

# Farm forestry in context to raw material crisis in paper industry

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## ABSTRACT

The paper discusses the present raw material crisis being faced by the Indian Paper Industry in view of the ever increasing deficit in forest based resources. Various alternatives to meet the future demand of raw material have been suggested and linked with national movement to green the earth and restore environmental balance. Social and farm forestry alternative has been discussed in details with emphasis on experience of Orient Paper Mills, Amlai. It is suggested that farm forestry coupled with afforestation of forest and revenue wastelands can not only assure sustained supply of raw material to the paper industry but can also contribute significantly to the restoration of regional ecological balance.

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### Paper Industry in Search of Raw Material.

Paper industry in India is facing a grave raw material crisis today. Depletion of forest areas in the country and consequent reduction in the volume of extraction from the forests has badly hit the supply of fibrous raw material to Industry. In case of bamboo, the major component of raw material required at present, there is additional danger of its becoming altogether unavailable to the Industry in near future due to the alarming speed at which the species is disappearing from many tracts of natural forests.

During the year 1991 the Indian paper industry manufactured about 2 million tons of paper, board and newsprint. Forest based raw material requirements to achieve this production were about 4.4 million tons (after allowing for 30 per cent production from non-forest raw material).

By the year 2000 the production of paper is likely to go up only marginally keeping in view the constraints of raw material supply. Some estimates suggest that in the year 2000 the paper and newsprint production may hover around 3 million tons only.

Considering the increasing role of agro-wastes and other non-wood fibres the Industry will still require about 6.7 million tons of forest raw material to achieve this modest increase in production.

According to the studies made by Gandhi peace Foundation (1988) in the year 2000 there is likely to occur a shortfall of 4.9 million tons in forest raw material for paper industry, the actual availability being around 1.5 million tons. In case of bamboo, the requirements are expected to be about 3.5 million tons as per the estimates of National Commission on Agriculture while the actual availability of bamboo to the paper industry will be around 8.5 million tons only.

### Conventional source of raw material drying-up.

It is, therefore, no more possible for the Industry to depend on traditional forest resources for its raw material requirements. With barely 11 per cent area

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under recognisable forest cover the first national priority is to atleast maintain the status quo in the interest of balanced eco-system. By late 1991 it was assessed that permissible annual supply of wood from forests in the country on a sustainable basis is only 52 million cubic metres. On the other hand the total demand has been assessed at 263 million cubic metres a year out of which 235 million cubic metres are required to meet the demand of fuelwood alone. 90 percent of this fuelwood demand will be met by illicit removals from the forests, causing further degradation of forests.

Assuming that sustainable yield, and hence extracted volume, remains at the level of 52 million cubic metres in the near future then the paper industry alone will require something like 8 to 9 million cubic metres out of this harvest to maintain the projected production in the year 2000. It means 17 percent of the total harvested wood which is double of the current percentage. The claim of the paper industry to this high percentage of harvested wood is not likely to be entertained and the industry will have to search for 5.6 million cubic metres of wood elsewhere.

#### **Avenues to meet the shortfall**

Importing wood or manufactured pulp appears to be one easy way out. However, the cost effectiveness and the constraints of foreign exchange may rule out this alternative. The country is already importing timber and pulp worth Rs. 900 Crore annually which is likely to increase to Rs. 2500 Crore by 1995. Experience of paper industry with imported pulp in the past suggests that imported pulp increases the cost for conventional grades of paper by 25 to 30 percent in comparison to indigenously manufactured pulp.

The only other avenue of filling the gap between projected demand and actual supply is the plantation forestry by the industry itself, or in collaboration with government, financial institutions or non-governmental organisations and farm forestry sector. The scope exists in the form of—

- (i) Afforestation of wastelands in forestry circles.
- (ii) Afforestation of revenue wastelands.
- (iii) Afforestation of cultivable agricultural wastelands.
- (iv) Agro-forestry.

