

HOUSEHOLD WASTE

Waste is a material that no longer serves a purpose and so is thrown away. In some cases what one person discards may be re-used by somebody else. All waste is particularly hazardous: If not carefully disposed of, it will have an impact on the environment, whether it be unsightly litter in urban streets or contaminated air, soil or water. But what is equally important about waste is that it is recyclable. For example, if all human, animal and solid wastes are recycled back to soil, then we do not need inorganic fertilizers to maintain the high yields of crops. Today India produces 180 million tonnes of food grains and consumes 13 million tonnes of inorganic fertilizers at a huge cost. Therefore, time has come when we have to look at the waste not merely as an environment polluter but a recyclable material of great potential and energy saver.

In India we produce 300 to 400 gms. of solid waste per person per day in towns of normal size. The figure is 500 to 800 gms. per capita per day in cities like Delhi and Bombay. The problem in these cities is how to dispose such large mass of solid waste daily and this poses a massive and expensive problem to the authorities. The composition of average domestic dustbin can be broken down as follows :

10%	Glass
30%	Paper/Cardboard
9%	Metals
3%	Textiles
4%	Plastics
23%	Vegetable Waste
21%	Dust, Cinders, Miscellaneous

Some of the waste on the other hand may also contain poisonous substances like mercury's lead and cadmium from batteries, old medicines, household cleaning and decorating chemicals and garden chemicals. Many of these chemicals are similar to those found in industrial waste, although in low concentration.

The problem about waste is two fold (a) How to dispose it of (b) How to extract its recycling wealth.

Disposal :

The disposal system has four aspects.

(a) Control of waste at source (b) Segregation of waste at source (c) Collection and transportation system (d) Final disposal.

(a) Control of Waste at Source:

The volume of solid waste will be greatly reduced if conscious people compost and utilise the daily organic waste in their kitchen-garden as a manure.

(b) Segregation of Waste at Source:

If conscious people do not use the organic waste in their kitchen-garden, the least they can do is to segregate the inorganic waste i.e. fused bulbs, blades, razors, old shoes, tooth paste tubes, glass wares, empty bottles etc. at source Municipalities should create a bank or a dumping point where inorganic waste can be sent by a simple and effective collection system. For example, a municipal official can visit each street after every fortnight to collect such wastes from each house. In Western countries waste banks have been formed where people can sell empty glass bottles or deposit other inorganic wastes. Fortunately, in our country, a lot of inorganic waste is already being recycled.

(c) Collection and Transportation:

The Municipality will have to design a simple and effective system of waste collection for each street. At this stage, the local eco- club, mohalla or sanitation committees can be very effective through mutual cooperation and motivation. The primary collection can be through wheel-barrow system. This waste can be dumped at a transit dump site. The municipal trucks can pick up this waste from these transit dump sites and transport to the final disposal site.

(d) The Final Disposal:

The final disposal site can be one or more depending upon the size of the city. But one disposal site in each direction of the city will certainly reduce the cost of transportation.

The disposal site will also provide another opportunity for segregation of waste by the rag-pickers (informal Sector). The final disposal of organic waste has three easy options.

(i) Composting; (ii) Sanitary land-fills; (iii) Incineration.

(i) Composting :- The composting period is 6 to 8 months. Therefore, the size of the composting pits has to be sufficient to contain solid waste volume accumulated over a period of six months. The disposal site should be surrounded by a row of

trees to prevent air pollution from fugitive emissions. The decomposition of organic waste will be carried out by anaerobic micro-organisms and gases like methane and carbon-dioxide may be produced during the process of decomposition. The composted waste should be sent to agriculture fields to be used as a manure. Mechanical composting plants have not been found economically viable. However, research is going to accelerate the rate of decomposition with the use of worms.

(ii) Sanitary Land Fills:-It is another method of dumping of solid organic waste in land depressions. The land-fills are finally covered with a layer of soil. Grass and trees are grown and the site can be developed into a beautiful tourist spot as in case of Delhi along Ring Road. But during dumping process, the waste material causes lot of pollution by generating fugitive emissions and nauseating some”.

(iii) Incineration: - Incineration is the burning of waste material at high temperatures. This reduces the weight of the waste by two thirds and its volume by 90%. But incineration causes lot of air pollution and release poisonous chemicals into the atmosphere. This method is rarely employed in India except in some hospital installations. Some power plants were developed to generate electricity by burning of solid waste. But such plants have not been found economically viable.

Refused Derived Fuel (RDF) :- One way of generating energy from waste is to convert it into Refuse Derived Fuel (RDF). Pellets are made from combustible waste material and can be used in industrial boilers in place of or as a supplement to fossil fuels (oil and coal). Roughly 25-30% of house hold waste is suitable for conversion into RDF.

Recycling and Re-use :- As already stated the solid waste consists of two parts i.e. decomposable organic waste and recyclable inorganic waste. The composting of organic waste into soil manure in itself is a recycling process. The inorganic waste once fully segregated at the final disposal site can be recycled for different purpose. But the inorganic waste will be fully recycled if proper technologies are made available. These days there is no problem to recycle paper and cardboard waste because there are lot of factories which use these wastes as the only raw material to manufacture recycled paper. But till now no technology has been developed to use the old shoes. The problem will be solved if the manufacturers of original products are also made responsible to develop suitable technologies to recycle their waste products. For example, there is a plant in Delhi which manufactures new plastic chappals from the plastic waste. Likewise, the bulb industry should be asked to develop a technology to recycle the used electrical bulbs.

In view of the scarcity and value of raw materials, it is the duty of every citizen to look at every waste as a recyclable material and harness its potential. The Govt. Should create a separate department for recycling of waste. Such processes will

also result in lot of improvement in our environment where we live. The disposal of waste should not be, taken as a problem but an opportunity.

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