



Our Environment



We all like to look around us. We are fascinated by objects of natural beauty like landforms, rivers, trees, green fields and animals encircling us. At the same time we are helped by man-made objects like houses, roads, bridges, shops, industries, etc.

Subhro stays in a village in Bengal. On his way to school he passes by lush green fields with animals grazing on it. There is a river along his way with lots of trees along its banks. There are lots of chirping birds in the mango orchard and other trees. He passes by the village pond, many huts and shops. What he sees around himself, is the environment in which he lives.

The **geographical conditions that prevail around us** comprise our environment. In simple language, **the surroundings** of a living thing in which it exists is termed as its **environment**.

Our Earth is termed as a unique planet because of its **favourable environment** that **sustains lifeforms**. The factors that have resulted in this identity are :

- (a) Optimum temperature on account of its favourable position in the solar system.
- (b) Life supporting oxygen and the protective envelop of atmosphere.
- (c) Presence of water in various forms, essential for living beings.

(d) Land with various relief features and productivity.

All these factors have created an environment that favours growth, survival and evolution of various species of plant and animal life, including humans. It provides us with the air we breathe, the water we drink, the food we eat and the habitat we live in.

From this discussion on the Earth's unique environment, you must now be able to identify the components of the environment. Geography, as a discipline of Social Science, introduces us to the **inter-relationship** between **living organisms** and the **environment**.

COMPONENTS OF ENVIRONMENT

The environment comprises two main natural components — the **physical environment** and the **biological environment**.

The **physical** or the **non-living environment** is termed as the **abiotic environment**. It comprises land, water and air. The three main domains of the Earth — the Lithosphere, the Hydrosphere and the Atmosphere — comprise the physical environment. You have studied about these in detail in your previous class. The narrow zone of interaction between land, water and air where living organisms can thrive is termed

Natural Environment

Land (Lithosphere), water (Hydrosphere) and air (Atmosphere) along with plants and animals (Biosphere) comprise the natural environment. Let us study about each of these.

Lithosphere

The solid outer layer of Earth, comprising rocks of the crust and a thin layer of soil above it, is termed as Lithosphere. It provides us with different landscapes for our settlement and for our economic activities.

Hydrosphere

The domain of water comprising oceans, seas, fresh water, rivers and groundwater is termed as hydrosphere. It provides us with water which makes the Earth a unique planet with lifeforms.

Atmosphere

The blanket of gases that surrounds and protects the Earth is called the atmosphere. It contains the gases that sustain life, and moisture that gives us water. It protects us from the fierce heat of the sun during day and keeps the surface warm at night by trapping heat.

Biosphere

All living organisms (plants and animals) make our living world or biosphere. It is the narrow zone of interaction where land, water and air interact with each other to support life.

