Chapter-III

SURVEY OF THE TEA GARDENS OF
JALPAIGURI DISTRICT.

It is interesting to note that the ecological history of British India is of special interest in view of the intimate connection between western imperialism and environmental degradation. The ecology of the world has been altered by western imperialism and western capitalism. Their dynamic expansion disrupted the ecosystems first through trade and later by colonialism. The country’s encounter with a technologically advanced and dynamic culture gave rise to profound dislocations at various levels of Indian society. Such interventions reshaped the social, ecological and demographic characteristics of the habitats. The changes brought about by such interventions ensured the benefit of the imperialist country. Large scale settlement followed through which the Europeans augmented their ‘ghost acreage’. They exercised their control over mineral, plant and animal resources for industrial growth. These interventions radically altered the existing food production systems and their ecological and social fabric of Indian society. The British by exposing the natives to the industrial economy and consumer society confirmed the ecological change they initiated. (1)
The tea industry culture also found its way into India with the help of the British imperialists though tea was indigenous to India and was known by the aborigines from time immemorial. Tea called the ‘boon of the orient’ has been regarded universally as a pure, safe and helpful stimulant is produced in nature’s own laboratory. Other than being an important non-alcoholic beverage tea also occupies a significant place in world commerce in the past centuries and does so also in the present time. The British traders towards the end of the 18th century in order to end the monopoly of Chinese tea was in search of other alternative sources of tea leading to the establishment of the Indian tea industry in the first half of the 19th century. The earliest step towards the introduction of tea cultivation occurred in 1778 with the help of great English naturalist Sir Joseph Banks. Tea plantations were started in Assam, Kumaon, Dehradun, Garwhal, Kangra and Kullu valleys, Darjeeling and in the Terai regions of West Bengal.(2).

This particular thesis intends to cover the tea plantation in the Terai regions especially the Duars region that mainly falls under the district of Jalpaiguri and the impact it had undergone economically, geographically, socially and culturally under the colonial economy. It is to be noted that right from introduction and expansion of tea plantation in district of Jalpaiguri
continued unhindered producing to meet the up surging demand for tea in the international market.

Understanding Jalpaiguri geographically, it is in the northern-most district in pre-1947 Bengal. It was bounded on the west by the Purnea district of Bihar and Darjeeling district, on the north by the Himalayan kingdom of Bhutan and also Darjeeling district, on the south by the districts of Rangpur and Dinajpur and the Princely state of Koch Bihar and on the east by Goalpara district of Assam. (3).

The district consisted of two well defined tracts which varied in physical features, history, administrative arrangement, types of economic activities, tenure arrangement and production system. The tract which lay to the west of the Tista river and also Patgram to the east of the river came under British rule after the East India Company received the Dewani in 1765. The other tract lying to the east of Tista, known as the Western Duars, having an area of 2053 sq.miles, was taken away from Bhutan at the end of Anglo-Bhutan War of 1864-5. Duars was referred as ‘Bhotan’. (4).

Jalpaiguri as a district came into being in January 1869 by the amalgamation of the Tetulia subdivision of Rangpur district with the recently annexed
Duars. The district headquarters came to be located in Jalpaiguri, which was a village then, and also the residence of the zamindar of the Baikanthapur estate. Sir J.D.Hooker in ‘Himalyan Journals’ had referred ‘Jalpaigoree’ in 1849 as a large ‘straggling village’.

In this context a description of the Duars region or the pre-tea area is important for better understanding. The Bhutan Duars, that is the region under study, was annexed at the close of the war of 1864-65 was a flat level strip of country, running along the foot of Bhutan hills. The northern region, or that immediately bordering on the hills presents a rugged irregular sloping surface caused by spurs and inferior heights projecting into the plains from the more lofty ones behind. Its chief characteristics were the numerous rivers and hill streams which intersect in every direction. It consist of forest land and thickets of dense vegetation and the large tracts of Sal forest and heavy grass and reed tracts were specially dense and luxuriant along the banks of the rivers and streams, impenetrable by man. The place was abounded with wild animals like elephants, deers, tigers, rhinoceros, buffaloes. The beautiful cotton tree was found to be grown here in great luxuriance and with suprising vigour and rapidity, resisting even the action of the fires by which the jungles and undergrowth were yearly consumed at the
commencement of every cultivating season. With this single exception, these vast tracts of grassy jungle were almost treeless, and brought out greater relief into village sites situated few and far between. These hamlets were remarkable for the most luxuriant vegetation. Large clumps of bamboos and grooves of plantain trees hemmed them from all sides hiding the houses from view. Above them were seen the tall graceful betel-nut palms and few large trees scattered here and there such as mango, jack and papal. Round about the dwellings were shrubs and creeping plants of endless form and variety. Fine fields of rice and mustard were also found in the vicinity of the villages. The scenery in the north of the Duars, along the foot of the mountains, where the large rivers debouch upon the plains, was very grand and beautiful. The land rises here gradually before reaching the hills. In this tract the soil is three to four feet deep, with a substratum of gravel and in the dry season the beds of the streams for some miles after leaving the hills are dry, the water reappearing further down. Owing to the difficulty of procuring water, there were no villages in this region. (5).

It is said that the Duars must had been unattractive to all except the boldest pioneers. The district was traversed from north to south by innumerable rivers and streams which in the rainy season became raging torrents and
often changed their courses. In the middle of the last century it was covered with almost impenetrable jungle containing much valuable but unexploited timber giving shelter to all manner of wild beasts and inhabited only by the primitive tribes such as Garos, Mechis, Totos, many of whom lived in trees or crude huts and procured from hunting and fishing. Duars in the beginning was the most unhealthy district, in which malaria and blackwater fever were rife, climatically it was said that the area was favourable for growing tea. (6). The geo-physical and environmental features resulted in poor communications, which were made extremely difficult in the rainy months, and dispersed pattern of small settlements. By the early twentieth century the entire tract, except for intervals of patches of cultivation and large patches of reserved forest, came to be studded with tea gardens all over.(7).

