

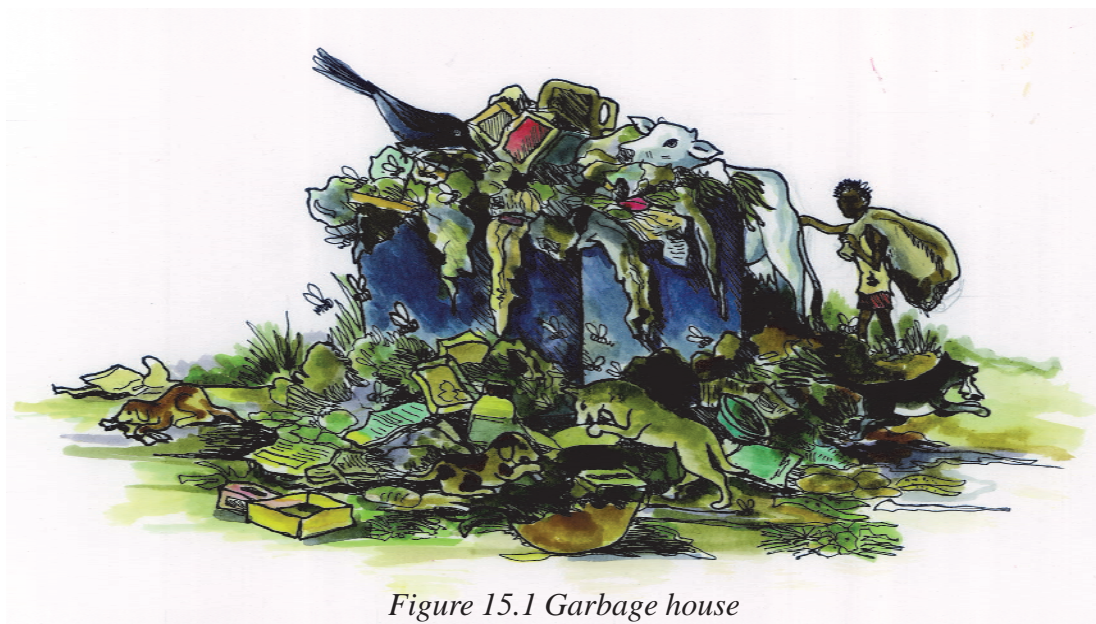
## 15. WASTE AND ITS MANAGEMENT

Have you ever considered what happens to the garbage that is thrown out of our homes everyday? Where does it go? If it accumulates continuously for many days, what will happen? Is a pile of garbage, mosquitoes, flies, diseases and environmental pollution related?

The garbage, that comes out of our homes, consists of waste materials like peels of fruits and vegetables, pieces of paper, polythene bags, dust etc. These are not useful to us. So we throw these waste materials in dustbins in our homes. In the same way the garbage from factories, hotels, markets, and hospitals is thrown at dumping areas. However, this is not always done and as a result we see piles of garbage around us everywhere.

You must have noticed that during monsoons the piles of garbage stink and there is an increase in the number of mosquitoes and flies. One of the chief problems during monsoons is the contamination of water due to the garbage. During monsoons a large population in the urban centres suffer from diarrhoea, jaundice and skin diseases. Therefore, necessary steps are required to solve this problem.

The state capital, Raipur produces approximately 300 tons of garbage every day. According to one estimate an individual disposes off approximately 350 gram of garbage everyday. You can well estimate how much waste is generated from just the households of your village/city



*Figure 15.1 Garbage house*

Imagine the magnitude of the problem of waste when the waste of the household, waste from factories and markets etc. of the entire country is added.

Make a list of different waste materials coming out from various places in table 15.1



**TABLE 15.1**

Place	Waste which comes out
Home	_____, _____, _____, _____
school	_____, _____, _____, _____
Vegetable market	_____, _____, _____, _____
Hotel	_____, _____, _____, _____
Hospital	_____, _____, _____, _____
Factory	_____, _____, _____, _____

It is commonly seen that people throw waste materials here and there. This causes environmental pollution. The harmful effects of these waste materials can be enumerated as follows.

