

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. 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. It is the science of physical phenomena in the environment. It studies the sources, reactions, transport, effect and fate of a biological species in the air, water and soil and the effect of and from human activity upon these. Environmental Science deals with the study of processes in soil, water, air and organisms which lead to pollution or environmental damages and the scientific basis for the establishment of a standard which can be considered acceptably clean, safe and healthy for human beings and natural ecosystems.

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.

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.

Environmental Management System (EMS) refers to the management of an organisation's environmental programmes in a comprehensive, systematic, planned and documented manner. It includes the organisational structure, planning and resources for developing, implementing and maintaining policy for environmental protection. The International Organisation for Standardisation (ISO) has defined environmental management system as that "part of the overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy

Key Elements of an EMS

The key elements of any environmental management system are

- **Environmental policy** - Develop a statement of the organisation's commitment to the environment. Use this policy as a framework for planning and action
- **Environmental aspects** - Identify environmental attributes of products, activities, and services. Determine those that could have significant impacts on the environment.
- **Legal and other requirements**- Identify and ensure access to relevant laws and regulations, as well as other requirements to which the organisation adheres to.
- **Objectives and targets** - Establish environmental goals for the organisation, in line with the policy, environmental impacts, the views of interested parties, and other factors.

- **Environmental management programme** - Plan actions necessary to achieve objectives and targets.
- **Structure and responsibility** - Establish roles and responsibilities for environmental management and provide appropriate resources
- **Training, awareness, and competence** - Ensure that the employees are trained and capable of carrying out their environmental responsibilities.
- **Communication** - Establish processes for internal and external communications on environmental management issues.

What do you understand by ISO14001

ISO 14001 is one of a series of emerging international environmental management standards aimed at promoting continual improvement in company environmental performance through the adoption and implementation of an environmental management system.

Environmental management programs support the NIEHS Environmental Policy and the overall goal of reducing negative environmental impacts. These programs were established to assure compliance with federal, state, and local environmental regulations.

Energy Management

This program seeks to reduce electricity consumption associated with NIEHS laboratory, utility, office, and outdoor operations and support agency wide efforts to reduce campus building energy intensity and increase usage of renewable energy.

Green Purchasing

This program encourages the purchase of recycled content materials, energy-efficient equipment, alternative fueled vehicles, bio-based products, environmentally preferable products

Hazardous Waste Management

This program provides for the management of hazardous wastes to ensure that such wastes are identified, accumulated, stored, transported, treated, and disposed or recycled in an environmentally sound manner.