

Recycling: Necessity, not a choice

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Abstract

In today's world where the whole planet is fighting with burning issues like increasing carbon emission, bursting global population, shrinking forests, higher energy cost, pollution, insufficient feedstock and increasing production cost, recycling is becoming the necessity rather than a choice. This becomes even important in developing countries like India where the economic growth rate is very high. Natural resources are being continuously eroded to build new products. It is well known that natural resources are limited. If we do not recycle, one day we will end up with no more natural resources to produce new products. Today most of the materials are recyclable. It takes less energy to reproduce as compared to producing material from raw material.

Keywords: Recycle, segregation of waste, Natural resources, Global Challenges, Sustainable

Introduction

"We shall require a substantially new manner of thinking if mankind is to survive." - Albert Einstein

Global challenges are continuously pushing the need of "Reduce, Reuse and Recycle". Recycling is nothing but converting the used waste in to reusable material. A simple phrase "use again" is good enough to explain the meaning of recycling. Recycle involves number of steps to convert the used material in to reusable material. During World War I and World War II, shortages of essential materials led to collection drives for silk, rubber, and other commodities. Natural resources will not last for ever. The day will come when these will have vanished. The famous Cree Indian Prophecy states that:-

- Only when the last tree has been cut down,
- Only when the last river has been poisoned,
- Only when the last fish has been caught,
- Only then will you find that money cannot be eaten.

Some interesting facts which the researcher believes are eye opener:-

- A plant takes a minimum 15-20 years to grow into a tree,

but it takes less than 10 minutes to be cut off. An average tree can produce 700 paper grocery bags which are consumed in less than an hr by a super market.

- The average time taken by plastic bottles to decompose in a landfill is close to 700 years.
- Glass and plastic take the longest to decompose but are completely recyclable.
- A Styrofoam coffee cup discarded today will remain in landfill space for close to 500 years. This is because it does not get decomposed easily, i.e. It is not biodegradable.
- The most abused and wasted natural resource is water.
- Four pounds of bauxite can be saved with every pound of aluminium recycled.

Present Scenario

Our oceans are packed with garbage. Landfill pits are rapidly diminishing. Feedstock is exponentially decreasing. In India every day tonnes of municipal waste generated. Below diagram shows the municipal waste generated in top 5 cities of India.

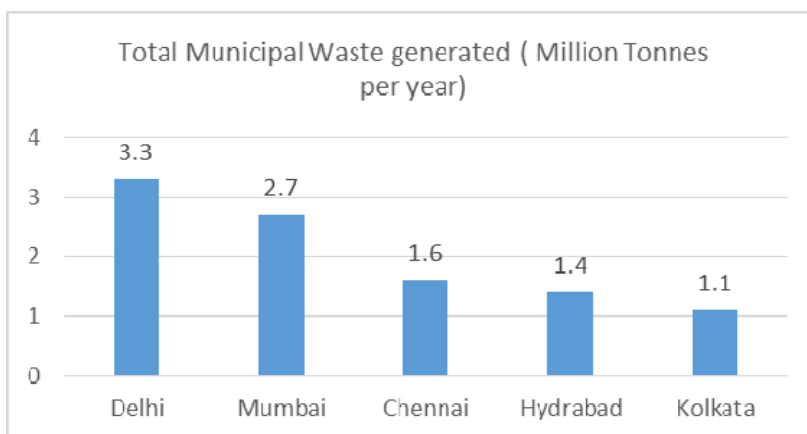


Fig 1

This includes recyclable waste also. India generates 5.6 million tonnes of Plastic waste annually with alone Delhi generating the most of at municipality at 689.5 metric tons every day, according to a report from central pollution control board (CPCB). About 60 percent of the total plastic waste is recycled in India. Most of the plastic recycling takes place in the so-called informal sector, providing livelihood to many, and being done with little regard for worker safety and environmental protection and without control or monitoring by the government.

An estimated 1.8 million tonnes of e-waste is generated in the country, and is likely to grow to 5.2 million tonnes by 2020 at the predicted annual compounded growth of 30 percent, says one of its reports with cKinetics.

"But the sad part is a mere 2.5 percent of India's total e-waste gets recycled," said another of the chamber's study, in collaboration with Frost and Sullivan, attributing it mainly to poor laws and lack of adequate infrastructure.

Data on raw material requirement for main materials such as iron, aluminium paper and glass.

Forecast on consumption and total availability on earth.

Recycling and its economic benefits

Economy is one of the unexpected place where the advantages of recycling can be seen. Each step of recycling benefits when the economy doesn't have to pay for planting new trees, buying fuel from outside to process new materials, mining ore and finding dumping yards for the increasing waste. New jobs created by recycling gives a boost to the economy. At the same time it creates a need of newer and efficient ways of handling the recycling process, which promotes the technological development.