The late nineteenth and early twentieth centuries witnessed a steady and systematic extension of British administration and control. The colonial authority assumed the responsibility for the maintenance of law and order and intervened vigorously whenever it considered that there was any threat to the existing order. Changes were also introduced in the agrarian system prevailing in the tract annexed from Bhutan by resorting to periodic measurements of land and re-assessment of revenue. All this promoted the
expansion of the tea plantation system which was launched under the aegis of the British planters. In the tea plantation areas, the European planters and their assistants in combination with their Indian counterparts began to exercise power and control. Migration of the labourers were also organized by the planters and kept under control. Thus the growing intervention of the colonial state came to have a deep and far reaching impact on the economy and society in Jalpaiguri district. (8).

It can be mentioned here that the tea plantation needed a huge supply of labour force to compete with the demanding market. The initial attempts to raise tea plantations in the clear felled area needed labourers for intensive tending required in the formative stage of the plantation. So when the tea industry was started in the Duars region the labourers employed were Nepali workers who were initially brought by the tea Planters. It was soon found out that sufficient labour could not be obtained locally. A few gardens, which were practically in the hills worked entirely with Nepali labour but the Duars gardens were dependent on labour that were to be recruited from outside that region. This led to large scale migration of different tribal people specially from the neighbouring regions like Chotanagpur Plateau,
Santal Parganas, Madhya Pradesh and Orissa to the district of Jalpaiguri to act as the main labour force for production of tea in extensive scale.

In the Duars region there was almost six times increase of population between 1872-1921. This rise in population was due to massive migration of labour into the tea gardens. The population of Jalpaiguri district came to be composed of large number of immigrants. The society became composed of diverse social groups belonging to different ethnic, linguistic and cultural groups, to various castes and religious communities. Thus the change over from a closed cultural system to an open one raised the issue of ‘identity crisis’ that they face now. Thus a probe into the matter is essentially required.

With the establishment of the tea plantations in the Duars region there was subsequent increase of population in the mid 1870’s resulting in introduction of new element in the demographic composition, social life and economy of the district. The change was due to the large scale migration of tribal peasants particularly the Oraon, Munda and Santal peasants from Chotanagpur and Santal Parganas to the tea gardens.
In their homelands these tribal people belonged to peasant communities. Their agriculture was closely linked with magico-religious practices. Despite considerable differences between the different tribal groups, these communities had social customs, cultural traditions and religious beliefs which were similar in many respects. A powerful community bond existed between these groups.

Following the penetration of the British rule in the second half of the eighteenth century and the consequent socio-economic changes, their economy, livelihood and social life became severely dislocated. A series of tribal uprisings were witnessed against the British and the Indians who were also exploiting and oppressing their interests. The tribal peasants were pushed out of their traditional habitat. The effects of permanent settlement resulted in landless cultivators. It was noticed that the population of this tribal people were increasing every year. They were in great demand by the tea planters for they were industrious, persevering and stood the climate well than the original inhabitants. These tribals were considered by the district officials as eminently suitable for clearing of wild infested jungles, reclamation of wastelands and extension of cultivation in the Duars.(9). Moreover the large forest areas and hilly tracts of the Duars area that were
initially inhabited by the tribals and aboriginals failed to supply the demands of the up surging economy. This took the form of huge migration fostered and organized by the tea planters of Assam and the two northern districts of Bengal under the direct protection of the colonial state.

Thus from the above study it can be inferred that there was a revolutionary change in the use of natural resources after the coming of the Europeans into India. In order to furnish raw materials for their economy the British began to impose higher levels of demands on the natural resources of the country. They began to encroach vast resources as government property that earlier were owned communally. The result was complete depletion of resources through commercial exploitation leading to the collapse of the natural resource base sustaining many components of the Indian society. (10). The focus was changed to gathering, production, transport and transformation of resources for use as commodities from resource gathering and food production. This led to the change in engagement of the population from subsistence gathering and the production of food. They now became engaged in manufacturing, transporting and using resources as commodities. This resulted in weakening the bonds of cooperation and dependence between the local communities that they enjoyed earlier. The possibility in
the unlimited consumption of resources in an unrestrained manner by the individuals also increased. All this resulted in the initiation of conflict in ways of life and culture of the effected population. (11) The change in the use of the vast natural resources of the Duars region, that falls under the district of Jalpaiguri for expansion of tea gardens to meet the demand for tea in international market, initiated a new process of ecological changes which had its reflection on the later ages.

Environmental degradation is a process of degeneration of elements and factors pertaining to the conditions and circumstances of living on the planet earth. All organisms of this world, today, irrespective of their position in the biological hierarchy are exposed to the hazards of environmental degradation at varying degrees. The intensity of its risk not only varies over time and space but also from one species of biota to the other. The interspecific difference is largely due to the level of adaptation enjoyed and resistance offered by them.

The degradation of the environment is the outcome of a number of process. Some of them are natural while the rest embraces historical, social, economic and various other voluntary operations that are intimately related to human manifestations. In fact, man plays a dichotomous role in the sphere
of environmental degradation. Man tends to make the environmental balance unstable as a result of his pursuits broadly connected with the process of demand and supply. These include reckless exploitation of resource, overuse and misuse of land, indiscriminate disposal of waste products, reclamation of wet lands etc.

