

Plant Diversity And Conservation : A Case Study Of Colonial Darjeeling.

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Abstract: Both the terms plant diversity and conservation have recently gained popularity. Now different measures are being taken for the conservation of plant diversity globally. Colonial Darjeeling (Part of the Eastern Himalayas) was very rich in plant diversity. Colonial intervention in Darjeeling had both the negative and the positive impacts. The exploitative British policies led to the destruction of plant diversity in Darjeeling. Early British policies were aimed at the exploitation or destruction of different kinds of species of plant. But later on many conservative steps were taken. Forest conservation was main step in this regard. Almost all kinds of degrading activities were forbidden by the forest laws which were indirectly helpful in the plant diversity conservation. The establishment of botanical garden in Darjeeling also led to the plant diversity conservation. They introduced different types of new species of plant in Darjeeling. Colonial conservation process gained momentum due to check on over-exploitation of plants, development of Darjeeling as a sanatorium, protection against environmental degradation and to make Darjeeling as a tourist destination.

Keywords: Plant diversity, Conservation, Colonial Darjeeling.

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I. INTRODUCTION:

Biodiversity is the backbone of human existence. It has vital implications on the whole world. It is very important for our present life and future generations. The most prevalent and widely accepted meaning of biodiversity is 'variety of life.' The term biodiversity was first coined by Walter G. Rosen in 1986.¹ In 1897, United Nations Environment program called for an international treaty to govern conservation and sustainable development. A final version of plan was prepared for Rio Convention in 1992.² The three levels of biodiversity i.e. Genes, Species and Ecosystems constitute different levels of biological organization and these are interlinked. Conservation of biodiversity is very important for the management of different kinds of species.³ The Convention on Biological Diversity (CBD) evolved through the United Nations Conference on Environment and Development (UNCED) which was held in Rio de Janeiro in June, 1992. The Convention on Biological Diversity (CBD) provides the global mechanism to ensure the conservation and sustainable use of biodiversity for the present and future generations by developing national strategies for the conservation and sustainable use of biodiversity.⁴

The study of the plant diversity conservation is a new approach. The International Union for Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF) initiated a project called the Centres of Plant Diversity (CPD) for the identification and safeguard of plant diversity around the world. Potential value of sustainable development and documentation of benefit of plant diversity conservation in a specific geographical area are measured by CPD. The CPD sites are distributed around the world, grouped into three geographical regions - Europe, Africa, Southwest Asia and the Middle East; Asia, Australasia and the Pacific; and the Americas.⁵ Basically rapid loss of natural ecosystems and the need to highlight the areas of prime botanical importance, hotspots were the main reasons behind identifying Centres of Plant Diversity (CPD). The project was undertaken in 1994.⁶ These developments have encouraged to study the historical background of plant diversity conservation in every society.

Plant diversity conservation has a long glorious history in India. Plants or trees were regarded as very important part of life. Sometimes plants were regarded as equal to the status of god. But the colonizers had changed this trend in India.

Colonial occupation in India had both the positive and negative impacts.⁷ Colonial commercial and exploitative nature over environment and ecology resulted in harm to the plant diversity. But at the same time British forest conservation and other policies led to the development of plant diversity conservation.

In the case of colonial Darjeeling both the phenomenon were present. On the one hand plant diversity was disturbed by the destruction of plants for economic benefits of the colonizers, on the other hand British laws,

rules or policies helped in plant diversity conservation. Colonial forest conservation policy and the establishment of Lloyd botanical garden in Darjeeling led to the growth of plant diversity conservation. Though the present day concept or consciousness on plant diversity was unknown to them, but during that time plant diversity conservation had influenced by different British measures.

