



## AN INTEGRATED APPROACH FOR WASTE MANAGEMENT: A CASE- STUDY DEALING WITH THE MANAGEMENT OF WASTE

**Madhuri M. Nasre**

Dean  
Faculty of Home Science,  
RTM Nagpur University, Nagpur

### **Abstract:**

The management of waste generated by industries and its proper disposal is a formidable task. Chemicals of toxic nature are found in municipal water supply, fruits and vegetables and in water tables. These originated from excessive use of pesticides during farming and from discharges from industry. The collection and disposal of garbage has a long history. When the garbage and waste enter into the water bodies or soil, it contaminates everything. The most dangerous factor in the growth of the country's landfill is the contamination of the nearby drinking water supply. For this, there is need to adopt an integrative approach for management of waste. As, it is becoming a serious concern. An integrated system for management of wastes has been spelt out to maintain the quality of the earth's environment and also to achieve sustainable development. The present deals with the integrated approach of waste management as well as various cases dealing with the management of waste.

**Keywords:** *waste, waste management, integrated approach, principle*

### **Introduction:**

Waste management is a major problem in cities which is rising day-by-day. There are many factors which contribute in increasing waste in cities. Now, the problem of waste is getting increase in rural areas also. The management of waste is a big question of today. There are normal methods for disposing methods but they are not efficient as far as the present problem is concerned. The treatment of waste is again a problem of major concern. No other pollutant is discussed about more vociferously among environmentalists, politicians and the people at large than the garbage which is in bulky, plastic bag and refuse heap variety trash that accumulates in different corners of the cities. What, we throw away is the closest, we come to the pollution problem as we rarely see the acid rain.





Solid waste refers to the non liquid waste materials arising from domestic activities, trade and commercial activities, industrial activities, agricultural activities, mining and public services. It may be emphasized that unsanitary disposal and utilization of wastes result in high incidence of illness and death from faecal-borne diseases. The faecal-borne diseases are bacillary dysentery, typhoid fever and enteritis. Therefore, it is necessary to provide adequate and sanitary measures of disposal of waste.

### **Types of Wastes:**

Urban wastes are discarded as organic and inorganic substances in the form of solid, semi-solid, liquid and gases, which are residues, or derivative of human, vegetable material and industry. These waste are broadly classified into the following categories –

1. **Household wastes:** waste generated in the preparation and consumption of food, human excreta, generally termed as garbage.
2. **Commercial wastes:** These wastes include a high proportion of paper, cardboards and plastics. They result from activities in office buildings, stores, markets, theatres, hospitals and restaurants.
3. **Industrial wastes:** Wastes due to different types of production activities. This category of waste contains hazardous wastes that are harmful to human beings and hence should be stored and treated separately.
4. **Effluent wastes:** Domestic as well as industrial effluents that are contaminated with river water if allowed to flow unchecked.
5. **City wastes:** All the waste resulting from the maintenance of streets, roads, parks and schools, paper, dry leaves, animal wastes, carcass of small animals and slaughter house wastes as also. The responsibility of the solid waste management department is only to look after the disposal of domestic wastes, city wastes and the domestic sewage.

### **Principles of Waste Management: An Integrated Approach:**

An integrated system for management of wastes has been spelt out to maintain the quality of the earth's environment and also to achieve sustainable development. The concept of integrated approach is based on following four principles –





1. **Minimum production of wastes:** If the people will change their lifestyle and pattern of consumption, the less waste will be produced. Example – Using clean technologies, altering design of products and reducing industrial wastes.
2. **Maximum reuse of waste and recycling:** To preserve resources, reuse and recycling are necessary. Japan recycles 40% of solid waste such as paper, cans and glass by separating waste into as many as 32 categories. Recycled material is not considered as inferior.
3. **Promoting environment friendly wastes disposal practices:** Even if waste production is minimized and wastes are reused and recycled, some wastes still remain. To reduce their adverse effect on the environment, the following practices can be implanted.
  - 1) Municipal wastes like garbage and fecal matter should be treated.
  - 2) Waste treatment and its disposal by incinerating, composting and land filling.
4. **Extending wastes services:** By extending the waste services, the problem of waste management can be solved. It will help us to deal with the waste available on lands, water bodies and other places.

#### **Disposal of Solid Waste In Mumbai:**

In Mumbai, the most popular method of disposal of solid waste is the landfill method. The transport vehicle moves around in all the wards and collects the garbage from the garbage collection points. These vehicles unload at the four notified dumping grounds, which are the low marshy creek lands set aside for this notified purpose.

