparatively cheap and quick. This adverse competition might have probably imposed restriction for further extension of railways in the hill areas of Darjeeling district during the post independence period.

6.2.2 Road Transport:

The road transport system, i.e., the use of motor vehicles and lorries for carrying passengers and goods started since 1930. Since then it has gained momentum in the hill areas of Darjeeling overtime.

Before independence, there were only two routes namely, Darjeeling to Siliguri (i.e. Hill Cart Road) and Kalimpong to Siliguri, through which this system of transport was observed to run. After independence, especially, during the Third Five-Year Plan period (i.e. 1961-66) investment was directed primarily to improve the quality of roads, bridges and culverts.⁶ Accordingly a number of roads in the hill areas became fit for motor

vehicles during 1967-70. The number of roads through which buses were plying with permanent permit increased by about four time. Table 6.6 shows the name, length and number of trips of bus services to show the importance of the routes. From Table 6.6 it is observed that the hill areas of Darjeeling shows a marked concentration of traffic along the routes namely Darjeeling to Siliguri (i.e., Hill Cart Road) and Kalimpong to Siliguri among the roads except the route namely, Darjeeling local. This is due to the fact that these two routes, besides railway, are the only path of communication between the hill areas and the plain areas not only of Darjeeling district but also of West Bengal.

During 1967-72 bus services were opened with temporary permits through five new routes and one new route with permanent permit. Besides, in 1972 temporary permits had also been granted for plying buses on three 'such' routes through which buses were already plying with permanent permits.

Again Regional Transport Authority, Darjeeling granted permits for stage carriage on the nine routes in that year. In order to make the above statement evident, Table 6.7 is presented.

But the modern motor vehicle service thus developed still 1972 was not adequate. Accordingly during the period 1972-81 a number of other new routes were prepared to be opened for plying bus services to fill up this inadequacy. The name of these routes were as follows:

- (i) Mirik - Simana Busty Road,
- (ii) Gairibus - Phalut Road,
- (iii) Singla bazar bridge upto Sikkim border,
- (iv) Nagrifarm to Dhajia Khasmahal,
- (v) Maneybhanjyang to Rimbick Road,
- (vi) Bagora to upper Marming.

It is, however, observed from Table 6.8 that a significant proportion of villages in the blocks of the three hill sub-divisions are lying at a notable distance from the places where the facility of motor vehicle service is available. Perhaps this implies that there had not developed adequate road transport facilities in the hill areas of Darjeeling district yet after a long period of independence. The unavailability of the road transport facility to a notable percentage of villages, makes it difficult to market the produce of those villages at a lower cost. This perhaps hinders the economic development of those villages to a certain extent. Therefore, roads should be developed and constructed in such a manner that villages in all the blocks get the facilities of the motor vehicle service at a lower cost.

6.2.3 Ropeway:

Ropeway is an efficient and economic form of transport. It helps to transport mainly goods of various kinds at a lower cost from lower altitude to higher altitude and vice versa by replacing bullock cart and coolies. It was the year 1928, when

the first ropeway in the hill areas of Darjeeling district was started to be constructed. In this year Kalimpong Ropeway Co. Ltd. was formed for the purpose of transporting commodities between the town of Kalimpong and Rilli near Riyang station on Darjeeling Himalayan Railway in the Tista valley. This ropeway was opened in September, 1930 by Lady Stephenson, wife of the acting Governor of Bengal. Till 1947 a total length of 20.90 km. including the Ropeway of Kalimpong town and Rilli was constructed by different private companies under Bengal Aerial Ropeways Act 1923 for the use of public. In addition, ropeway with length of 30.78 km. was constructed by the owners of a number of tea gardens for their own use, till the year 1947.⁷

Although ropeway has a remarkable utility to transport goods in the hill areas of Darjeeling district, since the year 1947, i.e. after independence, the length of ropeway has increased only by 0.40 per cent. This is because of the fact that during this period only one ropeway with length 8.29 km. connecting Darjeeling town with Singla bazar was opened.⁸

But the length of ropeway should be increased with the construction of new ropeways connecting new areas, if transportation of goods from the agricultural, tea and forest areas is to be made within shorter time and at a lower cost.

In this context it may be noted that the extension of ropeways is possible in both the north and south. In the north it would provide cheap and reliable transport facilities to Sikkim. In the south it would connect the railway at Sevoke. Likewise, branch ropeways are possible to the Cinchona factory at Mangpu and to adjacent tea gardens for the extraction of timber, charcoal and produce from the surrounding forests.⁹

6.3 Power Supply:

In the era of industrialisation the term power simply refers to the energy generated from hydro-electric and thermal electric power plant projects. In this part of the chapter attempt has been made to analyse the prospect of development of supply of electric power in the hill areas of Darjeeling district. In analysing this the supply of power generated from the hydro-electrical and thermal electric power plants has only been considered, leaving out all other sources, namely, firewood, oil and natural gas.

Supply of electricity in the hill areas of the district has started before independence, i.e., before 1947. In the year 1897 electric power had started to be used in Darjeeling town with the setting up of the Darjeeling Power Plant, at Sidarpong, the first power plant in India. In the years 1933 and 1938 the Kurseong and Kalimpong towns in the hill areas got the supply

of electric power for the first time respectively.¹⁰

In addition to public supplies of electricity in the three hill towns, it is observed that till 1947 few tea villages got the supply of electricity from the power generating plants driven either by water or oil engines in order to use both for lighting and for operating factory machinery. In this context it is worth mentioning that all these supplies were managed mainly by private undertakings except the supply of electricity in the Kurseong town, which was done by the state undertakings till 1947.¹¹

After independence the period from 1947 to 1961 did not show any remarkable change in this regard. Upto 1961 the supply of electricity was not extended beyond the three hill towns and the tea gardens and adjacent tea villages either by private or by state undertakings. Table 6.9 will help us to understand the fact clearly. Public supply of electricity in the three hill towns in fact started since 1961. Supply of electricity mainly for home consumption in the vast rural areas of Darjeeling district under state undertakings had begun since this year. Table 6.10 helps us to have an idea about the progress of power supply in the rural hill areas of Darjeeling district since 1961. From the Table 6.10 it is observed that during the decades 1961-1971 and 1971-1981, the percentage of inhabited villages supplied with electricity has increased from 10.88 to 15.38 and 34.45 respectively. Thus it is evident that within twenty years since 1961, there has been more than 20 per cent increase in the number of

Inhabited villages supplied with electricity.

Therefore, 65.55 per cent of the inhabited villages, has not yet been supplied with electricity. So the development of rural areas in terms of the number of inhabited villages supplied with electricity has not been arrived at a desired level. Again from Table 6.11 it is observed that there exists a notable inter block disparity in development in terms of the number of inhabited villages supplied with electricity. The Sukhiapokhri-Jorebunglow block with 77.78 per cent of inhabited villages supplied with electricity remains at the highest rank in the ladder of the percentage of inhabited villages supplied with electricity, whereas the Garubathan block with 3.23 per cent of the inhabited villages supplied with electricity is at the lowest position.

Moreover Table 6.11 shows that the major percentage of the inhabited villages provided with power supply in all the blocks except Kalimpong and Garubathan are tea villages, whereas in Kalimpong and Garubathan blocks 100.00 per cent of the villages supplied with electricity are not the tea villages. Thus it is clear that till 1981 the development of rural areas of the hill areas of Darjeeling district in terms of the supply of power was not area indifferent.

