'Cellulosic Raw Materials Scenario in Future- Availability, Constraints, Cost and Plantations'

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ABSTRACT

Cellulosic fibre is the back bone for the paper & paperboard Industry. Day by day it is becoming scarce and emerging as a major factor for inhibiting the growth of the Industry. To bridge the gap between demand and supply there is an urgency for the reclamation of degraded or wastelands.

Under the prevailing conditions- Globalization and Liberalization, to become intemationally competitive and achieve self sufficiency.

Only two options are avilabe before us

- Switch over to Farm Forestry in a big way.

- Convince the Government introduce innovative policy changes as follows: Involve corporate sector to raise technology based plantations by forming a joint venture along with the Forest Development Corporations.

Or

Relax the land ceiling laws allowing at least the individuals to take up Fram Forestry in a big way.

Such plantations taken up either in Farm Forestry or on a joint venture would save our natural forests upto an extent of 20 to 30 times. Not only this a sizeable employment will be generated in rural areas. Lastly these plantations would achieve self sufficiency to the Industry.

INTRODUCTION

Plants are the main source for the production of cellulose. This cellulose is the backbone for the *paper* and *paper board Industries*. Day by day its availability is becoming scarce due to degradation of forest cover induced by civilization & Urbanization. We are losing 2 million ha. of forest cover every year. Already 130 million ha. of area has become degraded out of the total geographical area i.e. 329 million ha. Only 37 to 39 million ha. of forest out of 77.01

ITC Bhadrachalam Paperboards Ltd.,
Village : Sarapaka - 507 128
Distt. - KHAMMAM (A.P.)

Category of Mills	Installed Capacity	Effective Capacity	Actual Production 1990-91
Wood Based	1.47	1.14	1.07
Agro Based	1.06	0.94	0.70
Waste Paper Based	1.17	0.83	0.74
Total	3.95	2.91	2.51*

* Capacity utilisation is low

million ha. area has more crown density. Present pace of degradation is alarming and may threaten human life also in future.

Therefore, there is an urgency for reclamation and restoration of these degraded lands by planting seedings and saplings to grow into trees for narrowing the gap between further demand and availability of fire wood, timber and wood based products, sustaining the momentum of green revolution and life support systems, environmental amelioration and ecological balance.

PAPER INDUSTRY IN INDIA

- Helping the human beings for - Communication
  ↓
  (Men, Women & Children) - Education
  - Reading
  - Writing
  - Storing Knowledge
  - Quality life
  - Overall development

IN ALL 380 MILLS ARE FUNCTIONING

- Average size of the mill is 10,500 tones per annum.
- A report of the Joint Committee on Paper Industry, India (JCPI) - 1995 is as follows.
- During 1994-95 consumption of paper was 2-54 million tons. Installed capacity for news print in India during 94-95 was 0.4 millions against actual production 0.3 million tons when consumption was 0.69 million tons (Singhania 1996).
- In, the recent past there was no green field investment for the establishment of new wood based pulp & paper unit on account for uncertainties about sustained availability of fibrous raw materials.
- There are serious constraints for the future growth of Agro based and waste paper based units because of narrow product range uneconomic size outdated technology lack of chemical recovery and effluent treatment facilities, fluctuations in international

(as estimated by high powered committee on paper)

Year	Projected Demand (lac tons)	Compound Growth Rate*	Total possible production of paper (from Indigenous Fibre) (lac Tons)	Short fall ** indigenous Fibre in paper Equivalent Term (lac Tons)	Per Capita Consumption on Kg/year
1994-95	32.78	5.5%	24.08	8.70	3.4
2000-2001	49.50	7.8%	32.58	16.92	5
2005-2006	67.00	6.5%	41.61	25.39	6.5
2010-2011	85.50	5.5%	49.10	36.40	-

prices of waste paper and Market pulp and uncertainties about long term availability for CEREAL Straws and BAGASSE because of alternative uses.

DEMAND & SUPPLY SCENARIO OF CELLULOSIC FIBRE

A recent study by Expert Group constituted by Industry indicates that short fall in supply for indigenous fibre based on projected demand and possible production may be much larger i.e. 17 million tons for 2000-01, 25 million tons for 2005-06 growing to 36 million tons by 2010-11.