Reproduction of material through recycling needs less energy as compared to production from raw material. Aluminium recycling is one of the best example to demonstrate the socio economic impact. It can be produces from scrap using only 5% of total energy used to produce aluminium from Bauxite Ore. It emits only 5% of the total greenhouse Gas created during the Aluminium production from ore. The process of aluminium recycle is very simple where the scrap aluminium is melted to produce secondary aluminium material which carries the same properties as primary Aluminium material. This involves much lesser cost. Aluminium economy is a closed cycle economy where the metal is just 'used' and never 'consumed' during its lifetime.

Other benefits

In the hope of cleaner and greener environment, the importance of recycling is taught to children all over the world through phrase "Reduce, Reuse, Recycle". The recycling symbol can be seen on collection trucks, garbage bags and rubbish cans. We all know that recycling is a simple way in which every person can contribute to making a better world. It takes time and efforts to collect, sort and send away the junk, so there must be added benefits of recycling than simply reducing the amount of rubbish we throw out. There are many ways in which this process gives value for a happier and prosperous planet.

a) Smaller Landfills

With the increasing population, it will become hard for the landfills to contain the increasing trash. The pressure on

Landfills is continuously increasing. Slowly the landfills are approaching the residential areas. The rotting trash in these landfills is polluting the surrounding environment which includes health problems, depletion of beautiful landscapes and poisoning of the water and air. Reuse of waste products in a constructive way can slowly reduce the size of our landfills. The benefits of recycling are that it helps to keep the pollution in check and decrease it bit by bit.

b) Natural resource conservation

Our waste sites are filled with used material such as cars, tyres, aluminium cans, cardboard, glass & Plastic bottles and others. The feedstock to produce new material is rapidly reducing and soon it will become insufficient to meet the increasing demand of the increasing population. Recycle of the used material to reproduce the new material will reduce load on natural resources such as water, coal, gas, wood, petroleum and raw material. The need of recycling encourages the development of cutting edge technology to find the easy, economical and efficient ways of reproduction from used material. This is helping in many of the industries to use more and more recyclable material to produce newer material for their use.

c) Increased employment opportunities

Recycling is a systematic process and it needs lot of men power to run this system. Right from collection of waste till reproduction, there are number of steps such as sorting transporting it to recycling plants and then actual processing. This creates job opportunities for thousands of workers. Recycling industry is rapidly growing and the potential new jobs are also increasing alongside. This helps in easing another burning issue such as un-employment and creates a balance in communities. As per a rough estimate, recycling creates about thirty new jobs as compared to six jobs if the waste is thrown in rubbish.

What are the issues (stoppers) in recycling?

We all understand the need and importance of Recycling but still if we look at the trends and statistics, it is not satisfactory. The major blockers in recycling are as below:-

1. **Lack of awareness and will power:** The awareness is the biggest blocker in recycling. People either do not want to take efforts to segregate and recycle or do not have knowledge on it. Almost 100% of all materials are recyclable today, all we lack is will power.
2. **Lack of system and infrastructure:** In India, the recycling system is not very developed. In recent years the municipal corporations have started allocating budgets to plan and execute recycling. These have introduced new rules to make the recycling mandatory but segregating the wet and dry waste at the point or origin i.e. the houses. There are no separate bins provided to put the waste separately. Adequate means are not available to remove the waste and deliver to the recycling plants.
3. **No segregation:** Today we put everything in the same bin, which includes recyclable as well as non-recyclable materials. Everything is mixed and we have no option but to send everything to dumping yards to add to ground fillings.
4. **Lack of technology:** In India, the recycling technology is not well developed especially when it comes to handling

the E-waste. The need of the hour is innovative methods and novel technology to deal with waste.

Suggestions

Based on the study, researches would like to suggest following key recommendations on this subject.

1. Spread awareness among the common people on the benefits of recycling. Run frequent public campaigns etc.
2. Offer cash benefits to promote segregation and recycling.
3. Create infrastructure: Adequate number of collection centres should be created at public places such as market places, train stations, leisure parks etc., so people can use the facilities.
4. Research: Create separate budgets to promote research on new technology and methods.
5. Stronger policies and law.
6. Linking recycling with CSR.

Conclusion

Recycling has become an inevitable task with increasing waste every day. The only solution can be to make use of new technology and awareness. In India we need strong law to enforce waste management which can impose penalties and ensure recycling is managed. Despite its economic benefits, waste management has always got secondary priority when it comes to promoting research on it and it gets less respect among companies in India. If we compare the efforts taken by corporate sector in India, towards recycling in their premises, with the efforts taken in European countries, it is realised that it's far behind.

Recent example of installing plastic bottle recycling machine at the Church-gate railway station in Mumbai, is an adorable step towards PM Modi's "Swachh Bharat Abhiyan" India need similar innovative and interesting initiatives to make recycling popular and convenient.

Our streets have become dump yards of garbage and becoming breeding ground for deadly diseases. Recycling will be a step towards healthier, prosperous "Swaccha Bharat".

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