6.4 Educational Services:

6.4.1. Education in the Pre-Independence Period:

It is stated earlier that Lepchas were the earliest inhabitants of Darjeeling. By the beginning of the 17th century a large group of population from Eastern Tibet settled in the district. At that time, besides the Lepchas, the Limbus (whose lands were later annexed by Nepal and who themselves were Hinduized and integrated in the Nepalese body politic as one of the Nepalese ethnic groups) lived in this area. The Lepchas and the Limbus were pre-literate peoples, professing their own animistic religions. Lahtsum Chhembo, the guru of the first King of Sikkim, Penchoo Namgyal, introduced Lamaist Buddhism into this area and the Lepchas soon accepted the new faith. The script of the Lepcha language too evolved about this time after the roundular variety of the Tibetan script known as Bu-can (pronounced as U-Che). The total bulk of the contemporary literature within the Lepcha script would not be more than a hundred volumes being translations from Tibetan of Lamaist Buddhist scriptures which conveyed knowledge of beliefs and practices of Lamaist Buddhism.¹²

Throughout the 18th and 19th centuries parochial education in Lamaist Buddhist scriptures and rituals was provided by the monasteries. No monastery in Darjeeling was established before the closing decades of the 18th century and this continued to be the only form of education available to the inhabitants. Opportunity to receive even this form of parochial education was reserved to men alone who choose to become monk or Lamas. No

other person, except of royal lineage, could have it. Lamahood was held in such high esteem among the Bhutias and the Lepchas that families having more than one son would release one, usually the second from family ties and duties so that he could become a monk.¹³

This was the state of education in the hill areas of Darjeeling district and also in the district as a whole when the East India Company stepped in. The spread of modern education was pioneered in the region by Christian Missionaries, particularly, those of Church of Scotland Mission. The nature of development of education in the subsequent periods after the access of the East India Company in the region may be demarcated into two types.¹⁴

One of these types was associated with the setting up of schools in Darjeeling, Kurseong and Kalimpong by the Christian Missionaries and was designed to "Provide for European and Anglo-Indian children that type of education and upbringing to which the parents had been accustomed in their native country". On the eve of independence the number of this type of schools was ten.¹⁵ The curriculum resembled those followed by schools in England. To get education through this type of institutions was so expensive that only European civilian and military personnel, businessmen and business executives and lately a handful of rich Indians could afford to send their children there.¹⁶

The other type was the attempt to provide educational service to the hill people. This attempt was made in about 1850 by Rev. W. Start, a private Missionary, who added to his record of good work in Darjeeling by opening a school for Lepchas. After him came a band of German Missionaries, one of whom, Mr. Niebel devoted himself to school work, prepared some Lepcha primers and gathered boys together into schools. It was not however until the advent of the Rev. William Macfarlane in 1869 that any broad scheme of vernacular education was introduced into the district. He realised that it would be essential to train teachers. With this object he collected a band of hill boys. This group of boys was the nucleus of a training school of Kalimpong. Mr. MacFarlane found that he could use Hindi text-books as a means of construction and induced Government to give scholarship to the students attending his courses of instruction. He himself taught in the face of many discouragements and the frequent disappearance of his most promising pupils. But he persevered and overcoming all obstacles was able with the help of Government to start primary schools in many parts of the district.¹⁷

Within a few years Mr. MacFarlane's system became popular in the district and in 1873 there were twenty-five primary schools with 615 boys and girls receiving instruction. The work, of which the foundations were thus laid broad and deep, has steadily grown under his successors and the subsequent works of the Educational

Department of the Church of Scotland Mission in the District in this field became the most important factor in the spread of education among the local people.¹⁸ Therefore, the main educational developments for local people had started since Macfarlane's day. The educational development for the hill people, till independence i.e., upto 1946-47, can be realised from Table 6.12.

6.4.2. Educational Service in the post-Independence Period:

6.4.2.1. Formal Educational Services:

In the post-independence period, notable changes have taken place in the sphere of different levels of educational facilities in the hill areas of Darjeeling district. The progress of facilities having primary, secondary and collegiate education has been quite appreciable during the years between 1946-47 and 1980-81. During the period 1946-47 and 1980-81, there has been an overall expansion in the number of educational institutions of different levels in this region of the district. The statistics presented in Table 6.13 gives a full account of the increase in the number of educational institutions of all levels.

Thus it is evident from Table 6.13 that over time development of educational facilities in the hill areas of Darjeeling district since independence is very much impressive. In this course of development of educational services much emphasis has been given on rural areas of this region. This may be cleared from Table 6.14.

The data presented in Table 6.14 show that rural areas occupy major share in the increase in total number of educational institutions of all levels except college level. But the expansion of educational amenities of various levels which has been materialised through the increase in the number of institutions is not sufficient in relation to the population. Although emphasis has been given to the development of this amenity in rural areas, still the rural people except the primary level do not get this facility as that is enjoyed by the people in the urban areas. This may be evident from Table 6.15.

Unequal distribution of educational facilities exhibited in Table 6.15 is not only confined among the people of rural and urban areas but also different places in the rural and urban areas occupy significantly different positions in terms of their share in the total number of educational institutions of different levels. This may be evident from Table 6.16. The difference in the number of educational institutions among rural and urban areas results in significant difference in the availability of educational facilities among the people inhabiting in different rural and urban areas. This is evident from Table 6.17.

6.4.2.2. Special and Non-formal Educational Facilities in the Post-Independence Period:

Apart from the development of formal educational facilities in the post-independence period there have developed some

kind of special and non-formal educational facilities in the hill areas of Darjeeling district.

6.4.2.2. (a) Teachers' Training:

On the verge of independence there were three teachers' training schools in the district. All of these schools in the district were situated in the hill areas of the district. One was at Kalimpong and run by the Scottish Universities Mission Institute for training the boys. Another was also at Kalimpong for girls and run by the Church of Scotland Mission. The third for girls was at St. Josephs school, Kurseong. Since independence the Government opened a number of Basic Training Schools in this region of the district. In 1950-51, the government-managed Basic Training School (Later College) was opened at Kalimpong for training the teachers of Junior Basic and Primary Schools. In 1957-58 it was upgraded to a teachers' training degree college for preparing students as teachers in Senior Basic and Multi-purpose schools having facilities for basic education. In 1954 the government-managed Peoples' (Janata) Basic Training College was opened at Kalimpong for would-be teachers of basic training schools and for functionaries of the governments' Social Education Programme. The government-aided Sri Ramkrishna B.T. College was established in 1957 in Darjeeling town by Ramkrishna Mission. The Scottish Universities Mission Institute - managed Teachers' Training school at Kalimpong was upgraded to a teachers' training

degree college at some time between 1961 and 1964.¹⁹

The statement presented in Table 6.18 may provide particulars of development of teachers' training institutions since independence in the district as well as in the hill areas of Darjeeling district. It is explicit from the said table that the number of teachers' training institutions increased in the post-independence period to five, while that was three before independence. This can be treated as an encouraging situation in this connection because such development may help it to be practicable to appoint trained teachers in educational institutions, which will upgrade the quality of teaching in the schools.

6.4.2.2. (b) Technical and Vocational Education:

The introduction of technical and vocational education in the hill areas of Darjeeling district has started since 1887 with the setting up of a number of training institutes and opening up of vocational classes in different schools. The number of such training institutes and schools in the hill areas was eight before independence, i.e., before 1947. Four out of these eight schools were only for domiciled European and Anglo-Indian boys and girls. The name of these four schools were : St. Helen's Convent School, Kurseong; Goethal's Memorial Orphanage and School, Kurseong; St. Josephs' School, Darjeeling and Victoria Boys School, Kurseong. Table 6.19 gives particulars of these technical and vocational institutions.

Since independence boys and girls of this areas of the district got increased opportunities for technical and vocational education on different lines. The Goethal's Memorial Orphanage and School has been admitting students other than domiciled European and other Anglo Indian Orphans since 1947. An Industrial Training Centre was established at Tung in 1949-50 as a joint project of the Central Government of India and West Bengal State Government on 60:40 expense-sharing basis, especially for the benefit of the hill people. This centre imparts training in some engineering trades of fitters, electricians, wiremen, moto-mechanics, carpenters, blacksmiths etc. and in some non-engineering trades of printing machine operators, press-compositors, proof-readers, tailors, book-binders, woollen-goods, weavers etc. The period of training varies from one to two years and the successful trainees are awarded national certificates of the National Council for Training in Vocational Trades. In this institution women trainees are also admitted in some branches.²⁰

Besides the Industrial Training Centre at Tung twenty-one other training centres have been set up in the post-independence period at different blocks of the hill areas of Darjeeling district. The names of these centres are (i) Arts and Crafts Industrial Co-operative Society at Kalimpong, (ii) Sericulture Training Centres at Tripai (Kalimpong), Relling (Bijanbari), Kalimpong Nursery (Kalimpong), Mirik, Kurseong and Seventh-mile (Kalimpong), and at Garubathan, (iii) Cane and Bamboo Training Centre at

Kalimpong, (iv) Wool and Cotton Weaving Centre at Darjeeling, (v) Foot-wear Centre at Kurseong, (vi) The Carpentry Training Centres at Bijanbari, Mirik and Pedong, (vii) The Bee-Keeping Centres at Kalimpong, Relling and Bijanbari, (viii) The Bristle Dressing and Brush-ware Training Centre at Bijanbari, (ix) Polytechnic School at Kurseong, (x) Technical School at Kalimpong. All these centres/institutes have been set up within 1949-50 and 1969-70. Since 1970 there has not been established any new training centre. This is due to the issue of government's instruction not to open any new training centre. However, it can be said in this context that the field of technical and vocational education has been widened notably and diversified in many respect in the period after independence.