The diachronic aspect of environmental degradation shows that ever since man has been able to get his things done by relying mostly on inanimate energy, a slow but gradual change in the man-nature interface crept in. During the subsequent era of European colonization and mercantile conquest, man induced environmental hazards surreptitiously engulfed the countries of Asia and Africa. Introduction of different types of plantation crop in the virgin forests has paid high dividend to the colonial power. But such act has taken its toll, in turn, in the forms of accelerated soil erosion, interrupted bio diversity, spread of epidemic and disease etc. (12). An assessment is therefore required from the environmental perspective. The present research is an endeavour in this regard. This research work intends to provide the ‘missing link’ between the history of tea plantation in the district of Jalpaiguri, West Bengal and on the other deal with the ecological changes
from social, cultural, political and economic perspective that the place went through covering the period from 1860-1947.

History reveals that with the cessation of the ‘monopoly rights’ given to the East India Company by China in 1833 for exporting tea from the country to the European market, the British found refuge in the Darjeeling hills, terai and the Duars region for cultivation of tea on a commercial scale. This was done at the expense of the virgin forests abounding the area. The setting up of tea industry thus changed not only the landscape but also the demography and socio-economic pattern of the district considerably.

The first penetration of the capitalist enterprise in the Duars in the form of tea plantations took place in 1874. Subsequently years of the nineteenth century saw rapid extension of the tea plantations and large growth of tea garden labour force. The years witnessed the extension of roads, railway and communications. All this helped to open up markets for agricultural produce-rice, jute, tobacco, mustard, etc. All this provided the stimulus for commercialization of Jalpaiguri’s subsistence-oriented agriculture and for extension of cultivation and reclamation of land. (13). In consequence, in late 1870’s and throughout the 1880’s and 1890’s clearing of jungles and reclamation of land for ordinary cultivation as well as for plantation made
rapid progress. By the turn of the century large parts of the Duars changed from jungle wastelands with little human habitation into cultivated area and growing settlements. Thus Jalpaiguri’s subsistence-oriented agricultural economy and society became increasingly integrated with the British Indian market and wider colonial economy. (14).

Conducting survey of some of the tea gardens in the district of the Jalpaiguri district like the Duncans tea garden at Birpara, Kilcott tea garden, Patharjhora tea estate, Diana tea garden the general find was that area of the mentioned tea gardens had increased from time to time which suggest large scale clearance of virgin forests, thus disrupting the ecological balance of the area. Speaking to Mr A.Roy, the manager of the Kilcott tea garden set near the river Kurti, the find was that the area under tea plantation at its very onset in the year 1884 was 150 Hectare which had increased to 634.44 Hectare till now. The Pathorjhora Tea Estate also record an increase in area of plantation from 364 Hectare as in the year 1883 to 556 Hectare at present. The Diana tea garden established in the year 1911 also follows the same trend showing an increase from 413 Hectare to 536 Hectare.

An extract from J.F. Grunning’s Gazetteer of the district of Jalpaiguri, 1911 read “In 1876, two years after Gazilduba garden was planted there were 13
tea gardens with an area of 818 acres and a yield of 29,520 lbs. of tea. By 1881 the number of gardens had increased to 55 and the acreage under tea to 6230 or in other words, the number of gardens had more than quadrupled and the area under tea cultivation had increased more than 7 times in 5 years. At the time of last Settlement in 1892, 182 grants of land have been leased for the cultivation of tea giving an out-turn of over 18 m.lbs. The cultivation was very rapidly extended during the nineteenth and in 1901 the number of grants had increased to 235 with a planted area of 119 sq miles and an yield of over 31 m lbs. After 1880 the cultivation of tea extended rapidly in the track between Tista and Diana rivers, but there was then a check as the country to the east of Diana was believed to be devoid of water. Mr C.J.O’donnell, I.C.S., who partially revised the Gazetteer in 1881 wrote; this important industry has increased so much in recent years as to change almost completely the physical characteristics of the submountain country over a great area of 30 miles long extended from the debouchment of the Tista from the Darjeeling hills to a similar point of the Diana river on the frontier of Bhutan. The greater part of the primeval forest has disappeared and mile after mile has been replaced by great expanses of tea garden. East of Diana a similar track stretches for about the same distance as far as Rajabhatkhawa Reserve Forest and north of Alipur. It is remarkable for its waterless
character which prevents its occupation for tea or any other form of cultivation. A few springs are, however, found in the limestone formation which occasionally crop out on its northern boundary. They are, however, almost immediately absorbed by the surrounding porous soil, do not again appear on the surface for 7 to 10 miles south of their sources.” Tea gardens now extended throughout these tracks of the country and find no difficulty in obtaining an adequate supply of water. The area under tea nearly doubled between 1892 and 1901 while after this period the extension of cultivation has been comparatively slow. The apparent decrease in the number of gardens is due to the fact that the figures represent the number of grants or temporarily settled estates. There were 103 gardens, some of which consists of several grants which have not been amalgamated. Most of the available land in the district which is suitable for tea has been taken up and for several years previous to 1907-08 there were no application for new grants. During 1908, 3 new grants each of which measures 1500 acres were leased for tea cultivation. The increase in out-turn of tea since 1901 is due mainly to young tea coming into bearing and to the gradual extension of cultivation on existing grants. (15 ).
Forest play an important role in maintaining the ecological balance of a place. They protect soil erosion, landslides, stabilize hill slopes against failure through their roots thrust deep into the ground, recharge ground water by promoting infiltration of rain water, reduce runoff and floods, moderate the climate and local weather and reduce wind speed. One single tree is capable of cooling its surroundings equal to five average air conditioners operating 20 hours a day; about 93 m3 of woodland reduce the noise level by 8 decibels and one hectare of forest is capable of absorbing CO2 and fumes generated by 20 cars. (16).