The thought of allotment of forest and revenue wastelands for raising industrial plantations has generated a plethora of controversies in recent years. The controversies have been generated mostly for extraneous reasons and without realising that—

(a) Out of 123 million ha. of wastelands, officially recognised to exist in the country, the paper industry requires only about 7 million ha. to grow its entire projected demand of bamboo and wood. This area constitutes about 5 percent of the wastelands existing in the country and 15 percent of the classified forest wastelands.

(b) No alternative rehabilitation programme is forthcoming for these wastelands. Since 1984 when the official assessment of extent of wastelands was made by NWDB the figures have virtually remained static at 123 million ha. as late 1991. Under a concerted eco-restoration programme these figures should have been brought down to below 100 million ha. level.

(c) The extent of wastelands has in fact increased during these years. According to Forest Survey of India the country has lost 1907 square kilometres of forest cover between 1985-1989 period as brought out by satellite imagery studies.

While indecisiveness persists and controversies rage-on on this subject the focus has shifted on the role of agro-forestry and afforestation of cultivable wastelands in agricultural sector under private ownership.

#### **Farm Forestry for Pulpwood production**

Agricultural sector in the country covers about 143 million ha. out of which 40 million ha. are classified as degraded. In areas where only rain-fed agriculture is practised, which totals around two third of the agricultural sector of the country, only such pockets are regularly cultivated which can absorb and accumulate rain water. Remaining area is put under the category of cultivable wastelands. In Central India and Deccan plateau the extent of cultivable wastelands is considerably high.

National Forest Policy declaration of 1988 emphasizes the full utilisation of these wastelands by forest based industries in meeting their raw material requirements. In the absence of a uniform national level

farm forestry model with particular reference to pulpwood production, individual units will have to devise strategies that fit into local socioeconomic and geo-climatical circumstances.

An example that is often cited to illustrate industry-farmers tie up is that of WIMCO farm forestry programme with "poplar". Their package of services can be emulated by the paper industry only in certain respects. The major difference lies in the levels of buy-back prices that can be and are being offered by WIMCO for poplar and that which paper industry can pay for Eucalyptus wood which fetches two to three times more money for the farmer in the shape of "ballis" and other construction grade timber. These and other constraints need to be understood by the industry before relying on the farm forestry as a major source of pulpwood.

F. A. O. Forestry Paper (1978) on "Forestry for local community development" also emphasizes that *"a pulp project based solely on rural community plantations is unlikely, but a pulpmill obtaining part of its intake from large scale industrial plantations and part from rural community plantations may be an attractive proposition for both sides"*.

#### **Experience of Orient Paper Mills, Amlai**

Orient Paper Mills, Amlai are one of the biggest producers of Pulp and Paper in the country with annual production of over 70,000 metric tons. The Mills require 1,67,000 MT of bamboo and 70,000 MT of wood to achieve this production annually. In 1965 when the Mills started production, its entire raw material demands could be met from within the state of Madhya Pradesh. The raw material procurement area was confined to about 400 kilometers radius. The fast changing raw material availability scenario has compelled the Mills to procure the same now from neighbouring states of Bihar, Maharashtra, U. P., Haryana and from as far away as Assam.

To reduce this ever widening raw material procurement base the mills have launched a scheme to promote farm forestry in the districts of Shahdol, Mandla and Jabalpur within a radius of 300 km. of the Mills. The pilot stages of the scheme were begun

in 1986 when the Mills established a centralised nursery at Amlai to grow seedlings of pulpable species, mainly Eucalyptus and Bamboo. The seedlings were distributed free of cost and an area of 52 ha. was brought under farm forestry. Till the end of 1991 the total area under farm forests was 805 ha. with estimated stocking of two million plants, mainly Eucalyptus. About 300 farmers have so far taken advantage of the Mills scheme. Two important and integrated aspects of the Mills scheme are continuous and detailed survey of the area and people and monitoring of the already planted farm forests.

