

Waste Paper Collection Mechanism in India- Current Status & Future Requirement

Tandon Rita, Negi Satya Dev & Mathur R.M.

ABSTRACT

The present paper highlights the current status of waste paper collection mechanism in India & its limitation vis-à-vis global mechanism and suggested options to develop a sustainable model to increase the recovery of waste paper in the country.

Introduction

Paper industry in India is one of the oldest industries having bearing on socio-economic development of the country. The industry has close linkages with economic growth as higher industrial output leads to increased demand for industrial paper for packaging, increased publishing and marketing spend benefits newsprint and value added products and increased education and office activities increase demand for writing and printing paper.

There are 750 Pulp & Paper mills in India producing many varieties of paper namely writing & printing paper, packaging paper, coated paper and some speciality grade paper. Currently the paper, paperboard & newsprint production in the country is 10.11 million tonnes against an installed capacity of 12.70 million tonnes. Around 3.1 million tonnes of paper and paperboard (P&B) is contributed by forest based raw materials, 2.2 million tonnes from agro based raw materials and around 4.72 million tonnes from recycled fiber/ waste paper (RCF/WP) making the share of RCF/ WP in total paperboard and newsprint production around 47%. The annual consumption of paper, paperboard and newsprint in the country is around 11.15 million tonnes/annum (2012 Statistics).

Future Projections

With paper and paperboard demand growing at an average rate of 7.8% per annum, the industry is expected to meet an annual requirement of 22.0 million tonnes of paper and paperboard by 2025 which is a quantum leap from the current level of over 10.11 million tonnes.

At this growth rate, the share of RCF/ WP based industry would increase from current level of 47% to 53% by 2025 thus contributing an average production of around 11.7 million tonnes in total P&B production and which would eventually require an additional RCF/ WP requirement of 9.3 million tonnes as a raw material.

Availability of RCF/WP As Raw Material

The requirement of RCF/WP as raw material is sourced indigenously as well as through imports. Due to low recovery rate of i.e. around 27%, Indian mills rely heavily on imported waste paper to meet the raw material requirement. The import bill has increased significantly i.e. from 5.1 million USD in 1980 to one billion USD in 2011. India imported around 4.0 million tonnes of waste paper from other countries in the year 2011.

Environment & Economic Benefits Of Increased Collection Of RCF/WP

It is imperative to put in place the suitable mechanism for increased collection of post consumer paper for recycling as designing such mechanism will lead to several advantages like lowering of import bill for waste paper, reduce the environmental load on the eco system by lowering the formation of green house gases upon decomposition and opportunity for income and employment generation. As per an estimate, every 1% increase in waste paper recovery will lead to

(I) Savings of -

- 0.2 million tonnes raw material,
- 0.16 million tonnes coal,
- 2750 megawatt power, and
- 7.7 million m³ water

(II) Reduction in-

- 0.02 million tonnes of GHG emission
- Import bill by 25 million USD

(III) Employment generation opportunity of 7000 additional manpower.

Current Mechanism For Collection of Post Consumer (PC) Paper in India

(i) Collection Performed by Informal Sector

Table-1 summarizes the collection mechanism prevailing in India. The collection of Post Consumer (PC) Paper is mainly performed by the informal sector a community consisting of rag pickers and door to door collectors/vendors at the initiating step. This informal sector is controlled & administrated by big traders. As much as 95% of the collection of waste paper in the country is in the hands of informal sector.

There are large traders who fund the entire value chain. The value chain constitutes of direct collectors from various source points, small shops where primary sorting of the waste into different categories is done which follows zonal segregation centers owned

Table-1 Current Waste Paper Collection Mechanism in India

Source	Items Collected	Collected by	Quantity Collected Million tonnes/Annum
Collection from households	Old newspaper & magazines	Weekend hawkers	1.50
	Notebooks & textbooks		0.50
Annual scrap contracts of printers, publishers & converters	Paper trimmings, print rejects, overprint/misprint sheets and other waste	Contractors	0.25
Scrap contracts with industries, offices, libraries	Old corrugated cartons, examination answer sheets, library records, old office and library records etc.	Contractors	0.50
TOTAL			2.75