The year 1835 was a major landmark in the history of colonial Darjeeling which was a part of the Eastern Himalaya. Before 1835, Darjeeling was a region of Sikkim. The main area of Darjeeling was given to the East India Company by the Raja of Sikkim as a mark of friendship in 1835 (1st February). Darjeeling was given to the British, because in the Anglo-Nepal war of 1817, the East India Company restored Darjeeling to Sikkim. But with the deterioration of friendly relationship with Sikkim, the East India Company captured Darjeeling along with the other parts. In 1865, Kalimpong was captured by them from Bhutan. In 1905, Darjeeling was included in Bhagalpur. It was transferred to Rajshahi district in 1912. After independence in 1947, it was included in West Bengal, India. The district was roughly extended in between 26°31' to 27° 13' North latitude and 87° 59' and 88° 53' East longitude. W.W. Hunter opined that it was in between 26°30'50" and 27°13'5" North latitude and between 88°2'45" and 88°50'3" East longitude. According to W.W. Hunter's account the total area of Darjeeling in 1876 was 1,234 sq. miles, whereas O'Malley's Gazetteer' of 1907 describes it as 1,164 sq. miles.

II. EARLIER WORKS :

The information about the plant diversity in colonial Darjeeling can be found in different accounts. The process of documentation of different species of plants were done by various botanists and naturalists.

In 1821, D. Don explored this area who collected some specimens. In 1825, D. Don published his book titled *Prodromus Florae Nepalensis*.⁸ The first important work on botanical perspective of Darjeeling was J. D. Hooker's notes on botanical excursion from Darjeeling to Tonglo which was published in 1849. J. D. Hooker's (1872-1897) *The Flora of British India* has given detailed account on different species of plants in India. The description, identification, location etc. of different plants have been highlighted in this work. It has provided many information on the plants of Darjeeling region, but the exact location of the plants is not always clear. The documentation of scientific names along with native names of the plants in Darjeeling were determined by J. S. Gamble (1878) in his work titled *List of trees, shrubs and climbers found in the Darjeeling district, Bengal*. King & Pantling's (1898) work titled *The Orchids of the Sikkim - Himalaya* included many plants of Teesta Valley. A.M. Cowan and J.M. Cowan, (1929) work titled *The trees of North Bengal including shrubs, woody climbers, bamboos, palms & tree ferns* improved the list of plants prepared by J.S. Gamble. The work of Biswas & Chopra (1956) titled *Common Medicinal Plants of Darjeeling and Sikkim Himalayas* is an important work on floristic studies in Darjeeling. The work by Biswas (1966) titled *The Flora of Darjeeling and the Sikkim Himalayas* has various information regarding Darjeeling flora. The work of Hara (1966, 1971) titled *Flora of Eastern Himalaya* has included Darjeeling flora. Ohashi's (1975) work titled *The Flora of Eastern Himalaya* has information regarding flora of Darjeeling. Matthew's (1981), work titled *An Enumeration of the Flowering Plants of Kurseong, Darjiling District, West Bengal, India* is an important work on Darjeeling flora. Abhaya Prasad Das's (2004) *Floristic studies in Darjeeling Hills* is a very important work in this respect. The work of Abhaya Prasad Das and Chandra Ghosh (2011) titled *Plant wealth of Darjiling and Sikkim Himalayas vis-à-vis Conservation* is also very significant in the matter of plants of Darjeeling. The work titled *Quantitative Description of Upper Storey Vegetation at a Foothill Forest in Indian Eastern Himalayas* by Gopal Shukla, Nazir A. Pala, Saikat Gantait and Sumit Chakravarty- in *Plant Biodiversity: Monitoring, Assessment and Conservation*, (2016) edited by Abid A. Ansari, Sarvajeet Singh Gill, Zahid Khorshid Abbas, M. Naeem has discussed on Terai Duars.

Based on the available works on colonial Darjeeling it can be generalized that the study on plant diversity conservation in relation to colonial Darjeeling has still not been conducted from the view point of history. Most of the works that had been done were mainly based on botanical perspective and had missed out the historical aspects of it. These works do not analyse the consequences of colonial intervention on plants or trees and colonial policies regarding plant diversity conservation. Through this paper an attempt has been made to analyse the motive, role and policy of the British in the matter of plant diversity conservation and exploitation of plants in colonial Darjeeling from historical view point. This paper tries to answer the following questions - What was the motive of the colonial governance in the matter of plant diversity management viz. exploitation and conservation? How did they contribute to the plant diversity conservation? Why did they emphasized on conservation of plant diversity in Darjeeling?