The Mill's experience and survey of past five years have brought out some important conclusions. The first is the lukewarm response of the farmers towards cultivation of bamboo under farm forestry. Second is the dismal performance of farm forests in areas less than 2 ha. in extent. The third is that farmers tend to neglect the planting and proper maintenance of plants made available to them free of cost.

During 1991, therefore, the Mills incorporated some improvements in its programme. Instead of one centralised nursery operated by the Mills earlier, nine nurseries were set up at convenient locations within the district of Shahdol. The nurseries were owned and operated by educated but unemployed youth in the area. The seedlings were sold by the nurserymen, under the aegis of Mills programme, to farmers at subsidised cost of 50 paise per potted plant. The nurserymen were given a subsidy of 30 paise per plant by the Mills. This system has yielded two immediate results - first, gainful employment to otherwise unemployed people and the second, farmers have been more attentive towards the upkeep of the plants which have been paid for by them.

Encouraged by these results the Mills have expanded their farm forestry programme for the year 1992. Forty four nurseries have been established in districts of Shahdol and Mandla with contracted capacity of raising 3 million seedlings of Eucalyptus to be planted during the monsoons of 1992. Each nursery is planned to cater to the farmers requirements within its radius of 15 kilometres. The pattern of sale and subsidy on seedlings sold will remain as during 1991.

The Mills are providing seeds to nurserymen free of cost and delivering polythene bags at nursery site on actual cost basis. The Farm Forestry Cell of the Mills is providing free technical advisory services to nurserymen and farmers in every aspect of tree planting. It is expected that 500 farmers will be able to develop their own farm forests during 1992.

The beneficiary farmers have no legal obligation to sell their farm produced wood to Orient Paper Mills. They will be free to sell their produce in the open market or use it themselves. To instill a sense of security in the farmers, the Mills have, however, offered a buy back guarantee to beneficiary farmers under which the farmers can sell their produce to the Mills at a floor price of Rs. 1160 per ADMT or the prevalent market price, whichever is higher. The price is effective at the farmer's field for the debarked logs of 2 metre length.

From 1993 onwards the Mills will sponsor the establishment of 80 to 90 nurseries in the eight neighbouring districts with contracted capacity of 7.5 million seedlings sufficient to cover 2500 ha. of farm lands every year. In next ten years the Mills plan to cover 25,000 to 30,000 ha. of farm land in eight districts with around 70 million trees of Eucalyptus.

#### **Constraints of pulpwood farm forestry**

Grass-root survey and monitoring studies by the Orient Paper Mills since 1986 have brought out some general and a few area specific constraints in farm forestry programme with objective of growing pulpwood. These constraints are listed below :

1. In majority of cases the initial motivation for taking up farm forestry has come from growing scarcity of fuelwood and construction grade timber. Sale of farm produced wood as pulpwood is seldom a motivating objective. Farmers realise that Eucalyptus "ballis" fetch 2 to 3 times higher returns in comparison to pulpwood. A survey covering 430 farmers in Shahdol and Mandla districts by the Mills has brought out following four priorities in descending order of importance.

- Sale as "ballis" in open market.
- Self utilisation for house etc. construction.

- Use as fuelwood by self
- Sale as pulpwood to the Mills.

It is estimated that this marketing strategy will ensure the availability of only 30 to 40 per cent of farm produced wood as pulpwood. It also means that to assure sustained supply of required quantity of wood the Mills will have to promote farm forestry in 3 to 4 times larger area.

2. Plantations in farm lands below two hectare have not been economically successful in the area. Management problems of such areas and limited turnover of wood that may just be sufficient to meet the requirements of the farmer himself, may rule out consideration of small and marginal farmers as potential suppliers of pulpwood.

