Hardwoods of Orissa for Pulp and Paper

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Orissa lies along the North-Eastern sea-board of the Indian peninsula, pressed between two industrially advanced states like West Bengal on its North and Andhra Pradesh in the South. The state has nearly 67,460 kms under forests composed of mostly broad-leaved species. There is no natural coniferous forest in the state. Only small scale experimental plantations of these species have been undertaken in different areas. The area under bamboo, which occurs mostly as an understorey in the natural forest has been estimated around 10,500 sq. kms. Most of the bamboo bearing forests have been leased out to the paper mills on long-term basis. The average annual recorded output of timber is around 5.5 million m^3. This is far overshadowed by unrecorded extraction of large quantities of timber, lops and tops and firewood. The potential availability of bamboo has been estimated around 5.00 lakh tonnes. Besides the natural forests, large scale plantations of quick-growing and economic species have been raised under the Five Year Plans primarily to meet possible raw-material shortages. By 1970-71, the total area under quick-growing species is estimated at 25,750 hectares and the economic plantations total upto just over 37,200 hectares. The targets fixed for economic plantations and plantations of quick-growing species for the Fourth and Fifth Five Year Plans are given below:

		Hect.
(i) Economic plantation	Fourth Plan	14,800
	Fifth Plan	40,000
(ii) Plantation of quick-growing species.	Fourth Plan	15,200
	Fifth Plan	28,000

As against the raw-material available as mentioned above, there are only three paper mills in the state, at Choudwar, Brajarajnagar and Rayagada. The Fourth paper mill by M/s. Basti Sugar Mills Ltd. has just been licenced. The present capacity of the three mills in operation and the quantity of raw-material consumed annually by them is given in Table 1 appended in the end.

It will be seen that the three paper mills consume around 3 lakh tonnes of bamboo annually, besides small quantities of hardwoods except M/s. J.K. Paper Mills. The Fourth Paper Mill in the offing will have a 200 tonnes/day capacity (60,000 tonnes) and is expected to utilise nearly 1,09,000 tonnes of air dry bamboo and 42,000 tonnes of air dry hardwoods. This leaves a marginal surplus of bamboo that is required locally by tenants and a vast quantity of hardwood most of which have now been found pulpable. Besides these, the plantation of quick-growing species can be expected to yield a minimum of 25/30,000 tonnes of short fibred pulpwood in another 5-6 years.

As regards occurrence of hardwood for production of pulp and paper the state can be divided into four district resources regions.

Region I consists of North-Eastern districts like Balasore, Mayurbhanj and Keonjhar. The average annual recorded production of hardwood in this Zone is around 1,25,000 tonnes bulk of which is Sal. There is no bamboo and for all practical purposes no coniferous wood. Vast quantities of lops and tops in forest fellings and conversions go waste. This region has no paper mill. Few potential sites with rail-head and river for effluent discharge like Baripada and Basudevpur can be considered for installation of paper mills based on indigenous hardwoods, sabai grass and bagassee.

Region II consists of districts like Sambalpur and Sundargarh where the average annual output of hardwood is about 2,30,000 m^3. There is no conifer but sizable quantity of Salai wood (Boswellia serrata) can be tapped from these forests. There is one paper mill in this region at Brajarajnagar. Most of the bamboo bearing forests have been leased out to the paper mills. Places like Rourkela, Bargarh and Hirakud situated within economic radius of raw-material have the requisite infrastructure facilities for a new paper mill.

Region III comprises of the South - Western districts like Kora-

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put, Kalahandi and Bolangir with a recorded annual production of hardwood to the extent of 1.10,000 m^3. This will further increase, when the forests yet to be brought under regular plans or schemes are thrown open to exploitations. Coniferous plantations are in small scale and in experimental stage. Salai is available in large quantities in both Kalahandi and Bolangir districts, but at present remains unutilised. There is one paper mill at Rayagada under production, the second at Jeypore is in the offing. Almost all the bamboo areas have been leased out to the paper mills. There are few potential sites like Kesinga or Bolangir within easy reach or raw-materials that can be considered for paper mill.

Region IV consists of the Central and Southern districts like Cuttack, Puri, Ganjam, Dhenkanal and Phulbani districts. There is one paper mill at Choudwar in the region. In the industrially more advanced district like Cuttack there is very little forest, whereas the district of Phulbani, full of forests, still remains land-locked for want of railways and other means of communication. The average annual production of timber in this region is around 90,000 m^3. There is practically no conifer except very small plantations in Phulbani district. The bamboo bearing forests have all been leased out. Few places in the region like Bhubaneswar and Talcher can be regarded as potential sites for future paper mills.