III. PLANT DIVERSITY IN COLONIAL DARJEELING:

Darjeeling was very rich in plant diversity. Climate and altitude had an important impact on the distribution of species of trees in Darjeeling.⁹ Colonial Darjeeling district consisted of about 4000 species of flowering plants, 300 species of ferns, 140 species of liverworts, 75 species of hard fungi etc. Plants of Darjeeling can be grouped under five categories based on their distribution, such as - the Plains, the Tropical or lower hill zone, the Subtropical or middle hill zone, the Temperature or upper hill zone and the Alpine zone. In the Plains (Terai) tall grasses, open grassland, scrub savannah, Sal (*Shorea robusta*) forests were important constituents. (Dash, p-23) Except these Khair, Sisso, Simul, Siris, Toon, Gramari, Champ, Malagiri were dominant species. (Dash, p-128). *Lagerstroemia parviflora*, *Mallotus philippensis*, *Terminalia*, *Erythrina* were major species of this belt. (Dash, p-23)

The Tropical or lower hill zone extended from the plains up to 3000 feet. There were about 850 species of trees and shrubs in the Tropical or lower hill zone. The dominant species in this zone were mainly the timber trees like *Shorea robusta* (Sal), Leguminosae, Gramineae, Urticaceae, Euphorbiaceae, Cyperaceae, Rubiaceae, Compositae, Asclepiadaceae and Acanthaceae etc. The species like Paccasaj, Chilauni, Toon, Chikrassi, Gokul, Simul, Lampati, Mandani, Kadam, Tama bamboo, Maina, Karam, Harra, Barrah, Kimbu, Amla, Malagiri, Katus, Angare, Tejpat, Panisaj, Dabdabe, Oodal, Chilauni, Hatipaila, Tanki, Lali, Amboke, Teak etc. were important in this zone. (Dash, pp-128-129) The interior of the forest in this zone can be divided into three storeys i.e. the ground vegetation with thick herbs and shrubs, the second storey of tall shrubs and small trees and a third storey of tall trees forming the canopy. (Dash, p-24)

The Subtropical or middle hill zone was extended from 3000 to 6000 feet. The species found in this belt were *Castanopsis tribuloides*, *Machilus* species, *Quercus spicata*, *Schima wallichii*, *Castanopsis indica*, *Phoebe banceolata*, *Erythrina*, *Stricta*, *Callicarpa aborea*, *Terminalia myriocarpa*, *Jambosaramosissima*, *Engelhardtiaspicata*, *Betulacylindrostachys*, Aldar or Utis (*Alnus nepalensis*), *Talaumahodgsonii*, *Cinnamomum oecodaphne*, *Evodia fraxinifolia*, *Quercus lancastolia*, *Osteospaniculata*, *Eurya* species, *Prunus nepalensis*, *Mongolia campbellii*, *Quercus lineata*, *Acer thomsoni*, *Machilus odoratissima*, *Jambosakurzii*, *Erythrina arborescens*, *Brassaiopsis* species, *Symplocos* species etc. (Dash, pp-24-25) The dominant species of this zone were Alder or Utis, Walnut, Birch or Saur, Pipli, Angare, Mahwa, Lekhtoon, species of Oaks, Spanish Chestnut, Chilauni, Sinkoi, Siris etc. (Dash, pp- 129-130)