**Table: Probable life of the dumping grounds existing in Mumbai**

<b>Sr. No.</b>	<b>Dumping Ground</b>	<b>Refuse vehicle trips unloaded daily</b>	<b>Approx. areas in Acres</b>	<b>Probable life of dumping ground</b>
1.	Deonar	526	150	Up to 15 years
2.	Mulund	48	30	25-30 years
3.	Malad	227	20	5 to 8 years
4.	Gorai Road, Borivili	52	30	5 to 8 years

Source: Solid Waste Department, BMC, Mumbai, 1997





### **Alternatives for Disposal of Wastes:**

There are certain alternative for the disposal of wastes. The following methods can be adopted:

1. **Conversion of garbage into manure:** The conversion of garbage into manure can be done to the extent of 150 tons per day.
2. **Vermiculture:** A project by which 200 tonnes of garbage per day will be converted into compost by vermiculture under the expert technological advise from faculty at Indian Institutes of Management , Ahemdabad over an area of 10 hectares at Deonar to convert garbage into manure.
3. **Incineration plants:** Establishing incineration plants in the hospital compound incinerates the garbage generated at the major municipal hospitals.
4. **Disposal of dead animals:** Non-government organizations like Kora Kendra working under the Khadi and Village Industries Commission collect the unclaimed dead animals from the streets and process the same into leather, glue, gelatin and such other useful products.

### **Case Study: Dumping of Hazardous Waste in India:**

Private parties have been importing wastes from foreign countries to salvage metals like lead, zinc, copper, aluminum etc. Cheap labour, poor environmental standards and a ready market for the salvaged materials have encouraged this trade. The coastal town of Alang in Gujarat, is world famous for ship stripping. In, 2004, a French warship was sold to an Indian party for breaking. The Greenpeace volunteers discovered that the ships parts had large quantities of highly toxic components like mercury etc. There was an outcry and the Central Government was compelled to send the decommissioned ship back to France.

**Gujarat:** The industrial belt of Ahmedabad, Vadodara, and Surat has over 2,000 industrial units in the organized sector and more than 65,000 units in the small scale sector manufacturing soda ash, dyes, yarns, and fertilizers. The originating wastes are dumped in low lying areas nearby like the banks of Daman Ganga River.





**Maharashtra:** The Thane- Belapur belt has over 3,000 units which generate 200 tonnes of solid waste a day. About 85% of this waste is either acidic or alkaline. The area also produces 10-15 tonnes hazardous waste every day which is difficult to treat because of its halogen content. At present, the hazardous waste is dumped along with the municipal wastes. The water bodies in this area are polluted. The sediment in the Ulhas river empties into the Thane creek, making it one of the most polluted seawaters in india.

**Policies for Hazardous Waste Management:**

1. The hazardous Wastes (Management and Handling) Rules, 1989 known as HWM rules were introduced under sec.6 and 25 of the Environment (Protection) Act of 1986. The rules provide for control, generation, collection, transport, import, storage and disposal of these wastes.
2. The ministry for Environment and Forests (MEF) issued in 1991, Guidelines for managing all the aspects of these wastes. These guidelines devised also a reporting system for the movement of such wastes.
3. The government has also given incentives for industries to comply with environment provisions. The public Liability Act, 1991, requires industries to insure against accidents or damages caused by the release of pollutants.
4. The national Environment Tribunal Act, 1995, gives speedy remedies to persons injured by environmental crimes.
5. Legislation on a community Right to Know 1996 helps the local population get information about potential hazards from industries.
6. India is a signatory to the Basel Convention, 1989.
7. The limitations in the HWM Rules, 1989 have been removed in the HMW Amendment Rules in 2000.

**Conclusion:**

Source reduction means elimination of garbage at the source. This method is not very much prevalent. A possibility, which requires extensive environmental awareness and cooperation from the people and their active and voluntary participation. The municipalities should take conscious





efforts to enlist participation. Recycling-Using it over and over again. Is Prevalent, but in limited use. This priority also requires wide publicity and participation from the environmental action groups, Environmental education is also required. Response recovery is another method for management of waste. This is done at different levels with differing scales of operations. Rag pickers all over the city recover everything that can fetch them money and sell to the traders. Another choice is land filling. This should be the last choice, but this is the most prevalent and the first choice in Mumbai. It is believed to be the best choice, without any regard to the contamination that takes place unchecked at the site and the long term contamination to the ground water table.

**References:**

- Agrawal K.M., Sikdar P.K., Deb S.C. (2002): *A Textbook of Environment*, First Edition, Macmillam India Limited, Kolkata.
  - Chary S.N., Vyasulu Vinod, (2000): *Environmental Management*, First Edition, Macmillam India Limited, Kolkata.
  - Murthy, D.B.N. (2005): *Environmental Planning and Management*, First Edition, Deep & Deep Publications Pvt. Ltd., New Delhi,
  - Singh, Dr. R.B., Thakur, Dr. D.K. (2005): *Environmental Management*, First Edition, Indus Valley Publication, Jaipur
  - Uberoi, N.K. (2003): *Environmental Managament*, Second Edition, Excel Books, New Delhi
- =====

