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**FUTURE CHALLENGES OF RAW MATERIAL SUPPLY
TO PAPER INDUSTRY**

M.C. Pande

Birla Institute Of Scientific Research,
Amlai (M.P.)

Abstract

The paper is a general discussion on the state of woody raw material supply to paper industry in India today. Basic problems that are seriously affecting the productivity and cost effectiveness of paper manufacture are presented. Rising cost of raw material and unavailability of natural forest produce have created a situation where the industry has to look to alternative and safer avenues of wood supply. Wasteland reforestation under captive plantation projects is the only sound proposition to ensure sustained supply of wood. Agro-forestry is another alternative which requires encouragement despite some inbuilt constraints with it. The government needs to reframe its policies regarding wasteland development in favour of forest based industries. Much improvement is also required in the management and working of existing forest wealth of the country. The industry and the government have to adopt a collaborative attitude in facing the challenge of raw material supply to the industry in coming years.

Basic Problems:

After enjoying a long period of comfortable raw material supply the paper industry in India is finding itself in a sudden dilemma over the future of its basic input requirements. The dilemma is not only typical for India. Other countries are facing it too, some to lesser and some to greater degrees while others are inevitably progressing towards it. Forest based raw material supply scene is undergoing rapid changes, specially in the developing countries of the world. Not only paper industry has profoundly been affected, but also most of the wood based industries.

Forests, the primary source of wood and wood fibre, no longer appear to be the inexhaustible treasure house they once used to be not so long ago. Ironically the part of the world that houses almost sixty percent of this treasure also claims the largest number of developing countries and almost three fourth of world population. According to F.A.O. fifty percent of the world's closed tropical forests are located in developing countries, but of which only five percent are managed for sustained productivity (1). Tropical forests, containing the biggest growing stock, are disappearing at an alarming rate of nearly 11 million ha. every year. India's share of this loss is estimated at nearly 1.5 million ha. per year.

In India, as also in other developing countries with low per capita paper consumption, less than 3 per cent of total forest extractions are diverted for pulp and paper manufacture. In developed countries the situation is entirely different whose consumption levels are much higher. To quote an example, it is estimated that to bring out one Sunday edition of The New York Times the newsprint from 314 acres of forest (or about 63,000 trees) are consumed. If similar situation develops in developing countries, as is expected to sooner or later, the challenge of finding that much raw material will be enormous and grim.

The chaotic forestry scene is leading to the following inevitable consequences:

1. Deterioration in the quality of the world's environment.
2. Reduced availability of wood and wood products.
3. Steep rise in the cost of basic raw material still available and consequent hike in the price of end products.
4. The possibility that at present rate of consumption and development even the high priced raw material may not become available to a large number of processing units in coming decades.

In respect of pulp and paper industry in India combined effect of the above has begun a struggle for survival that may intensify within next ten years. For an old established paper mill in Orissa the cost of forest raw material in mix-sixties was about 10 per cent of the total cost of production. In mid-eighties it shot upto 25 percent and current projections are that in next ten years the cost of raw material may climb close to 40 percent. Such trends will affect the cost-effectiveness of pulp and paper manufacture. Quite a number of mills in India that have closed down attribute their failure, among other things, to very high cost of basic raw material. Poor economic performance has been reported for the year 1987-88 by a Karnataka based paper industry despite almost hundred percent capacity utilisation. Very high landed cost of raw material is one of the major causes of such disturbing trends.

The trend seems strange in view of the fact that in India percentage of wood used for forest based industries has been only 7.67 percent in 1972 with slight increase at 8.56 percent in 1983. This is in sharp contrast to Japan which used 98.23 percent of wood for industrial purposes in 1980. In Asia India has the lowest per capita production of industrial wood, even though it produces highest quantity of roundwood. In 1980 the per capita production stood at 0.029 cubic metres as compared to China (0.068 cbm.), Indonesia (0.163 cbm.), Japan (0.291 cbm) and turkey (0.137 cbm.)².

Primary reason for low availability of industrial wood is the diversion of round wood for fuel. In India 91.44 percent of round wood was utilised as fuel wood in 1983, which is one of the highest among Asian countries. non-conventional sources of fuel and energy, the dependence on forests could be reduced only by one percent in last 10 years.

From paper industry's point of view this pattern of wood consumption becomes significant. More and more States are restricting the felling of natural forests and primacy is being given to fuelwood supply from the selectively felled areas. Same is the case with the supply of bamboo. With nationalised working enforced in most States the harvested bamboo is largely open for market bidding without any preferential treatment without any preferential treatment to paper industry. Diversion of bamboo at controlled rates for 'nistar' and cottage industries also corners major share of the total produce. Productivity of bamboo forests has gone down considerably in last two decades due to improper working, poor maintenance and protection of the felled area and typical flowering pattern of bamboo in several parts of the country. A 30 km. radius stretch of mixed bamboo forest in Ghunguti range of M.P. was evaluated in early sixties as capable of supplying approximately 1500 Mt. of bamboo annually. A combination of all the above factors has reduced the current evaluation to around 1000 MT per annum.