6.4.2.2. (c) Physical Education:

Before independence for a large number of years no particular attention was paid to provide physical education in the hill areas of Darjeeling district. This state has changed since the year 1938, before independence. In this year a District Organiser of Physical Education was appointed. The District Organiser of Physical Education would hold each year short courses of training for teachers of Primary and Middle Schools at different centres and also visit the schools to inspect their physical training work. The Indian School Sports Association was observed to organise competitions and tournaments and this had done much to improve the standard of games in High, Middle and Primary schools. The three

Scout's Associations at Darjeeling, Kurseong and Kalimpong were noticed to make the scout movement very popular in most of the schools in urban areas and a few in rural areas.²¹

After the achievement of independence in the year 1947, both the Central and State Governments realised that education was not complete without harmonious development of body and mind and they recognised the importance of physical education in the country.²² In the case of the hill areas of Darjeeling district the following developmental activities relating to physical education have been undertaken by the Government since independence.²³:

(i) Construction of stadium-cum-playground in the three sub-divisional headquarters in the hill areas of the district.

(ii) Construction of gymnasium in the three sub-divisional headquarters in the hill areas of Darjeeling district.

(iii) Sanction of yearly grants-in-aid to the District Sports Association @ Rs. 10,000.00 per annum, Sub-divisional Sports Association @ Rs. 5000.00 per annum, District School Sports Association @ Rs. 6000.00 and Sub-divisional School Sports Association @ Rs. 3000.00 per annum.

(iv) Sanction of grants-in-aid to the clubs recognised by the Government through the District Sports Association for purchasing equipments, improving playgrounds, constructing club houses etc. @ Rs. 2000.00 per annum.

(v) Sanction of grants-in-aid @ Rs. 5000.00 per annum to as many schools as possible in the hills as well as in the plain areas of the district for encouraging to take part in all popular games and sports.

(vi) Sanction of grants @ Rs. 13,000.00 per annum to other district sports associations namely, (a) Darjeeling District Table Tennis Association, (b) Darjeeling District Badminton Association, (c) Darjeeling District Volleyball Association, (d) Darjeeling District Byamsala (Body Building) and (e) Darjeeling District Judo Association.

(vii) Appointment of Coaches: one for football, one for hockey, one for cricket, one for athletics, one for basket ball, one for volley ball and one for gymnastics, for imparting instruction both theoretical and practical.

The activities stated above have developed the state of physical education only in the urban areas of the hill region remarkably. In order to develop the condition of sports and games particularly in the rural areas following few programmes though meagre in relation to the quantum of necessity were implemented under the accelerated hill development programmes by the supervision of the Hill Development Council during 1974-1980. These were as follows:

- (i) Grants to Block Sports Association,
- (ii) Construction of Playgrounds at Parmaguri, Pokhribong and Sukhiapokhri,
- (iii) Construction and Improvement of Playgrounds for High Schools and Selected Junior High Schools.
- (iv) Provision of Grants for Holding Rural Sports Tournaments.
- (v) Development of Play-fields in Rural Areas.

6.4.2.2. (d) Social Education:

In a broad sense all types of education have social content. But the aim of 'Social Education' is to make education available to socially handicapped persons in particular. Adult education, moral instructions, dissemination of family planning, knowledge or training in improved agriculture are the illustrations in point. Social education programme may also involve reaching educative materials to people through libraries, film centres, etc.

Before independence the first step in this field was taken by various Roman Catholic and Protestant Missions in the Sadar (Darjeeling) and Kurseong sub-divisions and only by Protestant Mission in Kalimpong sub-division by the third quarter of the nineteenth century. The adult literacy centres started by these missions were specially in rural areas and in Kalimpong sub-divisional town. But they did not live long. The Sunday Schools for providing moral and parochial instructions lasted longer but did not attract the local populace, except the Lepchas specially in Kalimpong sub-division.²⁵

By the late twenties of the present century, social workers of the Nepalese Association, the Bhutia Association, the Lepcha Association and the Gorkha Dukh Nivarak Sammelan went round organising libraries and literacy centres. The earliest of these libraries and literacy centres were at Darjeeling, Kalimpong and Bijanbari centres were later converted into regular schools receiving financial aid from the Government of the District Board, later called the Zilla Parisad. Among the pioneers in this field of social work, mention may be made of Motichand Pradhan and Chhumbay Tshiring of Kalimpong and J.B. Thapa, H.D. Lama and T.B. Subba of Darjeeling.²⁶

But a notable drive for the spread of social education materialised in the hill areas of Darjeeling district only after independence. In the said period social education programme began to be implemented in this area through various institutions, namely,

- (i) Adult Education Centres and Night Schools,
- (ii) Social Education Centres,
- (iii) Community Centres,
- (iv) Folk Entertainment Units,
- (v) Library Services.

These institutions, for the spread of social education, were managed either by public bodies or by private organisations receiving aid from the Government of West Bengal through the Social

Education Wing of the Department of Education of the Government of West Bengal.²⁷ Table 6.20 may give an idea about the growth of these institutions in the Darjeeling hills between 1950-51 and 1980-81. From Table 6.20 it is evident that in the post-independence period there was a remarkable initiative from the part of the Government to spread social education especially among the rural people. This implies that as a result of such initiative taken from the part of the Government the spread of social education had there taken place in a remarkably wider scale.

6.5. Health Services;

In order to maintain the normal health of the people, provision of appropriate medical services and supply of meticulously refined drinking water are the fundamental requirements. So in this part of the chapter an evaluation of the development of these two fields since independence in the hill areas of Darjeeling district is made.

6.5.1. Medical Services:

Prior to independence, medical services of the Western type was begun to be provided regularly in the hill areas and in the district as a whole towards the end of the nineteenth century. Since then medical institutions of various types started functioning. The provision of regular medical services through various medical institutions was done by the Government on the one hand and by the Church of Scotland Mission on the other. Table 6.21

gives an account of the medical services in different rural and urban areas in the hill region of the district before independence. After independence the medical service for the general people is observed to be provided entirely by the State Government of West Bengal and the Central Government of India.

In the beginning of this period the Government of West Bengal has taken strong initiative to develop the position of medical service throughout the state. In spite of the paucity of fund, the Government of West Bengal started to set up Health Centres with 4 to 10 indoor beds for serving an area covered by a Union Board (Approximately the same area now covered by a Panchayet Samitee) since 1948. Such Union Health Centres within each police station were to be affiliated to the thana Health Centres having a minimum of 20 beds and a maximum of 50 beds. All the health centres in a sub-division were again to be affiliated to the sub-divisional hospital having 68 indoor beds each.

The conditions for the establishment of a Union Health Centre were that the local people should donate six bighas (240 decimal) of land and an adequate amount of cash while for a Thana Health Centre 20 bighas (800 decimal) of land plus a cash amount. The scheme continued till the year 1955 when at the instance of the Government of India, it was decided to have Primary Health Centres with 10 beds at the headquarters of every community Development Block along with 2 or 3 Subsidiary Health Centres,

i.e., Primary Health Sub-Centre at suitable places within each block area with only 2 non-dieted emergency beds.²⁸

Table 6.22 shows the development of medical service in conformity with the aforesaid policies of State and Central Government, in the hill areas of Darjeeling district after independence. The statistics given in Table 6.22 show that in the post-independence period there has notable increase in the number of medical institutions, managed by the government in the rural areas of the hill region of Darjeeling district while such change in the context of urban areas is not observed. For more specification Table 6.23 is displayed here. Thus it is evident that in the post-independence period full attention has been paid to outweigh the deficiency of the medical service in the rural areas of the hill region of Darjeeling district. The unaltered position of the number of medical institutions in the urban areas of the hill region of Darjeeling district towards a higher number is not due to the negligency of the Government about the maintenance of normal health of urban people; but it is probably due to the fact that the existing quantum of medical facilities developed upto 1946-47 is till today more than its sufficiency in terms of its necessity.