AS PER FAO,

THE DEMAND FOR

Fuel wood and charcoal	344 million tons	by 2010 AD
Industrial round wood	37 million cum	-do-
Sawn timber	33 million cum	-do-
Paper & Paperboards	5.7 million tones	-do-
Wood based panels	1.3 million tones	-do-

* India's gorwth in demand taken on a conservative basis.

** To create the required additional capacity (based on 75% utilization) an investment of approx. Rs. 40,800 crores @ Rs. 1 Lakh per annual ton) would be required to meet the projected demand by 2005. It may not be possible for the Industry to mobilize such huge amounts when market situation is adverse.

BIOMASS DEMAND & SUPPLY SITUATION

Demand for wood is bound to rise continuously because of the growth in population, improvement in living standards and industrialization.

On the same lines most of the wood based industries like veneering, plywood hardboard and safety match units, are facing increasingly large deficits between requirements and supplies.

COST OF IMPORTS

Unless effective measures are initiated for long term supplies of wood based raw materials for the pulp and paper Industry. There will be ever increasing gaps between demand and supply of paper/news print. Based on 1990 report of the Development Council, the projected short fall will be nearly 1.6 million tons during 2000 AD and 3.1 million tons during 2010 AD. Improt bills as estimated by the Development Council will be of the order of Rs. 19,690 million for 2000 and 42,760 million for 2010 as per details given in the following table (Singhania 1990).

Actual cost of imports will be many times higher because of escalation in prices, possible higher demand and unfavorable changes in exchange rates. India can ill-afford such heavy drain of scarce foreign exchange resources on import of commodities like pulp and paper in which the country does have the potential

Year	Demand (million tons)	Production (million tons)	Shortfall (million tons)	Import Cost (million tons)
2000	4.112	2.560	1.552	19690
2005	5.045	2.762	2.283	29930
2010	6.297	3.154	3.143	42760
2015	7.981	3.325	4.656	64190

Comparative estimated cost of production/per ton of pulp & paper in India species wise & mix with Eucalyptus.

	% OF E.C. ON TOTAL R.M. REQUIREMENT					SUBABUL	CASUARINA	Mixed Hard-wood
	40	50	60	80	100			100%
	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs
R.M. COST/TON (RS.) EC	2600	2633	2667	2725	2816	2400	2750	1400
,, ,, MHW	1400	1400	1400	1400	1400			
PULP YIELD %	45.6	46.0	46.4	47.2	48.0	48.0	47.0	44.0
REQUIRED RM/TON (B.D.)	2.276	2.256	2.237	2.197	2.158	2.158	2.20	2.355
COST /TON PULP (RS.)	4222	4490	4772	5363	6076	5179	6063	3297
COST OF CHEMICALS /TON PULP	883	857	829	780	729	985	729	985
a) TOTAL COST/TON PLUP	5105	5347	5601	6143	6805	6164	6762	4282
b) CONVERSION COST/TON PLUP (DIRECT ONLY)	8000	8000	8000	8000	8000	8000	8000	8000
c) PULP COST (a+b) PULP TO PAPER	13105	13347	13601	14143	14805	4164	14792	12282
d) DIRECT CONVERSION COST/TON	6300	6300	6300	6300	6300	6300	6300	6300
e) TOTAL DIRECT COST (c+d) /TON	19405	19647	19901	20443	21105	20464	21092	18582

(Relevant Figures taken from Singhania report, 96)

to become self sufficient. Imports also mean surrendering potential domestic employment opportunities and indirect environmental benefits to the exporting nations. Therefore any strategy based on meeting the short falls through imports must be rejected.

Restoration of green cover and substantial improvements in land productivity are most essential for narrowing the gap between future demand and availability for cellulosic fibrous raw material.

THE OPTIONS AVAILABLE BEFORE US:

* Encourage farmers in a big way to take up *farm forestry.*

* Try to form joint venture with FDCs/Try for relaxation of land ceiling laws for planting on leased areas.

❑ *Under the prevailing conditions - globalization and liberalization to become Internationally competitive and to achieve self sufficiency the selection of species combination for raising plantations better would be either mixed hard woods on pure basis or with Eucalyptus 50-50 percent on the basis of:*

FARM FORESTRY

The industries have to encourage the farmers to raise plantations in the follwing manner.

❑ Provide genetically improved planting stocks at reasonable costs - The species which match the locality of the plantation.

❑ Provide technical extension services from site selection to the harvest.

❑ Declaration of minimum remunerative support price with buy back arrangement.