The process of deforestation in the tea gardens of the Jalpaiguri district had its effect on the climate of the region. The process of deforestation and the climatic changes though slow and gradual, the impact was also felt slowly through the ages. The importance of the forests on climate can be viewed from various perspectives as discussed below:

A) The forest reduces maximum temperature, increases minimum temperature and usually reduces the range of temperature annual, monthly and diurnal. It affects the air temperature at various height levels from the ground surface. Forests modifies the air temperature both by sheltering effect in cutting isolation and by its blanketing
effect in restricting the flow of heat while deforestation increases the air temperature. The trees can be considered as nature’s own air conditioner. An isolated 70 foot shade tree can transpire 100 gallons of water on sunny day. It takes 230,000 k.cal to evaporate this much water so such tree can be equated with five average room air conditioners (2500 k.cal/hr) each running 20 hours a day. Thus areas of forest regulate the temperature of a region. Temperature is greatly reduced by the evapotranspiration of trees and areas which have a layer of plant covering have considerably higher levels of evaporation than bare soil, the latter drying out slightly as the absence of roots prevents water being channelled to the surface. The highest temperature is at the uppermost layer of plant growth and the poor conductivity of the plants prevents the heat being passed in downwards. The earliest record of the climate of Jalpaiguri district was found in The History of Rangpur by Dr Francis Buckannan-Hamilton, published in 1810. The average temperature mentioned in the district was not more than 27 degree Celsius. Fog and frost was common in the winter season. Storm and thunder shower was witnessed in the month of April. In the month of rainy season there were heavy showers. The first scientific record of climate of
Jalpaiguri district was found in Sunder’s Settlement report of 1885. The recorded temperature between the years 1889 to 1893 varied from 22 degree Celsius to 23 degree Celsius. The yearly rainfall range of Jalpaiguri town, Alipurduar, Samsing, Buxaduar, and Debiganj were 3440, 3575, 5720, 5249 and 2066 millimeter respectively. The highest recorded temperature in this district was in the year 1932 which was found to be 40 degree Celsius. It has been found that the climate of Jalpaiguri district had undergone a change in the last hundred years. The intensity of rainfall had increased 2-3 times. At the same time the duration of the rainy season had also decreased. The approximate moisture content in the air yearly had also decreased to 14 percent in the tea garden area of the Duars region while around the Jalpaiguri town the decrease was 9 percent. The setting up of tea industry followed by urbanization had lead to an increase of 10 percent of Carbon –Dioxide in the air from the year 1860-1970. This has resulted in the increase of temperature in this region. The climatic change in this district had its effect on the surrounding living organisms. The forest of this district was also affected because of decrease in moisture in the air and irregular rainfall. The aridity of the soil had increased and the level of underground water had also fallen.
This has resulted in loss of various kind of trees as well as animal species that had been there from the very beginning.

B) The moderating influence of forests on solar radiation, air and ground temperature generally affects the occurrence of frost. In the open, frost is severe in intensity and frequency as compared to forested area. The forests help in retaining soil heat during the cold season because of the insulating effect of litter accumulation on the ground and the foliage above it.

C) Forests are very effective in breaking and moderating wind velocity by intercepting air movements so that wind speed is reduced inside the forests and around.

D) Forest and humidity are close together. The atmospheric humidity is greater in the forest than in the open. The greater atmospheric humidity in the forests is attributed to evaporation from the soil, transpiration restricted air movement, lower temperatures and to dew formations on the forest vegetation. Because of higher humidity, the evaporative capacity of the air is reduced.
E) It has also been noticed that the infiltration is higher in the forests than elsewhere e.g. in cultivated valleys, infiltration regarded in three hours was 7.55 cm, whereas in forest areas, it was 13.48 cm.

F) Soil and forest are integrally linked in close cycle. The damage or destruction of the one brings about the demise of the other. Indian Agricultural Scientists estimated that 6 billion tons of soil are eroded from India’s crop land each year. The loss of top soil reduces land productivity. Sheldon Judson, well known geologist, estimated soil erosion in 1968 that the amount of river born soil sediment carried in to the oceans had increased from 9 billions tons per year before the introductions of agriculture, grazing and other activities to 24 billion tons per year. The soil loss is least under forest. Tree roots play an important structural role in maintaining the soil of a region. The roots of the trees, their depth and breadth varying according to species, keep the ground soft and provide an ecological niche for innumerable small creatures. Ideal soils consist of mixture of living organisms and a variety of non living components which is highly integrated. Any change in the vegetation, by deforestation or breaking up grasslands in
the most extreme cases, has an effect upon the soil’s tendency to erode and the level of its mineral content.

G) Forest also exert an influence on the hydrological cycle. Various interception studies in forest ecosystem have been carried out. The rainfall interception by leaf litter was governed by the amount of rain and its intensity, as well as by the amount of litter present. Interception by tree varies from 12 to 38 per cent on an average 20 percent of rainfall is checked by tree cover. Forest play an important role in recharging the ground water. During rainy season, the rain water goes to ground through the porous soil and becomes ground water. Root structure of trees makes possible for ground to hold rain water as ground water which is being preserved and used by the trees for their growth. The new growth of trees, bushes and grasses, as well as moss and herbs contributes substantially to the ground’s water storage capacity, the roots of vegetation offering the necessary channels in the forests soil the essential process is known as the ‘sponge effect’. (17).

The massive clearings thus set the process of soil erosion on an accelerated scale. Moreover, the clearance of forest and setting up of new plantations in the Dooars region on the steep inward facing escarpments of rivers caused
further slope destabilization and attendant environmental hazards. The process has been augmented in several occasions by the very nature of the root of tea plants. It is simple fact that root is an underground part of the plant axis that serves to anchor the plant and absorb water and nutrients. The more the plant grows old, the roots spread vertically and laterally to support its physiological system. Thus extension of roots within rock interstice is bound to cause disintegration of mass. The same holds good for a tea plant. Its mature adventitious root accelerates loss of lithological cohesion below the shallow layer of soil. This further induces seepage through root augmented cracks causing erosion of soil.

