Bamboos of India

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Probably one of the most outstanding gifts of the nature to mankind is bamboo. This versatile commodity is being used for variety of purposes since time immemorial. Bomboos have been mentioned in our mythology. Lord Krishna is always depicted with "Bansari" Bansari) or flute made of bamboos. Bamboos were also mentioned in despatches of Alexander the Great. Delicate screens in ladies quarters of Moghal darbar were made of bamboos. Greeks used bamboos in their sports. Bamboos were also necessary for war weapons like lances, javelin, bows and arrows.

Bamboos in India are very intimately associated with rural economy. They are used in rural housing and as agriculture implements, baskets and mats, cheap furnitures, chicks and utensils. The young shoots are made into curry and also pickled. Urban population also to a large extent depends on bamboos. Thus bamboos are serving the man literally from his cradle to his grave.

Botanically bamboos are giant grasses, which occur as an undercrop to many of our tree species. Bamboos vary in height. In rich wet tropical forests bamboos attain a height of even 30 m. The entire height growth is attained in one growing season. Bamboos can be divided into two types, depending upon their mode of growth. In one type bamboos form clumps where culms come along the periphery in a cluster such as in case of **Bambusa arundinacea.** In second type single culms are distributed laterally. These bamboos are non-clump forming **Melocanna** or "muli" bamboo is example of latter type.

About 550 different species of bamboos have been recorded, distributed in tropical and subtropical regions of the world, in all continents except Europe. Their occurance in South America and Asia is specially conspicuous. In Asia alone, 320 different species and in South America 179 species are found. Amongst the various Asian countries India has about 136 species of bamboos. Out of these only 30-40 are important and conspicuous either for extensive distribution or economical exploitation.

Bamboos in India have a wide distribution. These are found right from sea coast having oceanic climate to 10,000 to 12,000 feet in Himalayas experiencing temperate climate. Rainfall, however, seems to be diciding factor limiting the distribution. Wetter provinces like Kerala, Assam, Tripura are rich in bamboos both in quality and quantity. The most extensively distributed bamboos however are **Bambusa arundinacea** and **Dendrocalamus strictus.**

Bamboos normally prefer a well drained soil though there are few species which flourish along nalas and low level areas. Best growth, however, is obtained in deep loamy soils, sandy soils and fertile clayey soils. There are few species like **Oxytenanthera** which thrive well on degraded soils.

Bamboo dies soon after it flowers. Bamboo flowering is either periodic or annual. It may be gregarious or sporadic. In some cases where bamboo clumps flower sporadically the clumps don't die. The gregarious flowering normally proceeds from one end to the other in waves and within 2-3 years entire forest flowers. Most of bamboos flower at long intervals. Some bamboos such as **Bambusa lineata** flower annually. Even in bamboo species where gregarious flowering cycle is fairly long, sporadic flowering occurs, such as in case of **Dendrocalamus strictus.** Bamboo flowering cycle varies with species. The shortest flowering cycle is of **Ochlendra travancorica** of 7 years and largest in case of **Bambusa polymorpha** 55-60 years. Within the species also flowering cycle varies with locality. This cycle in case of **Dendrocalamus strictus** is 40 years in U. P. and only 28 years in M. P. Physiology of bamboo flowering is not well understood. It is common belief that bamboo flowering coincides with famine. Bamboo flowering and its subsequent death is of greater importance to many industries. Thus flowering cycle demands a detailed study and corelate it with climate, soil, fertility, moisture and photo periodicity.

Bamboo forests in India overlap with other economically important timber species. In the past, when bamboo had no commercial use they were not paid so much attention. As a result the entire way of thinking, management practices evolved, is centered round the timber species. It is not uncommon to see that this important commodity being referred in forestry literature as "weed" or "bamboo menace". This attitude even today has not changed and bamboos are being sacrificed in favour of timber species. As bamboos are being managed as mixed crop with timber species, effect of bamobos on the development of timber trees is a important topic for discussion. This subject has been discussed in forestry literature in greater detail. There seems to be two schools of thought. One thinks that bamboos have adverse effect on the growth of timber species. The second school of thought feels bamboos have beneficial effect. However, all are unanimous in saying that this aspect has to be studied in greater detail on more scientific lines.

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As stated earlier management of bamboo forests has not been paid greater attention as a result even after hundred years of scientific forest management we have practically no information and even that is available is extremely scanty. Bamboo exploitation in the past was limited for the use of rural population. A set of felling rules were prepared as a guide line for felling bamboo by the rural population. Even these were evolved based on trial and error methods. Therefore we have very limited knowledge on bamboo regarding their silviculture and management. Knowledge on bamboo physiology, soil and fertility requirement and the effect of bamboo on soil is even today wanting. Bamboo management particularly when being managed on plantation scale is not difficult. It, however, poses difficulty when managed as mixed crop with timber species. In all such cases bamboos are managed as secondary crop.

Even today we wholly depend on natural regeneration of bamboo for restocking of forests after its flowering and subsequent death. Natural regeneration invariably is abundant, which if tended and protected will be ready soon for exploitation. This natural regeneration very often is badly broused by our large cattle population, resulting into poor bamboo stocking and growth.

In the past very little attempt has been made of taking large scale bamboo plantations except some stray attempts in few States and that too on experimental scale. During last one or two decades few States have taken up bamboo plantations both as pure and mixed with other species, like Eucalyptus. Few pulp industries also have taken bamboo plantations in their concessioned area with co-operation of local Forest Department. The object in all these plantations is to strengthen rural economy and build up pulpable long fibred raw material.

Bamboo planting methods are extremely easy. Bamboos can be raised by direct sowing of seeds, by planting nursery raised seedlings and by off-set planting. As bamboos flower at long intervals supply of seeds very often proves to be a handicap in taking extensive bamboo plantations. Under such circumstances off-set planting is normally adopted. This however becomes a more expensive proposition. This probably is one of the reasons why extensive bamboo plantations were not taken in the past.

The total bamboo production as estimated in 1959 for the entire country is 19.5 lakh tons. Bamboo potential of the country is very vast and this estimate is only a rough estimate. In the past, most of the bamboo was used by rural population and for other cottage industries. Since, a process of paper making with bamboo as raw material was developed, bamboo has gained special significance in India. Bamboo is the only long fibred raw material which is extensively found in India. As a result the entire pulp and paper industry today depends on this important raw material. Today we in India have roughly sixty-eight paper and pulp units and their 80% of raw material is bamboos. It has been estimated that paper and pulp consumption of the country is likely to be increased, which will demand roughly 28,50,000 tons of bamboos. Out of which only 14,00,000 tons are available for industrial purposes. Thus there is a deficit of about 14.5 lakh tons of bamboo.

Paper and pulp consumption of a country normally is taken as an index of economic prosperity. In other words, with increased standard of living the existing per capita consumption of 1.5 kg. of paper is bound to increase many times. This in turn will demand much more bamboos. In conclusion it could be said that bamboos are bound to play an important role in the general prosperity of the country and it is vital that we should increase its yield by (a) Scientific management of bamboo forests, (b) opening up inaccessible bamboo areas, and (c) taking up extensive pure bamboo plantations.

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