

Understanding The Environment

Pranav was on vacation with INS family at a countryside resort. He was amazed to see such a clear blue sky and changing shapes of clouds in the day time and the sky full of stars at night. At the same time Radha, a village girl was astonished to see high-rise buildings, wide roads, flyovers and large number of people; during her first visit to a big city. What surprised Pranav and Radha are all the components of an environment? The environment is what surrounds us. Each and every place has a different kind of environment; be it a city. Village, school, office or even a classroom.



ENVIRONMENT

The environment is something which you all are very familiar with. It is everything that makes up our surroundings and affects our life. The air, the water, the plants and the animals along with all other man-made features, make up our environment.

Thus, the environment may refer to:

- The natural environment that includes all things, both living and non-living that occur naturally on the earth, and
- The human environment that includes built-up areas like buildings, roads, technology, social and cultural factors, like family and society.

In this chapter, you will learn how natural features and humans interact with one another and how their interrelationship affects our environment.

PHYSICAL OR NATURAL ENVIRONMENT

The physical or natural environment encompasses all living and non-living things occurring naturally. The natural environment has two components-biotic and abiotic. All plants and animals in the surroundings constitute the biotic component. The non-living things-air, temperature, water, light and soil-form the abiotic component. Both biotic and abiotic factors have influence on an organism. Again, the abiotic factors influence biotic factors and vice-versa. This is called **interdependence**.



The Physical Environment

Components of the physical environment

The land, the oceans, the seas and the atmosphere around us, support our life and comprise our natural environment. There are four realms or spheres of the earth:

1. The sphere of land is known as the **lithosphere** where lithos means rock.
2. The sphere of water is known as the **hydrosphere** where hydros means water.
3. The sphere of air is known as the **atmosphere** where atmos means vapour.
4. The sphere of the living world consisting all animals and plants, including man is known as the **Biosphere**.

Life exists on the earth primarily due to the first three realms.

Lithosphere— the solid outer covering of the earth's surface, consisting of rocks and soil is known as the lithosphere. The lithosphere includes large masses of land known as **continents**, wide **ocean** basins and smaller masses of land surrounded by water called **islands**. It includes various landforms like mountains, valleys, plateaus and plains. These landforms provide living space for human beings, plants and animals. Lithosphere therefore provides us with (i) Soil (ii) Forests (iii) Grasslands for grazing (iv) land for agriculture and human settlements (v) Mineral wealth, etc.

Hydrosphere—Water, which forms about three- fourth of our earth constitutes the hydrosphere Water is found in three forms-solid, liquid and gas. In **liquid form**, it exists in water bodies. In its **solid state**, it exists as snow cover over mountain tops and as glaciers or ice sheets, and in the gaseous form it is found in the form of clouds and water vapour. Water sustains all forms of life and has a strong influence on climate e.g., large bodies of water.

Atmosphere—the blanket of air surrounding the earth is known as the atmosphere. The gravitational force of the earth holds the atmosphere around us. Air is a mixture of gases, dust particles and water vapour.

Geography Reveals

The mixture of gases in the atmosphere has taken 4.5 billion years to evolve.

Oxygen is used by animals to respire while **Carbon dioxide** is used by plants to carry out the process of photosynthesis. Carbon dioxide absorbs the heat radiated by the earth and thereby keeps the planet warm. This is known as the **greenhouse effect**. Nitrogen helps in the growth of living organisms and in maintaining fertility of the soil. The layer of ozone gas in the atmosphere saves us from the harmful ultraviolet rays of the Sun.

Biosphere—all the plants and animals found on the earth constitute the biosphere. Biosphere is the narrow zone consisting of the lower part of the atmosphere, the upper part of the lithosphere and a part of the hydrosphere where all forms of life are found. The organisms in the biosphere may be broadly divided into the plant kingdom and the animal kingdom.

ECOSYSTEM

All living organisms including humans interact with one another and are also interdependent. The organisms interact with the other three realms of the earth.

A unit consisting of plants, animals and microorganisms (biotic factors) in an area functioning together with the non-living physical (abiotic factors) components of the environment forms an ecosystem. Some stable ecosystems are, ponds, oceans, deserts, forests and parks. The physical environment in which living beings interact with one another is known as **habitat**.

Q. Can you name some more ecosystems?

Activity

Take photographs of five animals, insects and five plants found in a garden. These are biotic elements. Identify five abiotic elements too. Try to find out how plants and animals are interdependent.

INTERRELATION BETWEEN MAN AND ENVIRONMENT

All living organisms depend on their immediate surrounding for fulfilment of their needs. Man and environment are interlinked in such a manner that change in one affects the other. Man keeps on affecting the environment, altering it in pursuit of his various social, personal and economic goals. In return, environmental changes like heat, cold, rain and storm affect man and his activities. This inter-linked and interdependent relationship forms a dynamic system, which we call an 'ecosystem'.