Out of the numerous hardwood species that occur naturally in the state's forests many like Anogeissus latifolia, Aegle marmelos, Bischofia javanica, Cleistanthus collinus, Chloroxylon swietenia, Garuga pinnata, Lannea coromondelica, Pterocarpus marsupium, Sterculia urens, Mitragyna parvifolia, Terminalia belerica, Xylia xylocarpa, Soymida febrifuga, Boswallia serrata, Diospyros melanoxylon, Dalbergia paniculata, Emblica officinalis and even Shorea robusta have been found pulpable. These species are available in commercial quantities on a sustained basis. Similarly a number of species grown in plantations like Eucalyptus hybrid, Casuarina equisetifolia, Cassia siamea and Acacia auriculiformis can also be utilised for pulping. Pulpwood from plantations of these species would be available in sizable quantities in another 5-6 years. Besides these there are still large number of other species whose suitability for pulping has not yet been tasted. A suitable mixture of these hardwoods can be used for making pulp and paper. In fact increased use of short-fibred raw-materials for the production of pulp and paper is the trend even in developed countries like Japan, U.S.A. and Australia which account for a substantial part of the world's total production of pulp and paper. In U.S.A. where the qualities of industrial papers and boards are far superior, it is said that the consumption of long-fibred pulp is not more than 44%. Japan has made considerable advance in the use of hardwoods for pulping. By using a wide range of pulping process, a wide range of paper products are being manufactured at the same site. There are mills which use only hardwoods for production of semichemical pulp. There are others which use small tree branches and saw-mill wastes. Of course, Japan has still gone farther to overcome shortages of cellulosic raw-materials by manufacture of synthetic paper with the petrochemical base and it is said that these papers possess wonderful printing properties.

The above discussion shows that with the existing resources of hardwood in the State (whose output was also bound to improve with better facilities of exploitation and transport and rationalisation of bamboo leases, one or two more pulp and paper mills can be established in Orissa. Besides, the existing three papers in the state have tremendous scope and possibilities to expand their capacity. Their production capacity can be considered too small as compared with Japan where the total production of pulp and paper is ascribed to bigger plants with 300 tonnes per day capacity and quite a number of these have capacities exceeding 500 tonnes per day.

Besides the total availability of raw-materials, the Industry should be interested in assured supply on a sustained basis, delivered cheap, in time. Only under these conditions, the cost of production can be reduced, price stability in manufactured products maintained and regular offtake and qualitative improvement in the products ensured. In areas where the state-owned Orissa Forest Corporation Ltd. has been working, the supply of specified class of hardwoods according to a definite time-schedule can be ensured. The corporation is fully equipped to meet such situations. Elsewhere the position is the same as obtain in different parts of India in that the paper mills have to arrange for their requirements from the private contractors. But if necessary, the department can undertake to supply the raw-material by working some of its forests departmentally, provided the royalty can be suitably fixed. M/s. Consults Ltd. in their feasibility report for the pulp and paper mill in Koraput district had calculated the cost of exploitation of hardwood at Rs. 80/- per tonne with Rs. 15/- as royalty, Rs. 15/- for exploitation and handling and Rs. 50/- for transport which is certainly on a very low side. In India, as against Japan, the cost of raw-material is a much smaller component in the total production process as the following table would show:

Comparative cost of production of paper in India and Japan.

(From *Economic Times* dated 7-2-71)

Head	India Rs.	Japan Rs.
Raw-materials	249	800
Labour	159	160
Depreciation	237	120
Chemicals	320	200
Power	190	100
Miscellaneous	68	220
Repairs	116	—
Interest	51	—
Freight & packaging	95	—
	1485	1600

What should be the appropriate rate of royalty for new entrepreneurship can thus be discussed and settled between the Forest Department and the Industry.

The Paper Industry in India is one of our key industries. Its importance in the national economy at the present stage development is considerable. The industry enjoys a strategic place for its role to promote export and reduce imports. It is therefore necessary that the Government and the Industry should join hands to take a big step forward in the field of paper production in the immediate future. In fact the Govt. of Orissa is keen to promote the growth of industries in Orissa in general and has offered facilities for land finances, tax relief and power subsidy, etc. to attract investors to participate in this nation-building programme.

TABLE 1

Name of the Mill	Present capacity tonnes	Capacity under expansion (tonnes)	Quantity of Paper & Paper Board produced		Quantity of bamboo consumed		Use of hardwood
			Year	Tonnes	Year	Tonnes	
1. M/s. Titagarh Paper Mills	83,000	10,500	1968-69	59,167	1968-69	1,50,603	10—15%
			1969-70	68,260	1969-70	1,38,366	
Choudwar Cuttack.			1970-71	66,099	1970-71	1,38,806	
2. M/s. J.K. Paper Mills	21,000	7,500	1968	18,577	1968	49,069	
			1969	19,598	1969	49,152	—
Rayagad, Koraput			1970	20,851	1970	52,719	
3. M/s. Orient Paper Mills Ltd.	76,000	Increase in	1968-69	61,085	1968-69	1,15,513	19%
	(manufacturing capacity	production 8 tonnes/day	1969-70	65,753	1969-70	1,22,310	(1969-70)
Brajarajnagar Sambalpur.	85,000 (pulp making capacity)		1970-71	55,256	1970-71	Not available	