

**B.A./B.Sc. Geography (Hons.) Part-III**  
**Paper-VIII- Environment Geography**  
**Topic- Meaning of Environment**

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# Topic: Environment

- **Environment**
- **Components of Environment**
- **Domains of Environment**
- **Ecology**
- **Biome**
- **Levels of Ecological organisation**
- **Habitat**
- **Niche**

# Environment

- “Environ” means “surroundings” or conditions in which an organism lives or operates.
- The environment broadly includes living and non living components
- “Environment is sum total of water, air and land interrelationships among themselves and also with the human being, other living organisms and property”.
- It includes all the physical and biological surrounding and their interactions.
- Environmental studies provide an approach towards understanding the environment of our planet and the impact of human life upon the environment.
- It is global in nature, multidisciplinary including physics, geology, geography, history, economics, physiology, biotechnology, remote sensing, geophysics, soil science and hydrology etc.

# Components of Environment

## A. Abiotic components: Non Living

- i. **Light** – Sunlight provides energy. Green plants utilize sun light for photosynthesis for synthesizing food for themselves as well as all other living organisms.
- ii. **Rainfall** –Water is essential for all living beings. Majority of biochemical reactions take place in an aqueous medium. Water helps to regulate body temperature. Further, water bodies form the habitat for many aquatic plants and animals.
- iii. **Temperature**– Temperature is a critical factor of the environment which greatly influences survival of organisms. Organisms can tolerate only a certain range of temperature and humidity.
- iv. **Atmosphere** - The earth's atmosphere is made of 21% oxygen, 78% nitrogen and 0.038% carbon dioxide. Rest are inert gases (0.93% Argon, Neon etc).
- v. **Substratum**- Organisms may be terrestrial or aquatic. Land is covered by soil and a wide variety of microbes, protozoa, fungi and small animals (invertebrates) thrive in it. Roots of plants pierce through the soil to tap water and nutrients. Terrestrial animals live on land. Aquatic plants, animals and microbes live in fresh water as well as in the sea. Some microbes live even in hot water vents under the sea.