6.5.2. Water Supply:

The supply of potable water from various hill springs through pipelines at different areas of the hill region of

Darjeeling district has been started long before independence. The Darjeeling and Kurseong municipalities have begun to supply tap water since the completion of their works in 1912 and 1913 respectively. The water-works supplying tap water within Kalimpong Municipality has been erected in 1922 as is operated by the Public Health Engineering Directorate of the state government.²⁹

After a severe epidemic of dysentery at Bitdubling, Kalimpong sub-division in 1937 efforts were made to protect rural supply springs in the hills from contamination by leading water therefrom in pipes. Improved water supplied on the above lines have been provided by various authorities at different villages of different blocks.³⁰ Table 6.24 presents the number of villages in each block supplied with potable water before independence. It shows that before independence the number of villages supplied with potable water was not remarkable. But after independence a marked change has taken place in the field of supplying potable water in the hill areas of Darjeeling district. Tables 6.25 and 6.26 make the fact more clear.

From Table 6.25 it is evident that after independence there has been a spectacular increase in the number of villages supplied with potable water in this region. Moreover from Table 6.26 it is noticed that the increase in the number of villages in all the blocks is such that the percentage of villages supplied with potable water in all the blocks has become more than ninety. It may be expected that in the near future 100 per cent of the villages in each block will be supplied with potable water.

Table : 6.1

Development of Roadway Communication in the
Hill Areas of Darjeeling District Under the
British Rule

Means of Communication	Length (in km.)
Roadway:	
Metalled	141.20 (22.29)
Unmetalled	492.31 (77.71)
Total	633.51 (100.00)

Note: Figures in parentheses are the respective percentages.

Source : Dash, A.J., Bengal District Gazetteer: Darjeeling
(Alipore : Bengal Government House, 1947).

Table : 6.2

Development of Roadway Communication in the Hill Areas
of Darjeeling District since Independence

(Length in km.)

Means of Communication	Years				
	1947	1951	1961	1971	1981
Roadway :					
Metalled	141.20 (22.29)	141.20 (22.29)	146.06 (22.88)	361.94 (15.74)	527.2 (19.27)
Unmetalled	492.31 (77.71)	492.31 (77.71)	492.31 (77.12)	1937.11 (84.26)	2208.86 (80.73)
Total	633.51 (100.00)	633.51 (100.00)	638.37 (100.00)	2299.05 (100.00)	2736.06 (100.00)

Note: Figures in parentheses are the respective percentages.

Sources: (i) Government of West Bengal, West Bengal District Gazetteers: Darjeeling, 1980.

(ii) District Census Hand-book : Darjeeling District, 1981.

Table : 6.3

Number of Villages in Absolute and Percentage terms Approached by Pucca Rasta (Metalled Road) and Kutcha Rasta (Unmetalled Road) in Different Blocks of the Hill Areas of Darjeeling District in 1981

Name of the Blocks	Total Number of Inhabited Villages	Number of Villages Approached By PR	Number of Villages Approached By KR	Total Number of Villages Approached By Road Communication
1. Darjeeling-Phulbazar	48	28 (58.33)	20 (41.67)	48 (100.00)
2. Sukhiapokhri-Jorebunglow	45	36 (80.00)	9 (20.00)	45 (100.00)
3. Rangli-Rangliot	29	4 (13.80)	25 (86.21)	29 (100.00)
4. Kalimpong	73	27 (37.00)	46 (63.00)	73 (100.00)
5. Garubathan	31	8 (25.81)	23 (74.19)	31 (100.00)
6. Kurseong	60	18 (30.00)	42 (70.00)	60 (100.00)
7. Mirik	13	10 (76.92)	3 (23.08)	13 (100.00)
Total	299	131 (43.81)	168 (56.19)	299 (100.00)

Note : Figures in parentheses are the respective percentages

Source : District Census Hand-book: Darjeeling District, 1981.

Table : 6.4

Relative Weights of Rail Transport and Road Transport Systems From the Plain Areas to the Hill Areas of Darjeeling District before Independence

Years	Number ('000) of Passengers			Tonnage ('000) of Goods Carried		
	By Rail	By Road	Total	By Rail	By Road	Total
1909-10	174 (100.00)	-	174 (100.00)	47 (100.00)	-	47 (100.00)
1919-20	263 (100.00)	-	263 (100.00)	62 (100.00)	-	62 (100.00)
1929-30	258 (84.31)	48 (15.69)	306 (100.00)	80 (98.91)	.88 (1.09)	80.88* (100.00)
1934-35	240 (81.08)	56 (18.92)	296 (100.00)	76 (90.20)	7.6 (9.90)	83.6 (100.00)
1939-40	213 (74.48)	73 (25.52)	286 (100.00)	65 (80.75)	15.5 (19.25)	80.5 (100.00)
1940-41	206 (71.78)	81 (28.22)	287 (100.00)	57 (77.55)	16.5 (22.45)	73.5 (100.00)
1941-42	240 (79.21)	63 (20.79)	303 (100.00)	63 (78.95)	16.8 (21.05)	79.8 (100.00)
1942-43	309 (91.96)	27 (8.04)	336 (100.00)	63 (91.44)	5.9 (8.56)	68.9 (100.00)
1943-44	311 (90.14)	34 (9.86)	345 (100.00)	76 (88.79)	9.6 (11.21)	85.6 (100.00)

Notes: Figures in parentheses are the respective percentages

* These Figure relate to the year 1931-32

Source: Dash, A.J., Bengal District Gazetteer: Darjeeling
(Alipore : Bengal Government House, 1947).

Table : 6.5

Earnings and Expenditures of Railway Transport From the Plain Areas to the Hill Areas of Darjeeling District after Independence

Year	Earnings (Rs. in Lakhs)	Expenditures (Rs. in Lakhs)
1959-60	13.33	53.01
1960-61	14.23	41.86
1961-62	16.33	41.99
1962-63	15.87	58.53
1963-64	19.55	60.32
1964-65	15.25	84.72
1965-66	16.47	71.94
1966-67	14.72	57.18

Source: Government of West Bengal, West Bengal District Gazetteers: Darjeeling, 1980.

Table : 6.6

Bus Services Run By Private Agencies along Different Routes of Darjeeling District During 1967-70

Name of the Routes	Distance (in km.)	Nature of Service (Nationalised Day or Private)	Number of Trips Per
1. Darjeeling to Siliguri	84	Private	14
2. Darjeeling Local	16	Private	14
3. Darjeeling to Kurseong	32	"	3
4. Takdah to Darjeeling	27	"	1
5. Darjeeling to Manbhanjan	24	"	2
6. Kalimpong to Siliguri	68	"	9
7. Darjeeling to Pokhribong	26	"	1
8. Siliguri to Rungpoo	81	"	1
9. Kalimpong to Rungpoo & Garubathan	89	"	3
10. Kalimpong to Pedong	21	"	3

Source: Government of West Bengal, West Bengal District Gazetteers: Darjeeling, 1980.

Table : 6.7

Name of the Routes and Number of Permits (Temporary/
Permanent) Opened in the Hill Areas of Darjeeling
District during 1967-1972

Name of the Routes	Number of permits
a) Name of the Routes Opened for Buses (with Temporary Permits)	
i) Kalimpong-Rhenock	2
ii) Siliguri-Mirik	1
iii) Kalimpong-Rangpo Via Musug	1
iv) Siliguri-Garubathan	1
v) Darjeeling Bijanbari	1
b) Name of the Routes Opened Newly for Buses with Permanent Permits	
i) Siliguri-Garubathan	1
c) Name of the Routes already opened for Buses with Permanent Permits but Again Opened for Buses with Temporary Permits	
i) Darjeeling-Siliguri	2
ii) Darjeeling Local Area	1
iii) Kalimpong-Siliguri	2
d) Name of the Routes for Stage Carriage	
i) Siliguri-Mirik	2
ii) Kalimpong-Siliguri	3
iii) Kalimpong-Garubathan	2
iv) Siliguri-Garubathan	2
v) Darjeeling-Bijanbari	1
vi) Darjeeling Town Area	2
vii) Siliguri - Gangtok	2
viii) Kalimpong-Rhenock	1
ix) Darjeeling Local Area	4

Source: Government of West Bengal, Integrated Annual Plan 1972
For Darjeeling Hill Areas (Development and Planning
Department : Hill Affairs Branch Secretariat, Darjeeling).