The Temperature or upper hill zone (From 6000 to 9000) and Alpine zone (From 9000 to 12000 feet) can be divided roughly into lower non-coniferous and an upper coniferous and rhododendron belt. 100 families of flowering plants were there in these zones like, Orchidaceae, Compositae, Geraniaceae, Rosaceae, Cyperaceae, Geraniaceae, Ericaceae, Liliaceae, Labiatae, Umbelliferae etc. Other conspicuous trees of this zone were Oaks, Maples, Laurels, Birches, Alders, Pyrus, *Bucklandias*, Conifers. (Dash, pp-25-28) The upper hill zone contains species like Oaks, *Mangolias*, Laurels, Buk, Phalat, *Sungrekatus*, Katus, Kawlas, Ghoge Champ, Sinkoli, Maple, Kapasi, Kharani, Khanakpa, Jhingani, many Nettles, Raspberries, Ferns, Bamboos, Saur, Kimbu, Buk, Lalikawla, Pipli, Malata etc. (Dash, pp-130-131)

Alpine Zone contained Conifer, Rhododendron, Maling bamboo, Oak, Maple, *Dhenagresalla*, Hemlok, , Silver fir, *Gobresalla*, Birch, Saur, *Tengresalla* etc. (Dash, p-131)

Darjeeling had different kinds of plant. Rice, Berley, two species of Buckwheat, Murwa, Indian-corn, Junera, Yam, Brinjal, Bhang, Fennel, Cummin, Mint, Rue, Cotton tree, Wild Mango, Orange, Date, Banana, Lemon, Figs of five kinds, Bamboo of 12 types, Wild Mulberry, three kinds of Nettle, Turmeric, Ginger, many kinds of Grass, Wild Cherry, Burberry etc. were available in Darjeeling.¹⁰

The number of endemic species in the Himalaya were 3165 (Around 70%). (Dash, p-28) Darjeeling town contained nearly 50% indigenous flora of the Himalaya. The rest of the plants under cultivation were of foreign species of which Japan had supplied about 14%, North America 7%, Australia 6%, China 6%, Malay 4%, Europe 4%, South America 3%, Tropical Asia 3%, Central America 2%, Burma 1% and Africa 0.5%. (Dash, pp-27-28).

According to K.P. Biswas over 40% plants in and around Darjeeling were exotics.¹¹ New species such as tea, cinchona, potatoes, cardamoms, oranges were introduced in Darjeeling. (Dash, p-41).

According to E.C. Dozey, a feature of Darjeeling district was the variety of trees. The forests of this district were reserved and controlled by the forest department over an area of 445 square miles or 38 percent of the total area of the district.¹²

One thing clear is that majority of the species of plants were concerned to the forests. The forests of the colonial Darjeeling district provided homage to the diverse species of plants. Any kind of alteration in the forest could influence the plant diversity. For this reason forests of the district played a key role in the management of plant diversity. Forests provided asylum to different species of plants. That is why colonial forest policy was important in plant diversity management.

IV. IMBALANCE IN PLANT DIVERSITY :

Pre-colonial Darjeeling was marked by an eco-friendly and harmonious relationship with the nature. The inhabitants of hill area such as Lepchas, Sikkimese and the Bhutias did not unnecessarily destroy forests. The Bhutanese regarded as sin to harm trees. There was a superstitious belief that forests are the habitat of demons. It also led to preservation of forests.¹³

According to Ram Prasad Sharma, the virgin and unspoiled forest dominated the scenario of pre-colonial Darjeeling.¹⁴ Pre-colonial Darjeeling was covered with dense forests. Lt. General Lloyd had visited Darjeeling in 1824. According to him the hillsides of Darjeeling were clothed with virgin forest from summit to its base. The early settlers and even the officers of the Government were impressed by the great extent of the forests. Even in April, 1848, J.D. Hooker saw that Terai was covered everywhere with a dense forest.¹⁵