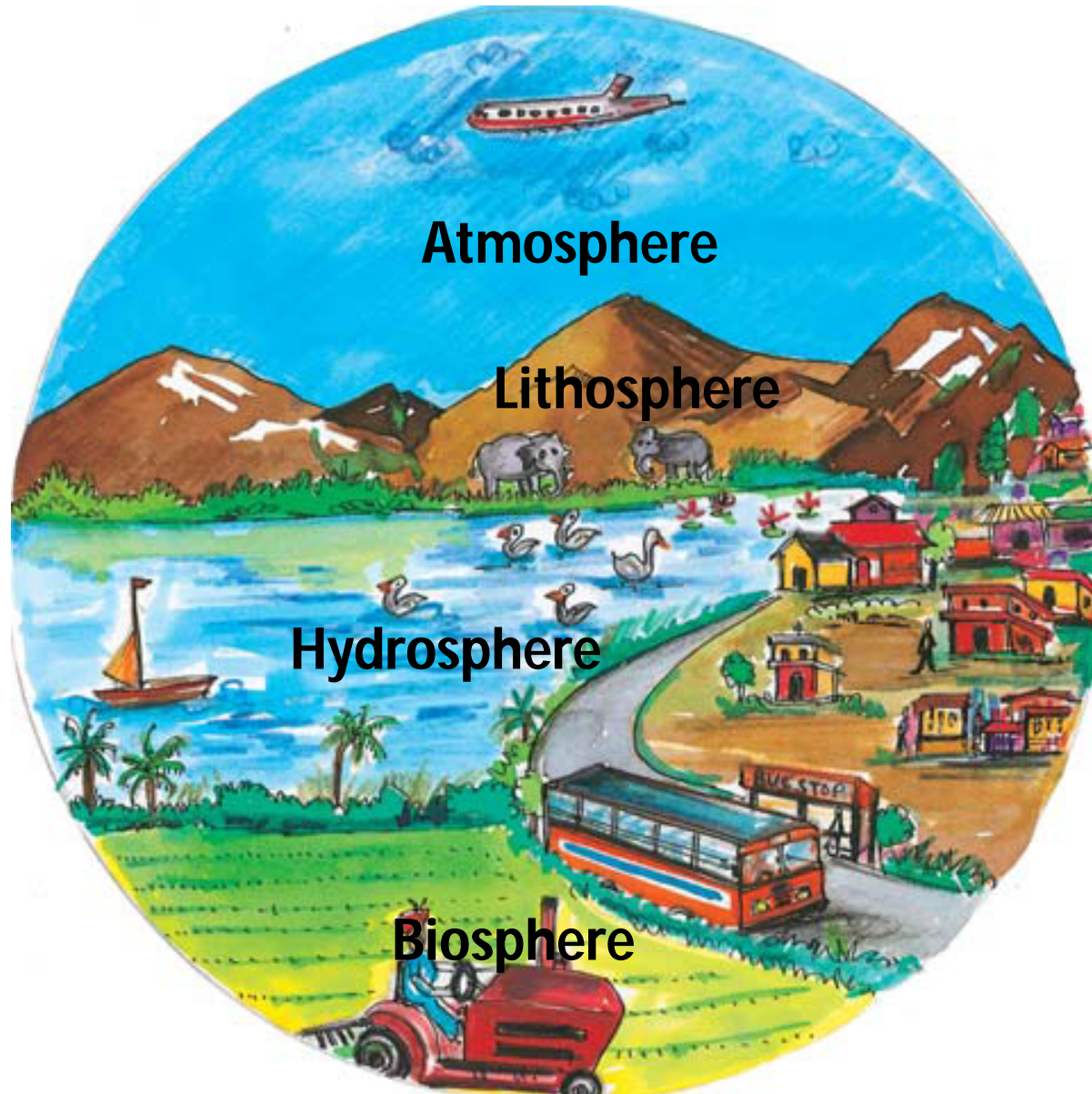
## **B. Biotic components: Living**

**i. Flora [Plants]** – Prepare food through photosynthesis for all living organisms.

**ii. Fauna [Animals]** – Individuals of the same species occur in a particular type of habitat. They also live with other species. One species forms food for another. Micro-organisms and fungi decompose dead plants and animals releasing nutrients locked in bodies of dead organisms for reuse by the growing plants.

Living organisms, therefore, need both abiotic and biotic components of the environment for survival. A delicately balanced relationship between living organisms and their environment is critically important for their survival.

# Domains of Environment



# Ecology

The term ecology was first coined in 1869 by the German biologist Ernst Haeckel.