Table : 6.8

Number of Villages in Absolute and Percentage Terms, Lying at Different Ranges of Distance From the Place at which Bus Service, Available in Different Blocks in the Hill Areas of Darjeeling District, in 1981

Range of Distance (in km.)	Name of the Blocks						Total Hill Areas	
	Darjeeling-Phulbazar	Sukhiapokhri-Jorebunglow	Rangli-Rangliot	Kalim-pong	Garu-bathan	Kurseong Mirik		
≤ 5	24 (50.00)	28 (63.64)	15 (51.72)	37 (50.68)	19 (61.29)	35 (58.33)	10 (76.92)	168 (56.38)
5-10	15 (31.25)	12 (27.27)	7 (24.14)	16 (21.92)	12 (38.71)	12 (20.00)	3 (23.00)	77 (25.84)
10 &	9 (18.75)	4 (9.09)	7 (24.14)	20 (27.40)	-	13 (21.67)	-	53 (17.78)
Total Number of Inhabited Villages	48 (100.00)	44 (100.00)	29 (100.00)	73 (100.00)	31 (100.00)	60 (100.00)	13 (100.00)	298 (100.00)

Note : Figures in parentheses are the respective percentages.

Source: Government of West Bengal, Census 1981, West Bengal District Census Hand-book: Darjeeling.

Table : 6.9

Number of Villages and Towns Supplied with Electricity
By Private and State Undertakings in the Hill Areas of
Darjeeling District during 1947 to 1961

Nature of Management	Places Supplied with Electricity	
	Tea Villages	Towns
i) Private Undertakings	24 (92.39)	2 (66.67)
ii) State Undertakings	2 (7.61)	1 (33.33)
Total	26 (100.00)	3 (100.00)

Note: Figures in parentheses are the respective percentages

Source: Government of West Bengal, Census 1961, West Bengal
District Census Hand-book: Darjeeling.

Table : 6.10

Development of the Supply of Electricity in
the Hill Areas of Darjeeling District, Since 1961

Years	Number of Inhabited Villages	Number of Villages Supplied with Electricity	Percentage of Villages Supplied with Electricity
1961	239	26	10.88
1971	221	34	15.38
1981	299	103	34.45

Sources: (i) Government of West Bengal, Census 1961, West Bengal District Census Hand book : Darjeeling.

(ii) Government of West Bengal, Census 1971, West Bengal District Census Hand-book : Darjeeling.

(iii) Government of West Bengal, Census 1981, West Bengal District Census Hand-book : Darjeeling.

Table : 6.11

Number of Villages under Different Categories Supplied with Electricity (in Absolute and Percentage Terms) in Different Blocks of the Hill Areas of Darjeeling District in 1981

Name of the Blocks	Total number of Inhabited Villages	Total Number of Inhabited Villages Supplied with Electricity	Percentage of Inhabited Villages Supplied with Electricity	Number and percentage of the Tea Villages Supplied with Electricity	Number and percentage of the Villages other than Tea Villages Supplied with Electricity	Total Number of Inhabited Villages Supplied with Electricity
1. Dharjeeling-Phulbazar	48	13	27.08	11 (84.62)	2 (15.38)	13 (100.00)
1. Shukhiapokhri-Jorebunglow	45	35	77.78	28 (80.00)	7 (20.00)	35 (100.00)
3. Rangli-Rangliot	29	12	41.38	7 (58.33)	5 (41.67)	12 (100.00)
4. Kalimpong	73	11	15.07	-	11 (100.00)	11 (100.00)
5. Garubathan	31	1	3.23	-	1 (100.00)	1 (100.00)
6. Kurseong	60	23	38.33	18 (78.26)	5 (21.74)	23 (100.00)
7. Mirik	13	8	61.54	6 (75.00)	2 (25.00)	8 (100.00)

Note: Figures in parentheses are the respective percentages

Source: Government of West Bengal, Census 1981, West Bengal District Census Hand-Book: Darjeeling

Table : 6.12
 and Colleges
 Number of Different Types of Schools/in the
 Hill Areas of Darjeeling District in 1946-47

Types of Schools & Colleges	Number of Schools and Colleges
1. Primary Schools	252
2. Middle English School	12
3. Indian High Schools	9
4. Intermediate College	3
5. Degree College	1

Source : Dash, A.J., Bengal District Gazetteers, Darjeeling
 (Alipore : Bengal Government House, 1947).

Table : 6.13

Number of Educational Institutions in the Hill Areas of Darjeeling District

Educational Institutions of Different Levels	Years		Increase in Absolute & Percentage Term
	1946-47	1980-81	
1. Primary Schools	252	515	263 (104.37)
2. Middle/Junior Secondary Schools or Junior High Schools	12	74	62 (516.67)
3. High Schools	9	41	32 (355.56)
4. Intermediate College/PUC/Higher Secondary Schools	3	16	12 (433.30)
5. Degree Colleges	1	5	4 (400.00)

Note: Figures in parentheses are the respective percentages

Sources: (i) Dash, A.J., Bengal District Gazetteer; Darjeeling (Alipore; Bengal Government House, 1947).

(ii) Census of India, 1981 : Series-23, West Bengal, District Census Hand Book, Darjeeling District.

Table : 6.14

Development in the Number of Educational Institutions in the Rural and Urban Areas of the Hill Areas of Darjeeling District since 1946-47 to 1980-81

Types of Educational Institutions	Number of Different Types of Educational Institutions in Rural Areas		Number of Different Types of Educational Institutions in Urban Areas		Change in the Number of Different Educational Institutions in the Rural Areas Between 1946-47 and 1980-81	Change in the Number of Different Educational Institutions in the Urban Areas Between 1946-47 and 1980-81	Change in the Total Number of Different Educational Institution in Both Rural & Urban Areas Between 1946-47 and 1980-81
	Years		Years				
	1946-47	1980-81	1946-47	1980-81			
1. Primary Schools	N.A.	426	N.A.	89	-	-	-
2. Middle Schools	3	48	9	26	45 (72.58)	17 (27.42)	62 (100.00)
3. High Schools	-	20	9	21	20 (62.50)	12 (37.5)	32 (100.00)
4. Higher Secondary Schools	-	10	3	6	10 (76.92)	3 (23.08)	13 (100.00)
5. Colleges	-	-	1	5	-	4 (100.00)	4 (100.00)

Note : Figures in parentheses are the respective percentages

Sources: (i) Dash, A.J., Bengal District Gazetteer : Darjeeling (Alipore: Bengal Government House, 1947)

(ii) Census of India, 1981 : Series -23, West Bengal District.

Table : 6.15

Number of Educational Institution Per 10,000 people
in the Rural & Urban Areas of the Hill Areas of
Darjeeling District in 1981

Types of Institutions	Number of Institutions (Per 10,000 Population)		
	Rural Area	Urban Areas	Total Hill Areas
1. Primary Schools	9.85	7.48	9.34
2. Middle Schools	1.11	2.18	1.34
3. High Schools	0.46	1.76	0.74
4. Higher Secondary Schools	0.23	0.50	0.27
5. Colleges	Nil	0.42	0.09

Source: Census of India, 1981 : Series-23, West Bengal,
District Census Hand Book, Darjeeling District

Table : 6.16

Different Types of Educational Institutions in Absolute and Percentage Terms in Different Rural and Urban Areas in the Hill Areas of Darjeeling District in 1981

Name of Different Rural & Urban Areas	Types of Institutions				
	Primary Schools	Middle Schools	High Schools	Higher Secondary Schools	Colleges
1. Darjeeling-Phulbazar Block	99 (23.24)	8 (16.66)	3 (15.00)	1 (10.00)	Nil
2. Shukhiapokhri-Jorebunglow Block	87 (20.42)	5 (10.42)	5 (25.00)	3 (30.00)	Nil
3. Rangli-Rangliot Block	39 (9.15)	14 (29.19)	2 (10.00)	1 (10.00)	Nil
4. Kalimpong Block (I & II)	107 (25.12)	10 (20.83)	5 (25.00)	3 (30.00)	Nil
5. Garubathan Block	15 (3.52)	3 (6.25)	1 (5.00)	Nil	Nil
6. Kurseong Block	48 (11.27)	5 (10.42)	1 (5.00)	Nil	Nil
7. Mirik Block	31 (7.28)	3 (6.25)	3 (15.00)	2 (20.00)	Nil
Total Rural Areas	426 (100.00)	48 (100.00)	20 (100.00)	10 (100.00)	Nil

Contd..