But this huge forest had become thin with the colonial occupation in Darjeeling, because of over-exploitation and deforestation. O'Malley opines that the colonial occupation in Darjeeling led to huge deforestation. Forests of Darjeeling district were destroyed due to the population increase and introduction of tea industry in Darjeeling.¹⁶ The Sal forests of the district were exploited for the supply of railway sleepers. Unrestricted and unregulated tree felling were common in Darjeeling. (O'Malley, p-97) According to Darjeeling district gazetteer, 1947, “ *Rapid extension of agriculture in the early days of development resulted in the clearance of large areas of forest at favorable altitudes.*” (Dash, p-41) The tea gardens and cinchona plantations in Darjeeling basically led to forest destruction. (Dash, pp-140-144)

Colonial needs were far greater than other reasons. The government marked the reserved forests of Darjeeling for the ‘*supply the station of Darjeeling and the cantonment ... with timber, firewood and charcoal and eventually supply the requirements of the tea industry.*’¹⁷

The local inhabitants of Darjeeling also led to the destruction of forests. Trees were used for fuel by villagers and locals. Even forest fires (Khasmahal forests of Kalimpong subdivision) were the reason for destruction of trees.

There were also other reasons for the destruction of trees. Many development programs in Darjeeling led to the destruction of forest such as construction of dams, construction of roads, establishment of railway link, urbanization, tea plantation and factories, mines, industry etc.¹⁸ All these processes destabilised equilibrium in the plant diversity in colonial Darjeeling.

According to Abhaya Prasad Das, numerous plants which were previously recorded for Darjeeling at least in the *Flora of British India* (Hooker 1872 to 1897) and in Cowan and Cowan's (1929) account of woody plants of North Bengal are not found. Frequent changes and absence of any well defined boundaries between Sikkim, Nepal, Darjeeling and Bhutan in the past made it impossible to determine the actual location of numerous previously collected specimens.¹⁹

We can conclude that during this time huge destruction of trees led to the destruction of many tree species and some became rare. It resulted in imbalance in plant diversity.

V. COLONIAL INITIATIVES :

The process of implementation of plant diversity conservation in colonial Darjeeling can be seen through the imposition of forest conservation laws or policies and by the establishment of botanical garden in Darjeeling.

Majority of the species of plants were related to the forests. That is why forest conservation became a boon to the plant diversity conservation in colonial Darjeeling. The forests between or around the rivers like, the Kyal, the Balason, the Rangit and the Mahanadi were acquired by the British in 1835. (Dash, p-123) Forests of the Terai were also captured by them. Forests of the Kalimpong were added after 1865.

Over-exploitation of the forest in colonial Darjeeling was too high, for this reason there was a need for regulation on over-exploitation. The need to save the existing forests for the future use resulted in the form of implementation of forest laws. Sir Dietrich Brandis, I.G. of forests, India, proposed for the conservation of forests in Bengal in 1862. Dr. Anderson was appointed as the conservator of forests. In August, 1864, forest conservation was inaugurated in Bengal. The first forest reserves were notified in 1865. It notified Darjeeling division for the first time. For the fulfillment of local demands of Darjeeling the forest of the Ghoom Pahar had been reserved. (Dash, pp-123-124)

For the conservation of forests or species of trees a number of forest laws or policies were introduced in Darjeeling. The colonizers introduced important forest laws or acts in Darjeeling such as the Indian Forest Acts of 1865 and 1878 and other acts like 1884 etc.

The Indian Forest Act of 1865 was the first enactment relating to the conservation of government forests. Through this law lands covered with trees, brushwood or jungle were declared as government forest.²⁰ This act provided protection to the plants. The preservation of trees, shrubs, plants etc. within government forests was prescribed by this act. This act also emphasized on safe custody of timber in government forest. The levy of forest dues and revenues etc. were advocated by the law.²¹ Breaching of law was made punishable by this act.²²

The Indian Forest Act of 1865 was replaced by the Indian Forest Act of 1878. It was far better than the earlier act. Through this act forests were divided into three categories, namely, (i) reserved forests, (ii) village forests and (iii) protected forests.²³ The practice of trespass or pasturing of cattle were prohibited in the reserved forests. This act tried to provide full protection to the trees. Damaging of trees which were not the property of the government was also prohibited through this law. The task of notifying any forest or land as protected forest was entrusted on the local government. The Government's policy of establishing control over forest was main aim of this act.²⁴

In the year 1875, the separation of Darjeeling forests from the Cooch Behar division took place. After 1875, Darjeeling was made into a separate division. In 1878, Dr. Schlich, the conservator of forests, divided the total areas of Darjeeling into three major divisions namely, the Darjeeling division, Tista (Kalimpong) division and Kurseong division. (Dash, pp-123-124).

