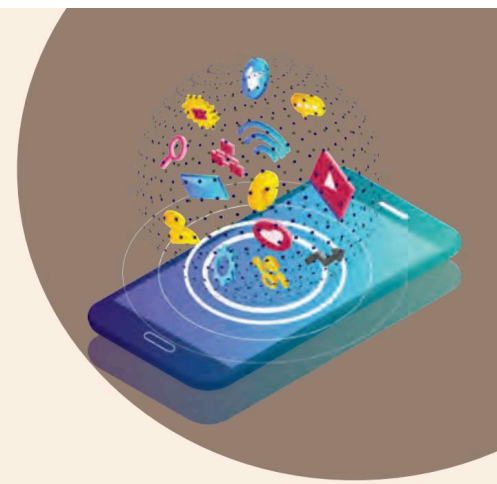


## 13



# Environmental Balance

All facets of our lives are influenced by the environment around us, and all our daily actions also have an impact on the environment as well. We rely heavily on the community of plants (flora) and animals (fauna) to provide us with food and other resources necessary for our survival.

## Environment

The word “environment” comes from the French word “environ” which means “to surround”. It includes the surroundings or conditions in which all living organisms exist.

The environment can be classified into two types:

1. **Natural Environment:** It includes all the living (biotic) components like plants, animals, birds, insects; and non-living (abiotic) components like water, air, soil, and sunlight, which occur naturally on Earth. Both the components are dependent on each other for their survival.
2. **Man-made Environment:** It includes the components and structures created by humans to satisfy their needs and requirements like buildings, houses, schools, parks, markets, roads, factories, etc. These components are affected by physical, social, biological and cultural factors.

The natural environment provides humans with resources that they require for their growth and development. The natural environment offers all essential elements necessary for human life such as sun, soil, water, and air.



## Society and Environment

There is a strong relationship between our society and the environment. They interact and influence each other in multiple ways. This kind of interaction affects the ecological balance.

Humans depend on the natural resources for fulfilling their basic needs like food, water and shelter. With the increase in population, human beings have modified their surroundings according to their needs and economic benefits. These modifications have impacted significantly on our natural environment. Industrial development and the exploitation of natural resources, like the extensive use of fossil fuels, deforestation etc. have created an imbalance in the environment. People do not use natural resources judiciously and thus it has caused a scarcity of these resources. It is important to strike a balance between both the components to avoid harmful consequences.



## Ecosystem

An ecosystem is formed when the living (plants, animals, and other organisms) and the non-living components (air, water, sunlight, soil, weather, temperature etc.) interact and co-exist with each other in a physical environment. These biotic and abiotic components are interdependent on each other. All the organisms play a specific role in an ecosystem and every ecosystem is unique in itself.



## Roles of Organisms in Ecosystem

Organisms in ecosystems have diverse roles:

1. Producers (like plants) create energy via photosynthesis.
2. Consumers eat other organisms as herbivores, carnivores, or omnivores.
3. Decomposers (bacteria, fungi) break down organic matter, recycling nutrients.
4. Detritivores (e.g., earthworms) accelerate decomposition.
5. Predators regulate prey populations, maintaining balance.
6. Prey species develop adaptations to avoid predators.
7. Herbivores impact on plant distribution and structure.
8. Pollinators aid in plant reproduction.

## Factors That Cause an Imbalance in the Environment

In the present scenario, with increasing population, urbanisation, economic growth and the self-centred approach of humans, resources are not being used judiciously.

This has caused irrecoverable loss to the environment and created an imbalance in the ecosystems.

**Overexploitation of Resources** With the increase in population, human beings have started to exploit natural resources at a fast pace. This is a huge threat to biodiversity and has resulted mainly in the extinction of species, further affecting, directly or indirectly, the ecological cycle of the environment.

**Deforestation** Deforestation, or the thinning of forests, is one of the largest issues. This includes the removal of trees for wood products, grazing lands, and creating huge buildings in the name of development. This is a serious environmental concern as it can result in the loss of the natural environment, damage the homes of animals, and create disturbances in the water cycle.