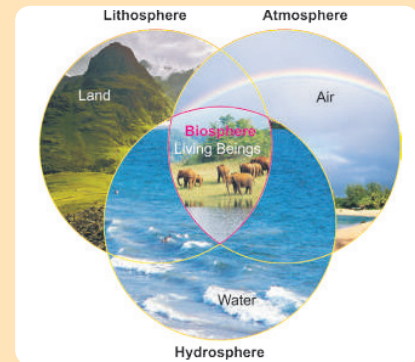


Fig. 1.1 : The living environment

Components of Environment

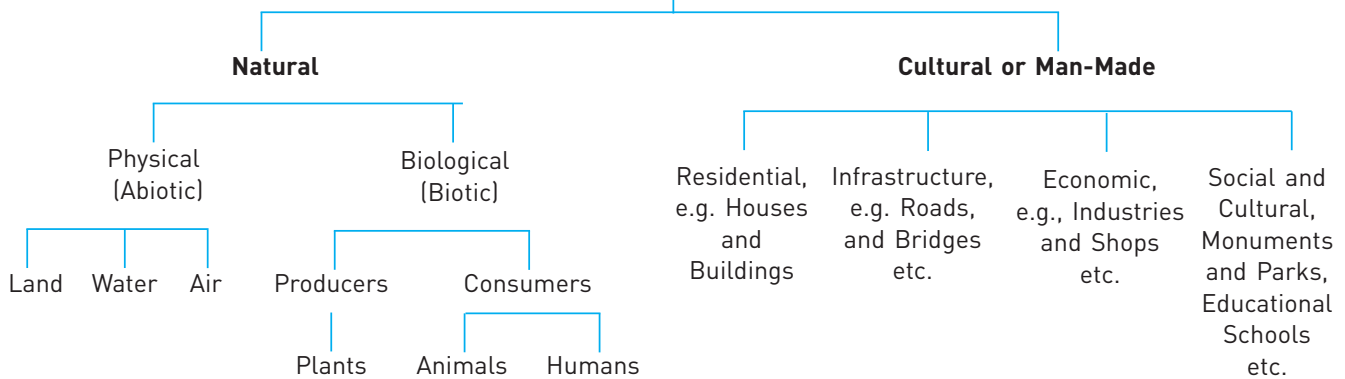


Fig. 1.2 : Components of Environment

WORDOLOGY **W**

The word environment has originated from the French word 'environer' meaning 'neighbourhood.'

as **Biosphere**. The living organisms of this life bearing zone comprising plants, animals and humans make up the **biological environment**.

The **living environment** is also termed as **biotic environment**. The biotic environment is dependent on and determined by the abiotic

environment.

On the basis of their origin, apart from natural environment, we can identify the human elements in our surroundings like houses, roads, industries, etc. This is the man-made environment. It is the artificial environment that humans create to live a comfortable life. Humans create a human environment or cultural environment comprising elements of better living. The individual, family and community interact in cultural, social, economical and educational situations.

What is ecology?

All living things have a complex relationship with other organisms and with their environment. The study of these interactions is called ecology. It is the study of ecosystems, i.e. the ways in which living things live together with their surroundings.

WHAT IS AN ECOSYSTEM?

No living organism — plant, animal or human — can live in complete isolation. They all depend upon their immediate physical surroundings for their survival. In the process, they interact with other living organisms. They are also interdependent on each other. These inter-relationships create an ecosystem adapted to particular conditions.

DID YOU KNOW?

Each living organism has certain limiting conditions for its growth and survival in the biosphere. The surrounding physical environment, the immediate home of the organism is termed as its habitat.

A community is a group of animals, plants and micro-organisms that live together in the same area or habitat.

Depending upon the physical and climatic characteristics, different parts of the world can support different groups or communities of living beings. From a tiny pond to a vast forest, an **ecosystem** consists of a **living community**, **their environment** and **all their interactions**.

EXAMPLES OF ECOSYSTEM

Moni lives in Assam which gets heavy rains in the monsoon season. There are dense broad leafed hardwood forests near their locality with tall trees and some undergrowth. Some areas have bushes and tall grass. Many birds, animals and insects are found there. The monkeys and birds live on trees. The rhinoceros and elephants live in the swamps. She is very excited when it rains because it brings lush greenery and prosperity in their region.

Dulu Namgayal lives in Ladakh. It is mountainous and cold. Rainfall is very scanty in his area. The surrounding hills are bare without much vegetation. He loves to chase the Tibetan

donkeys and mountain cows that graze in the Alpine grasslands. He can sometimes see the shy lemur, yaks and ibex in higher areas. In the cold desert of the Nubra Valley he had seen the double-humped Bactrian camels, which are reared by the nomadic tribes living there.



Fig. 1.3 : Ecosystem in a forest

The vegetation, the wildlife and the lifestyle of the people vary from place to place. All these different areas comprise different ecosystems.

Even the village pond, that Subhro passes by on his way to school, has a separate ecosystem. Aquatic plants like water hyacinth, water lily and lotus grow in it. Fish, frogs, aquatic birds and micro-organisms live in the water. Do you think that aquarium is a natural ecosystem? The answer is no. It is man-made.