Many traditional rights or practices were banned by the forest laws. The practice of Jhuming was banned by the forest laws (Dash, p-41). Even grazing of cattle was regulated by the act of 1884. (O'Malley, p-96)

The Bengal Forest school was opened at Dow hill in the Kurseong forest division in 1907. It was established for forest practical training work for the stuffs below the rank of forest rangers. Forest subordinates from Orissa, Bihar and Assam would come to this school. (Dash, p-125) The administration of the forest in the district was maintained by the forest stuffs such as gazetted officers, forest rangers, deputy forest rangers, foresters, clerks and forest guards. Majority of the stuffs were the hillmen. (Dash, p-126)

The introduction of Taungya planting in Darjeeling district took place in 1921. It emphasized on artificial regeneration of trees. In Kalimpong division, up to the end of 1942, the Taungya system had artificially regenerated about 8463 acres of forests. (Dash, pp-134-135). The colonizers appointed 10014 adult persons in the forest department for the regeneration and conservation of trees. (Dash, p-148)

Large portion of the Darjeeling forest area was administered by the Forest Department of the Government of Bengal as reserved forests. But certain portion of forest was under Khas Mahal administration of the deputy commissioner. (Dash, p-123) The total areas of reserved forest in Darjeeling district were appropriately 280000 acres. The area of reserved forest in Darjeeling division was 73000 acres, in Kurseong division it was 72000 acres and in Kalimpong division 135000 acres of land was under reserved forest. (Dash, p-127).

VI. THE LLOYD BOTANICAL GARDEN :

The establishment of botanical garden in Darjeeling also led to the conservation of plant diversity in Darjeeling. It crated room for the conservation of different kinds of species of plant. The first botanical garden was laid out in 1876 at Rangiroon, Darjeeling. But later it was abandoned. The Lloyd botanical garden was established due to the endeavour of the Lieutenant Governor Sir Ashley Eden. In 1878, Mr. W. Lloyd (No connection with Lt. General Lloyd) who was the proprietor of the bank below the Eden sanatorium presented property to make a new botanical garden. So, it was called as the Lloyd botanical garden. It had nearly all kinds of indigenous and exotic species of plant. In 1916, over 11500 plants, 5173 dozens of annual seedings, over 908 bulbs and tubers, over 417 packets of seeds were either exchanged or distributed to other gardens. In 1916, the garden got over 52000 visitors. There was a pavilion for the use of picnic parties.²⁵

The Lloyd Botanical garden worked as the supplier of different kinds of species of plant in and around the Darjeeling district. It supplied a large number of plants to the new cantonment at Lebung. The Conifers, other forest trees, bamboos, shrub etc. were supplied to the public places and vacant spots in Darjeeling.²⁶

Total area of the botanical garden was 40 acres. The garden had three main parts viz. the upper indigenous, the lower being exotic section and miscellaneous section. Since 1910, the garden had been used for the collection, distribution of seeds and for the experiment of adaptability of exotic species. Botanical and other researches were also present in Mayapuri laboratory of the Bose Institute. (Dash, pp-252-253)

So, we can say that the Lloyd botanical garden played a vital role in plant diversity conservation in colonial Darjeeling. Along with the Lloyd botanical garden there were also other institutions like the Bose Institute which played significant role in the botanical research.

