

LESSON 1. Definition, Scope And Importance

1.1 INTRODUCTION

The word 'Environment' is derived from the French word 'Environner' which means to encircle, around or surround.

As given by Environment Protection Act 1986, Environment is the sum total of land, water, air, interrelationships among themselves and also with the human beings and other living organisms.

Environmental Science is the interdisciplinary field and requires the study of the interactions among the physical, chemical and biological components of the Environment with a focus on environmental pollution and degradation. Environment studies is a multidisciplinary subject where different aspects are dealt with in a holistic approach. The science of Environment studies comprises various branches of studies like chemistry, physics, life science, medical science, agriculture, public health, sanitary engineering, geography, geology, atmospheric science, etc.

The Environment is about the surrounding external conditions influencing development or growth of people, animal or plants; living or working conditions etc. This involves three questions i.e., what is surrounded, by what surrounded and where surrounded. The answer to the first is living objects in general and man in particular. Human life is concerned to be the main in the study of environment. However, human life cannot exist or be understood in isolation from the other forms of life like animal life and from plant life. Environment belongs to all living beings and is thus important for all.

Hence, environment refers to the sum total of conditions surround in space and time.

1.2 DEFINITIONS OF ENVIRONMENT:

Some important definitions of environment are as under:

1. According to Boring, 'A person's environment consists of the sum total of the stimulation which he receives from his conception until his death.' Indicating that environment comprises various types of forces such as physical, intellectual, mental, economical, political, cultural, social, moral and emotional.

2. Douglas and Holland defined that 'The term environment is used to describe, in aggregate, all the external forces, influences and conditions, which affect the life, nature, behaviour and the growth, development and maturity of living organisms'.

1.3 SCOPE OF ENVIRONMENT:

The environment consists of four segments of the earth namely atmosphere, hydrosphere, lithosphere and biosphere:

1. **Atmosphere:** The Atmosphere forms a distinctive protective layer about 100 km thick around the earth. A blanket of gases called the atmosphere surrounds the earth and protects the surface of earth from the Sun's harmful, ultraviolet rays. It sustains life on the earth. It also regulates temperature, preventing the earth from becoming too hot or too cold. It saves it from the hostile environment of outer space. The atmosphere is composed of nitrogen and oxygen besides, argon, carbon dioxide and trace gases.

The atmosphere has a marked effect on the energy balance at the surface of the Earth. It absorbs most of the cosmic rays

from outer space and a major portion of the electromagnetic radiation from the sun. It transmits only ultraviolet, visible, near infrared radiation (300 to 2500 nm) and radio waves. (0.14 to 40 m) while filtering out tissue-damaging ultraviolet waves below about 300 nm.

2. **Hydrosphere:** The Hydrosphere comprises all types of water resources oceans, seas, lakes, rivers, streams, reservoirs, polar icecaps, glaciers, and ground water. Oceans represent 97% of the earth's water and about 2% of the water resources is locked in the polar icecaps and glaciers. Only about 1% is available as fresh water as surface water in rivers, lakes, streams, and as ground water for human use.

3. **Lithosphere:** Lithosphere is the outer mantle of the solid earth. It consists of minerals occurring in the earth's crusts and the soil e.g. minerals, organic matter, air and water.

4. **Biosphere:** Biosphere indicates the realm of living organisms and their interactions with environment, viz atmosphere, hydrosphere and lithosphere.

The scope of environmental studies is very wide and it deals with many areas like i) Conservation of natural resources, ii) ecological aspects, iii) pollution of the surrounding natural resources, iv) controlling the pollution, v) social issues connected to it, and vi) impacts of human population on the environment.

Elements of Environment

Environment is constituted by the interacting systems of physical, biological and cultural elements inter-related in various ways, individually as well as collectively. These elements are:

(1) Physical elements

Physical elements are space, landforms, water bodies, climate, soils, rocks and minerals. They determine the variable character of the human habitat, its opportunities as well as limitations.

(2) Biological elements

Biological elements such as plants, animals, microorganisms and men constitute the biosphere.

(3) Cultural elements

Cultural elements such as economical, social and political elements are essentially man-made features, which make the cultural background.

1.4 ENVIRONMENT STUDIES: IMPORTANCE

The environment studies make us aware about the importance of protection and conservation of our mother earth and about the destruction due to the release of pollution into the environment. The increase in human and animal population, industries and other issues make the survival cumbersome. A great number of environment issues have grown in size and make the system more complex day by day, threatening the survival of mankind on earth. Environment studies have become significant for the following reasons:

1. Environment Issues are being of Global:

It has been well recognised that environment issues like global warming and ozone depletion, acid rain, marine pollution and biodiversity are not merely national issues but are global issues and hence require international efforts and cooperation to solve them.

2. Development and Environment:

Development leads to Urbanization, Industrial Growth, Telecommunication and Transportation Systems, Hi-tech Agriculture and Housing etc. However, it has become phased out in the developed world. The North intentionally moves their dirty factories to South to cleanse their own environment. When the West developed, it did so perhaps in ignorance of the environmental impact of its activities. Development of the rich countries of the world has undesirable effects on the environment of the entire world.

3. Explosive Increase in Pollution

World census reflects that one in every seven persons in this planet lives in India. Evidently with 16 per cent of the world's population and only 2.4 per cent of its land area, there is a heavy pressure on the natural resources including land. Agricultural experts have recognized soil health problems like deficiency of micronutrients and organic matter, soil salinity and damage of soil structure.

4. Need for an Alternative Solution

It is essential, specially for developing countries to find alternative paths to an alternative goal. We need a goal as under:

1. A true goal of development with an environmentally sound and sustainable development.
2. A goal common to all citizens of our planet earth.

3. A goal distant from the developing world in the manner it is from the over-consuming wasteful societies of the “developed” world.

It is utmost important for us to save the humanity from extinction because of our activities constricting the environment and depleting the biosphere, in the name of development.

5. Need for Wise Planning of Development

Our survival and sustenance depend on resources availability. Hence Resources withdraw, processing and use of the products have all to be synchronised with the ecological cycle. In any plan of development our actions should be planned ecologically for the sustenance of the environment and development.

6. Misra (1991) recognized four basic principles of ecology, as under:

(i) Holism, (ii) Ecosystem, (iii) Succession and (iv) Conversation.

Holism has been considered as the real base of ecology. In hierarchical levels at which interacting units of ecology are discussed, are as under:

Misra (1991) has recognised four basic requirements of environmental management as under:

1. Impact of human activities on the environment,
2. Value system,
3. Plan and design for sustainable development,

4. Environment education.

Keeping in view of the goal of planning for environmentally sustainable development, India contributed to the United Nations Conference on Environment and Development (UNCED), also referred to as “Earth Summit” held at Rio de Janeiro, the Capital of Brazil, 3rd-14th June, 1992.