3. Wood and monetary yield expectations by the prospective farmers have been found to be on much higher side. Misconceptions of wood yields of 100 tons and above per hectare in 10 years times and net returns of Rs. 1 lac to Rs. 2 lacs per hectare are prevalent among prospective farm foresters. These need to be removed in the interest of long term success of farm forestry programmes. In Punjab and Haryana where large scale plantations of Eucalyptus were raised in sixties and seventies under the above misconceptions the pace of planting by farmers have gone down sharply when the actual returns were found to be very much lower than expected.

4. Financial constraints have hampered the involvement of large number of farmers, specially small and marginal ones. Even though the financial institutions provide low interest loans for farm forestry projects, the procedural difficulties like mortgaging of land, providing of collateral and third party guarantee are such that the small and marginal farmers shy away from taking advantage of loan provisions. In our project area the actual land value is much less than requisite mortgage value and also in most cases the land is already tied up with other loans for agricultural purposes. Majority of farmers taking up farm forestry at present are either big agricultural land owners or non-agriculturists looking for fresh avenues of investment.

5. Direct tie-up between the industry and the farmer and financing by the industry has been much discussed. The Industry can provide a guaranteed floor price to the farmer to enable him to draw a bankable project (in which case, however, the farmer has the freedom to sell his produce as and where he likes). Direct financing by the industry of farm forestry projects is fraught with many risks. The industry can neither afford the type of scenario witnessed with agricultural loans in recent years nor can it face the prospects of hundreds of litigations in the likely event of non-fulfilment of contracted terms.

6. The farmers have shown negligible interest in growing bamboo under farm forestry. The main reasons are faster and bigger returns from Eucalyptus in comparison to bamboo and easier maintenance of Eucalyptus stands. If the bamboo culms are not sold as props and poles but sold purely as pulpwood then even the full realisation of investment may extend beyond twenty years — a prospect the farmer can ill afford. F.A.O. studies referred to earlier have also suggested that for rural communities productivity in the early years is more important than later productivity. So, the question of bamboo supplies remains for the paper industry to resolve.

For an established processing line like that of Orient Paper Mills the requirements of long fibred component (chiefly bamboo) can not be reduced below fifty percent due to machine runnability factor. It is obvious that farm forestry sector can not meet the demand of bamboo of paper industry in India except in certain pockets like Assam and adjoining states where bamboo farming has become a part of traditional agriculture since long and where much higher yields can be obtained.

#### **Paper Industry and Eco-restoration Programme**

Being one of the most important forest based industries the paper industry has the best prospects and opportunities for greening the vast stretches of wasteland available in the country and simultaneously ensuring sustained availability of raw material. The prospective role of paper industry in eco-restoration cum raw material generation programme can be two pronged—

(A) Promotion of multi-disciplinary farm forestry with objectives of producing fuelwood (20 per cent), construction timber (40 per cent) and pulpwood (40 per cent). The model being developed and followed by Orient Paper Mills, has the potential of achieving the desired objectives. Success of this programme will also ensure lessening of pressure on forests in the project area.

(B) Afforestation of forest and revenue wastelands through joint sector companies or as captive plantations by the Mills themselves. As brought out earlier the Mills will still require bamboo for manufacturing paper and seeing the response of farm forestry sector towards bamboo it is imperative that the industry is allowed to develop its own bamboo resources. Keeping in view the environmental requirements these joint sector/captive plantations can be planned as multi-species and multi-product plantations. The Orient Paper Mills have put up before the Government of M.P. a project which envisages production of pulpwood alongwith fuelwood fodder in degraded and denuded forest lands. The projected plantations will ultimately aim at restoring original ecosystem of the area by encouraging natural regeneration and maintaining it till full establishment.

The dwindling forest resources of the country have created a situation where the paper industry must develop its own raw material base. In the process, it can assist the larger national cause of ecological restoration and environmental protection as well as fulfill its social obligations by providing gainful employment to rural people and increasing the returns from waste and unproductive lands in the possession of farmers and government. Whereas the farmers have enthusiastically joined hands with the industry, the government is yet to do so. Productive greening of the earth can be accomplished only when all the concerned sectors join hands and actively participate in the movement.

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