VII. REASONS FOR CONSERVATION :

Plant diversity conservation had taken place in colonial Darjeeling mainly due to the forest conservation. Protection of forests or plants and establishment of botanical garden in Darjeeling led to the development of plant diversity conservation. There were many reasons which drew British attention in conservation process, but the control on over-exploitation of forests or trees, establishment of sanatorium in Darjeeling, check on environmental degradation and development of tourism played a key role.

Control on Over-Exploitation : Controlled utilization or exploitation of forest resources or species of plants for the future use was the main reason for the conservation of forests in Darjeeling. For this reason they realised the need to check on over-exploitation of forests.

Before 1863, less attention was given to conservation. Gradual deforestation in the areas nearer to towns increased the prices of both the fuel and timber. With the colonial occupation in Darjeeling this region witnessed a huge population increase. The colonisation and conversion of the forests into cultivated land and tea gardens were too rapid as population increased. (Dash, p-123) Forests in the Darjeeling district would supply the local demands. Firewood and box planking in the tea states would consume forest resources. Darjeeling town and cantonments of Jalapahar and Lebong needed a large supplies of firewood and charcoal and a certain amount of timber. The demand for firewood and charcoal had increased more than 400% during the war with Japan. During the war times local demands would be curtailed and supply of timber would be made for war purpose. Up to 1892, permit system was responsible for the destruction of best trees. Permit holders selected and removed the best trees in the silviculture ground. (Dash, pp-131-133)

So, the economic importance of the forest conservation was immense. This led to the growth of conservation by the controlled use of forests or plants for the future.

Establishment of Sanatorium : The primary objective of the British to occupy Darjeeling was the establishment of a sanatorium in Darjeeling, because the natural beauty and climate of Darjeeling evoked a sense of nostalgia among the British and the Eastern Himalayan mountains of Darjeeling could cater to the lost sense of idyllic beauty of the Alps. For this reason many steps were taken to make Darjeeling as a sanatorium. They tried to make a more homely environment in Darjeeling as same as the Europe. The introduction of different types of species of plant in Darjeeling was one of the efforts adopted by them to make Darjeeling more pleasant.

Darjeeling was chosen for the sanatorium because of its healthy environment. Geographically it was a healthier region than the plains. M. Harrison (1999) states, '*The cantonment and the town of Darjeeling were established to provide a place of rejuvenation to British troops and civilians away from the heat and dust of the plains of northern India. The 'unhealthiness' of the 'plains', especially of the Bengal plains after the cholera epidemics between 1830 and 1860, became a convention of medical discourse in nineteenth-century colonial India.*'²⁷

Darjeeling was a beautiful and healthy region. As appears in a poem written by J. A. Keble on Darjeeling about the health related utility of this region. -'*When you feel, below, dead-beat, Overpowered by trying heat, Worn by day, at night no rest; Then, 'tis surely manifest, That you should at once take train; Come above, and health regain! Here, in Flora's Grove be instant ; Prospect beautiful near and distant. Ferns and orchids thriving prime, Scented blossoms sweet as thyme. Pleasant Mall, Chowrasta clear ; Tempting resting place is here !'*²⁸ The same poem has highlighted floras as a source of natural beauty in Darjeeling.

A poem of the same writer states about forests and different kinds of species of flowering plants. '*Forests stretching scores of miles, Spread o'er heights, down deep defiles. Rhododendrons full in flower, Give the hills a crimson dower. (April. Great Magnolias flowering bright, Pale-rose tinted, citron, white. (March.) Cherries wild in blush of pink. (November.) Rope-like Creepers cling and link. Orchids, Climbers, Ferns o'erhead, Mixed-green; citrine, russet-red, Festooned Fronds in swaying glee, Graceful curve from tree to tree. Stalwart Cryptomerias tall, Dark, majestic, charm, enthral.*'²⁹ In this poem different floras has been depicted as the sign of beauty and pleasant environment.

