

Tea Plantations, Forest Clearance and Landscape Transformation in Colonial Assam Valley

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Abstract: *The introduction of tea plantations in Assam during the nineteenth century under British colonial rule brought major changes to the region's natural landscape and ecology. Before colonial intervention, Assam was covered with dense forests, wetlands, and rich plant and animal life, which helped local communities maintain environmental balance. With the growth of tea cultivation, large areas of forest have been cleared and replaced by tea gardens. This has led to serious ecological changes, such as loss of biodiversity, soil exhaustion, and the breaking up of natural habitats. This study examined how the conversion of forests into tea plantations changed the physical features of the land. The natural forest cover was removed and replaced with tea bushes planted in regular rows, creating a uniform and managed landscape. To support plantation needs, forest areas were altered, which disturbed natural drainage patterns and affected soil quality. The demand for fresh and fertile land has encouraged the continuous clearing of untouched forests. Tea plantations have long-lasting ecological effects. Extensive forest clearance destroyed wildlife habitats and reduced the number of native plant species, as monoculture tea cultivation replaced diverse vegetation. By Focusing on the development of tea plantations in colonial Assam, this study examines how the establishment of plantations led to large-scale forest clearance, transformed the region's landscape, and brought about significant environmental changes.*

Keywords: Pre-colonial Assam, Wasteland Policy, Tea Plantation, Impacts, Landscape Change.

INTRODUCTION

Assam, located in northeastern India between 24°–28° N latitude and 90°–96° E longitude, covers an area of approximately 78,438 square kilometres. The state is traversed by the Brahmaputra and Barak River systems and is renowned for its rich biodiversity, dense forests, wetlands, and fertile alluvial plains. The colonial Assam Valley, formed by the Brahmaputra River, extends from Sadiya in the east to Dhubri in the west and, during the colonial period, comprises the districts of Goalpara, Kamrup, Darrang, Nowgong (Nagaon), Sibsagar (Sivasagar), and Lakhimpur. At the time of its annexation under the Treaty of Yandaboo in 1826, Assam was characterised by extensive forest cover, abundant natural resources, vast tracts of uncultivated land, and a sparse population (Ribbentrop, 1900). British travellers also mentioned the extensive wastelands (which included forests) which they saw in Assam during the early part of their intrusion into the country. According to John McCosh, *this extensive valley through some centuries is richly cultivated by an industrious and enterprising people is now through out six eights or seven eights of its extent covered with jungle.....* (McCosh, 1837). Assam came under British rule following the Treaty of Yandaboo in 1826, although the East India Company showed interest in the region much earlier because of its strategic location and commercial potential. The acquisition of Diwani rights in Bengal in 1765 brought the Company into direct contact with the Ahom Kingdom, while Goalpara served as the first point of British entry into Assam (Goswami, 2012). The First Anglo-Burmese War and the subsequent withdrawal of the Burmese enabled the British to establish authority over the region. Earlier surveys by Captain Welsh and David Scott highlighted Assam's economic potential, and a survey conducted during 1825–26 revealed that nearly two-thirds of the cultivable land in Lower Assam remained uncultivated (Goswami, 2012). According to David Scott's recommendations, the British permanently annexed Lower Assam in 1828 and Upper Assam in 1838 (Barpujari, 1980). Colonial rule brought about significant political, administrative, and economic changes, culminating in the creation of the Chief Commissionership of Assam in 1874. The discovery of tea by Robert Bruce further strengthened British commercial interest, leading to the rapid expansion of tea plantations. To facilitate plantation development, the colonial administration introduced the Waste Land Grant Policy, under which extensive forested areas were classified as wasteland and leased to European planters. The expansion of tea plantations also encouraged the migration of labourers from central India and later peasant settlers

from East Bengal. These policies profoundly transformed Assam's landscape by converting forests into plantation estates and integrating the region into a colonial economy (Handique 2019).

This study explored how the establishment and expansion of tea plantations in colonial Assam led to large-scale forest clearance and significant landscape transformation. It examines how the process of developing tea plantations involved the conversion of forested areas into plantation land, which altered the patterns of land use and reshaped the natural landscape of the region. This study further explored how these changes affected the environment, leading to deforestation, loss of biodiversity, and long-term ecological imbalance.

OBJECTIVES:

1. To examine how the expansion of tea plantations during British colonial rule transformed the natural landscape of Assam Valley through large-scale forest clearance and land-use change.

2. To analyse the role of colonial policies, particularly the wasteland policy, in facilitating the establishment and expansion of tea plantations in Assam.