**Pollution** Pollution can harm human health and the environment in many ways. Pollutants can be found in water, air, and soil. Also, there are different kinds of pollution that impact on the environment in various ways. There can be various causes of pollution like the burning of fossil fuels, smoke from industries and factories, improper industrial waste disposal, increasing number of vehicles on roads, mining etc.

**Overpopulation** Due to the rapid increase in population, resources are being over-utilised and production of waste is also high. People make extensive use of plastic which is harmful for marine life, street animals and also disrupts food chains, thereby, impacting on the environment.

**Global Warming** Due to the increase in greenhouse emissions, temperatures are rising, glaciers and polar ice caps are melting, and various species are becoming extinct. The level of carbon dioxide and other harmful gases like methane, nitrous oxide etc. in the air is increasing which also leads to depletion of the ozone layer.

**Climate Change** Human activities, particularly the burning of fossil fuels, contribute to the release of greenhouse gases, leading to global warming and climate change. These have far-reaching impacts on ecosystems and weather patterns.

**Water Scarcity** Overuse and contamination of water resources can lead to water scarcity, which has a cascading effect on ecosystems, agriculture, and human populations.

**Loss of Biodiversity** The extinction and decline of species due to habitat loss, pollution, climate change, and other factors can disrupt ecosystem dynamics and reduce overall resilience.



### Did You Know?

Humans use only 1% of the abundant water that is available on the Earth.

## Natural Resources

Natural resources are the resources drawn from nature like water, land, soil, rocks, forests, animals, fossil fuels, or minerals which are used by humans to meet their needs and requirements. These resources can be consumed directly or indirectly and can be in any form, such as solid, liquid, or gas. Various types of natural resources are land resources, forest resources, water resources, mineral resources, food resources, and energy resources.

## Conservation of Natural Resources

The act of protecting and managing natural resources so that everyone will benefit from them including current and future generations is referred to as the conservation of natural resources. The necessities for our survival are gifts from nature and cannot be substituted. Resource management is another aspect of conservation that aims to stop resource exploitation, deterioration, and destruction. Less waste should be produced, and the resources should be used wisely.

We should try and follow the three R's and contribute towards the environment.

**Reduce:** We should be mindful of what we are buying and not stock up on unnecessary things. It is an effective way to save resources. Avoid the use of plastic and any such products which have a negative impact on our environment.

**Reuse:** Instead of throwing away items or discarding them, we should reuse them creatively. For example, glass jars can be used for storing things, old clothes come in handy when you need to clean your home etc. You can share your old things with those who need them.

**Recycle:** Recycling is a way to reduce our carbon footprint (total amount of greenhouse gases generated by any of our activities). Cans, paper products, glass etc. are all recyclable materials. They should be separated from non-recyclable materials while disposing of them. Community recycling efforts should also be encouraged.



### Think and Tell

1. Think about a few steps that you practice in your daily life to preserve the environment.
2. Think about a few steps which you can practice as a community to conserve and protect our environment.

## Environmental Protection and Conservation

Environmental conservation is a practice to protect the environment and manage natural resources for the present and future use. Humans should pay attention to their activities and ensure that they do not adversely affect the environment in any way.

A few steps to conserve the environment are:

1. More and more trees should be planted everywhere especially in the areas where forest cover is decreasing due to human activities. They are called life-savers as they convert the excess carbon dioxide in the air to oxygen which is important for our survival.
2. Saving water resources is another important aspect of environment conservation. Turn off the taps when not in use, repair leaky faucets, and install water-efficient appliances.
3. Discharge only clear water into the rivers after treating sewage. Waste from the industries should not be directly disposed of in water bodies as it pollutes the water.
4. To save resources or energy, they must be used effectively. Switch off lights, fans, TVs, and other electrical items when not in use.
5. Use energy efficient bulbs and tube lights that save energy rather than normal filament bulbs.
6. We can use energy-saving strategies, such as cleaning the dust from the tube lights to increase light, routinely servicing and maintaining home appliances etc. Saving money and fossil fuels are additional benefits of energy conservation.
7. Use renewable sources of energy like solar, wind, water, geothermal etc. as they can be replenished over a period of time. Non-renewable sources of energy have a limited supply and cannot be readily replenished.
8. Use public transport, bikes, carpools, bicycles etc. to travel from one place to another instead of personal vehicles. It will reduce your carbon footprint.