HOW LARGE IS AN ECOSYSTEM?

We can consider the Earth as a giant ecosystem. An ecosystem can vary from an area of hundreds of square kilometres to a tiny pond or a single plant. Even a very small area may support a unique collection of living things.

INTERACTION WITHIN THE BIOTIC ENVIRONMENT

The two major components of the biotic environment are producers and consumers. Within the biosphere plants are the **producers**. They are capable of **producing their own food** directly from the environment. They are termed as **autotrophs**. The main source of energy within biosphere is the **sun**. Green plants utilise this

energy directly to produce their own food by the process of photosynthesis. The **consumers** are organisms that **cannot produce their own food** directly from the environment. They depend on plants and other organisms for their supply of energy in form of food. They are termed as **heterotrophs**. They include : (a) the **herbivores** or plant-eaters, e.g., cow, goats, deer, (b) the **carnivores** or meat-eaters, e.g., lions, tigers, leopards, (c) the **omnivores** that consume both plants and animals, e.g., bear, baboons, badgers and (d) the **decomposers** or detritus feeders that scavenge on dead animals and plants e.g., vultures, hyenas, microbes etc.

In any ecosystem, species eat and are eaten by other species. The energy and nutrients pass from one organism to the other in form of food consumed. This transfer of energy is termed as a **food chain**.

DYNAMIC ENVIRONMENT

The environment keeps on changing constantly. Seasonal and long term climatic

changes alter the environment. Physical changes over the surface of the Earth like drifting of continents, slow or sudden changes in the landforms change the environment. All these factors have caused extinction of some species of plant and animals. On the other hand, new species of plants and animals have adapted to the changed environment. The evolution of man is also a result of the environmental changes.

The physical and biological components in the environment are thus said to be dynamic in nature.

Human beings also alter the environment. They adversely affect it to satisfy their wants.

HUMAN BEINGS AND ENVIRONMENT

Houses, buildings, shops, roads, bridges, hospitals, dams, industries, schools, etc., are man-made or human-made. Man creates the cultural environment to lead a better life. In the process he modifies the natural environment to fulfil his needs. Today there are very few places untouched by human activity.