3. To assess the ecological impacts of tea plantation expansion with special reference to deforestation, loss of biodiversity, habitat fragmentation, and changes in soil and drainage systems.

REVIEW OF LITERATURE:

The history of colonial Assam has been widely studied from economic, political, and environmental perspectives. Amalendu Guha, in *Medieval and Early Colonial Assam: Society, Polity, Economy* (1991), examined the agrarian and economic transformations brought about by British colonial rule, highlighting the restructuring of land and agricultural production. Priyam Goswami's *History of Assam: From Yandaboo to Partition* (2012) discusses the political and administrative changes following the British annexation of Assam and explains how colonial policies facilitated the expansion of commercial agriculture, including tea cultivation. Gorkhy Chakraborty, in his *Roots and Ramifications of a Colonial 'Construct': The Wastelands in Assam* (2012) critically analyses the colonial concept of "wasteland" and demonstrates how this classification legitimised the acquisition of forested land for plantation agriculture. Saikia has extensively explored the environmental consequences of colonial policies. In *Forest and Ecological History of Assam, 1826–2000* (2011), he examined the commercial exploitation of forests and their incorporation into the colonial economy. In *The Unquiet River: A Biography of the Brahmaputra* (2019), Saikia further explored the relationship between forests, rivers, and human society, highlighting the ecological transformations that accompanied colonial expansion. These studies have significantly contributed to our understanding of colonial governance, land policies, tea plantation development, and environmental changes in Assam. However, they primarily examined these themes independently rather than analysing their combined impact on the transformation of the region's physical landscape.

METHODOLOGY

This study adopts a historical and qualitative research approach to examine the transformation of Assam Valley's landscape through the expansion of tea plantations during the colonial period (1826–1947). This is based on both

primary and secondary sources. Primary sources include the *Report on Tea Culture in Assam* (various years), *Assam District Gazetteers*, colonial government reports, and administrative records. Secondary sources include books and scholarly articles on colonial Assam, tea plantations, and environmental history. The collected data were analysed using historical and descriptive methods to understand the relationship between colonial land policies, tea plantation expansion, forest clearance, and landscape transformation. Quantitative data on the growth of tea gardens and the area under cultivation were compiled from official reports and graphically presented to illustrate the changes over time.

DISCUSSION

During the late nineteenth century, Assam experienced rapid economic transformation, with the expansion of tea plantations alongside the growth of oil, coal, and transport infrastructure. Tea emerged as the most significant plantation crop and became the foundation of the colonial economy. Although tea is believed to have originated in China around 2700 BC (Dikshit & Dikshit, 2014), the earliest documented reference to indigenous tea in India appears in Colonel Latter's 1815 report, which described the Singpho tribe of Upper Assam, using wild tea leaves as both food and beverage (Ukers, 1935). Subsequent examinations confirmed the commercial potential of the indigenous tea plant, and Major Robert Bruce was credited with its discovery in the Upper Assam. Recognising Assam's extensive forested tracts as "wastelands", the British introduced the Waste Land Grant Policy to make these lands available for commercial exploitation. Large areas of forests were leased to European planters and converted into tea estates, fundamentally transforming the region's landscape and introducing new forms of capital, labour, and settlement (Handique, 2019). Following the confirmation of the commercial value of Assam tea by the Botanical Garden in Calcutta, the East India Company initiated tea cultivation in 1834. In 1835, the first successful tea garden was established in Lakhimpur after an earlier experimental plantation in Kundilmukh, Sadiya, proved unsuccessful (Singha 2023).

Early attempts to cultivate indigenous tea in the Colonial Assam were unsuccessful. An experimental plantation established in 1835 on a sandbank at the confluence of the Kundil and Brahmaputra rivers failed because the sandy alluvial soil could not support healthy root growth, and the site was later washed away by river erosion. Similar experiences convinced colonial officials and planters that tea thrived best on virgin, nutrient-rich soils found in recently cleared forests rather than on alluvial plains or grasslands. Consequently, plantations have gradually shifted from flood-prone riverbanks to upland-forested areas. When tea cultivation began in Kamrup in 1855, the lower hills around Guwahati were selected as suitable sites. The Waste Land Rules of 1838 and 1854 further encouraged the large-scale clearing of forests for tea estates, resulting in extensive deforestation and significant landscape transformation (Saikia, 2019).

William H. Ukers observed that most tea estates in Jorhat, Dibrugarh, and Doom Dooma were established on land reclaimed from dense forests, while the tea planter William Roberts of the Jorehaut Tea Company argued that recently cleared virgin forests were more productive than grasslands for tea cultivation (Ukers, 1935). This preference for forestland became a defining feature of colonial plantation expansion and accelerated the transformation of Assam's natural landscape.