1. Pollution of air, water and land
2. Bad effect on health.
3. Destruction of the beauty of the environment.

Today, all cities and villages are facing the problem of waste management (disposal). Therefore, there is a need to think of such methods of waste disposal, that do not harm the environment and keep the city/village neat and clean. Think, how you would help the community in waste disposal.

Some substances thrown with the garbage, are easily decomposable. For example, peels of fruits and vegetables, paper, cardboard etc., these are known as biodegradable substances. However plastic, metals, glass, cement etc. neither decompose naturally nor decay very slowly. These are known as non –biodegradable.

Lets perform an activity to find out the time required for the decomposition of substances found in the garbage.



## ACTIVITY

1

**Materials Required:** - Peels of fruits and vegetables, pieces of glass, plastic bags, pieces of paper and cardboard, four big pots and spade.

Dig 4 cubical pits with length, width and height 1 foot each. Dig these in places where observations can be made easily or you can take four big pots and label them 1, 2, 3, and 4 respectively.

As given in table 15.2, place different kinds of things in each of these and then fill them up with earth. Sprinkle some water over them. After two weeks dig each of these pits and observe the things, which you had put in. Observe their state of decomposition carefully. After observation bury them with earth again and put some water over them. Repeat the above process after four and six weeks and note your observations in the table 15.2.



TABLE 15.2

Pit/Pot No.	Buried substances	State After two weeks	State After four weeks	State After six weeks
1.	Peels of fruits and vegetables	-----	-----	-----
2.	Glass pieces	-----	-----	-----
3.	Polythene bags	-----	-----	-----
4.	Cardboard and paper pieces	-----	-----	-----

You see that some materials decompose, while others do not. You can now segregate the daily wastes into these two groups and perform their disposal.

- Wet and easily perishable substances** - Everyday our house generates wet garbage. This comprises of leftover food, flowers, wastes from fruits and vegetables, leaves and other wet wastes. Leave them in a pit after covering them with earth. After about a month they turn into a fertilizer. This is compost manure, which consists of essential nutrition for plants. This manure increases the water absorbing ability of the soil and also disposes off the garbage.

It is suggested to use more and more of natural manure, like cow dung, organic manure (vermi compost) etc in fields.

**Earthworm Manure: Vermi Compost**

Biodegradable waste is decomposed by earthworm. Earthworm decomposes all the decaying waste material present in the soil and its excreta is called organic manure. It is also called vermi compost. Nitrogen, phosphorous and potassium is present in large amount in it.

Earthworms help not only in keeping the environment clean but also in disposing garbage and providing us organic manure. So they are farmers' friend and useful for environment.

2. **Dry Waste:** - This group comprises of paper aluminum etc., which can be again utilized after recycling. Recycling has a major role in the waste management.

What do you use to carry things purchased from the market? Look around and make a list of things made of plastic. You can take the help of the picture 15.2 given below.



*Figure 15.2 Various Plastic objects*

You know, plastic has become a part of our life. There are a lot of advantages of plastics, but we are also facing difficulties due to plastics. Everybody uses plastics and throws them in the garbage. Discuss in your class, how it is harmful. You will see -

1. Often plastic bags collect in drains and clog them.
2. Many animals like cows, dogs etc swallow plastics along with the garbage. These can get stuck in their intestines and may cause their death.
3. When plastics collect in soil, they stop the flow of water.
4. All the plastics, while heating and burning releases harmful gases. These gases cause different types of health problems. Never burn things made of plastics. This is because; while burning they cause a lot of air pollution.

You must have understood the harmful effects of plastics and realized that plastics should not be used. Lets see what can be done to minimize their use-

- Ask shopkeepers to use paper bags instead of plastic bags.
- Use cloth or jute bags to carry things.
- Avoid using glasses, bowls, spoons, plate etc. made of plastics.
- Sell plastic materials to the waste collector (kabaadiwaala), so that it may be recycled.
- Do not throw plastic bags on the streets, in drains and at other public places.

Increase in waste materials causes a lot of inconvenience. Let us see the other methods used in the management of waste.

## Reusing

You must have seen some waste products that are renewed.