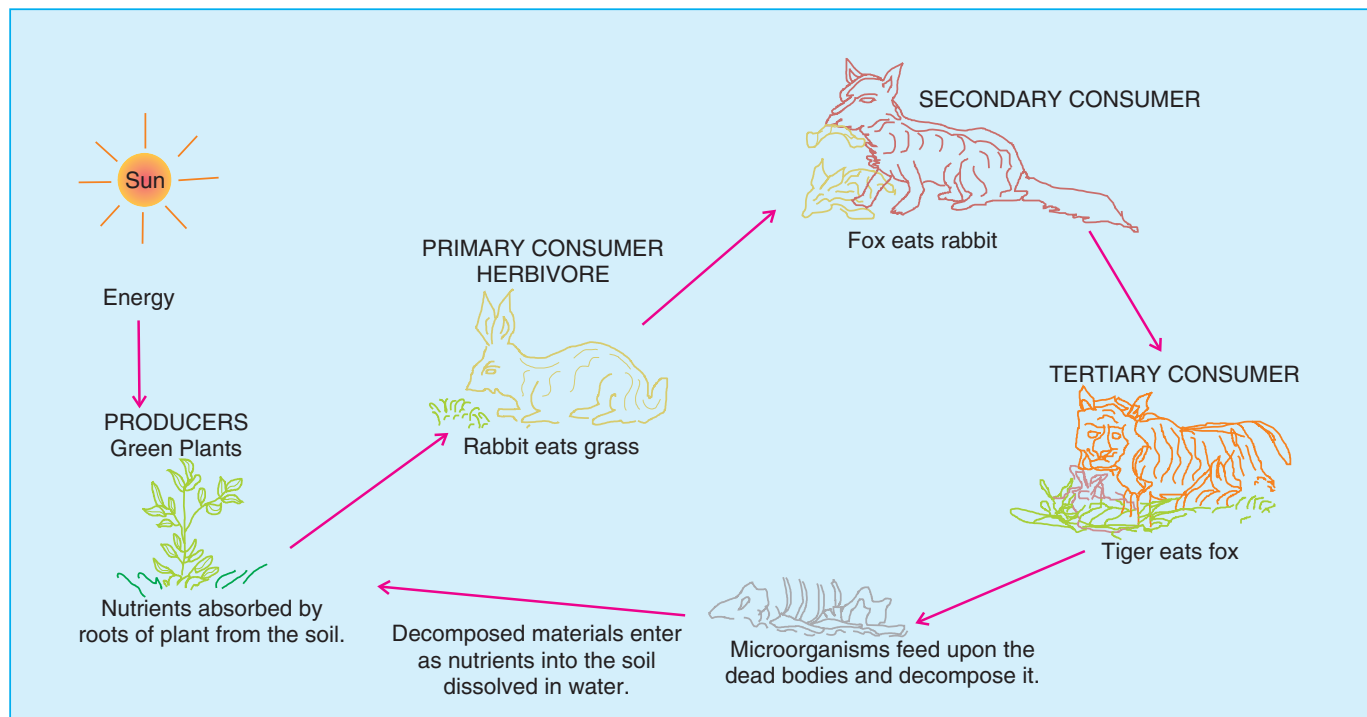


Fig. 1.4 : Food Chain



Fig. 1.5 : The Man-Made Environment—Human Environment

Early man adapted himself to his natural surroundings and lived in harmony with nature. But with the progress of time his wants went on increasing. Man became a serious threat to the environment. He overexploited nature to satisfy his greed. Progress of science and technology equipped him with sophisticated tools to exploit and tap nature. He altered the ecosystems, often without realising the consequences of his actions. He cleared vast areas of forests to acquire land for agriculture, industries and residential purposes. He wiped off many species of plants and animals by disrupting their habitats. Overpopulation has strained the natural

resources of our environment. Modern man has polluted and destroyed the natural environment.

With the Industrial Revolution, exploitation took on new dimensions. Gradually, every part of the Earth including global climate was affected. Then a section of mankind realised that for survival on Earth we have to take care of our environment. As a result, the Environmental Revolution came up. Through proper planning, steps can be taken to control pollution and destruction of our environment. It is wise to remember that **we need the Earth much more than the Earth needs us.**

INFOBITS

- ▶ The world uses 160,000 plastic bags every second. Plastic bags are now banned from supermarkets in most developing countries.
- ▶ More than 700 million people do not have access to clean water and more than 2 billion have sanitation problems.
- ▶ Norway has very strict rules on advertising cars as “green” saying “cars can do nothing good for the environment except less damage than others.”
- ▶ Parks and other “green” environments can generally reduce stress and anxiety and promote overall mental health.

POINTS TO REMEMBER

- The surroundings of a living thing in which it exists is termed as its environment.
- The environment comprises two main natural components, viz.
 - (a) Physical or non-living environment (abiotic environment)
 - (b) Biological or living environment (biotic environment)
- The solid outer layer of the earth comprising the rocks of the crust and a thin layer of soil above it is termed as ‘Lithosphere’.
- The domain of water comprising oceans, seas, rivers, and groundwater is termed as ‘Hydrosphere’.
- The blanket of gases that surrounds and protects the earth is called ‘Atmosphere’.
- All living organisms (plants and animals) make our living world or ‘Biosphere’.
- An ecosystem consists of a living community, their environment and all their interactions.
- Plants are capable of producing their own food and are termed as autotrophs
- Consumers are termed as ‘Heterotrophs’ including herbivores, carnivores, omnivores and decomposers.
- Physical and biological components in the environment are dynamic in nature.
- Man-made environment or human environment consists of houses, buildings, hospitals, roads, bridges etc.

