

Need for a Firm Plantation Policy in the Industrial Catchment of Andhra Pradesh

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Forests, in our country are spread over an area of 753 lakh hectares constituting about 24% of the total land area. With the abolishing of private ownership over forest lands almost 95% of all valuable and extensive forest areas are now public property, being owned and managed by the State Governments.

2. Natural process of regeneration in forests, is slow and the only method to maintain an assured and sustained source of raw materials is to raise forest plantations of the required species over large areas, in suitable localities by human effort to meet the increasing industrial demands for forest produce. The need to increase the extent of such 'Man-made forests' is therefore recognised. As per the study undertaken by the Planning commission, the projected demand for industrial wood will be about 22 million M3 by 1975. The Government of India in the Ministry of Agriculture (Forests) have estimated the supply position from the forests of our country, as likely to be 12.3 million M3 by 1975. Thus a short fall of about 10 million M3 of industrial wood is anticipated (from the forests as they exist today) in the next 3 years.

3. In the context of the above larger perspective of the demand

and supply position of Industrial wood, this paper deals with the general needs of the paper mills situated in the State of Andhra Pradesh. There are two paper mills, one Sirpur Paper Mills at Sirpur Kaghaznagar in the district of Adilabad and the other known as Andhra Pradesh Paper Mills located at Rajahmundry in the district of East Godavary. For purpose of bamboo supply, the forests are delineated distinctly between these two mills as defined by long term lease agreement. The Andhra Pradesh State Government have agreed under the terms of these agreements to supply annually one lakh and eighty thousand tonnes of bamboos from specified forest areas to these two mills respectively.

4. The forest area in the State of Andhra Pradesh is 65, 120 sq. K.M. The State Government is the largest single owner of almost all the forests and forest lands in the State. It is true that the Government has certain obligations towards the people, both rural and urban in the matter of providing their basic requirements, consistent with the accepted principles of forest management. The needs of the forest based industries are also taken into consideration by the State Forest Department, while planning the forest exploitation. This Particular obligation is enunciated as :

A. To meet the needs of our industries like paper, match wood, chip board etc.

B. to encourage industries based on the forest raw materials and to keep the supply channels constantly alive.

5. To achieve these objects, there has been some thought for quite some time by the State Forest Department to improve the raw material supply. Investment in forestry, more especially, for the development of forest resources, is not more than two decades old. It was only in 1950 that planned forest development schemes were started. The raising of plantations of Fast growing species by the Forest Department can be said to be the first step towards orienting the resources available to meet the needs of the paper and pulp industry. However, it can be said that not much could be done to meet the increasing gap between the supply and demands of industrial pulp wood. The demand is very extensive and continues to grow. The fluctuating budgets made available to the State Forest Department from year to year make it not possible (for the forest department) to plan and taken up large scale industrial plantations, on a sustained basis, keeping in view the present needs of the industry as well as their future reasonable and adequate expansion programmes.

6. This position can be appreciated by looking into the financial outlay which was made available in

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the forestry sector in the State. The funds allotted during the successive development plans are as follows:

	Rs. in lakhs
a. Ist Plan	Rs. 26.64
b. IInd Plan	Rs. 123.50
c. IIIrd Plan	Rs. 275.47

7. The above allotment of funds formed (in the IIIrd Plan) 0.79% of the total plan budget of the State, providing an investment of 85 paise per hectare. Within the limitation of funds, the State Forest Department has been able to do, what was possible and has raised plantations of Eucalyptus, bamboo and casuarina. By 31-3-1969 such plantations (IIIrd plan) extended over an area of 4630.40 hectares. Similarly another 4573 hectares of plantations were raised between 1-4-1969 and 31-3-1971 giving a total of 9203.40 hectares of plantations of Fast growing species. The incentive given by the Government of India by extending an assistance, in the nature of total grant, with a ceiling of Rs. 500/- per hectare was greatly responsible for starting these plantations. During 1968-69 this financial assistance was enhanced to Rs. 625/- per hectare. But unfortunately this scheme of assistance has been deleted from 1969-70. The absence of financial assistance by the Government of India is likely to inhibit execution of any ambitious regeneration programme of Fast growing or Quick growing species.

8. This paper deals specifically with the problem as to how far the efforts of the Andhra Pradesh Forest Deptt. can meet the needs for the industrial raw material of the paper mills in the next decade. Confining this study to the Sirpur Paper Mills, it appears that it would become

increasingly difficult in the next few years for these mills to get their raw material from their leased areas even for their present production capacity, let alone their future expansion programmes. The supply of bamboos which are the basic raw material, are likely to decrease. The present gregarious flowering noticed in the lease hold areas in Adilabad District, is expected to be completed within next three or four years, if not earlier. It has been the past experience that with every gregarious flowering bamboos have disappeared over extensive areas due to various reasons. It is difficult to visualise as to what would be the effective bamboo area after the completion of the present flowering cycle.