Table : 6.16 (Contd..)

Name of Different Rural & Urban Areas	Types of Institutions				
	Primary Schools	Middle Schools	High Schools	Higher Secondary Schools	Colleges
8. Darjeeling Urban Area	49 (55.06)	16 (61.54)	12 (57.14)	1 (16.67)	3 (60.00)
9. Kurseong Urban Area	14 (15.73)	4 (15.39)	4 (19.05)	3 (50.00)	1 (20.00)
10. Kalimpong Urban Area	26 (29.21)	6 (23.07)	5 (23.81)	2 (33.33)	1 (20.00)
Total Urban Areas	89 (100.00)	26 (100.00)	21 (100.00)	6 (100.00)	5 (100.00)

Note : Figures in parentheses are the respective percentages

Source: Census of India, 1981 : Series-23, West Bengal, District Census Hand Book, Darjeeling District.

Types of Table : 6.17

Number of Different Educational Institutions per 10,000 Population in Different Rural and Urban Areas of the Hill Areas of Darjeeling District in 1981.

Name of Different Rural & Urban Areas	Number of Educational Institutions per 10,000 People				
	Primary Schools	Middle Schools	High Schools	Higher Secondary Schools	Colleges
1. Darjeeling-Phulbazar Block	10.82	0.87	0.33	0.11	Nil
2. Sukhiapokhri-Jorebunglow Block	10.74	0.62	0.62	0.37	Nil
3. Rangli-Rangliot Block	7.61	2.73	0.39	0.20	Nil
4. Kalimpong Block (I & II)	11.93	1.12	0.56	0.33	Nil
5. Garubathan Block	4.09	0.82	0.27	Nil	Nil
6. Kurseong Block	9.08	0.95	0.19	Nil	Nil
7. Mirik Block	10.52	1.02	1.02	0.68	Nil
8. Darjeeling Urban Areas	8.51	2.78	2.08	0.17	0.52
9. Kalimpong Urban Areas	4.32	1.23	1.23	0.93	0.31
10. Kurseong Urban Areas	8.26	2.05	1.72	0.69	0.34

Source: Census of India, 1981 : Series-23, West Bengal, District Census Hand-book, Darjeeling district.

Table : 6.18

Teachers' Training Institutions in the Hill Areas
of Darjeeling District in 1946-47 and 1980-81

Year	Number of Teachers' Training Institutions
1946-47	3
1980-81	5

Sources:

- (i) Dash, A.J., Bengal District Gazetteer: Darjeeling
(Alipore : Bengal Government House, 1947)
- (ii) Census of India, 1981 : Series-23, West Bengal,
District Census Hand Book, Darjeeling District

Table : 6.19

Name and the year of Establishment, the year of Closing down/Discontinuation and the Subjects Taught at Technical and Vocational Institutions in the Hill Areas of Darjeeling District.

Name of the Institute	Year of Establishment/ Year of Opening Vocational Classes	Year of Closing down/Discontinuation	Subjects Taught
1. Teaching-cum-Training Institute for Hill Girls (Lately Lace School), Kalimpong	1887	-	Lace-making
2. Industrial School for Girls, Kalimpong	1887	-	Embroidary, Lace & Carpet making, wool dying, Weaving
3. Industrial School for Boys	1900	-	Carpentary, Tracing, Dying, Tailoring, Gardening etc.
4. General Industrial School for Girls	N.A.	-	Tailoring, knitting, etc.
5. St. Helen's Convent School, Kurseong	1899	N.A.	Gardening, Needle work, Nursing and House management
6. Goethal's Memorial Orphanage and School, Kurseong	1907	-	Sub-Overseer course on Civil & Mechanical Engineering and 3 years courses in Mechanical and Electrical Engineering
7. St. Joseph's School, Darjeeling	1890	1910	Sub-Overseer Course on Different Engineering Branches
8. Victoria Boys' School	1904	1918	Sub-Overseer courses on Different Engineering Branches

Source: West Bengal District Gazetteers: Darjeeling, Government of West Bengal, 1980.

Table : 6.20

Number of Social Educational Institutions in the Rural and Urban Areas in the Hill Areas of Darjeeling District in 1950-51 & 1980-81

Types of the Institutions	Years					
	1950-51			1980-81		
	Rural Area	Urban Area	Total	Rural Area	Urban Area	Total
1. AEC & NightSchool	8	-	8	128	7	134
2. Social Education Centres	-	-	-	78	-	78
3. Community Centres	-	-	-	5	-	5
4. Folk Entertainment Units	-	-	-	1	-	1
5. Libraries	N.A.	N.A.	N.A.	77	15	92

Source: Census of India, 1981 : Series - 23, West Bengal, District Census Hand Book, Darjeeling District.

Table - 6.21

Number of Different Medical Institutions in the Rural & Urban Areas in the Hill Areas of Darjeeling District in 1946-47.

Name of the Rural and Urban Areas	Number of R.H. U.	Number of Sanatorium		Number of T.B.C.		Number of Dispensaries	Number of M.C.W. Units
		Number	Beds	Number	Beds		
1. Darjeeling-Phulbazar Block	3	-	-	-	-	1	-
2. Jorebunglow-Sukhiapokhri Block	1	-	-	-	-	1	-
3. Rangli-Rangliot Block	1	-	-	-	-	-	-
4. Kalimpong Block	1	-	-	-	-	3	-
5. Garubathan Block	2	-	-	-	-	1	-
6. Kurseong Block	1	-	-	-	-	-	-
7. Mirik Block	1	-	-	-	-	-	-
8. Darjeeling Urban Area	-	5	394	1	26	1	2
9. Kalimpong Urban Area	-	2	242	-	-	5	-
10. Kurseong Urban Area	-	1	49	1	44	1	-
Total Hill Area	10	8	685	2	70	13	2
Total Rural Area	10	-	-	-	-	6	-
Total Urban Area	-	8	685	2	70	7	2

Note: R.H.U : Rural Health Unit; T.B.C. : Tuberculosis Clinic; M.C.W. : Maternity & Child Welfare unit.

Source: Dash, A.J., Bengal District Gazetteer: Darjeeling (Alipore: Bengal Government House, 1947).

Table : 6.22

Number of Different Medical Institutions in Rural and Urban Areas in the Hill Areas of Darjeeling District in 1980-81

Name of the Rural and Urban Areas	Number of Health Centres		Number of Hospitals & Sanatorium		Number of Tuberculosis Clinics		Number of Dispensaries	Number of Maternity Child Welfare Centres	Number of Primary Health Centres		Number of Primary Health Sub-Centres	
	No.	Beds	No.	Beds	No.	Beds			No.	Beds	No.	Beds
1. Darjeeling-Phulbazar	-	-	-	-	-	-	8	-	-	-	1	2
2. Jorebunglow-Sukhiapokhri	1	20	-	-	-	-	15	1	1	10	3	6
3. Rangli-Rangliot	5	100	-	-	-	-	4	-	1	10	3	5
4. Kalimpong	1	20	-	-	-	-	4	-	1	10	-	-
5. Garubathan	1	4	-	-	-	-	1	-	-	-	1	2
6. Kurseong	1	20	-	-	-	-	17	-	1	10	-	-
7. Mirik	2	40	-	-	-	-	11	-	-	-	-	-
8. Darjeeling(U)	-	-	4	294	-	-	6	-	-	-	-	-
9. Kalimpong(U)	-	-	2	350	-	-	4	-	-	-	-	-
10. Kurseong(U)	-	-	2	46	1	301	-	-	-	-	-	-
Total Urban Areas	-	-	8	690	1	301	10	-	-	-	-	-
Total Rural Areas	11	204	-	-	-	-	60	1	4	40	8	16
Total Hill Areas	11	204	8	690	1	301	70	1	4	40	8	16

Note : U- Urban areas

Source: Census of India, 1981: Series-23, West Bengal, District Census Hand Book, Darjeeling District

Table : 6.23

Change in the Total Number of Medical Institutions in Absolute and Percentage Term, in Rural and Urban Areas of the Hill Areas of Darjeeling District Between 1946-47 and 1980-81

Name of the Area	Total Number of Medical Institution in		Change in Absolute term	Change in Percentage term
	1946-47	1980-81		
1. Rural Areas	16	84	68	425
2. Urban Areas	19	19	No change	0
Total Hill Areas	35	103	68	194.29

Source : Compiled on the basis of data presented in Table 6.21 & 6.22

Table : 6.24

Number of Villages Supplied with Potable Water
in the Hill Areas of Darjeeling District in 1946-47

Name of the Blocks	Number of Villages Supplied with Potable Water
1. Darjeeling-Phulbazar	5
2. Shukhiapokhri-Jorebunglow	3
3. Rangli-Rangliot	5
4. Kalimpong	7
5. Garubathan	-
6. Kurseong	2
7. Mirik	1

Source: Dash, A.J., Bengal District Gazetteer: Darjeeling
(Alipore ; Bengal Government House, 1947).

