Development of forestry in India until the 19th century

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Elephant assembling plantation—grown teak logs preparatory to raft construction on the Karnaphuli River in Bangladesh.

Introduction

About 2000 B.C., the *Aryan* invaders entered though the north-western passes into India. These agricultural and pastoral people cleared and burned parts of dense forest between the Ganges and the Jumna rivers to make grazing land and cropland. More and more people immigrated from Central Asia with livestock and had good reproduction on this fertile mild plain. *Alexander the Great* found a boundless forest sufficiently dense to conceal the movements of his troops when he invaded the North Punjab area in 326 B.C. In 11th century A.D. the forest area in India shrank as it did in Persia, Asia Minor and the Mediterranean Countries. The *Muslims* had no religious scruples against destroying the forest and exported valuable wood to Arabic and Persia countries and introduced t.e. the coffee tree at this time. The new importance of Teak for shipbuilding lead to commercial wood exploitation. Various parts of India have been ruled by hundreds of petty dynasties during historic time and the forest was always a source of revenue. These ruler owned all of the forest and allowed anyone free entry to burn and clear the forest, except for the "Royal trees" like teak- and sandalwood. In 1599, two hundred gentleman-merchants and other individuals was sent to India from *Queen Elisabeth I of England.* These British people were merely traders in India. With the decline in the power of the *Mogul Empires* in early eighteenth century began a internal strife over political supremacy and the East India Company felt obligated to protect its factories and warehouses. Subsequently Britain established its own government first in Bengal and in the Madras and Bombay areas and later province after province came under British rule.

Forestry in British colonial India

The first forest exploitation under the British control started near the seacoast and along the rivers. A cause of it was the lack of Oak wood in Britain and the naval wars with France. The interests in shipbuilding timber and the teakwood of India increased in the beginning of 19th century. Important export articles were also Sandel wood, Cutch, the produce of Acacia Catachu, Caoutchuc and Lac. In the second part of the century after the Indian revolution, in1858, the occupation was endangered. It was necessary to build a railway network over the whole country in a short time, which resulted in a large consumptions of wood. Wood was used for sleepers (most of them Cedrus deodora mainly from the highlands) and buildings and for the process of smelting iron and forge the metal. Iron and copper were mined in the Kumaon Hills. Under the peaceful conditions afterwards the population continued to increase. Trade was encouraged though the new railway. The introduction of tea in 1834 in upper Assam resulted in the rapid opening up of the country and with saw-milling for production of tea-boxes. The forest in Assam and Burma was the main part of forest in India. About 1870 the quantity of timber export in the Burma port was annually 1000 ton. When the British came to this region with isolated mountain valleys a special agriculture was found far a way from civilisation. It was a life close to forest and forest products with terrace fields made by burning and clearing forest. This primitive system called "taungyia" is connected with litter use and collecting of different kind of wood products like fruits, nuts, honey, herbs and burntimber. A quickly spreading of "taungyia" increased the pressure on the forest. The forest of the

mountains Regions of Himalaya have a important function in soilerosion protection and water protection, because in the plain the people have used irrigation systems supplied t.e. by the great rivers "Indus" and "Ganges". The monsoon rain as important factor spend 80-90 % annual amount of precipitation between June and September. There is an elevation difference of 7000 m in an horizontal distance of 150 km. Where all types of Climatic conditions are found. This shows us the function of this mountain forest for a land with more than 200 million inhabitants. Already these speculations shows how necessary it was to start to inquire in the potential of Indian forest and how could it managed for the future.

Beginning of forestry and education

Apparently the first person concerned about the diminishing timber supplier were local officers of the British Army and Navy, who were responsible for the procurement of timber for naval constructions and other routine military operations. A special officer, *Captain Watson* of the police department, was appointed to supervise the forest work under his order. He was to improve the production of teak and other timber suitable for shipbuilding. He cut timber for government use and protected young timber from cutting. Heads of various Botanical gardens contributed vastly to the store of knowledge concerning commercially important plant products and added to the fundamental scientific knowledge.

Rich teak areas in Burma were utilised under a commercial licensing system by which a private individual could cut government timber by paying a duty of 10 to 15% of the value of timber at the export point. But this valuable teak forest of southern Burma was largely depleted during two or three decades. At this time 1850 the introduction of foreign trees had been done. From Australia several kinds of Eucalyptus and Acacia were introduced. *Dr.Mc.Cellow,* then superintendent of Pegu, recommended restrictions on the uncontrolled exploitation of forest and he search for a trained forester. *Dr.Dietrich Brandis*, was founded, and at this time he was a lecturer in Botany at Bonn University in Germany. Brandis landed in Calcutta 1856. One ship with his botanical library and herbarium equipment sank in the Rangoon River and so he lost his possessions. Should he devote himself to forestry, he had to develop a cutting system for teak forest, determined volume growth rate of teak, annual cutting budget, and distributed this cut by area and tree size mainly in the tropic forest from Pegu, Martaban and Tenasserin in Burma who he worked the first time. Brandis was appointed in 1864 to the newly created post of Inspector-General of Forest in India. His first act was to put forward a basis law to protect the several forest units and to give the officers of a new organisation sufficient authority to manage then. This act on February 24th 1865 created even the Indian Forest Service. One important matter was to marking boundaries of forest of the ground, protection the forest from fire and regulating cutting of timber and other uses.

Especially the annual fires lighted by farmers to make way for the lush new growth following the monsoon rain was a great problem, because the fire spread to nearby woodlands and did serious damage to mainly younger tree growth. The lowlands had lost the best timber to this small scale but widespread practice of wood cutting and

forest clearing. The commercial agriculture was the most important element of changing forest conditions in the decades until 1850. The delimitation and commercialisation of forest sites with selection of forest for conservation or for silviculture was one of the hardest task for Brandis and his colleagues. Working in such rough back country sites in an area over 60 million ha, to make clear maps, to calculate timber proceeds and to make economical planing and using projects in a rather careful forestry was hard to accomplish. Brandis recommended the hill population, that they had to plant and seed teak trees (Tectonia grandes) for the reforestation from burned fields. His thoughts later had a great importance for tropical silviculture.

To build the Indian Forest Service, Brandis recruited 1867 two German foresters *William Schlich* and *M. Ribbentrop* and began training young foresters in Germany and France (Nancy) for the Indian Forest Service. The plan was to fill the superior service with man who had received professional forestry education. These positions were mostly occupied by army officers in first time. Among 1869 and 1886 ninety-five officers of the Indian Forest Service were trained in France and Germany. The young Indian Forestry began to make profits, from 3,7 million Indian Rupies in 1870 until 18 million in 1900 when the last German General of Forest moved India. The opening of Forest Ranger School in Dehra Dun founded by D. Brandis at 1878 was a first step for a own education and research. From India professional forestry spread to many parts of the world. The "Indian Forester" created by Dr. William Schlich 1875 is one of the famous paper for Tropic Forestry. The deep relationship between forest and Indian philosophy was a good help to the Forest Service in India.

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