9. In the context of these facts it is necessary to consider what can be done to meet the raw material requirement of the Sirpur Paper Mills. It is very encouraging to know that mixed hard woods have finally been accepted as raw material by the pulp and paper mills in our country. The Sirpur Paper Mills are also using mixed hard woods for pulping purposes along with bamboos in the manufacture of paper.

10. It is agreed that the level of wood production in our forests is decidedly much less than the productive potential of the forest lands.

It is therefore necessary to consider the scope of increasing the annual wood production. One of the accepted methods of increasing such production is by introducing monoculture and to replace the existing mixed diversified species, in suitable selected specified industrial catchments. As the aim is to help and assist the paper industry it is necessary that we must grow the right type of raw material required by it. This can be done to a large extent by growing concentrated industrial plantations within a defined catchment and within economic radius from the mills. The Haldwani plantations of Eucalyptus in Uttar Pradesh have indicated an annual increment of 15 M3 hectare. On this assumption it was calculated that 200 thousand hectares will yield annually 3 million M3 of pulp wood. But this yield figure appears rather high for adoption to the climatic and soil conditions prevailing in the forest areas of eastern part of Adilabad district (Andhra Pradesh).

11. It may not be out of place to mention that the Sirpur Paper Mills raised an experimental plantation of Mysore gum during 1963-64. The standing growth over an extent of about two acres, was enumerated recently (April 1972). The enumeration abstract is given below:

No. of Stems	Estimated volumes of the growing stock in Cft.				
	1-12 girth at BH	13-18 girth at BH	19-24 girth at BH	25-26 girth at BH	37-48 girth at BH
215	101—32	—	—	—	—
262	—	481.23	—	—	—
122	—	—	540.98	—	—
56	—	—	—	512.84	—
01	—	—	—	—	26.79
656	101—32	481.23	540.98	512.84	26.79

The total stocking consisted of 637 trees (comprising of 656 stems) and was estimated to contain a standing volume of 1663.16 or 1664 cft. Planting was done at $8\frac{1}{2}$ ft by $8\frac{1}{2}$ ft. The volume was calculated as per the quarter girth formula. The average height of the plantation was between 25 to 30 feet (8-9 metres). Few trees when measured were over 35 feet (11 metres). This plantation was felled between 24th to 26th April 1972 and the wood was debarked and billeted into one metre-lengths and formed into stacks of 2 metre x 1 meter x 1 metre. A total of 32 such stacks were obtained which weighted 33 tonnes (after drying in the sun for 4-5 days). The studies undertaken so far in the State have indicated that the weight of bark of Eucalyptus hybrid is upto 23% of the green weight of the wood. The loss of weight due to dryage is upto 30% (in the case of debarked wood the moisture loss is significant within the 1st week itself especially in the hot season).

12. The above plantations site cannot be considered as ideal for raising 'Mysore gum' the soil being of clay loam, undulating and susceptible to water logging during the rainy season. The plantation looked very unimpressive, due mainly to about 2/3 of the growing stock being less than 18 inches in girth at breast height. In spite of all these facts the total volume of wood was 1664 cft although almost half the plantation is about 8 years old and about 1/3 of the crop (1'-12" girth class) appears to be casualty replacements made. It may not be therefore inappropriate, to expect an yield of 50 tonnes per hectare

(at 70% stocking) at the age of 10 years for these forests. On this assumption, it would mean that annually 1200 hectares will have to be planted to give an annual yield of 60 thousand tonnes of pulp wood from the 10th year after raising the plantations. It will therefore be necessary to identify on the ground an industrial catchment containing suitable planting area, from where 12000 hectares (30,000 acres) can be selected for raising pulp wood plantations. It is considered that the extent of such a catchment should not be beyond a radius of 80 K.M. from the mills. The Sirpur Paper Mills would require within next 4 to 5 years, between 50 to 60 thousand tonnes of Industrial wood per annum to meet the anticipated short fall due to gregarious flowering of bamboos and for their expansion programme. Seth & Kharbanda have indicated that for a raw material supply of bamboo & hard woods (6:4 ratio) for a pulp and paper mill unit of 100,000 tonnes annual production capacity a catchment of 150 sq. K.M. (150,000 hectares) for raising Eucalyptus pulp wood (Plantation) would be sufficient. It is therefore necessary to explore the possibilities of all available forest area for raising these plantations in concentrated blocks, as near the location of the paper mills as is possible. Once this principle of land utilisation is accepted then it will be easy to identify and delineate suitable areas for raising such plantations. The use of aerial photography for selection of large scale plantation sites including locations for nurseries, labour camps etc. needs to be considered for speedy implementation of such production forestry programmes.