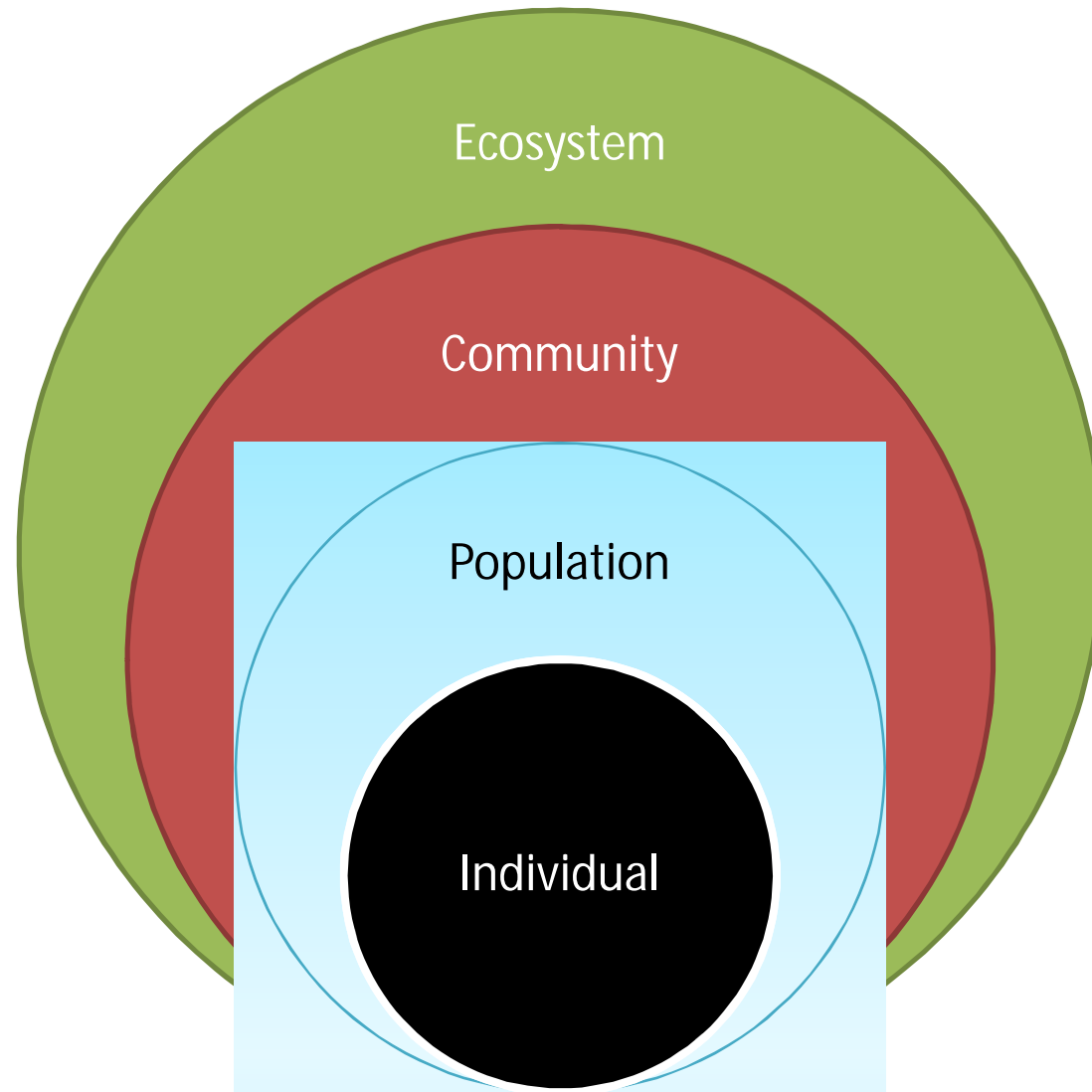
It has been derived from two Greek words, 'oikos', meaning home or estate and 'logos' meaning study.

The emphasis is on relationships between organisms and the components of the environment namely abiotic (non-living) and biotic (living).

Ecology not only deals with the study of the relationship of individual organisms with their environment, but also with the study of populations, communities, ecosystems, biomes, and biosphere as a whole