The Waste Land Rules of 1862 further promoted plantation expansion by permitting auctions of land in blocks of up to 3,000 acres at nominal prices. Encouraged by generous land grants and rising tea prices, investors have rapidly acquired forestland for plantation development. This speculative boom, popularly known as the “tea mania”, led to a remarkable increase in the tea industry, with the number of tea-producing companies rising from only six and 51 tea gardens in 1860 to 86 companies by the end of the boom in 1865 (Saikia, 2019).

As British control over Assam expanded, the East India Company increasingly viewed forests and other uncultivated lands as economically valuable resources, following the discovery of tea. Through a series of Waste Land Rules introduced between the 1830s and the 1870s, these so-called “wastelands” were leased to European planters, facilitating the large-scale establishment of tea plantations. This process has led to extensive forest clearance and significant changes in land use. William Wilson Hunter observed that by the early twentieth century, forested areas, particularly in Sibsagar, had been extensively converted into tea gardens and plantation settlements, fundamentally altering the region’s landscape, although some acquired land remained uncultivated (Saikia, 2014).

Richard P. Tucker identifies two principal causes of vegetation loss in colonial Assam: the gradual expansion of immigrant peasant cultivation into the forests of Lower Assam and, more significantly, the rapid growth of the tea industry in Upper Assam. Following the Charter Act of 1833, which allowed Europeans to own rural land in India, tea planters acquired extensive tracts from the colonial government, village commons, and private landowners, most of which were developed by clearing natural forests. By 1871, tea planters had controlled approximately 700,000 acres of land, of which 56,000 acres were under tea cultivation. By 1900, Assam had 764 working tea estates, producing approximately 145 million pounds of tea annually for export, illustrating the remarkable expansion of the plantation economy and its profound impact on the region’s landscape (Tucker, 2012).

Although tea plantations were established in parts of Lower Assam, their concentration was much greater in Upper Assam, where the transformation of the physical landscape through large-scale forest clearance and plantation development was most pronounced. The growth in the number of tea gardens and the area under tea cultivation are presented in Figure 1.

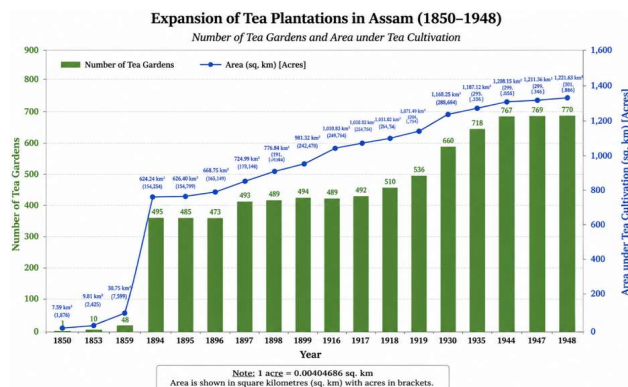


Figure 1.

Source: Compiled by the author from the *Report on Tea Culture in Assam* (Government of Assam, various years).

The growth of tea plantations demonstrates the profound transformation of Assam’s landscape during the colonial period (Figure 1). In 1850, only one tea garden occupied 7.59 km² (1,876 acres), and the region remained largely covered by dense forests, wetlands, riverine tracts, and traditional agricultural land. By 1859, the number of tea gardens had increased to 48, covering 30.75 km² (7,599 acres), marking the beginning of large-scale forest clearance for plantation development. The most rapid expansion occurred in the late nineteenth century. By 1894, 495 tea gardens occupied 624.24 km² (154,254 acres), and despite minor fluctuations in the number of estates, the cultivated area continued to increase, reaching 803.95 km² (198,643 acres) by 1899. This indicates that existing plantations expanded continuously, resulting in extensive land-use changes and accelerating the conversion of natural forests into tea estates. Plantation expansion continued into the early twentieth century. Between 1916 and 1919, the area under tea increased from 981.32 km² (242,470 acres) to 1,071.49 km² (264,754 acres), reflecting the growing demand for plantation land. By 1930, tea cultivation had extended over 1,168.25 km² (288,694 acres) across 660 gardens, while by 1948 it had reached 1,221.63 km² (301,886 acres) with 770 tea gardens. The continuous expansion of tea plantations fundamentally reshaped the physical landscape of Assam Valley through extensive forest clearance, the replacement of diverse natural vegetation with monoculture tea estates, and the development of plantation infrastructure, including labour lines, roads, railways, and drainage networks. Thus, these data demonstrate that the expansion of tea plantations was a major force behind landscape change in colonial Assam, transforming it from a forest-based ecological region into a highly organised, plantation-dominated landscape shaped by colonial economic interests.