Table-2 Recovery Potential for Waste Paper

Grades of paper	Potential Source of Generation	Generation/Consumption %	Type of waste	Collection Rate %
Writing/Printing	Offices	50	Post Consumer*	20
	Business Establishment	40		
	Others	10		
Cream wove	Printing House	20	Pre Consumer**	100
	Paper Traders	5		
	Households	20	Post Consumer	20
	Schools/Colleges	10		
	Offices	25		
	Business Establishment	10		
Packaging Paper	Others	10	Pre Consumer	100
	Converting House	15		
	Households	20		
	Offices	5		
	Business Establishment	50		
	Others	10		
Newspaper	Publishing House	20	Pre Consumer	100
	Distributors	5		
	Households	40	Post Consumer	30
	Offices	10		
	Business Establishment	15		
	Others	10		

*Post-consumer recovered paper comprises paper, paperboard, and fibrous material recovered from retail stores, offices, and homes after these products have served their end-uses as consumer items and papers separated from municipal solid waste

**Pre-consumer recovered paper is paper and paperboard material from manufacturing and converting and finished paper from obsolete inventories.

by semi wholesalers, where the material gets collected from small shops and baled and kept separately for dispatch to the end users.

Table-2 summarizes the recovery potential of different grades of paper based on Life Cycle Analysis. It indicates that there is a huge potential for recovery of post consumer paper almost for every variety of paper.

Identified Gaps

Despite the fact that a large work force is engaged in this mechanism, there are some grey areas identified below:

- Lack of intensive collection mechanism for copier and creamwove paper from offices and packaging paper form households.
- Use of newspaper for packaging & wrapping use.
- Role of municipalities is missing in the present waste management network.
- Lack of large warehouse for storage, sorting and bailing of waste paper.
- Lack of integration of informal sector with main supply chain of waste paper to paper industry.

(ii) Initiatives taken by Paper Mills and other agencies for collection of Waste Paper in India

Recently with awareness on environment, NGO's like GREENOBIN; New Delhi, DEVELOPMENT ALTERNATIVES; New Delhi, WASTE to WEALTH; New Delhi and paper Mills like ITC-PSPD and HNL have also entered in the business through development of collection & recycling programme.

Existing Legal Framework In India For Solid Waste Management (SWM) & ITS Deficiencies

In India Solid Waste Management (SWM) is a state function; however, the Central Government has powers to enact laws and frame rules for environmental protection. The government of India has, therefore, framed uniform rules, the Municipal Solid Waste (Management and Handling) Rules 2000, pursuant to the Environment Protection Act 1986 (EPA) and has made it mandatory for all municipal authorities in the country to implement those rules within the prescribed time frame. Solid Waste Management (SWM) Institutions and functions are illustrated in Table-3.

However, some of the deficiencies in the SWM identified by expert committee appointed by the Supreme Court of India were:

- No storage of waste at source
- Partial segregation of recyclable waste
- No system of primary collection of waste at the doorstep
- Irregular street sweeping
- Inappropriate system of secondary storage of waste
- Irregular transport of waste in open vehicles
- No treatment of waste
- Inappropriate disposal of waste at open dumping grounds

Table-3 Solid Waste Management Institutions & Functions

Responsible institution	Roles and responsibilities in SWM
Central government	Make laws and rules, frame policies; prepare guidelines, manuals and technical assistance; provide financial support; monitor implementation of laws and rules.
State government	Make state-level laws and rules, frame policies; prepare guidelines, manuals; and technical assistance, provide financial support; monitor implementation of laws and rules.
Municipal authorities and state government	Plan for SWM treatment facilities.
Municipal authorities	Collect, transport, treat and dispose of waste.
Municipal authorities with the approval of state government	Frame by laws, levy and collect fees.
Municipal authorities and state and central governments	Finance SWM systems.

Global Mechanism For Collection of Post Consumer Paper

Legislation- An integral part of the system

In most of the developed countries waste paper collection is in itself an organized sector. A wide range of legislation is in force specifically developed for packaging waste. These legislations are in the form of directives, ordinance procurement policy guidelines or voluntary agreements.

Europe has been the front runner in development of national packaging waste legislation and Germany was the pioneer in Implementing. Extended Producers Responsibility (EPR) schemes are considered as a major implementation tool for establishment of packaging waste collection and recycling system to achieve recycling targets.

In Europe except Denmark, the industry has build-up organization in all member states to comply with obligations of Directives. PROEUROPE is the umbrella organization of 33 national Producers Responsibility Systems engaged in the selective collection and Recycling of Packaging waste. Green Dot is the registered trademark of PROEUROPE and more than 1,30,000 companies use the Green Dot trademark worldwide.