GLOSSARY

- ABIOTIC ENVIRONMENT** : Physical or non-living environment comprising land, water and air.
- AUTOTROPHS** : Producers capable of producing their own food directly from the environment by using sun's energy, e.g. plants.
- BIOTIC ENVIRONMENT** : Biological or living environment comprising producers (plants) and consumers (animals and human).
- COMPONENTS OF ENVIRONMENT** : (a) Physical or abiotic environment, (b) Biological or biotic environment, (c) Cultural or man-made environment.
- CULTURAL ENVIRONMENT** : Man-made, artificial environment created by human beings to lead a comfortable life, e.g., houses, roads, dams, industries.
- ECOSYSTEM** : A natural system consisting of all plants, animals and microorganisms, which interact with all the physical factors of the environment.
- ENVIRONMENT** : Place, people, things and nature that surround any living organism is called **environment**.
- HETEROTROPHS** : Consumers who cannot produce their own food directly, and depend on plants and other organisms for their supply of energy in form of food.
- POLLUTION** : Destruction of the environment mainly due to unplanned use of technology.
- ECOLOGICAL BALANCE** : A balance between the natural environment and the human environment.
- BARTER SYSTEM** : A trade in which goods are exchanged with other goods without the use of money.

TIME TO LEARN

A. Multiple Choice Questions (MCQs)

- The surroundings of a living thing in which it exists are termed as its
 (a) Atmosphere (b) Environment (c) Biosphere (d) Lithosphere
- The narrow zone of interaction between land, water and air where living organisms thrive is termed as
 (a) Lithosphere (b) Atmosphere (c) Hydrosphere (d) Biosphere
- Organisms who consume both plants and animals are called
 (a) Carnivores (b) Herbivores (c) Omnivores (d) Decomposers
- The physical or non-living environment is termed as
 (a) Abiotic environment (b) Biological environment (c) Biotic environment (d) None of these
- Which one of the following is not a form of abiotic resource?
 (a) Forests (b) Minerals (c) Land (d) Water

B. Match the following

Column A	Column B
1. Physical environment	(a) Atmosphere
2. Lions, tigers, leopards	(b) Consumers
3. The blanket of gases	(c) Non-living environment
4. Animals and humans	(d) Carnivores
5. Artificial environment	(e) Man-made environment

C. Very short answer type questions

- What keeps on changing constantly?
- Name the system formed by the interaction of all living organism.
- Who interacts with the environment?
- What holds the atmosphere around earth?
- What is made up of rocks and minerals and covered by a thin layer of soil?

D. Short answer type questions

1. Give the meaning of environment.
2. What is an ecosystem?
3. State the importance of atmosphere.
4. Why is environment considered dynamic?
5. Give two examples for each of the following.
 - (a) Biotic environment
 - (b) Abiotic environment

E. Long answer type questions

1. Why is earth considered a unique planet?
2. Explain the major components of the environment.
3. “With the Industrial Revolution, exploitation took on new dimensions.” Explain.
4. What factors have caused the extinction of some species of plants and animals?
5. Distinguish between natural environment and human environment.

[Value Based Question]
[HOTS]

F. Activity

Study the environment of your area and make a list of the changes, that you observe, made by human beings. Collect pictures to show the impact of humans on environment.

G. Project

Journey by a car or an aeroplane is convenient and fast. But it leads to air pollution. What steps can you take to reduce pollution and live a sustainable lifestyle? Make a project on sustainable development, based on the following guidelines :

1. Suggest measures to reduce pollution.
2. Suggest measures to reduce reuse and recycle wastes.

LIFE SKILLS

- Each of us is unique and possesses special character traits. But it is important for us to recognise and appreciate them. Write down five positive character traits about yourself, which you truly appreciate (strengths).
- Write five sentences about the areas that you need to improve upon (weaknesses).



MIND MAP