It has been already discussed that the Duars region were interspersed by many turbulent hill streams. Running through the mountainous Bhutan territory as soon as these streams debouch in the plain territory they proceed with devastating force till they meet the river Brahmaputra either direct or through other rivers. Large scale deforestation in Bhutan and Jhoom cultivation caused a lot of landslips, and the rivers coming down with enormous force during heavy precipitation in the hills, and carrying enormous amount of debris, started causing devastation around the 20th century. Gradually there were rise in the river beds leading to floods in this
region. Though boulder protection was done, the on rush of waters was so high that the rivers often changed their course and destroyed fertile lands by depositing silt. (18).

As a natural phenomenon, there is a general variation of the flow in the river which varies from day to day and year to year. Due to the complex meteorological factors and varying topographical condition of the river basin, and the intensity of the rainfall of the adjoining areas, the quantity of water carried by the river also varies. The flow of any river is caused by water released on earth’s surface from rainfall or snow melt. For most of the time, the said flow confines to itself to a well defined bed bounded by high banks the area being capable of handling ordinary floods. The clearance of forest regions had its effect on the water cycle and is very much related with the flood problems of Jalpaiguri district. It has been learnt that with the development of communication system in this region for facilitating the growth of tea industry in this region the process of ecological imbalance was initiated. This was followed by settling of human habitation and growth of towns leading to indiscriminate use of forest resources. Two – third of forest were cleared within a span of hundred years.
Forest play an important role in maintaining the spring environment. The water retaining quality of forests and further its gradual discharge directly governs the nature of springs in terms of quality, quantity and periodicity of springs. Thus the drying of few of the springs or becoming seasonal in this region has its relation with the deforestation in this region.

The run-off water lead to immense erosion of soil. It has been found that that the erosion of soil in a deforested region was 1000-5000 mega ton/ hectare/ per year in respect to a forested region which is only 5-10 mega ton/hectare/ per year. (19). The small rivers having very less capacity of carrying the eroded soil causes 70-80 percent of deposition in the river beds of this region.

This resulted in the decrease in the depth of the river beds of Tista, Torsa and Jaldhaka rivers for the last 100 years. So these rivers either fails to store or drain away excess water when there is excessive rain and thus have no role to play in controlling the flood of the region. With the passage of time, the condition in the upper catchment of the Tista was so adversely changed that the bed of the river Tista started rising alarmingly. The water level of the river Tista still now remains almost above the general ground level of Jalpaiguri town during monsoon and hardly comes below the general level
of Jalpaiguri town even during the dry season. This high level of the river Tista at the outfall point of the river Karala has greatly affected the normal discharging capability of the Karala. The ruling level of the Tista at the outfall point being high, the discharge cannot make its way in to the Tista; on the contrary, it starts heading up submerging parts of Jalpaiguri town. This submergence increases alarmingly when the flood in the river Karala synchronizes with the flood in the Tista which became very common. The main town thus gets flooded paralyzing the normal activities of life.

There were serious floods caused by the swelling of the river Tista in 1881 and 1892. The flood in 1902 was confined to the basin of the Tista river and was caused by incessant rain in the Darjeeling hills and Jalpaiguri district. Consequently, Tista reached a height of 18 inches above the highest flood level of the preceding ten years. In 1906, the floods were extensive and covered almost the district. Heavy and continuous rain fell in July and in the same month 40.50 inches of rainfall was registered in Jalpaiguri. In the past the floods were caused by sudden downpours of rain lasting a short time, while the feature of 1906 was the long succession of rainy and sunless days. Rivers and streams in the district rose simultaneously and damage done to railways and roads was enormous. (20).
The gradual deforestation, increase of tea plantation industry in this region and the growth of township had its effects on the flow and the routes of the rivers that had increased the possibility of occurrence of floods in this region. It has been found that the low lying lands in the surrounding region play an important role in storing excess rain water but utilization of these lands for cultivation and plantation instead had lead to floods.

The forests of Jalpaiguri harbours a wide variety of mammals, amphibians, reptiles and birds. Most of the low lying flood plains of the district are endowed with rich heritage of flora and fauna and play important role in ecological balance of this region. However in the last few decades Duar grassland and chaurs, which where abode of several animals, has decreased due to increase in cultivation area, expansion of tea estates and human habitation. These chaurs and swamps were important habitat of wild buffalo, Gharial, Swamp deer (Barasingha) and pink headed duck which became extinct in this region as a result of human interference in nature. Jalpaiguri is world famous for home of great Indian- one horned rhinoceros, elephant, tiger, Indian gaur, Bengal florican, hornbills. Great Indian-one horned rhinoceros are found in swampy and marshy grassland of gorumara and Jaldapara, in the flood plains of Murti, Jaldhaka and Torsa. In the early
thirties, the fauna of the savannah forests of Chilapata and Malangi areas of Buxa reserves was facing extinction owing to the extension of tea gardens and the shrinkage of the grasslands. The Bengal Rhinoceros Preservation Act came into force in 1932 providing legal protection of the animal. (21). As they were very few in number forest officials then declared certain important areas as Wild Life sanctuaries around 1940 to preserve the rich diversity of flora and fauna in Gorumara, Chapramari and Jaldapara reserves. This was a move to save the endangered species and stop poaching of animals.

The Jaldapara Wild Life Sanctuary, the largest sanctuary in Jalpaiguri District of Bengal covering in an area of 216.5 sq.km was first declared as a Game sanctuary in the year 1941 subsequently in exercise of power conferred by sub section (i) of section 18 of Wild Life (Protection) Act 1972, a fresh notification was issued in June 1976 declaring it as ‘Jaldapara Wild Life Sanctuary’. Gorumara Wild Life Sanctuary, a game sanctuary since 1942, was declared a Wild Life Sanctuary in 1949. Chapramari Wild Life Sanctuary in the year 1940 and later it was renotified as Wild Life Sanctuary. The Buxa Tiger reserve is located within Alipurduar subdivision of Jalpaiguri District, covering a total area of about 761 sq kms. Most of the
forest areas were under Government control since 1866. It formed some of the oldest reserved forests in the country dating as far back as from 1879.