In Japan there is a law for promotion of Sorted Collection and Recycling of Containers and packaging to promote the recycling, based on appropriate role sharing among consumers municipal authorities, business entities to reduce the volume of Municipal Solid Waste (MSW).

There is no national legislation in Canada, United States or Mexico. The waste management regulations are the responsibility of each individual municipalities and state government in these countries.

Futuristic Approach To Develop A Sustainable Model For Collection of Waste Paper

(i) Explore the possibility to impose legislation for collection of waste paper-

Enforcement of Directive or Recycling Legislation may be a difficult option for country like India, however, formulation of a policy on management of Waste paper similar in line with e-waste (Management & Handling) Rules 2011 by MoEF could be taken into consideration.

(ii) Setting up of Public Private Partnership (PPP) model-an option to improve waste paper collection in India-

Solid waste management is a mandatory for all municipal authorities in the country. A significant amount of budget is allocated for this purpose, yet the service is very poorly performed, with treatment and disposal getting the least attention. One option is to involve the Private Sector more extensively in providing services, with the municipal authority moving from being a service provider to being a regulator and service facilitator. Experience in many countries shows that in certain circumstances, involving the private sector can significantly improve solid waste management service quality. Thus private sector participation should be considered in India also for collection of waste paper.

(iii) Allocation of land on lease basis for development of sorting centers/ warehouse for sorting, baling and storage of waste paper-

An informal sector is already existing in India with the community developed of rag pickers/kabadiwalas for their livelihood and which is administered by sub suppliers and big waste paper traders.

This mechanism can be effectively utilized by providing land to waste paper traders on lease through tendering process to develop large Warehouses for storing the collected RCP and which could then be baled and supplied directly to the mills. Municipal funding or loans could be used to subsidize the capital expenses for the sorting facility and equipment

(iv) Develop a national paper recycling programme-

Develop a national paper recycling programme introducing Corporate Social Responsibility and voluntary participation of public at large. These agencies will be responsible to conduct awareness programmes to sensitize the societies and help in effective collection of Paper from different sources such as long term contract with big publishing houses to collect printers off cuttings and over-issues of Newspaper & Magazines and channeling to Recycled Units.

Involve Resident Welfare Associations (RWA's) for household collection of paper particularly newsprint & packaging waste. Participating in the national recycling programme could be made a prerequisite for winning government contracts.

(v) Improve collection of waste paper from offices -

Pilot collection programme may be introduced in offices mandating use of shredder for collection of confidential paper. A separate

office collection system needs to be introduced to collect sorted office waste from individual's desk. There are NGO's who have developed such mechanisms for collection of segregated paper waste from offices.

(vi) Collection mechanism for Rural (Village) area -

Gram Panchayats may be asked to train and create awareness among the villagers for waste paper collection. The villagers may sell the waste paper to these panchayats. Awareness programme should be planned to educate the rural area people and existing paper mill in the nearby area should take initiative in such programmes.

(vii) Collection mechanism for Schools-

Educational Boards may be included to introduce educational programme on 3R's Concept i.e. Reduce, Reuse & Recycle. The schools should make deposition of the previous class note books compulsory to school authorities for onward recycling. An incentive in form of grades or marks, new note books or a certificate of appreciation may be provided to the students for the same.

(viii) Improve collection mechanism for Household -

Currently collection of newspaper, magazine, books and other waste generated in the house is properly collected by the

Kabadiwala's but they also do not have the proper sorting and bailing facilities which could be improved by providing them proper training and financial assistance by way of providing them subsidies to purchase vehicles with green logos. This will help to collect waste from the household and its supply to waste collectors where it can be properly sorted and bailed.

Conclusion

India needs a well designed and aggressive system for collection, sorting, grading and utilization of recyclable waste paper to contain imports and to cut the increasing cost of raw materials. Therefore, there is a need that a sustainable model be developed so that most of the collected paper is diverted to paper industry.

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FOR FURTHER INFORMATION, CONTACT:

Director
Pulp and Paper Research Institute
Jaykaypur – 765 017
Rayagada (Odisha), India

Phone : +91-6856-234079, 233550, 233770
Fax : +91-6856-234078
e-mail : contactpapri@gmail.com
directorpapri@myway.com
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