

WASTE MANAGEMENT

The waste generated in our day to day life can be classified broadly into:

- 1) Domestic waste
- 2) Hospital waste
- 3) Industrial waste
- 4) Agricultural waste

Waste matter can be classified depending on the effect it produces on the environment and on the living organisms, including plants as follows:

- 1) Toxic waste / Hazardous waste
e.g. Industrial waste
- 2) Non-toxic waste
e.g. Domestic waste
- 3) Pathogenic waste containing disease producing virus & bacteria.
e.g. Hospital waste.

Waste generated can be biodegradable (which can be decomposed by bacteria e.g. organic waste from homes, like vegetable, sewage etc.) or non biodegradable (e.g. Plastic)

Domestic waste

- Sewage - human excreta and water from bathrooms and kitchens.
- Kitchen waste: non-toxic/biodegradable - vegetables, etc.
- Garbage – paper,rags,hair,house dust, etc. - non-toxic / biodegradable.
- Others: Plastic covers/bottles/tins etc. - non-biodegradable, recyclable and toxic.

Industrial Waste

It is mainly of three types

- Solid waste
- Toxic - Mining waste
- Non-toxic - Building materials, like brick
- Liquid waste
- Organic - Tannery/distilleries/sugar factories (can be degraded)
- Inorganic - Chemical and fertilizers industries (cannot be degraded, can be treated with chemicals)
- Gaseous Waste
 - a. Toxic- Toxic fumes like ammonia, hydrogen sulphide etc.
 - b. Non-toxic-Steam/water vapour.

Hospital Waste

- Cotton dressing and bandage with blood and puss containing pathogen like bacteria / fungi and virus.
- Used needles.
- Used syringes / bottles / plastic bags etc., mostly glass or plastics.
- Operation theatre waste like - tissues / blood / flesh, etc. The hospital waste is highly pathogenic.

Agricultural Waste

- Biomass : Agricultural residues like rice husk, bagasse, etc.
- Chemicals : Residues of pesticides and fertilizers.

Radio Active Waste

- The waste generated by nuclear power plants. It is often either the heavy water or the spent nuclear fuel. The radio active waste is highly hazardous to the environment and all life form, due to its ability to remain in the environment for a long time and to affect the genes or the genetic material of life forms, thereby affecting the future generations. Handling of radio active waste is itself hazardous since it can affect the person handling it.

Segregation of Waste

- Dry: Plastic paper, glass, metal, rags, rubber, etc.
- Wet: Left over food, kitchen waste, rotten materials, meat, street and house sweepings, soiled paper.
- Toxic: Paints, pesticides, toxic chemicals, broken tubelights, expired medicines, used batteries, etc.
- Soiled: Diapers, sanitary napkins, dressings, infected cotton, injection syringes and needles, soil and builders debris.

Why Waste Management

Waste management is very necessary in the present-day context for the following reasons

- To prevent pollution of the environment and its natural resources like air, water and land.
- To prevent complete exhaustion of the resources like minerals, water, etc.
- To produce energy which could be an alternative for the fast depleting fossil fuels and other conventional sources of energy.
- To make optimum use of the waste generated.
- For a better and sustainable future.

How to manage waste

Waste could be managed by

- Making the manufacturing process more efficient and thereby reducing waste.
- By reusing, thereby reducing waste generation.
- By recycling the waste generated.
e.g. Plastics, bottles, sewage and effluents.

Few tips on waste management

- Always remember the 3 R's - Reduce, Reuse, Recycle.
- Segregate the domestic waste into degradable and non degradable.
- Degradable - compost.
- Non degradable - recycle.
- Reuse every bit of space on paper (Use both sides).
- Avoid using plastic covers or bags. Use cloth bags for shopping.
- Encourage manufacturer's by buying products packed in paper or hard board and not in plastics.
- Buy oil / fuel in old bottles, after emptying and cleaning them.
- Maintain your vehicle, for a longer life.
- Explain the importance of recycling and reusing, to children and encourage them to do the same.
- Improve / introduce manufacturing techniques thereby reducing waste generation.
- Educate and create awareness on waste management - India cannot afford wastage.

Composting and Vermiculture

- The organic waste is easier to handle because it will decompose over a period of time. It is this which has been explained through the process of composting to produce rich manure, which is safe and better than chemical fertilizers. The use of earthworms in the process of composting is known as vermiculture which is proving to be very useful and successful.