Darjeeling had attracted the British, other Europeans and the Indians as a sanatorium town of leisure and healthy environment. In 1882, the Eden Sanitarium and Hospital was founded exclusively for the Europeans and the Lewis Jubilee Sanitarium for Indians was founded in 1887. These sanatoriums served as medicalized leisure.' (O'Malley, pp -58-59)

The establishment of sanatorium in Darjeeling served as a health recovery zone for the officers and other staffs working in India and outside India. For this reason they tried to make a more homely environment with the introduction of diverse plants generally found in their motherland or familiar to them. These developments initiated British interest in conservation.

So, the colonisation of Darjeeling hills was related to make an ideal sanatorium for the British. To make the sanatorium environmentally more beautiful, they initiated conservation and introduction of different species of plants to highlight its natural beauty.

Environmental Concerns : Environmental concerns also played a role in plant diversity conservation. There was a growing realisation among the colonizers about the need for forest conservation and afforestation for the protection against soil erosion, landslide, inundation, conserving fertility of soil etc. Landslide, soil erosion, inundation etc. were major problem in Darjeeling. Every year these were responsible for huge amount of governmental expenditure. For this reason different measures were taken to restore the environmental

degradation. Afforestation was the main step in this regard. The protection was taken against the forest fire. A wild fire line was cleared and maintained on the Nepal frontier. Special grounds were prepared for camping and picnicking. Grazing in the reserved forest was restricted by permit as far as it didn't damage the forests. But permit or pass system of grazing was not totally free of costs. They charged certain amount of money on certain animals. (Dash, pp-135-138) According to O'Malley, the bulk of the forests were only protected to prevent soil erosion on a large scale. (O'Malley, p-95) Huge forest tracts were brought under protective measures. The Lloyd botanical garden supplied trees to the vacant places.

Development of Tourism : Development of tourism in Darjeeling made plant diversity conservation an essential one. The British government took initiative to develop tourism in Darjeeling. To make Darjeeling as a sanatorium as well as military station was helpful in this process.

The tourism-industry in Darjeeling started with the establishment of sanatorium in 1835 for ailing British soldiers and British residents of Bengal and Burma. But the formal introduction of tourism was only in 1839 with the construction of the first hotel, "*The Darjeeling Family Hotel*" with only 12 rooms.³⁰

They introduced modern communication through the making of roadways and railways. Many schools were started by the missionaries. They offered restricted accommodation for the tourists in Government Bungalow at many places.³¹ The colonizers also tried to highlight the beauty of Darjeeling to the world. They wrote various accounts on or about the tourist destination of Darjeeling to attract people.

Along with the colonizers and Europeans, a large number of Indians also visited Darjeeling. As quoted by K.C. Bhanja, '*Professional men such as civil servants and barristers also owned property in Darjeeling. Many others visited during the summer, staying at one of the several boarding houses that sprang up to cater to Indian visitors*'.³²

Development of tourism needed a magnificent environment with huge varieties of plants, green belt of trees, different species of flowers, shrubs etc. to attract travelers. Darjeeling had almost everything naturally. But to make it more beautiful the colonizers introduced some new species in Darjeeling.

So, we have to say that development of tourism in Darjeeling led to the development of conservation of plant diversity.

VIII. CONCLUSION :

So, we can conclude that during the colonial period in Darjeeling, the conservation of plant diversity had influenced by different steps taken by the colonizers. In one hand plant diversity had destabilized by over exploitation of species of plants, on the other hand British policies led to the development of plant diversity conservation. British commercial and economic exploitation of plants resulted in huge destruction. This led to the extinction of some species of plants. At the same time British forest conservation policies became a boon to the plant diversity conservation. British forest policies forbade almost all kinds of degrading process in Darjeeling which was helpful in plant diversity conservation. The establishment of botanical garden in Darjeeling also led to the conservation of plant diversity. There were many reasons for the conservation in colonial Darjeeling, but the conservation process in Darjeeling was mainly adopted due to the check on over-exploitation of forests, making of Darjeeling as a sanatorium, check on environmental degradation and development of tourism in Darjeeling.

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