

CHAPTER 20

Cleanliness and Solid Waste Management

Cleanliness:

Among various human values, an important value of remaining clean is also included. Clean toilets have remained a part of Indian culture. In Indian philosophy, keeping body, soul, mind and environment clean have been considered to be important functions of human life. In ancient education system, after the Yagyopavit ceremony, each student was given education associated with sanitation.

Domestic and industrial waste polluted water, solid waste of human and animals and agricultural waste spread diseases. The work of disposal of all waste is called sanitation.

World Health Organization has defined sanitation in various forms, such as-

1. For sanitation, people should themselves arrange for resources and measures to keep toilets and polluted water clean.
2. Common meaning of sanitation refers to those provisions, facilities and services, which make mankind perform a secure disposal of excreta, urine and rubbish, etc.
3. Many entrepreneurs are of the opinion that sanitation is an idea, a belief in its entire form and the following things are included in it:
 - a. Safe collection, storage, sensible disposal and reusability of human faeces, urine, rubbish, etc.
 - b. Re-using solid waste and management of recycling.
 - c. Measures for outflow, disposal and recycling of domestic polluted water.
 - d. Arrangement of water outflow of rains and storms.
 - e. Collection and disposal management of industrial waste.
 - f. Collection and disposal management of hazardous waste such as chemical waste, radioactive waste and waste from hospitals.

Why is Sanitation required?

Increasing amount of rubbish or waste is becoming a serious problem in for densely populated regions. Especially for children, youth and elders in weaker sections, who have less immunity and are suffering from diseases. These factors are main causes of spread of diseases. One reason of environmental pollution is injudicious management of waste. Even today many people do not have the resources to dispose off their rubbish and waste.

Untreated polluted water and other waste of environment cause harm to human health in various ways, such as-

1. Drinking water becomes impure and polluted.
2. Food chain is disturbed and polluted via contaminated fruits, vegetables and fish etc.
3. Bathing and entertainment activities in water bodies cause water sources to be impure and polluted.
4. Spread and increase of flies and several other insects spread diseases.
When human beings destroy their waste properly hygiene and good health prevail resulting in good health.

Types of Sanitation

1. **Community led Total Sanitation (CLTS):**
CLTS is associated with the common and insensible habit of easing and urinating performed by rural people in open areas. CLTS aims to apprise people about the subsidized schemes run to prevent rural

people from easing and urinating in open areas.

2. **Dry Sanitation:** Dry sanitation refers to concerted efforts made for making dry toilets. Washing hands is not its only objective.
3. **Ecological Sanitation:** Ecological sanitation generally refers to intense inter-relationship between agricultural measures and cleanliness. In other words, ecological sanitation refers to secure recycling of additional resources. Emphasis is laid on taking nutritional food and decreasing the use of non renewable resources in growing organic crops.
4. **Environmental Sanitation-** Control of environment which is associated with diseases comes in the sphere of environmental sanitation. Solid waste management, treatment of water and polluted water, industrial waste treatment and noise pollution, are small components of this category.
5. **Improved and Unimproved Sanitation-** It is associated with the age old habit of controlling human defecating and urinating at domestic level. Under this, cleanliness and provision of adequate water is ensured.
6. **Lack of Sanitation-** It is associated with the lack of toilets which are used by individuals as per their discretion. Lack of sanitation is commonly and seriously a reason for easing and urinating in the open.
7. **Sustainable Sanitation-** The area of sustainable sanitation includes complete sanitation. In this, on the basis of consumer's status and experience, methods of transport, treatment, reuse and disposal of waste, faeces and urine and polluted water are included.

Swachh Bharat Mission (SBM) -

From 2nd October, 2014, it has once again been renamed as Swachh Bharat Mission (Rural). It aims at making India ODF (open defecation free) by October 2nd 2019. For this, it aims to provide facility of toilets to all the rural families and

undertake activities of solid and liquid waste management in all gram panchayats to promote sanitation. Under Swachh Bharat Mission, the subsidy for building toilet in each family has been increased from ₹10000/- to ₹12000/-.

Solid Waste Management

In modern time increasing urbanization industrialization and carelessness towards environmental pollution have created the problem of solid waste. Due to this, unhygienic conditions often spread in cities. To eradicate this problem, Solid Waste Management and Waste Disposal Programmes have been started in urban areas. Public Health and Sanitation law was framed in London in 1857 CE. According to this law, it was mandatory for all the families to dispose off their domestic waste in covered dust bins.

Till now, solid waste management programme is limited to urban areas only. In urban areas, Municipal Corporations have included the work of solid waste management in basic and important services. Solid waste refers to dry or wet unusable goods (waste) obtained from houses, factories, industries, hospitals and other institutions. Peels of vegetables and fruits, egg shells leftover food, paper, packing material, boxes, organic and non organic waste, batteries, cells, bulbs, broken thermometers, poisonous materials, radioactive materials and explosives are included in solid waste.