The infiltration of elephants in tea gardens and its surrounding villages has been a common phenomenon in the recent past years. The causes can be traced back from the past. Of the tea gardens surveyed the Baradigha tea garden situated beside the Indong and Murti rivers has reported of witnessing more of elephant and leopord disturbance in the tea garden and its villages. Similar experience has also been reported in the Dalmore tea estate situated beside Paglee and Khola rivers. The different family herds in between Teesta and Torsa move to different forest patches in different season in search of food, water and shelter. However, due to fragmentation of forests, the elephants are forced to move in between the tea estates and villages thereby causing damage to field crops. The leopards also enter the habitat areas in search of food. On an average 50 persons are killed every year by wild animals, especially at the time of monsoon and crop harvest. The fragmentation of forests and heavy biotic pressure on elephant habitat are the main reasons for this burning problem. Grass fodder plantations in Jaldapara, Buxa, Mahananda, Dalmore, Gorumara and Apalchand has been raised to meet up the elephant fodder crisis in various forests. Moreover the
practice of the villages, from the past, to depend on the forest resources had to be reduced to solve the problem.

Pest control is an important cultural practice in tea plantations. Extensive use of artificial fertilizers proved to be feverish for the soils. Random use of the pesticides for the protection of the plants pollutes various components of our eco-systems and cause fatal effects on the life systems. It is, therefore, essential that proper scientific agro-practices should be adopted in these regions with proper use of fertilizers and pesticides. As far as possible natural fertilizers should be used and for pest control biological methods should be adopted. Malathine, aldrine, sulphur, lindane, perenox, cuprokyt, blitox are the chemical fertilizers used in tea gardens. In spite of the fact that these chemicals ensure better yield of tea, yet the washed out residues of these pesticides contaminate water to various extent. People living nearby tea gardens, therefore, run a risk of health hazard.

Prior to the coming of the British and the occupation of land for tea plantation in the Duars region this particular area of land were mainly habitats of Koch, Mech, Rava, Toto, Garo, Tharu, Bhutia, Lepcha, Rajbanshis. Their livelihood mainly depended on forests, Jhum and shifting cultivation and handicrafts. They were also migratory and were engaged in
hunting and Gleeling. Their lifestyle was sedentary and their production was limited. The forest products were considered to be the property of the community. Either the land or the produce of the forest were considered to be non-saleable products. Reciprocal exchange of labour existed. The village was Mono-ethnic that is a village constituted of a single tribe. With the coming of the British the Regulation of 1822 that is the Mahalwari system was introduced in these regions. The tribal chief or the religion head of that particular tribe had the responsibility to collect the Capitation Tax of that particular village and handover it to the government representative. Free labour was accessed from these villages at a certain time of the year. But after the migration of different type of population in this region a change was witnessed where they got involved in planned cultivation to supply to the needs of the increasing population. The increase in the population through the process of migration became necessary to meet the demands of labour force in the newly established tea gardens that were increasing then.(23)

Jalpaiguri was all along a comparatively thinly populated district. When the first Census was taken in 1872, the density was 85 persons per square mile. In the half-a-century between 1872 and 1921, the population of the district
had increased by 244.2 per cent. In the same half a century, the population of Alipur Duars subdivision had increased by 1,043.3 per cent. No other part of Bengal had in a period of comparable span, after the advent of Census, recorded such increase in population. The population of the district, between 1871 and 1921, had increased only through massive immigration.

The district had vast tracts of forest land and cultivable waste in many areas, especially in the Alipur Duars subdivision. The uninhabited forest and cultivable waste lands attracted large numbers of land-hungry settlers from Rangpur, Dinajpur, Pabna, Malda, Rajsahi, Bogra, Goalpara and Mymensingh districts. Jotedars of these areas welcomed the immigrants. The process of immigration and bringing of virgin land under cultivation went on unabated till 1921. Saturation point was reached around the 1920’s and immigration tapered off.

Another factor encouraging immigration from about 1880 onwards was the new economic activity that is the establishment of tea gardens shortly after the formation of the district. Extension of tea plantations continued at a rapid pace up to the 1920’s. Expansion of tea plantation and industry attracted immigrant labourers from the districts of Birbhum, Bankura, Medinipur, Puruliya of West Bengal, Santal Parganas, Ranchi and Palamau districts of
Bihar and Balasore and Mayurbhanj districts of Orissa. The movement of the Duars was a part of this historical process. Of the various tribal peasant communities that moved into the Duars, numerically the largest group consisted of the Oraons, whose number increased from just 210 in 1881 to 62,844 in 1901 and further, to 115,350 in 1921. The Mundas, the second largest tribal group, numbered only 1855 in 1891, but by 1901 rose to 11,672 and by 1921 to 34,601. The sandals numbered 10,857 in 1901 and about 24,000 in 1921.(23).

The growth of tea plantation and industry also encouraged ancillary economic activities in both rural and urban areas of Jalpaiguri favouring further immigration which tapered off around the 1920’s. These immigrant people were also known as *Girmitia* derived from the word ‘agreement’ as they had to sign an agreement before they came to the gardens to work as labourers.