The expansion of tea plantations had profound ecological consequences for colonial Assam, particularly in Upper Assam, where extensive tropical rainforests cover the region. Soumyadeep Dutta noted that before British colonisation, eastern Assam was characterised by a continuous rainforest extending across areas that later became the tea estates of Joypur, Namsang, Naharkatia, Makum, Chabua, and Tinsukia. The establishment of tea plantations has led to the destruction of this rainforest ecosystem, making tea cultivation one of the principal causes of biodiversity loss in the region (Dutta, 2010). Similarly, Tucker (1998) observed that most tea estates were established by clearing natural forests, and as the demand for tea increased, further forest land was brought under plantation, making tea planters some of the largest landowners in the British Empire. Colonial records also highlight the close relationship between tea cultivation and deforestation. Allen (1905) regarded forestland as the most suitable for tea cultivation, while William Roberts of the Jorehaut Tea Company argued that recently cleared forests were more productive than grasslands because of their nutrient-rich soils. Consequently, nearly all tea plantations in Upper Assam were established by clearing dense evergreen forests. Within a few decades, large areas of rainforest disappeared, and the landscape was transformed into a mosaic of tea estates, agricultural fields, and plantation settlements (Allen, 1905; Saikia, 2014). The scale of forest

clearance is enormous. Saikia (2019) estimates that between 1870 and 1970 approximately 1.5 million hectares—nearly one-fifth of Assam's geographical area—were converted from natural vegetation to agriculture and human settlements, including about 720,000 hectares of dense forests and woodlands. This large-scale transformation not only altered the physical landscape but also disrupted biodiversity and ecological balance. As Singha (2023) argues, the tea industry enabled the colonial state to transform a forested frontier into an organised plantation economy, turning Assam into what has been described as the "Empire's Garden."

IMPACTS

The expansion of tea plantations brought profound ecological changes to Assam, beyond large-scale deforestation. Extensive forest clearance and intensive monoculture cultivation alter soil properties, reduce soil fertility, and disrupt natural drainage systems. As forest cover declines, the absorptive capacity of the soil decreases, leading to increased surface runoff, irregular river flow, waterlogging, and greater vulnerability to floods and erosion (Saikia, 2014). By the 1890s, planters had begun to recognise that poor drainage and the indiscriminate expansion of plantations were creating serious ecological imbalances. Studies have further revealed that tea cultivation compacted the soil, reduced its porosity, accelerated erosion on hill slopes, and increased the incidence of waterlogging and malaria in plantation areas (Saikia, 2019).

The environmental consequences were particularly severe in the hill tracts, where the removal of forest vegetation exposed the slopes to soil erosion. By the early twentieth century, erosion had become so severe that several hill plantations had been abandoned (Saikia, 2019). The rapid spread of tea estates has also disrupted the ecological relationship between forests, floodplains, and river systems, while the expansion of plantation settlements has placed additional pressure on natural resources. As Tucker (2012) noted, most tea plantations in Assam were established by clearing natural forests acquired from the colonial government. Supported by colonial land policies, tea planters transformed vast stretches of forests into plantation estates, permanently altering the physical landscape, fragmenting natural habitats, and reshaping the relationship between people and the environment (Saikia, 2011).

CONCLUSION

The expansion of tea plantations during the colonial period brought about significant changes in the physical landscape of Assam. A region dominated by dense forests, grasslands, wetlands, and shifting riverine ecology was gradually transformed into a plantation-oriented landscape designed to serve imperial economic interests. Large-scale forest clearance, land reclamation, and the introduction of monoculture tea cultivation have altered natural landforms and vegetation patterns, especially in the Brahmaputra Valley. Roads, railways, and plantation settlements further reshaped the terrain, integrating Assam into the wider colonial economy. These physical changes are closely linked to significant ecological impacts. The removal of forests disrupts local ecosystems, leading to the loss of biodiversity and wildlife habitats. Traditional ecological balances were disturbed as indigenous plant species were replaced by tea

bushes grown in uniform patterns. Soil fertility declined over time due to continuous cultivation, whereas erosion increased. The plantation system introduced new human-environment relationships. Migrant labour settlements grew around tea gardens, permanently altering land use and settlement patterns. These changes not only reshaped the natural landscape but also brought about demographic changes. In conclusion, tea plantations played a decisive role in transforming Assam's physical and ecological landscape under colonial rule.

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