❑ Help farmers by arranging logging and transport of the plantations wood.

❑ If possible provision of plantation incentives like free supply of the planting stock or give back 50% cost of the planting stock after planting by the respective farmers. Depending upon the costs incurred for raising the planting stocks.

ITC Bhadrachalam Paper Boards Limited is currently practicing the above for promoting Eucalyptus clonal plantations on the farmers field in the catchment area around a radius of 50 Kms. from its mill site.

** HERE THE GOVERNMENT HAS TO DO THE FOLLOWING

❑ Relax the land ceiling laws for the individuals who takes up farm forestry plantations.

❑ Exempt the taxes like sales & income.

❑ Exempt the farm forestry species from taking permits for cutting & transport.

❑ Encourage industry to take up united research programme for the farmers of the total country by establishing an Institute at central place and regional research centres according to the need.

ECONOMICS OF CLONAL PLANTATIONS

A farmer has to incur an expenditure of around Rs. 45,000 to raise 1 ha. clonal Eucalyptus plantation from which he is asured of an income of Rs. 1.5 lakhs after 7 years.

If the farmers take up intensively managed Technology based clonal Eucalyptus plantations on their lands to an extent of 1,50,000 ha. per annum and 10,50,000 ha. over a period of seven years will be able to meet the requirement of aroud 16.62 million tones of freshly cut pulp wood required to meet the demand of pulp sufficient to produce 5.7 million tones of paper and paper board by 2010 AD. This activity would generate rural employment for 1,50,000 people in planting and maintenance, and another 2,00,000 people in harvesting of the plantations.

STRATEGIES FOR SUSTAINABLE DEVELOPMENT

The government has to encourage the corporate sector to involve in the reclamation and restoration of degraded/waste lands in the following maner.

❑ Introduce innovative changes in government policies to involve the corporate sector for raising technology based plantations.

❑ Allocation of the degraded waste but plantable lands to the industries.

❑ Provide suitable fiscal incentives and tax benefits for encouraging long term investments in

plantations.

❑ Relax the permit & transit rules for Farm Forestry species.

❑ Effective protection measures and timely inputs.

❑ Exempt well planned investments from taxing for the development of fast growing locality specific planting stocks.

❑ Develop and ensure the following of the package of practices to achieve higher/yields.

❑ Research and Development support for long term tree improvement and breeding strategies to support the plantation projects.

*** JOINT SECTOR PLANTATIONS

The forest development corporation of the respective states (a state owned organization), should collaborate with the wood based industries in the reforestation of degraded forest land of meet the industrial raw meterial requirements. However, this collaboration should not in any way curtail the availment of firewood, fodder and non-timber forest produce by the local communities. Degraded forests with viable rootstock should be brought under joint forest management involving the people on the fringes of forests in the protection and management for forests.

ADVANTAGE OF PLANTATIONS

❑ Expansion of green cover-addition to natural forest cover.

❑ Scaling down pressures on existing natural forests around *20-30 times* to plantation area.

❑ Employment generation & economic benefits.

- Creation of rural employment especially for tribal people.

- Check migration from native areas.

- 70% of the cost of plantations would go towards wages only.

FUEL WOOD

Increased availability of fuel wood to the rural people. Otherwise short supply of fuel wood is a major factor for forest denudation.

* SOIL CONSERVATION

Increased vegetation shall stop the loss the top soil supports and maintain healthy vegetation.

❑ WATER CONSERVATION

More vegetal cover would conserve water and recharge of ground water.

❑ DISCOURAGING ENCROACHMENTS

Plantations shall act as a buffer and becomes effective barrier for encroachment.

❑ IMPROVEMENT IN PLANTATION PRODUCTIVITY

Applied R & D will lead to higher yields as has been experienced in India & other countries.

❑ SAVE FOREIGN EXCHANGE

More & more plantations would reduce the import of pulp & paper and saves the most valuable foreign exchange.

CONCLUSION

Paper Industry in India

At the context of globalization and Liberalization the emerging major factor i.e. the availability of cellulosic raw material which is restricting the growth of the Industry.

The options available before us are

- Switch over to Farm Forestry in a big way and encourage farming community to raise suitable fast growing species.

- Convince the Government to safe-guard the interests of the paper & paper board industries by forming joint sector projects or relaxing the land ceiling laws to take up technology based plantations *in a big way* to supplement the Farm Forestry.

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