

S.O.S in Pharmaceutical Sciences, Jiwaji University Gwalior .

First Theory Lecture

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Subject- BP 206T (Environmental Science)

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DEFINITION, SCOPE AND IMPORTANCE

- Environmental studies deals with every issue that affects an organism. It is essentially a multidisciplinary approach that brings about an appreciation of our natural world and human impacts on its integrity. It is an applied science as it seeks practical answers to making human civilization sustainable on the earth's finite resources. Its components include biology, geology, chemistry, physics, engineering, sociology, health, anthropology, economics, statistics, computers
- and philosophy.

Scope

As we look around at the area in which we live, we see that our surroundings were originally a natural landscape such as a forest, a river, a mountain, a desert, or a combination of these elements. Most of us live in landscapes that have been heavily modified by human beings, in villages, towns or cities. But even those of us who live in cities get our food supply from surrounding villages and these in turn are dependent on natural landscapes such as forests, grasslands, rivers, seashores, for resources such as water for agriculture, fuel wood, fodder, and fish. Thus our daily lives are linked with our surroundings and inevitably affects them. We use water to drink and for other day-to-day activities. We breathe air, we use resources from which food is made and we depend on the community of living plants and animals which form a web of life, of which we are also a part. Everything around us forms our environment and our lives depend on keeping its vital systems as intact as possible.

Importance

Environment is not a single subject. It is an integration of several subjects that include both Science and Social Studies. To understand all the different aspects of our environment we need to understand biology, chemistry, physics, geography, resource management, economics and population issues. Thus the scope of environmental studies is extremely wide and covers some aspects of nearly every major discipline. We live in a world in which natural resources are limited. Water, air, soil, minerals, oil, the products we get from forests, grasslands, oceans and from agriculture and livestock, are all a part of our life support systems. Without them, life itself would be impossible. As we keep increasing in numbers and the quantity of resources.

Productive value of nature

As scientists make new advances in fields such as biotechnology we begin to understand that the world's species contain an incredible uncountable number of complex chemicals. These are the raw materials that are used for developing new medicines and industrial products and are storehouse from which to develop thousands of new products in the future. The flowering plants and insects that form the most species-rich groups of living organisms are thus vital for the future development of man. If we degrade their habitat these species will become extinct. If one sees being sold or used, a product that comes from an illegally killed wild species, if we do not inform the authorities, we become party to its extinction. Once they are lost, man cannot bring them back. When we permit the destruction of a forest, wetland or other natural area and do not protest about it, future generations are being denied the use of these valuable resources and will blame us for these rash and negligent actions towards the environment.

The option values of nature

While we utilise several goods and services of nature and enjoy its benefits, we must recognize that every activity that we do in our daily lives has an adverse impact on nature's integrity. Thus if we use up all our resources, kill off and let species of plants and animals become extinct on earth, pollute our air and water, degrade land, and create enormous quantities of waste, we as a generation will leave nothing for future generations. Our present generation has developed its economies and lifestyles on unsustainable patterns of life. However, nature provides us with various options on how we utilize its goods and services. This is its option value. We can use up goods and services greedily and destroy its integrity and long term values, or we can use its resources sustainably and reduce our impacts on the environment. The option value allows us to use its resources sustainably and preserve its goods and services for the future.

NEED FOR PUBLIC AWARENESS

As the earth's natural resources are dwindling an environment is being increasingly degraded by human activities, it is evident that something needs to be done. We often feel that managing all this is something that the Government should do. But if we go on endangering our environment, there is noway in which the Government can perform all these clean-up functions. It is the prevention of environment degradation in which we must all take part that must become a part of all our lives. Just as for any disease, prevention is better than cure. To prevent ill-effects on our environment by our actions, is economically more viable than cleaning up the environment once it is damaged. Individually we can play a major role in environment management. We can reduce wasting natural resources and we can act as watchdogs that inform the Government about sources that lead to pollution and degradation of our environment.

People in Environment

There are several internationally known environmental thinkers. Among those who have made landmarks, the names that are usually mentioned are Charles Darwin, Ralph Emerson, Henry Thoreau, John Muir, Aldo Leopald, Rachel Carson and EO Wilson. Each of these thinkers looked at the environment from a completely different perspective. **Charles Darwin wrote** the ‘Origin of Species’, which brought to light the close relationship between habitats and species. It brought about a new thinking of man’s relationship with other species that was based on evolution. Alfred Wallace came to the same conclusions during his work. **Ralph Emerson** spoke of the dangers of commerce to our environment way back in the 1840s. **Henry Thoreau in the 1860s wrote that the wilderness** should be preserved after he lived in the wild for a year. He felt that most people did not care for nature and would sell it off for a small sum of money. **John Muir is remembered as** having saved the great ancient sequoia trees in California’s forests. In the 1890s he formed the Sierra club, which is a major conservation NGO in the USA. **Aldo Leopald was a forest official.**

Components of Environmental Science

- Ecology
- Geoscience
- Atmospheric Science
- Environmental Chemistry

Importance of Environmental Science

- To realize that environmental problems are global
- To understand the impacts of development on environment
- To discover sustainable ways of living
- To utilize natural resources efficiently
- To shed light on contemporary concepts such as how to conserve biodiversity
- To learn and create awareness about environmental problems at local, national and international levels

Environmental Science Careers

- Environmental Scientist
- Environmental Engineer
- Environmental Biologist
- Environmental Geologist
- Environmental Biotechnologist