13. It is gratifying that the National Commission on Agriculture in the interim report, has recommended planting of 1 lakh hectares annually in next 7 years in the mixed hard wood forests. The financial investment suggested is 815 crores on forest based industries during this period and Rs. 1187 crores in the next decade (1981 to 1990) of which paper and pulp industry account for Rs. 611 crores and Rs. 979 crores respectively.

14. The present indications, as per IVth plan targets, for forestry development (in this State) are to raise 6000 hectares of plantations of quick growing species at a cost of Rs. 72.83 lakhs. It can be seen that even if the entire plan target is fully achieved still it can at the most meet only about half the estimated raw material requirement of one paper mills (Sirpur Paper Mills). But the past experiences of the prunings, which the State budget (especially the forest department) receive do not guarantee an assurance of achievement of this modest target. Besides, it is a matter for consideration, whether such large extent of plantation programmes could be taken up under the existing limitations of financial and administrative powers and paucity of executive and supervisory staff. Special trained exclusive staff with necessary freedom of action can alone deliver the goods. We have yet to identify the proposed industrial catchments, within an economic lead from the mills. It is time that this is done as early as possible. In this regard the pre-investment survey of forest resources can greatly help by identifying and recommending the required catchments. This will assist

in planning further Regeneration Programmes.

15. A policy planning in this direction is the need of the hour. It is possible that suitable areas, which the forester immediately sets apart for raising of tradition timbers like Teak, may have to be made available for raising industrial wood within these industrial catchments. A guidance from the Central Board of Forestry Indian Forestry Commission, the State Forest Advisory Boards is required to get a break through, and find solutions to these basic problems.

16. The active association of paper mills with the planning of Industrial plantations will be greatly helpful to the larger interest of forestry. The conservation concept of Forest Management cannot any more be continued in a fast changing society. If paucity of funds alone is the inhibiting factor, for the State Forest Department, to embark upon realistic development plans, then it is time that the paper industry is taken into confidence and the problems discussed across a table.

17. It appears to me that the pulpwood (fast growing species) should be raised only within an economic radius of the pulp and paper mills. It is always the landed cost of the raw material at the mill site which will determine the ultimate royalty that can be paid by the paper industry to the forest department. The Paper Mills would not hesitate to pay a larger amount of royalty per tonne of raw material, if it is available within 20 K.Ms. of the mills, as compared to the same material from 100 K.Ms. Under the pattern of present price struc-

ture, the royalty amount decreases (in geometric proportion) with the increase in lead of the plantations from the mills. In my opinion, no plantation of Fast growing species, should be raised beyond 80 K.Ms. from the mills if reasonable returns are to be expected from these plantations. Under the prevailing conditions of today, I feel that the total cost of exploitation including transport of the raw material should not be more than Rs. 30 to Rs. 40 per tonne if a reasonable economic financial return is to be expected from these plantations.

18. The present working of the existing mixed type of forests, yields on an average, between Rs. 1250 to Rs. 1500 per hectare on a cutting cycle of 40 years (Kaghaznagar Forest Division). The raising of pulp wood should not cost more than about Rs. 900 to 1000 per hectare and for the 2nd and 3rd rotation crop the expenditure will be negligible. If the plantations are located within a radius of about 50 km. from the mills, then even at a minimum yield of 40 tonnes per hectare the returns should vary between Rs. 1800 to Rs. 2000 every 10th year for next 30 years (at the present level of price structure). However I admit that these financial forecasts will have to be gone into in greater detail. In my opinion there is need to revise the old concepts of minimum financial returns on investment in forestry as in the case of other programmes wherein enormous financial investments are being made as in Major Irrigation and Power Generation projects. Many time the overall long range benefit to the human welfare should be the primary consideration in all such matters.

19. A question may arise, as to what is to be done with the standing tree growth over such proposed plantation areas within a recognised industrial catchment, after they are identified (on the ground) and when it is not possible, due to various reasons, to take up the plantation programmes immediately. It is suggested that after identifying such suitable areas, a phased regeneration programme can be drawn up. Accordingly the work can be started within the financial limitations and the administrative possibilities. The existing forest tree growth over the balance area can be worked under the coppice with Reserve or Selection system as it is now being done till such time that these areas are brought under conversion and are (artificially) regenerated with the required species.

20. The time has now come, when it is necessary for all of us to consider, whether it would be possible for the State Governments, to lease to the paper mills suitable forest areas, so that they could raise by themselves, the required raw material. An effective control, on such regeneration programmes by the State Forest Departments is possible by providing technical assistance and supervision over the appropriate land use programmes by the paper & pulp mills. A dynamic direction from the Forestry Commission in this direction I am sure, will stimulate active thinking on this problem. It is time we have a break through from the rigid thinkings of the past and give a new dimension to forestry, development.

21. The object of this paper will be fulfilled to a large extent, if it is agreed, that plantations of Fast