# Biosphere

## Biome





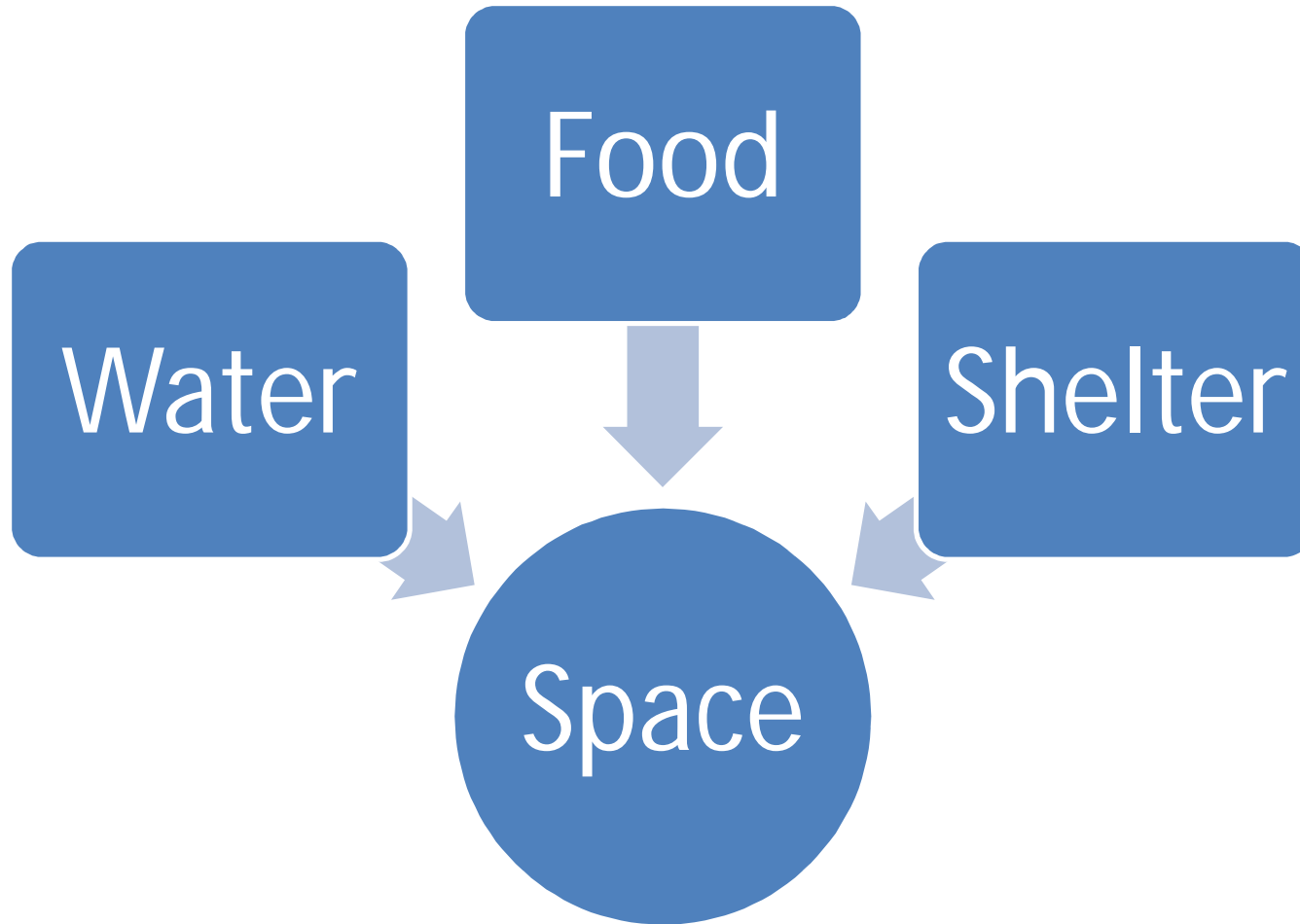
# Levels of ecological organization

1. **Organisms/(individual):** basic unit of study
2. **Population:** A group of organisms consisting of a number of different populations that live in defined area and interact with each other.
3. **Community:** A group of organisms consisting of a number of different species that live in an area and interact with each other
4. **Ecosystem:** A communities of organisms and their Physical environment, interacting as an ecological unit.
5. **Biome:** A large community unit, characterized by a major vegetation type and associated fauna, found in a specific climatic region is a **biome**. Biomes refer basically to terrestrial areas [Forest, Grassland, Tundra/Cold Deserts and Savannah/Deserts]. The aquatic systems [like the seas, rivers, ponds, lakes] etc. are also divided into distinct life zones on basis of salinity.

# Habitat

- Habitat is the physical environment in which an organism lives.
- Each organism has particular requirements for its survival and lives where the environment provides for those needs.
- The environmental requirement of an elephant would be a forest.
- A habitat may support many different species having similar requirements. For example, a single ocean habitat may support a whale, a sea-horse, seal, phytoplankton and many other kinds of organisms.
- The various species sharing a habitat thus have the same 'address'. Forest, ocean, river etc. are examples of habitat.
- The features of the habitat can be represented by its structural components namely
  - (1) space
  - (2) food
  - (3) water
  - (4) and cover or shelter
- Earth has four major habitats-(1) **Terrestrial** (2) **Freshwater** (3) **Estuarine (Where rivers meet the ocean)** and (4) **Ocean**.
- The human gut is the habitat of a tapeworm and the rotting log a habitat of a fungus.

# Structural Components of Habitat



# Niche

- The term niche means the sum of all the activities and relationships of a species by which it uses the resources in its habitat for its survival and reproduction.
- In nature, many species occupy the same habitat but they perform different functions.
- The functional characteristics of a species in its habitat is referred to as “niche” in that common habitat.
- Habitat of a species is like its ‘address’ (i.e. where it lives) whereas niche can be thought of as its “profession” (i.e. activities and responses specific to the species).
- A niche is unique for a species while many species share the habitat.
- No two species in a habitat can have the same niche. This is because if two species occupy the same niche they will compete with one another until one is displaced. For example, a large number of different species of insects may be pests of the same plant but they can co-exist as they feed on different parts of the same plant.