To maintain a healthy raw material cost effectiveness and to secure the future of pulp and paper industry in India, drastic changes are, therefore, required in the outlook and the factors that affect supply and consumption pattern. Not only the dependence on nature's dwindling bounty is to be shaken off but also newer sources of cellulosic fibre are to be tapped and efficiency of current utilisation geared up. This can only be brought about by changes in the thinking and perception by both the government and Paper industry.

Scope of Captive Plantation

In last 2-3 years the paper industry in India has come forward with proposals before the Government to create a definite raw material base through oriented plantation forestry - the only possible and plausible alternative. The initial thrust came in February 1986 when the Prime Minister, chairing the meeting of the National Land Use and Wasteland Development Council, declared that the forest based industries would be encouraged to utilise wastelands for captive plantations. About 2.4 million hectares of wasteland were suggested for leasing out to the industries with condition to reserve a certain percentage of their produce for fuelwood and fodder³

As a followup joint sector plantation projects were formulated in states like Karnataka, M.P. and Orissa and considerable amounts were spent in project planning and implementation.

Within eighteen months of policy declaration the whole process has been dropped in cold storage without any cogent cause. The newly reconstituted National Wasteland Development Board (NWDB) is yet to come out with concrete and clear-cut proposals for wasteland development and optimum land use. The Board and Ministry of Environment and Forest are jointly working on a new policy on wasteland development through a technology mission approach. The future shape of raw material supply to Indian paper industry will greatly depend on the forthcoming policies and it is with this reason that the Industry has to initiate and actively participate in a national debate on the matter.

The Consultative Committee of Parliament, in August 1985, has noted that atleast half of India's total land mass of 329 million hectare is degraded whose productivity is far below its potential⁴. The Committee noted that.

1. In agriculture sector out of 143 million ha. atleast 40 million ha. or so are degraded.
2. In forestry sector, out of 75 million ha., 30 million ha. are without any tree cover and 10 million ha. have some shrubby growth only.
3. The pasture and grazing lands and other uncultivated lands are largely degraded.

Both agriculture and forestry sectors, thus, have vast reserves of unutilised though degraded, land which with proper planning can be rehabilitated and turned into a new source of agricultural and forestry commodities. According to figures published by the Government there are 123 million ha. of wastelands in the country. Assuming that this entire area is planted with fast growing wood species on a ten year rotation, then the country can harvest nearly 480 million tons of industrial wood and about 240 million tons of fuelwood every year. Less than two percent of this wasteland plantation produce can meet the entire wood requirements of Indian paper industry today with vast scope of increasing paper production not only for indigenous consumption but also for export market.

Current shelving of the joint sector concept has led to the thinking that plantations should be raised by Government agencies like forest departments and under extensive agro-forestry with peoples participation.

On managing the government owned man made forests the departments agree that in the past physical targets were duly achieved but upkeep and aftercare suffered as years passed. Crops were not tended and protected in time. By and large 30-40 percent plantations failed due to various reasons. This may not be unusual in departmental efforts⁵, but cannot be, however, expected from a commercial venture. The policy declaration³ approved the rehabilitation of 5 million ha. wasteland every year. Against this only 1.51 million ha. were planted in 1985-86, 1.76 million ha. in 1986-87 and 1.71 million ha. in 1987-88. If the acknowledged rate of survival is considered than in actuality we have only about 2 to 2.5 million ha. of potentially productive forests created in past three years. It is also to be noted that planting, particularly on degraded that Rs. 20,000 to Rs. 25,000 are required to rehabilitate one hectare of degraded land. For one million ha. wasteland reforestation, therefore, a minimum layout of Rs. 2000 crores is required. New National Wasteland Development Board has, considering all the above factors, abandoned the targeted approach to wasteland reforestation.

It needs to be realised that targeted approach will be vital for planning sustained supply of raw material for all the forest based industries, specially if the natural forests are to be conserved and industrial requirements are to be increasingly met from man-made forests. District participation of forest based industries in planning and execution of wasteland rehabilitation will not only insure adequate provision of funds but also achievement of rationally set targets. Pulp and Paper industry has shown considerable interest in this approach for quite sometime now.

