

Recycling of Waste Paper is a Demand of Time



Manmohan Verma

Assistant Professor,
Dept. of Chemistry,
Government Degree College,
Babrala, Gunnaur, Sambhal,
U.P., India

Abstract

In current scenario recycling of paper is very necessary and it is demand of time. Recycling of paper alone can save millions of trees from cutting down. Thus our natural environment may remain protected in one way by recycling of paper. It is a process in which waste papers are converted into useful new papers and paper related products. It also stops air pollution and water pollution which would have been created by waste papers, thus recycling of waste paper is very environmental friendly. Recycling keeps the stored carbon out from atmosphere in the form of cellulose molecules or organic molecules. In US 35% of solid waste is paper products and about 42.4 % of waste paper product is recycled. Environmental protection agency(EPA) of US in its report stated that recycling alone help to decrease 35 % less water pollution and 74 % less air pollution when compared to production of virgin paper production. In India more than 550 paper making industries use waste paper as main raw materials.

It is increasing trends in literacy rate, in industrial development and in number of schools, colleges and universities .It lead to an increasing demand for paper and paper products. There is consumption of about 100 lakh tons paper and paper products in India every year. Almost all paper mills are increasing their production capacity in India. It is estimated that the demand of paper products in India will be about 2.5 crore metric tons by 2025. It is very difficult task for paper mills to achieve. The very big reason of this is continuously decreasing raw materials to prepare paper. If we consider the devastating effect of pollution and deforestation, the recycling of paper products are only solution for us.

Recycling of waste paper also reduce water and soil pollution because in the production of new virgin paper, we have to use much equipments, materials and chemicals like NaOH, starch, CaCO₃, Glue, bleaching powder, chlorine water, fuel or electricity, trees, machines, NaHSO₃, Na₂CO₃ and clay etc which create very high water and soil pollution also.

Keywords: Waste Paper, Recycling, Air Pollution, Water Pollution, Soil Pollution, Environmental, Deforestation, Solid Waste.

Introduction

We need recycled waste paper because-

1. Our environment and ecosystem will be good if we recycle waste paper.
2. Waste paper is very important renewable raw material for paper mills. We Indian people should do something to reduce import of waste paper.
3. Air, water and soil pollution is very big problem of today and big reason of pollution is deforestation. We have to cut the trees to prepare paper. Trees reduce CO₂ carbon dioxide, smoke and particulate particles in nature which we and animals create. Without trees CO₂ (carbon dioxide), smoke and particulate particles will accumulates in atmosphere which cause pollution, global warming and climate change in negative way.
4. Cost of disposing of waste paper is much more than recycling waste paper.
5. Energy used in making new virgin paper is much more than recycling waste paper.

Problem in collection of waste paper:

1. Papers used for packing
2. Municipalities are unable to manage the solid and liquid wastes completely.

3. No coordination between supply chain and informal sector.

Old corrugated containers, old magazines, news paper and old copies suitable for recycling are called scrap paper. Removing printed ink from paper fibers of recycled paper is called deinking. Deinking was invented by German jurist Justus claproth.

With the increase of population, new sciences and technologies, the demand of education and daily uses items have been increased many times. Thus new schools, new colleges, new industries and new secondary businesses started to grow, which increased the demand of writing paper, printing paper materials, packing boxes, packing sheets, books and loose paper. But supply of raw materials could not be kept up with more demand. Thus old news paper, old paper material, gatta boxes and old books are being demanded for recycling purpose. The same was done in United Kingdom in 19th century.

On international level, about half of the recycled paper obtained from converting losses such as shavings and unsold periodicals. About 1/3rd comes from household.

Review of Literature

Recycled paper is bleached by same chemical as virgin paper. Some bleaching agents are hydrogen peroxide (H₂O₂), sodium hydrogensulphite and chlorine water etc. If no chlorine is used in the process, it is called (PFC) process chlorine free. Collections of waste papers are indigenous method and import method. About 3MT of waste papers are collected every year. It is about 20 % of total required every year in India. In comparison with other countries, this amount is very low. Germany collects 73 % of waste paper, Sweden collect 69 % waste paper, Japan collect 60 % waste paper and USA collect 49 % waste paper.

