

Paper Industry Vis-A-Vis Forest Policy

P. K. TRIVEDI

INTRODUCTION :

In the process of evolution, vegetation occupied a large track of uninterrupted soil to form natural forest. It covered from tropical evergreen to Alpine zone in India. The environmental and biotic factors have either enhanced or retarded the growth of natural forest in particular region. The edaphic factor played a vital role to change the forest crop. Thus the natural forest passed through many continuous process to stabilise various species under different conditions and the system of distribution was so irregular that scientific management for better utilisation was considered essential to help the civilization. The system of management of natural forest was based on conservation and utilisation of matured trees. Experts prescribed different rules and regulations to safeguard the potentiality of a forest reserve. The shelter wood system and coppice system were commonly used in Forestry Practices. But, the huge demand for industrial use, constructional purposes and fuel requirement has given the opportunity to create the man-made forests i.e. plantations on large scale basis.

Requirement :

Bamboo is used as chief raw material in Paper Industries of India to the extent of about 80 %. Our present requirement of bamboo is

one million tonne and it will increase to 2.1 million tonnes within next five years. Almost all accessible areas of bamboo sources are now being worked by various Paper Mills. Although the potentiality of bamboo in India is estimated to be around 4.30 million tonnes yet the cost of exploitation from the inaccessible areas will be the greatest burden on the Paper Industry. The rise in price of industrial raw materials is 101.8% where as the price of paper has increased only by 25.8% from 1962 to 1971. Thus, the Paper Mills can not flourish well until the cost of raw materials is brought down. The present production of paper from 7.9 lakh tonnes may be increased to 15 lakh tonnes by 1975 but the supply of raw materials will be a constant problem to the Materials Manager of the Mill. The signal of paper famine can only be checked through plantation revolution by villagers, State Governments as well as Companies around 70 miles of the production site.

Fibrous raw Materials :

According to broad classification, the cellulosic fibrous raw materials can be classed as Bamboo, Grasses and Reeds, Wood & Agricultural Residues.

(a) Bamboo is used in India for manufacture of paper since 1909 and has taken the key role amongst all raw materials. The most common species used are *Dendrocalamus*

strictus, *Bambusa arundinacea*, *Melocanna bambusoides*, *Bambusa tulda*, *Bambusa balcooa*, *Bambusa polymorpha*, *Dendrocalamus longispachus*, *Bambusa vulgaris*, *Dendrocalamus hamiltonii*, *Bambusa nutans*, *Ochlandra travancorica* and *Ochlandra rheedii*. The fibre length of bamboo varies from 2.72 to 4.03 mm. It can grow very well as second story in the natural forest. Although it is a light demander species yet it can stand shade at the early stage of regeneration. The gregarious habit of bamboo is an advantage for its user and usually it concentrates on the northern slope of hill and along the streams. The life cycle of bamboo varies from 30 to 70 years under normal forest condition and it tends to cover the forest floor after gregarious flowering. It is propagated either by seed or by rhizome. Surface control fire and apply of earth around the clumps in the month of April give vigorous growth of culms in the rainy season. The rate of growth of bamboo is extremely fast and it becomes ready for exploitation at 4 years age. They say that bamboo is used in human life from birth to death but its use in the paper industry of India is a question of life and death for a Mill.

Bambusa is differentiated from other tribes of the Gramine chiefly by shrubby and tree-like grasses and the blade of the leaf being petiolate and articulated to the sheath. It has got a second form of sheath

R.K. Trivedi—Senior Forest Manager,
The Bengal Paper Mill Co. Limited

which usually produces no leaf. The flowers have generally six or more stamens while the other grasses have only three. The flowering of bamboo takes place at an interval of many years whereas the grasses flower and generally die every year. Intensive research can perhaps discover some new varieties of bamboo species suitable in different soil condition from cross breeding of bamboo and grass. This might solve the problem of Paper Industry to augment the supply of bamboo. The Industry should approach the Government of India for making experiments on this line.

(b) Amongst the grasses and reeds, the most important grass used largely in Paper Industry is *Eulaliopsis binata* i.e. Sabai grass. Its fibre length is 2.08 mm. Other grasses used are *Saccharum munja*, *Saccharum Procerum*, *Heteropogon contortus* etc. But these are not economical for large scale production.

(c) Wood is now-a-days used as alternative raw material for paper making. Total forest cover in India is approx. 2,70,000 sq. miles. Although conifers are best raw materials for paper yet the forest is situated in the temperate zone of the hill which is inaccessible and it covers only 3% of the forest area. But the tropical deciduous and evergreen forests which constitute more than 80% of forest wealth may be the bulk supply of mixed hardwoods to the Paper Industry.

Previously *Bosewellia serrata* i.e. salai timber and *Broussonetia papyrifera* i.e. Paper-Mulberry were commonly used as hard wood species.

But, at present *Eucalyptus* species, *Casuarina equisetifolia*, *Lannea grandis*, *Anthocephalus cadamba*, *Albizia procera* are found to be suitable specially at the younger ages. Pulpwood should consist of high content of cellulose, low extractive, high proportion of early wood and low density.

(d) Agricultural residues viz. Bagasee, Rice straw, Wheat straw and Jute sticks are used for manufacture of paper. The fibre length of Bagasee is 1.33 mm. and that of straw is 1.10 mm.

Orientation of Forest Policy :

In order to maintain sustained supply of raw materials to the Paper Industry, the forest policy should be reoriented towards industrial supply of raw materials. The control of such forests should be under the joint management of State Forest Department & Paper Industry. The following steps may be taken by the forest policy makers to save the crisis of raw materials :—

- (1) Large scale plantations of very fast growing species viz. *Eucalyptus* and *Sesbania grandiflora* may be taken over in all forests nearer to the mill.
- (2) Exotic species like *Pinus caribaea*, *Pinus patula* and populars are remarkable pulpwood under Indian condition for paper pulp plantations.
- (3) Bamboo plantations must be undertaken as middle story below the timber species in all plantations as secondary crop.

- (4) Forest Development Corporation should be created under Central Government to look after the supply of raw materials to various paper and other Industries in India from State Forests.
- (5) Agricultural Refinance Corporation, Banks, Life Insurance Corporation and Industrial Finance Corporation can invest money for man-made plantations as these are productive ventures for supply of wood to paper mills.
- (6) Hardwood chips should be supplied by the Forest Department from natural forest to paper mills at reasonable cost.
- (7) Villagers around the Mill should be encouraged to grow pulpwood plantations by supplying seedlings before rains. This work should be done by the Paper Industry. Government should not take over small patches of woodland under Land Reforms Act. Some facility to retain such type of village forest should be given to the local village panchayats.
- (8) Irrigation and manuring are vital points to get maximum outturn within minimum time. Forestry should be treated as wood-based Industrial Estate under the pressing demand of variety raw materials in our developing country.

REFERENCES

- Indian Forester — Vol. 98
Forest Flora — U.N. Kanjilal.