The National Commission on Agriculture⁶ has estimated that in the year 2000 A.D. the pulp and paper industry in India will require about 35.46 lac tons of bamboo and 105.94 lac tons of wood (both hardwood and softwood). The shift towards increased wood usage is obvious in the report. To meet this requirement exclusively from man made forests in wastelands it will be essential to initiate definite steps now. Approximately 2.7 lac hectares of woodlands and 9 lac hectares of bamboo forests will have to be created to meet the projected demand. If the raw material requirements are maintained at the projected level then an accomplished target of 1.2 million hectare wasteland plantation every year for next ten years will achieve the desired objective. Only 12 million hectare of wastelands, out of the declared 123 million hectare can, thus, ensure the future of raw material supply to Indian pulp and paper industry. Development of these wastelands must be trusted to the paper industry either under a joint sector project or independent captive plantation project.

Potential of Agro—Forestry:

Agro-forestry appears to present an unlimited source of raw material in coming years. With 143 million ha. under agriculture out of which 40 million ha. are classified as degraded there is scope for combining agriculture with forestry (as bund planting or block planting). So far, agro-forestry projects have succeeded in areas

- a) where forests have practically vanished and forest products (mainly fuelwood and construction grade timber) have become scarce or highly priced leaving the farmers in acute and perpetual want e.g. in Gujarat, and
- b) where unusual incentives have been offered for farm produced wood e.g. in Tarai belt of U.P., Punjab and Haryana. In these areas farm grown poplar trees will provide to the grower an assured income of Rs. 250- Rs. 300 per tree in only 7-8 years time. the match industry which shall be utilising this wood is in a position to pay about Rs. 2500 per ton for poplar wood for profitable running of the industry.

When agro-forestry is viewed from the point of view of paper industry this competitiveness from other forest based industries will have to be considered. Plywood and match industries can pay two to three times the price of wood comparing to paper industry. Three decades back Eucalyptus was thought to be fit for only paper making but today many other uses have been found for it. Today construction grade 'balli' of Eucalyptus fetches double the price of Eucalyptus pulpwood. Unless a certain contract exists between the paper industry and cultivator, the later will obviously follow the path of maximum returns to it. In such cases only lops and tops can become available to the mills unless, ofcourse, there is a

market glut and consequent price crash. The cultivator also has the option (unless under a binding contract) to use the produce for his own use or abandon the planting activity altogether after one felling cycle.

The paper industry has, therefore, to approach the agro-forestry concept in a well planned and innovative manner. Though potentially an attractive alternative source of raw material, it, nevertheless, is full of 'ifs' and 'buts' for the reasons discussed above. Paper industry will have to adopt the working module of the Match industry if agro-forestry is to be considered as a major future source of fibrous raw material.

The Institutional Role.

Governments, both at central and state levels, need to look into the problems the industry is likely to face in coming years. Increasing the productivity level of the existing forests is in the hands of forest departments. For man made forests of future a broad and farsighted policy is required. In Brazil companies investing in reforestation are currently allowed to deduct 17.5 percent of their income tax if plantation projects are located in specific areas'. The policies are flexible and amenable to betterment as the conditions demand. Similar style of policy framing is required in India also.

Despite efforts to introduce non-conventional raw materials for paper making, e.g. agricultural residues, bagasse, grasses, wastepaper and others, the paper industry in India will largely remain a wood based industry. Its future is, therefore, tied up with the management of existing forest resources and creation of new forests. Efficient utilisation of existing resources is not only the responsibility of the government but also of the industry. It is estimated that 10-15 percent of fibre is lost in between the standing tree and processing plant. These loses can be stopped by improving felling, logging, transport, mill yard storage and handling. Improved pulping processes and controlling the fibre loses at various stages of paper making can increase the yield levels significantly. These are old and accepted factors and yet seldom receive due attention.

The fact is often overlooked that a national problem is more easily solved if all the concerned institutions and industries establish a close rapport and examine and resolve the basic problems together. FAO has often and strongly recommended that existing links between forest based industries, forestry, agriculture livestock-rearing, social services and research institutions must be strengthened for the success of new forestry. Research institutions have a vital role in future supply of raw material. Not only conventional forestry requires upgrading but also high yield plantation technology suited to wastelands has to be developed. In Brazil, recent amendments in laws make it compulsory to direct one percent of the value of the project's implementation towards forest research. One very

important problem that needs the attention of reaserch sector today is how to make large scale plantations of bamboo an economic proposition from paper industry's view point. Improved propagation methods and development of high yielding varieties/hybrids of bamboos are priority areas of research. The International Development Research Centre (IDRC), a Canadian funding body, has just taken up a research project on increasing the bamboo productivity in India. Such projects require full support by the Indian paper industry.

Paper industry stands at cross roads today as far as the raw material supply is concerned. The industry is 'in' for a complete change in thinking. It also requires realignment of raw material resources. The stage for new planning is set now. Options are to be evaluated and followed for appropriate action. This may involve costs of which the industry did not dream of a decade back, but then, as one FAO report, TFAP, proclaims **'while the cost of action may be high, the cost of inaction will be infinitely greater'**.

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