Table : 6.25

Change in the Number of Villages Supplied with Potable Water in the Hill Areas of Darjeeling District between 1946-47 & 1980-81

Name of the Blocks	Number of Villages Supplied with Potable Water		Change in the Number between 1946-47 & 1980-81 in Absolute Terms	Change in the Number of Villages between 1946-47 and 1980-81 in Percentage Terms
	Years			
	1946-47	1980-81		
1. Darjeeling-Phulbazar	5	47	+42	840.00
2. Shukhiapokhri-Jorebunglow	3	44	+41	1366.67
3. Rangli-Rangliot	5	29	+24	480.00
4. Kalimpong	7	73	+66	942.86
5. Garubathan	-	31	+31	-
6. Kurseong	2	59	+57	2850.00
7. Mirik	1	13	+12	1200.00
Total Rural Areas in the Hills	23	296	+273	1186.96

Compiled from (i) Dash, A.J., Bengal District Gazetteer: Darjeeling (Alipore: Bengal Government House, 1947).

(ii) Census of India, 1981 : Series - 23, West Bengal, District Census Hand Book, Darjeeling District.

Table : 6.26

Number of Villages Supplied with Potable Water in Absolute & Percentage Term in Different Rural Areas of the Hill Areas of Darjeeling District , in 1981

Name of the Blocks	Total Number of Villages Inhabited	Number of Villages in Each Block Supplied with Potable Water	Percentage of Villages in Each Block Supplied with Potable Water
1. Darjeeling - Phulbazar	49	47	95.92
2. Jorebunglow-Shukhiapokhri	47	44	93.62
3. Rangli-Rangliot	30	29	96.67
4. Kalimpong (I & II Block)	74	73	98.65
5. Garubathan	31	31	100.00
6. Kurseong	62	59	95.16
7. Mirik	13	13	100.00

Compiled from : Census of India, 1981: Series-23, West Bengal,
the source District Census Hand Book, Darjeeling District.

NOTES AND REFERENCES

NOTES :

Tea Village : Defined in Chapter I earlier.

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Chapter - 7

SUMMARY AND CONCLUSION

The hill areas of Darjeeling district are mostly rural in nature. Urbanisation exists here to a very limited extent. Therefore, the analysis of the problems of development of this region reduces to the discussion of the problems of development of rural areas of the hill areas of Darjeeling district. The features of the villages constituting the hill areas of Darjeeling district exhibit that agriculture, tea plantation and forestry are the mainstay of the rural economy of this region. The problem of development of the rural hill areas of Darjeeling district is, therefore, the problem of development of agriculture, tea plantation and forestry on which the subset of Indian population inhabiting in this region is basically dependent. The subsidiary occupations like animal husbandry, small-scale and cottage industry as well as sericulture have enormous importance in the economy of this region. For this, the problem of development of this region is related with the problem of development of animal husbandry, small-scale and cottage industry as well as sericulture. Besides, the problem also encompasses the development of communication, transport, power supply as well as educational and health services in the rural hill areas of Darjeeling district.

Forests in the hill areas of Darjeeling district possess great intra- as well as inter-regional economic and geophysical importance. The area under forests in the hill areas and in the district as a whole registers a decline in both the periods before and after independence. But the rate of decline in the area under forests is higher in the period after independence than that in the period before independence. The factors responsible for this rapid decline in the area under forests in the hill areas of Darjeeling district and in the district as a whole after independence are five : (i) method of exploitation of forest resources, (ii) variety of forest plantation, (iii) objective of forest management policy, (iv) regeneration as well as planting of forests and (v) administration of the forest department.

The rapid decline in the area under forest has created a number of adverse, anti-developmental impacts on the ecology and economy of the rural hill areas of Darjeeling district in the form of (i) disappearance or even extinction of unstudied plants and a large number of Himalayan fauna, (ii) frequent landslips in the rainy season causing floods in the adjacent plain areas , (iii) scarcity of drinking water, (iv) reduction of the earnings in the hands of the people engaged in forest plantation, (v) damage to agricultural crops not only in hill areas but also in adjacent plain areas along with the loss of cultivable lands in the former areas, and (vi) crisis of fodder required for livestock population the rearing of which is very much economically important

to the hill people.

Tea cultivation started on a commercial basis and in an industrial manner in the hill areas of Darjeeling district in the year 1856 entirely with the investment of European capital. Since then this industry has grown rapidly in terms of area, production and productivity on account of (i) the availability of cheap labour resulting from the large-scale immigration of Nepali workers to Darjeeling hills, and (ii) the availability of land for tea cultivation as plenty of land was declared by the Government as waste lands unsuitable for ordinary cultivation mainly in the western side of the river Tista.

In all the years after independence the area under tea cultivation and the production in the Darjeeling Tea Industry are at far lower levels as compared to those in the years before independence. It is only the yield rate which is in recent years above the levels that prevailed before independence. However, the nature of change in the objective condition of the Darjeeling Tea Industry in terms of area, yield and yield rate in the years after independence shows that the area under tea cultivation has become stagnant. Although production and productivity show a tendency to increase during the decade of the eighties after independence, their levels are remarkably lower in comparison with the all-India levels in the normal as well as peak production years. All these signify that the Darjeeling Tea Industry has entered a depressing state of affairs after independence. The fundamental reasons behind

this condition of the Darjeeling Tea Industry are as follows: (i) the inadequacy of re-investible surplus due to negative profits accruing to the Darjeeling Tea Industry, (ii) the change in the objective of the ownership and management in the post-independence period, (iii) employment of substandard managers, (iv) centralised policy of management, (v) draining of surplus and siphoning it to other industries in other industrial zones of India, (vi) aggressiveness as well as mishandling of trade unions.

In the face of a growing population after independence, the depressing state of affairs of the Darjeeling Tea Industry has created an increasing pressure of population on agriculture and the existing area of culturable land. This overcrowding in agriculture has made deteriorating land-man ratio after independence. More and more land has become fragmented and more families have come down from the status of 'middle farmers' to that of 'marginal farmers'. It has also led to an increase in the number of unemployed or disguisedly unemployed people along with an increase in the number of agricultural labourers.

Several strategies for the development of agriculture in the hill areas of Darjeeling district have been undertaken in a planned and integrated manner after independence. The period before independence shows a negligible, unplanned and disintegrated emphasis in this regard. The planned strategies for agricultural development in this region may be divided into five heads, namely, (i) irrigation, (ii) soil conservation, (iii) agricultural marketing, (iv) crop husbandry, and (v) horticulture. Among these heads

soil conservation occupies the topmost position in terms of its share in total actual expenditure on the development of agriculture. This is due to the fact that without proper measures against soil erosion developmental works relating to agriculture in the hill areas of Darjeeling district would be meaningless.

In the matter of irrigation the hill areas of Darjeeling district are extremely backward. Upto the middle of the eighties the area under irrigation as a percentage of net cultivated area is found to be of little account. This is due to the negligible emphasis on irrigating the hill areas of Darjeeling district upto that time since independence on the part of both the State Government of West Bengal and the Central Government of India. In fact, extension of these facilities began with the bringing of more land under irrigation with the sanction and establishment of numerous minor, small and a number of major irrigation schemes since the inception of the Fifth Five-Year Plan (1974-79) when the Accelerated Hill Development Council was set up. Since this time various governmental agencies, namely, Directorate of Irrigation and Waterways Department, Block Development Office, Agriculture Department, Small Farmers Development Agencies and the like have taken effective steps in this regard. But till to-day irrigation facilities in this region have not increased at the desired pace as the performance made by the governmental agencies in creating additional irrigation potential since the inception of the Fifth Five-Year Plan is far from satisfactory.