9. Create awareness about environmental protection and conservation in your community. Learn about environmental issues and share information with each other.
10. Make sustainable choices in your daily life and encourage others to do the same. Even individual actions can be multiplied and you can contribute to a healthier planet.

## Activity Time

### Activity 1: Poster Making

(Group Work)

Divide into groups of five. Each group will create a poster on how to conserve the environment. Once completed, every group will present it in front of the class.

### Activity 2: Group Discussion

(Group Work)

Divide the class into groups of four. Every group will discuss any one of the following topics:

- The impact of the deteriorating environment on the lives of human beings.
- Various factors that impact on our environment.

## Chapter Checkup

### A Select the correct option.

1. Why should we conserve our natural resources?
  - a All living beings can benefit from them
  - b They are being depleted at a fast rate
  - c To make the resources available for present and future generations
  - d All of the above
2. Which factor has caused an imbalance in the environment?
  - a Pollution
  - b Wise use of resources
  - c Rainwater harvesting
  - d Forests
3. 'Environment' is derived from which French word?
  - a environ
  - b environ
  - c envron
  - d envirn

### B Fill in the blanks with the most suitable words.

1. The clearing or thinning of forests is called \_\_\_\_\_.
2. The increase in greenhouse gases leads to the depletion of the \_\_\_\_\_ layer.
3. An \_\_\_\_\_ is formed when living and non-living components interact with each other in a physical environment.
4. Make \_\_\_\_\_ choices in your daily life and encourage others to do the same.

### C State whether the following is *True* or *False*. Correct the statements that are false.

1. Water pollution is caused by throwing waste into the waterbodies.
2. We should throw away or discard items after using them.
3. Pollution can harm human health in many ways.
4. Discharge dirty water from the industries directly into the rivers.

**D Answer the following questions. (Solved)**

**Q1.** Define ecosystem.

**A1.** An ecosystem is formed when living (plants, animals, and other organisms) and non-living components (air, water, sunlight, soil, weather, temperature etc.) interact with each other in a physical environment. These biotic and abiotic components are interdependent on each other. All the organisms play a specific role in an ecosystem and every ecosystem is unique in itself.

**Q2.** What are the two types of environment?

**A2.** The environment can be classified into two types:

- **Natural environment:** It includes all the living (biotic) components like plants, animals, birds and insects, and non-living (abiotic) components like water, air, soil, and sunlight, which occur naturally on Earth. Both the components are dependent on each other for their survival.
- **Man-made environment:** It includes the components and structures created by humans to satisfy their needs and requirements like buildings, houses, schools, parks, markets, roads, factories etc. These components are affected by physical, social, biological and cultural factors.

**Q3.** Reema, who resides in Wazirabad, has decided to start an 'Environmental Protection Club' with her friends in her society. List a few steps that she can take to make other people aware of ways to conserve the environment.

**A3.** Ways to conserve the environment are:

- More and more trees should be planted everywhere especially in the areas where forest cover is decreasing due to human activities.
- Turn off the taps when not in use, repair leaky faucets, and install water-efficient appliances.
- Use public transport, bikes, carpools, bicycles etc. to travel from one place to another instead of personal vehicles.
- To save resources or energy, they must be used effectively. Switch off lights, fans, TVs, and other electrical items when not in use.
- Use energy-efficient bulbs and tube lights that save energy rather than normal filament bulbs.

**Answer Key**

- A** 1. d                      2. a                      3. b
- B** 1. deforestation      2. ozone                3. ecosystem            4. sustainable
- C** 1. True.
2. False. Instead of throwing away or discarding the items, we should try to use them in a creative way.
3. True.
4. False. Discharge only clear water into the rivers after treating sewage.