Process of Solid Waste Management

Public representatives and officers of urban departments who have been elected by the people have handed over the task of solid waste management to chief sanitation inspectors appointed in municipal corporations. Sanitary workers are appointed on daily or contract basis to collect waste from houses, hospitals and other establishments and bring it to waste collection centers. From waste collection centers, waste is transported to solid waste disposal centers through various modes such as covered trucks, open trucks, tractor trollies and horse carts. At the waste

disposal centres, waste is divided into various categories on the basis of their places of production. For example, domestic waste, waste from hospitals, industrial waste, manufacturing-material waste and waste from business establishments, etc.

Measures for Solid Waste Disposal

Municipal Corporations take several measures under the programme of Solid Waste Management. Following are some of the important measures:

- 1. Waste reduction and reuse-** Reduction and reuse of products are included in measures for waste disposal. In reduction, both the producers and consumers are asked to generate less waste. For example less packaging, less use of bags, pouches and covers, etc, to use bags made of cloth or any other reusable material. Under the process of reuse, people are made aware to purchase reusable items. For example, instead of throwing off unwanted items such as cloth napkins, plastic goods, glass utensils, etc. they should be buried, distributed or given to people as charity.
- 2. Recycling of waste-** Recycling refers to using waste and converting it into useful raw material and decreasing the amount of waste. There are three levels in the process of recycling: 1. Identifying recyclable substances and metals from collected waste and collecting them separately. 2. Making raw materials from collected substances or metals. 3. Making new items from raw material.
- 3. Waste collection-** Special waste and recyclable waste should be collected by workers appointed by local corporations in cities twice in a week. Wastes which are the breeding grounds of houseflies, or wastes which emit foul odour or the wastes spread in open should be collected and removed as soon as possible.
- 4. Treatment and disposal-** Technique of waste management performs research to modify management in such form so that the quantity of waste produced becomes less and waste

disposal becomes easy. Processes of waste management are implemented on the basis of quantity, type and category of waste. For example waste- disposal at high temperature, by burying inside the ground or by adopting organic process. Suitable alternative is chosen for the treatment and disposal. In order to provide the final form to the waste, one out of the following techniques is adopted- recycling, pressing after re-use, shortening the management technique.

- 5. Incineration-** Incineration is a major common thermal process. Waste burns in presence of oxygen. After incineration, waste transforms into carbon dioxide, water steam and ash. This process forms a source for energy production. It is used to provide heat for electricity production. Incineration is an additional process of providing heat. Cost of transportation decreases due to this. Production of methane- a greenhouse gas- is decreased through this process.
- 6. Gasification and Pyrolysis-** Gasification and Pyrolysis both are thermal processes as same. Under these processes, elements of waste are segregated at high temperature. In Gasification, waste is burnt in regions with less oxygen availability and in Pyrolysis waste is burned in the absence of oxygen. This technique is used in areas of less or no oxygen availability. Pyrolysis liquid is formed by a mixture of combustible and non combustible gases. One unique characteristic feature of Pyrolysis is that energy can be replenished without causing any air pollution.

Advantages of Solid Waste Management

Public health, environment and biotic system get benefited by the process of Solid Waste Management. Public cooperation is very necessary in this exercise. At present, sufficient technical expertise and finance are available to eradicate this problem to a large extent, which will produce good long term effects such as-

- 1.** Fire accident, spread of rats, spread of micro-organisms and insects which are responsible

for infectious diseases Stray animals can also be controlled.

2. Diseases will be controlled, public health will improve, capacity to work will increase and burden of patients on hospitals will decline.
3. Due to decrease in the outflow of poisonous elements, water pollution will decline.
4. Cheap and quality organic manure will be available, agricultural productivity will increase and there will be more crops.
5. Cheap energy will be available in the form of electricity production, due to which expense on electricity production will be reduced.
6. Raw material will be available due to which recycled goods will become cheap.
7. Due to increase in working hours, opportunities of employment will increase. Income will also increase.
8. Availability of precious metals will increase.

Important Points

1. Sanitation is a human value.
2. Sanitation refers to removing of all types of dirt and to lead a healthy and comfortable life.
3. Safe disposal of human faeces and urine and waste is included in sanitation.
4. Water, air and human health are negatively impacted by waste.
5. Indian government has started rural and urban sanitation campaigns.
6. Solid waste is a very big problem in cities.
7. Solid waste management refers to waste disposal without negatively affecting public health and environment.
8. Waste management programme functions on the theory of three ® Reduce, Reuse, Recycle.
9. Through Waste Management, raw material and energy sources are re-obtained.
10. Good manure is obtained for agriculture.

EXERCISE

Short Answer Type Questions

1. Why is sanitation important for mankind?
2. When was education regarding sanitation provided?
3. Densely populated regions suffer more from one problem. What is it?
4. Which insect transmits dirt and disease to mankind?
5. What is the limitation of solid waste management?
6. What is domestic waste?
7. What is hazardous waste?
8. What is organic manure?

Essay Type Questions

1. Why is sanitation important for mankind?
2. Explain the meaning of sanitation according to World Health Organization.
3. Mention the types of sanitation.
4. What are the objectives of solid waste management?
5. Which measures have been adopted for Solid Waste Management?
6. What are the advantages of Solid Waste Management?