Make a list of things, which you have thrown in the garbage bin, just think how these can be utilized again. For example, empty bottles and boxes can again be used to keep things. Some pens, bags, papers written on one side can be used again. In this way you can dispose off some of the wastes.

## Recycling

You must have seen many people collecting plastic bags from the garbage bins and from the streets. You must have also seen kabadiwalas buying old newspapers, bottles, metals and things made of plastics from your homes. They re-sell these things after collecting them and they are transformed to new things after some processes. This process helps in the management of wastes, and simultaneously provides employment to the illiterate and the jobless.

Recycling is the process that uses scientific method on waste substances like metals, plastics, glass and rubber to make them reusable. A part from this there are waste which are useful in other form. For example After removing the grain the barn is the waste but is used to extract oil or used as cattle food.

### Recycling of paper -

You will require pieces of old newspapers, magazines, used envelopes, note books or any other paper. Do not use shiny, plastic-coated paper. You will also need a frame fitted with a wire mesh or a net. You can also use a large sized sieve in place of a frame.

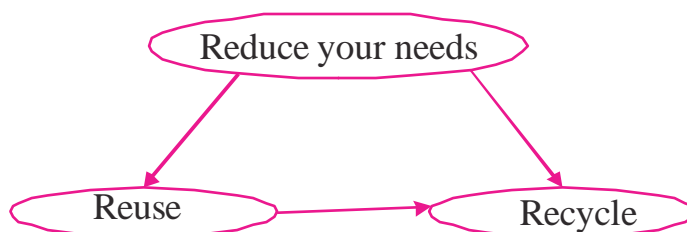
Tear the paper into small pieces. Put them in a tub or a bucket and pour water in it. Let the pieces of paper remain submerged in water for a day. Make a thick paste of paper by pounding it.

Spread the wet paste on the wire mesh fixed to the frame. Pat it gently to make the thickness of layer of the paste as uniform as possible. Wait till water drains off. If required spread an old cloth or a sheet of newspaper on the paste to let it soak up the extra water.

Now carefully remove the layer of paste from the frame, spread it on a sheet of newspaper in the sun. Keep the corners of the newspaper sheet pressed by putting some weights so that these do not curl up.

You can add pieces of dry leaves or flower petals or pieces of coloured paper in the paste before spreading it to get coloured paper. It would help us to get a recycled paper with beautiful patterns on it.

Can we recycle everything?



In table 15.3 names of some waste products are given. Try to find the use of these waste products with the help of your friends and family members.

**Table 15. 3**

S. N.	Waste Products	Uses	
1.	Cow dung and urine of animals		
2.	Oil cakes of mustard and other oil seeds		
3.	Husk of wheat		



**WE HAVE LEARNT**

- Improper management of waste has become a danger for the environment and is a serious problem for human.
- Waste material causes pollution of air, water and land.
- Substances, that are naturally and easily decomposable naturally, are called biodegradable.
- Those substances, which are not easily decomposable are called non-biodegradable.
- Dry and wet wastes are managed in different ways.
- Things made of plastic can be better managed by their reutilization and recycling.
- Earthworms eat rotten food materials present in the soil and excrete them as organic manure. This is called vermi compost.

**EXERCISE**

1. What can be the reasons for the water of a pond being unfit for consumption?
2. What will be the condition of dumping area if the volume of garbage keeps on increasing?
3. List the harmful effects of the use of plastics in articles of daily use.
4. Explain the meaning of recycling.
5. Why earthworms are known as farmers' friends?

**THINGS TO DO**

1. With the help of your teacher, make groups of 6 students. Each group would visit a allotted area and to survey on the following points.
  - (a) Number of handpumps and their usability.
  - (b) The condition of the drainage.
  - (c) The system of waste disposal in homes.
  - (d) The arrangement for the waste disposal from small industries or farms etc.

Make a report of your survey and discuss about it in the class and clarify the problems with the help of the community.

2. Make two garbage bins for your school. Paste a green paper on one and a blue paper on the other. On the green bin enumerate the name of biodegradable and on the blue one enumerate the name of non-biodegradable substances. Manage and dispose of the waste of these bins properly, when they get filled up.