Due to lack of indigenous collection, Indian paper industries have to import more waste paper. Thus in India, more waste paper is imported over the years. In India there was US\$ 5.1 million waste paper import in 1980 which has been rose up to US\$ 1 billion in 2011. Indian mills have to import about 4 MT of waste paper every year. It is not good sign for Indian economy. In research studies, it is stated that recycling 1 ton of waste paper save 70 % raw materials and chemicals with 60 % coal saving, 43 % energy saving and 70 % water saving which would have been used in making new virgin paper.

Some data on paper consumption:

1. About 95 % of business information in 1996 was stored on paper.
2. Recycling of 1 short ton (0.91t) of paper save our nature by 17 trees, about 26000 L water, 4100 kwh of electricity with very high decrease in air pollution and water pollution.
3. About 41% of papers are used in Packaging.
4. Corrugated fiberboard boxes contain 25 % to 100 % recycled paper.
5. 299044 metric tons paper was produced in 1997.
6. In US, There was about 354 kg paper consumption per person in 1999

7. In the year 2006-2007, Out of 5.5 million tons of paper and cardboard 2.5 million tons was recycled.

8. News paper in Australia has 40 % recycled paper.

Aim of Study

The aim of this research paper is to create awareness in people about soil, water and air pollutions. These pollutions are killing us slowly. Our all development and infrastructure will become useless. Thus recycling of all wastes like metals, plastics, papers, waste items are very urgent. We should know that excessive use of paper will have negative effect on trees and forest. Paper production uses nearly 40 % of commercially available wood.

Several million of acres of forest trees are being cut, which lead deforestation causes ecological imbalance. India taking several initiatives to recycle paper.

Methods and Materials

Waste paper is mixed with water and chemicals for softening it, after about six hour we grind this mixture and heat. The resulting mixture is called as pulp. It is filtered through screens to remove any glue and plastic lumps. It is deinked and bleached further. It is then mixed with water and additives to make paper slurry. From it we can make different type of paper products. Ink weight is 2 % of total weight of paper.

Recycling of waste paper is done by informal and unorganized sector, which include the scavengers, Kabari and middlemen etc. The work of collection of solid wastes is the work of state government. Effective collection and recycling of waste paper are very urgent to reduce deforestation, pollution of different type, raw materials consumption, solid waste of municipalities and cutting of trees.

There are some guidelines for it.

1. There should be national level management policy for waste papers.
2. The guidelines for collection centers, workers for dismantle or segregation of solid wastes and producers.
3. Municipalities should run all type of wastes recycling process with the help of private sector.
4. Segregation of different type of waste at source by municipalities.
5. Proper land should be provided for sorting centers and storage of different wastes.
6. Shredders should be used by offices and educational institutes.

Result and Conclusion

Aniruddha Upasana foundation, Mumbai is an organization encouraging used paper recycled projects. The foundation proposing paper bags instead of plastic bags. Plastic bags are very serious hazard to environment. They are making recycled paper sheets, paper bags, teaching aids, children's toys. The foundation is also making Lord Ganesh idols from recycled paper pulp, which save environment very much.

About 40 % of paper pulp is prepared from wood. In most of the modern mills about 9-16 % of pulp is prepared from logs and remaining pulp is

obtained from waste woods. Paper production uses 35 % of felled trees. Paper industries give about 1.2 % economic output of world. Recycling of 1 ton of newspaper save nearly 1 ton wood. Recycling of 1 ton copy paper save about 2 tons of wood. Kraft pulping process requires double weight of wood than mechanical pulping process. In some countries trees are being raised for pulping account for 16 % pulp production of pulp .In foreign countries most paper mills use reforestation practice to ensure a continuous supply of trees.

There are forest conservation act 1980 and 2003 to save forest from any kind of deforestation. But trees are being cut for every small pretending of development.

The energy information administration states that there is 40 % reduction in energy use by recycling of waste paper. Bureau of international recycling (BIR) state about 64 % reduction in energy consumption in recycling. Recycling of paper uses more fossil fuels than making new paper in Kraft process. These paper mills produce energy from burning of waste wood (bark, roots, weeds, waste of sawmill etc) and lignin.

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