



CHAPTER 1

Multidisciplinary Nature of Environmental Studies



Introduction

The importance of environmental studies 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 productively 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.



Definition of Environment

The word 'Environment' has original 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.

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.

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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.



Scope

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

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 disturbing factors. The disturbing factors pressurize sustainability and natural living.

The scope of environmental science and its management has increased from manufacturing pollution control equipment, sewage and effluent treatment plants, biomedical waste treatment and fly ash management.



Importance

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

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.

The study of the subject environment 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.



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.

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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. In simple words, ecology can be defined as "The study of relation of organism or groups of organisms to their environment.



SUMMARY

- Environment is a broad concept encompassing the whole range of diverse surroundings in which we perceive experience and react to events and changes.
- 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.
- It encompasses everything that deals with each and every aspect of living and non-living.
- It 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.



REVIEW QUESTIONS

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