Soil erosion through landslides causing considerable damage to arable land and other properties is an annual feature in the hill areas of Darjeeling district. Soil conservation through the implementation of remedial measures against soil erosion through landslides is of paramount importance in this region. In order to prevent landslides, i.e., soil erosion, various soil conservation measures have been undertaken in the hill areas of Darjeeling district with top priority under the Accelerated Hill Development Programmes. Execution of these measures is carried out by various governmental agencies, namely, (i) the Forest Department, (ii) the Irrigation and Waterways Department, (iii) the Agriculture Department and (iv) the Block Development Offices with Panchayat Bodies, through the implementation of numerous soil conservation schemes. In spite of various measures undertaken by different authorities through the implementation of numerous soil conservation schemes at different places, soil erosion and landslides are still the major problems in the hill areas of Darjeeling district. This is due to the fact that soil conservation measures have not yet been undertaken intensively and extensively on account of the inadequacy of funds on the part of the government, non-availability of easy credit facilities, and the time lag between cash outlay for soil conservation measures and returns on the part of individual enterprises.

Various aspects, namely, channels, location, time of sale of agricultural produce and method of price formation along with producers' share in farias' (i.e. middlemen's) price and farias' profit margin relating to the marketing of major agricultural produce in the hill areas of Darjeeling district show that the nature of the markets for major agricultural commodities are functionally inefficient in generating better and remunerative prices and thereby increasing the levels of income in the hands of the farmers. The main factors responsible for inefficient functioning of agricultural marketing are the financial weakness of the hill farmers coupled with their dependence for funds as well as for marketing agricultural produce on the farias/kayahs/mahajans, lack of various infrastructural facilities inclusive of storage and transportation. In order to increase the efficiency of agricultural marketing in the hill areas of Darjeeling district, schemes for the improvement of co-operative credit structure, setting up and development of agricultural co-operative marketing societies and development of various market infrastructures were undertaken and implemented after independence to a great extent. Nevertheless, success in this respect has not reached at its critical level.

With a view to augmenting agricultural production and productivity and farmers' income in the hill areas of Darjeeling district developmental programmes in the name of multiple cropping programme, high yielding varieties and high value but low volume

crops programme, soyabean, potato and cardamom development programme, local manurial resources, plant protection measures and quality of production improvement programme under the head of crop husbandry have been implemented after independence. The implementation of these programmes has raised the yield rates of major agricultural crops. But the same has failed to change the cropping pattern and augment intensity of cropping reflecting multiple cropping. Agriculture in the hill areas of Darjeeling district till recent years shows a more or less unchanged cropping pattern with constant relative position of the crops in the crop profile and very much low and varied intensity of cropping along with the features like extremely low land-man ratio as well as small-sized and fragmented farms reflecting overcrowding of agriculture in the hill areas of Darjeeling district.

A number of schemes have been implemented in an integrated manner for the development of horticulture in the hill areas of Darjeeling district after independence since the establishment of the Accelerated Hill Development Council. These schemes are as follows : (i) supply of fertilizers, micro-nutrients, fungicides etc. at 50 per cent subsidized rate, (ii) extension of areas under orange, (iii) establishment of sub-tropical and temperate fruit orchards, (iv) establishment of a separate horticultural wing for Darjeeling district and (v) setting up of a direct linkage between the rural farmers and the urban consumers. Owing to the implementation of these developmental schemes the areas under horticultural

crops have recently been increasing steadily at a slow rate but the yield rate has remained constant. The constancy of the yield rate along with the slow rate of growth of area under horticulture is due to the lack of use of yield rate augmenting inputs on account of the extreme poverty of the farmers and inefficiency of the horticultural crop markets.

In the period before independence that then Government gave emphasis to develop animal husbandry in the hill areas of Darjeeling district. The period after independence shows relatively more encouraging state of affairs in this regard. In this period the State Government of West Bengal and the Central Government of India took large-scale initiative to develop animal husbandry in this region on commercial basis in a co-ordinated manner through the implementation of various schemes like cattle development, piggery development, poultry development, development of sheep rearing and development of veterinary services. As a consequence, notable development in respect of various aspects of animal husbandry has taken place in the rural hill areas of Darjeeling district after independence. Yet there exist a number of problems: (i) insufficiency of qualitative cattle stock, along with inefficiency of milk marketing reflected by the problems confronted by Himalayan Milk Producers' Co-operative Union, (ii) unavailability of regular supply of balanced feed and lack of attention towards health care for poultry population and (iii) lack of emphasis on sheep rearing.

Although the small-scale and cottage industries have an immeasurable importance in the context of rural development there was a lack of emphasis before independence to develop them and inculcate the habit of industry amongst the people of the hill areas of Darjeeling district. During the period since independence much importance has been given by the Government on developing a strong base for small-scale and cottage industries through increasing the efficiency of the existing industrial units and establishing new industrial units. This has been undertaken by the Government through the implementation of various strategies, creation of enough entrepreneurial skills and provision of incentives to the entrepreneurs. As a result, a number of small-scale and cottage industries have emerged in the post-independence period. But the said industries have not flourished upto the desired level on account of the existence of some retrograding factors, namely, inadequate Governmental assistance, scarcity of raw materials and services, relatively limited size of markets and the irregular supply of power and credit.

Despite its importance and ample scope for development little stress was given for the development of sericultural practices by the Government before independence. In fact, the expansion of sericulture in the hill areas of Darjeeling district has started significantly since independence. During this period the Government has set up a number of institutions congenial to the development

of sericulture in the hill areas of Darjeeling district. But the gain has not yet reached its targetted level due to the ignorance and disinterestedness of the cultivators in this region as regards sericultural practices.

The modern means of communication started to develop in the hill areas of Darjeeling district in the period before independence. At that time the hill and plain areas of Darjeeling district were connected with the construction of roadways along with a narrow gauge railway. And also in the same era a remarkable length of metalled and unmetalled roadways as well as some ropeways were built to set up a strong communication system within the hill areas of Darjeeling district.

After independence railways have registered no development and the ropeways to a marginal extent. It is only the road transportation system which has developed noticeably in the period after independence. In spite of this, there exists inadequacy of the road transportation facilities. Above all, the transportation facilities so far developed irrespective of their categories is inadequate for the hill areas of Darjeeling district.

The supply of electricity in the hill areas of Darjeeling district started long before independence predominantly under private entrepreneurship. After independence public enterprises

have come to render services in this field. Since the earliest year of the seventies supply of electricity mainly for home consumption in the vast rural areas in the hill areas of Darjeeling district has started under state undertaking. Despite all this the progress in this field is very much slow and registers area bias.

The educational services of formal, special and non-formal types were developed and diversified in the hill areas of Darjeeling district before independence to a notable extent with the establishment of related institutions. The period after independence also exhibits significant expansion in the development and diversification regarding all these types of educational services. Nevertheless, the educational service network, developed so far in this region has lapses in some respects. Expansion of formal educational services has not yet become sufficient in relation to its need and is varied over different places in the hill areas of Darjeeling district. Non-formal educational services particularly physical educational services show similar prospect. Its development has not yet become according to the needs and there are variations over different places in the hill areas of Darjeeling district.

The provision of regular medical services of western type through the establishment of various types of medical institutions was accomplished predominantly by the Government followed by some

private enterprises before independence in the hill areas of Darjeeling district. After independence these services are provided entirely by the Government. And in order to outweigh the deficiency of medical services existing in this region especially in the rural hill region the Government in the post-independence period has expanded medical services in the rural hill areas with the establishment of a remarkable number of medical institutions like Primary Health Centres and Primary Health Sub-centres. The Government has quite reasonably claimed that the deficiency of medical services previously existing in the rural hill areas of Darjeeling district has now been removed.

In short, our study shows that the hill areas of Darjeeling district after so many years of independence have remained in a state of underdevelopment in all respects except health services. The presence of backward agriculture and horticulture with poor infrastructure, underdeveloped state of animal husbandry, small-scale and cottage industry as well as sericulture and, above all, the depressing conditions of forestry and tea plantation are the major factors for the underdevelopment of the region.

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