



---

## CHAPTER 1

# Multidisciplinary Nature of Environmental Studies



---

### Introduction

The importance of environment cannot be disputed when the need for sustainable development is a key to the future of mankind. Continuing problems of pollution loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and World Summit on Sustainable Development at Johannesburg in 2002, have drawn the attention of people around the globe to the deteriorating condition of our environment. It is now even more critical than ever before for mankind as a whole to have a clear understanding of environmental concerns and to follow sustainable development practices.



---

### Definition

The word 'Environment' has originated from French word environ, means surroundings and "ment" means the auctioning. The term 'environment' etymologically means surroundings. According to the committee on Environmental Health Association of America, environment comprises the surroundings in which man lives, works and plays. Environment is the sum total of abiotic (the non-living) and biotic (the living) conditions influencing the response of a particular organism. It is a broad concept encompassing the whole range of diverse surroundings in which we perceive, experience and react to events and changes. It encompasses the air we breathe, the water we drink, the food we consume, and the shelter we live in. Environment is not static; it is dynamic and the changes occur even if there is no human interference.

## **4 Occupational Hazards Safety and Environmental Studies**

---

According to Osting, “The environment is a complex of variable factors or causes, which includes

- (i) substances (soil, water),
- (ii) conditions (temperature, light),
- (iii) forces (wind, gravity),
- (iv) organisms (plant, animals), and
- (v) time.

In broadest sense, environmental science may be defined as the study of the earth, air, water and living environments and the effects of technology thereon. To a significant degree, environmental science has evolved from investigations of the ways by which, and places in which living organisms carry out their life cycles. This is the discipline of natural history, which in recent times has evolved into ecology, the study of environmental factors that affect organisms and how organisms interact with these factors and with each other. Environmental segments include:

- (a) lithosphere,
- (b) hydrosphere,
- (c) atmosphere,
- (d) biosphere.



### **Scope**

---

The scope of the environmental studies is vast but confined to study of natural resources, ecosystems, biodiversity and its conservation, environmental pollution, human population, and issues on environment and sustainable development.

The studies on environmental science is getting lot of attention not only in the field of pollution control but also to sustain the life and nature. It helps us to understand the nature of environment and its components, nature of disturbing factors and the various methods to overcome it. The disturbing factors pressurize sustainability and natural living.

The scope of environmental science and its management also includes manufacturing pollution control equipment, sewage and

effluent treatment plants, biomedical waste treatment and fly ash management.



### **Importance**

The study of environmental science makes us understand the scientific basis for establishing a standard which can be considered acceptably safe, clean and healthy for man and natural ecosystem. Natural ecosystem includes both physical and natural science.

The environmental scientists warn that fundamental, and perhaps drastic changes in human behaviour will be required to avert an ecological crisis.

There are several environmental problems such as global warming, increasing population, depletion of the ozone layer, habitat destruction and species extinction, groundwater depletion and contamination, and so on that need urgent attention of all concerned.

In recent years, rapidly rising global concentrations of atmospheric pollutants have threatened to cause severe damage to the ozone layers as well as dramatic climatic changes such as global warming. To reduce the severity of these environmental threats, global emissions must be sharply curtailed. Responsibility for reducing emissions must be divided across the members of a tremendously diverse international community that may be remarkably different in terms of stage of industrial development, income, social structure, and political orientation.



### **Multidisciplinary Nature**

**Environment and Economics:** Economic growth and environmental balance do not go together. They both oppose each other. To achieve a higher economic growth, resources have to be exploited and environment has to be affected (protector) Environment balance can only be obtained, if resources are not exploited and pollution is not formed. But this leads to low economic growth. It can be seen that both of them are needed for the economic prosperity. The only solution is controlling the scale of pollution and optimal use of the resources.

**Pollution Control and Environment:** Economic activities give rise to pollution. This pollution has a serious impact on the environment and the society. It is this society that feels the harmful effects of the pollution.

**Conservation of Resources:** The environment is the provider for all the materials needed by the man i.e., air, water, minerals, timber, shelters, food, etc. These resources can be classified as renewable (forest, crops, etc.) and non-renewable (coal, oil, etc.) Each of these resources sometimes have taken centuries to form under conditions that cannot be duplicated. Today these resources are being depleted in a very rapid way and may be exhausted very soon. These resources are scarce and therefore these must be conserved.

**Environment and Chemistry:** The relation between chemistry and environment is known as environmental chemistry. It may be defined as the study of the sources, reactions, transport, effects, and fates of chemical species in water, soil and air environments and the effects of technology thereon.

One of environmental chemistry's major challenges is the determination of the nature and quantity of specific pollutants in the environment.

**Environment and Ecology and Eco system:** The word ecology is derived from the Greek words 'oikos' meaning habitation and 'logos' meaning study. Ecology was first described as a separate field of knowledge in 1866, by the German zoologist Ernst Haeckel. Who defined it as "the study of relation of organism or groups of organisms to their environment".

**Need for Public Awareness:** Awareness regarding the state of the environment is a must for every human being living on this planet. The media is playing a leading role in this process. Several means are being employed to educate the masses. Awareness and concern about conservation of wildlife, air pollution, water pollution, noise pollution, solid waste disposal, radiation, dwindling energy resources, pesticide poisoning, and other environmental problems engaged a broadening number of sympathisers, and gave rise to what became known as the "new environmentalism". It can, however, be said that we are increasingly becoming aware of environmental problems and the urgent need to protect, conserve, and manage the environment for our sustainable development and rapid economic growth.



## SUMMARY

- The word “environment” comes from the French word *environner* which means to encircle or surround.
- Our environment is a system of interaction between the natural system and the social system.
- Our human needs and wants are dependent on the biophysical environment which is governed by a set of sovereign inevitable laws.
- Environmental science, in its broadest sense, is the science of complex interactions that occurs among the terrestrial, atmospheric, aquatic, living and anthropological environments.
- The subject of “environmental studies” is multidisciplinary, holistic, comprehensive and dynamic in nature.
- Environmental study includes the disciplines of chemistry, biology, ecology, sociology and government, that affect or describe these interactions.
- The study encompasses everything that deals with each and every aspect of living and non-living; and cuts through the sphere of physical sciences, social sciences, and disciplines such as engineering, law, commerce, and so on.
- The scope of environmental studies is based on five fundamental aspects such as
  - (a) environmental perception and awareness;
  - (b) environmental education and training;
  - (c) control of environmental degradation and pollution;
  - (d) resource management; and
  - (e) environmental impact assessment.
- The environment of earth is a combination of two things - physical and biological.
- The physical environment includes the non-living elements such as land, water, and air; and the biological environment includes plants, animals, and micro-organisms.
- There is a need for making environmental education an essential component in the educational curriculum as we are facing a wide range of problems like water shortage, worsening urban air, rapid spread of salting, soil depletion, loss of biodiversity, pollution, alarming growth of population, and so on.



## **REVIEW QUESTIONS**

1. What do you mean by environmental studies? Describe its scope and importance.
2. Describe the multidisciplinary nature of environmental studies.