After 1921, the rate of growth of population in the district declined and fell below the rate of overall growth in Bengal. Though the Partition of the country in 1947 gave rise to the problem of influx of refugees from erstwhile East Pakistan, especially into the border districts, immigration of Hindu
refugees into Jalpaiguri was more or less counterbalanced by the emigration of Muslim refugees.(24)

According to the Sunder’s report on ‘Survey and Settlement of Western Duars 1889-1895’ the castes of coolies employed in tea gardens are hillmen who came from Nepal and Darjeeling; Oraons, Mudas and a few Kols who came from Chotanagpur District; Oriyas from Ganjam and Santhals from Santhal Pargana. Meches, Dhimens and Garos came from other side of Brahmaputra as also Bhutias were seen working in gardens though their numbers were few. Skilled labour in the way of carpenter, masons etc came principally from Purnea and Muzaffarpur districts. Moreover the local supply of labourers were entirely limited to cultivators who only worked during the cold weather months and principally employed on contract in building, clearing jungle lands, brickmaking or cutting firewood. As a rule, these people return to their country or homestead in March and April to cultivate their crops. With extensive establishment of tea gardens by the British the scenario began to change. Now different types of crops, vegetables and cotton were being cultivated in a planned manner. Very few tribes especially the Mech stuck to their earlier occupation like weaving. The
Ravas still could confine themselves in the forest area and the Tharu’s, Garos, Totos, Dhimals and the Bhutias declined in number. (25)

Many of these immigrant tribal peasants-turned tea garden workers used to return to their homeland and after one or two tea seasons they came back to the gardens after sometime, thus, constituting a sort of circulating population. In course of time the majority, though often retaining links with their village homes, settled permanently in the Duars. (26). Moreover, the sizeable number of those who settled permanently and worked as wage labour in the tea gardens, later on, for a variety of reasons, withdrew from plantation work as their chief occupation and switched over to peasant agriculture primarily as poor peasants and adhiars. (27).

A major transformation followed in forest ecology with the giving away of vast expanses of woodlands at extremely low prices to Europeans for the development of tea plantations. The commercialization of the forest by the State went hand in hand with the allotment of vast areas to planters. The exploitation of timber increased with the development of communication system that is by construction of roads and railways to facilitate the export of tea. Moreover large amount of timber were required for fuel and packaging in the plantation economy itself. All this hampered the traditional
conservation and management of forest by the original forest dwellers. Thus the British though they intervened and radically altered the existing food production systems and the ecological basis of the region by intervening in the ecology and social fabric of Indian society they failed to create neo-Europes by decimating the indigenous populations. But the British were successful in ensuring the process of ecological change by exposing their subjects to the seductions of the industrial economy and consumer society.(28)

Another mode of disturbing the existing ecology initiated by the British was the ‘fierce onslaught’ of subcontinent’s forest needed for tea plantation.(29) The revenue orientation of colonial land policy also worked towards the denudation of forests. According to B.Ribbentrop in his ‘Forestry in British India’ forests were considered an obstruction to agriculture and consequently a bar to the prosperity of the Empire.(30) This process greatly increased with the building of railway network around 1853. The result was felling of large number of trees, needed in the making of railway sleepers, under no supervision.(31) As commercial demand increased, the protected areas were being gradually converted into reserved forests by the colonial rulers for exercising fuller control. The process found its support with the passing of
Forest act of 1878. Thus many original inhabitants of the forest were uprooted from their land and livelihood leading to the birth of landless, unemployed population.

In search of livelihood these group of landless, unemployed people were attracted to the tea plantation region for job. The colonial rulers took this opportunity and began to employ this class of population in the tea gardens. The change over of livelihood from simple forest dwelling to class of labourers supplying to the demands of commercial market had its impact on their existing culture, society and notion of life. With the collapse of the resource base, there was replacement of old systems of barter by money economy that destroyed the traditional relationships among the various tribes. The disruption of traditional social forms resulted from the drastic changes in modes of production introduced by modern technology had its effect on the family. The extended families with their type of social security gave away to nuclear families.

The rites and rituals observed by different tribes earlier lost its importance. Previously the rituals were hunting and cultivation oriented. The rituals connected with cultivation like fagua, dusher, jitia, karam, sohorai lost its importance after these tribes immigrated in the tea plantation area of
Jalpaiguri. The structures of authority also changed to literate entrepreneurs from village elders. The strength of collective self-help gave away to the weakness of dependence on urban-based aid and external development agencies. It can be mentioned here that all was not perfect in the ancient social forms but the ‘good’ in traditional societies was rejected along with the ‘bad’ and that modernization was not necessarily conducive to social harmony and individual peace. There was also decline in the moral values of life.

The religion of the population also underwent change. Before they were primarily animist that is they believed and worshipped in all kind of life forms.(32) They had their own pantheon of Gods and traditional ritual practices. But later we find that there was change in their religion and thinking. The migrated population and the original inhabitants were also influenced by Hindu religion. The Oraons, Mundas and Hos who were not converted to Christianity, were divided between Hinduized and not yet Hinduized sections. The Hinduized sections usually described themselves as Madhesiyas and spoke Sadri or Sadani as mother tongue, syncretically identified their Gods and Goddess with Puranic Hindu gods and goddess and worshiped these goddess as well as their own. They were influenced by the
religion brought in by the colonial rulers that is Christianity. The Church Missionary Society was the earliest Christian mission to start work among the rural people especially among the immigrant tea-garden labourers in Alipur Duar subdivision. The society started its evangelical and social service work time in the eighties of the last century. They converted a good number of Santals to Christianity within a short time. The Society opened an agricultural colony with Christian Santal agriculturists in 1890. The American Baptist Missionary society began work in 1888. Their nature of work was mostly evangelical in nature. They mainly preached the gospel in villages, *bazaars* and *hats*. The Kalimpong Mission of the church of Scotland began functioning among the tea garden labourers of Alipur Duars subdivision from its station in Gorubathan in Darjeeling district. It converted a number of tribals to Christianity. Among the Christians of the district, the Protestants predominated. There were few Catholics. The largest number of Christians were found among the Oraons and then in descending order among the Mundas, Hos, Bhutias, Meches and Santals. In 1896, a church was established in Jalpaiguri town for the native Christians. (33). Thus majority of the population got themselves converted to these religions though they retained certain earlier practices and beliefs of their original
religion. Thus the ecological changes initiated the process of cultural change and continuity in the tea plantation in the Duars region of Jalpaiguri district.