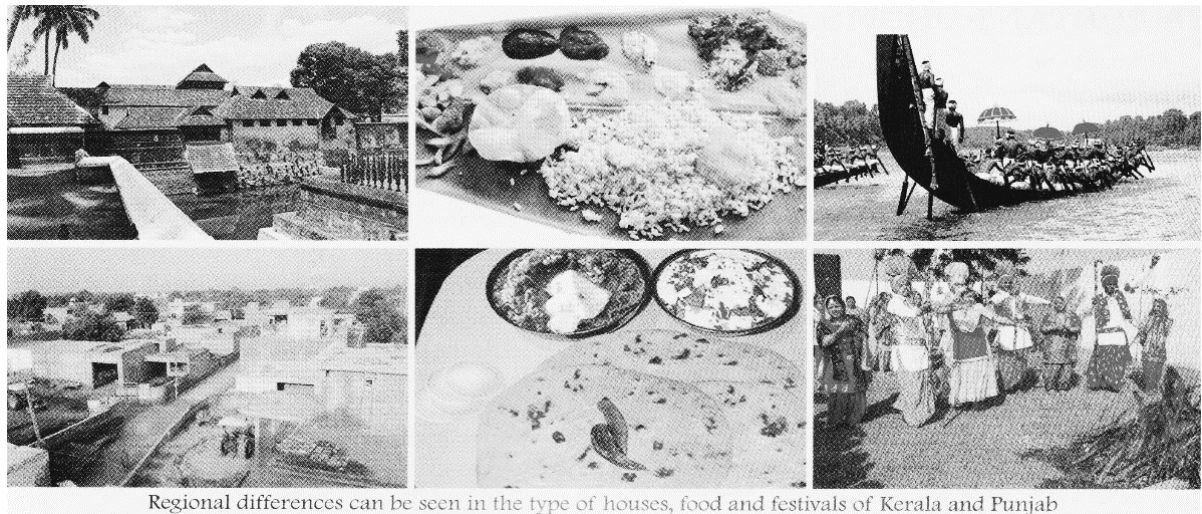


Human Environment

HUMAN ENVIRONMENT

Man is a part of the environment. Man adapts himself or modifies the environment to a great extent to suit his needs. Humans interact, adapt and adjust with their natural environment. Their occupation, food, housing and clothing; all are affected by the environment. They turn mountain slopes into terrace farms, they cut down trees and turn forests into industrial areas. Besides, man forms a society and interacts within it. His way of living depends upon the influence of the society he lives in. Human **environment** or man-made **environment** refers to the human-made surroundings that include the physical, social, and economic components that determine the state, condition and quality of living of a person.

Socio-cultural environment is a part of the human environment. It is the sum of all learned attitudes and behaviour that influence how a person thinks and behaves. This includes the family, community, neighbourhood, rural and urban surrounding, country, religion and economic activity etc. Socio-cultural environment is linked with our natural environment. For example, people living in coastal areas of Kerala, will be different from the people living in the plains of Punjab. With the help of the given pictures, one can see how the two states; Punjab and Kerala are different in terms of their physical and socio-cultural environment. Their dress, food, festivals, rituals and house types; all are influenced by their natural environment. As a result of their interaction with the natural environment, their human environment also gets changed. During this process of an ever changing dynamic relationship, the natural environment gradually turns into man-made environment.



Regional differences can be seen in the type of houses, food and festivals of Kerala and Punjab

Q. when do we celebrate the world environment day?

ENVIRONMENTAL POLLUTION

Sometimes human activities have adverse effects and these go beyond the tolerance limit of the natural environment. As long as we live in coherence with environment, things remain in control; but when we start overusing, over exploiting and exhausting our natural environment, serious environmental issues arise.

For example, deforestation, overpopulation, lack of drinking water, hunger, malnutrition, -oil degradation, noise, air, water and land pollution, etc.

Sometimes these problems are faced by local people but when they have larger impacts, these issues become a matter of concern at the global level. For example. Global warming due to increasing carbon dioxide concentration and ozone layer depletion. We find a ray of hope when some people dedicate their life for saving our environment and fight against environmental issues. People call them environmentalists but actually they are 'guards of our mother nature' and we all should help such people in every possible way.

The Dalai Lama has aptly said, "because we all share the small planet earth, we have to learn to live in harmony and peace with each other and with nature. This is not a dream but a necessity."

Activity



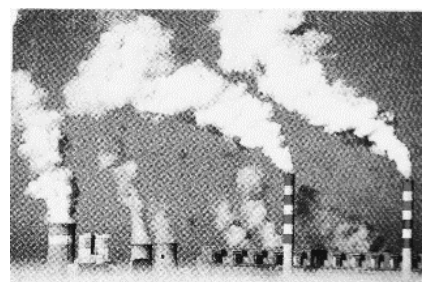
Try to identify this logo. Have you ever heard of WWF? It is World Wildlife Fund, which is an International Organisation that is concerned with the protection of environment. Find out more about its mission and programmes.



Land Pollution



Water Pollution



Air Pollution