The linguistic picture of the district is that the autochthonous peoples of the district like the Koches and Meches largely spoke the language of the Bodo group of the Tibeto-Burman family. With the hinduization of the Koches and the influx of Bengali Hindu and Muslims, a large number of former Bodo speakers began to speak in Bengali and developed a distinct dialect of Bengali. With the opening of the tea gardens from the middle of the nineteenth century, large number of Dravidian speaking Oraons and Austriac speaking Mundas and Santals began to immigrate into and settle in the district. In the course of time Oraon, Munda and Santal became demographically significant languages of the district. For communication these speakers resorted to a dialect of Hindi or Bengali known as Sadri or Sadani or Madhesi. In course of time the dialect became a demographically significant mother tongue.(34).

By clearing more forest surrounding the tea gardens they were given land for settlement and cultivation. This resulted in development of forest villages around the tea plantation area. Under the provisions of the 1878 act, each family of ‘rightholders’ was allowed a specific quantum of timber and fuel,
while the sale or barter of forest produce was strictly prohibited. This exclusion from forest management was, therefore, both physical as it denied or restricted access to forest and pasture as well as social as it allowed ‘rightholders’ only a marginal and inflexible claim on the produce of the forests.(35) Thus there was decline in traditional conservation and management systems around the forest. The loss of forests and pastures, earlier communally owned and managed, severely undermined the subsistence economy of the peasant. The British land policy worked towards the increasing differentiation of the peasantry and the decline of communal institutions. Thus the colonial state redefined property rights, imposing on the forest a system of management and control whose priorities sharply conflicted with earlier systems of local use and control. The colonial forestry marked an ecological, economic and political watershed in Indian colonial history.

The tea plantation in the Duars region also indirectly contributed to the decline of various forms of artisanal industry that were practiced by various groups of tribes residing near the plantation area and the surrounding forest. This was because the state forest management imposed restrictions in accessing traditional sources of raw material. For example bamboo was
extensively used in basket weaving, furniture, house construction etc. But under the colonial policy there was large scale eradication of bamboo trees for production of timber. The discovery of the use of bamboo for making paper, its importance increased once again in the eyes of the colonial rulers. They began to grow bamboo once again for industrial exploitation though restrictions were maintained on village use. Now weavers were forced to buy bamboo from the depots run by the government or market. Thus discontent spread among this particular population in losing their subsidiary source of income resulting in the rise of new forms of social conflict.(36) The withdrawal of existing sources of raw material and the competition from machine made foreign goods lead to the decline in the artisanal industry.(37)

The take over of large areas of forest by the state and the expansion of the plantation and agricultural frontier posed a continuous threat to both hunter-gatherers and their natural environment. The hunter-gatherers lost control over their means of subsistence. The only path opened to them was to put their knowledge of flora and fauna at the service of the forest department. They lived at the ‘reserved forest’ under the mercy of the forest department and due to ecological changes also were forced to new adaptive strategies like sale of small animals, honey and plants to nearby markets. According to
R.K.Mukherjee the relationship between nature and culture is both interactive and dynamic, with humans trying to mould the environment to their own ends but always having to work within the limits set by nature. He notes that in their economic activities human exterminate many existing plant and animal species even as they introduce new species from outside the region. Sometimes human intervention is successful in establishing a new and stable balance between society and nature and on other occasions, it is itself the cause of ecological decline.(38)

Thus the British imperialism set in a process of demographic expansion though it disrupted the ecological and cultural fabric of the society. They imposed much higher levels of demands on natural resources of the country to furnish the raw material for their economy. To avoid having to pay for the exploitation of these resources they took over vast resources as government property which, until then, was owned communally. After they had left India this task was completed by the nationalist elites whose commitment to a resource intensive pattern of industrialization has intensified the process of ecological and social disturbance initiated by the British.(39) There was a clash between pre-industrial and industrial cultures in India if looked from an ecological perspective. The British usurped the ecological space occupied
by the hunter-gatherers who had access to non- cultivated lands. They took to shifting cultivation and reduced the space occupied by the food producers.

Thus by nineteenth century the resource processors and transporters of colonial rulers developed a greater access to resources because of their high technology. They out- competed and usurped the Indian handicraft workers, artisans and wandering traders. This was marginally compensated by introduction of new areas that is by converting these usurped population as helpers of the British in the exploitation of the available resources for fulfilling their own purpose. Thus the hunter-gatherers, peasants, artisans and pastoral and non-pastoral nomads were squeezed into the already reducing space for food production. This led to suffering and impoverishment of this particular class and often collapse of the natural resource base sustaining many components of the Indian society.(40)
END NOTES


4) Ibid. p.5.


6) Ibid. p.12.


14) Das Gupta, op.cit., p.31.

15) Ghose, op.cit., pp.33-34.


18) Ghose, op.cit., p.76.

20) Jalpaigiri DG, pp.117-118.

21) Ibid., p.32.


23) Jalpaiguri DG, pp.79-80.

24) Ibid., pp.72, 73.


26) Ibid., p.2, Para 5.


31) Gadgil and Guha, op.cit., p.120.

32) Ibid., p.135.

33) Jalpaiguri DG, pp.85, 86, 87.
34) Ibid., p.81.


37) Ibid.

38) Ibid., p.217.


40) Gadgil and Guha, op.cit., p.218.