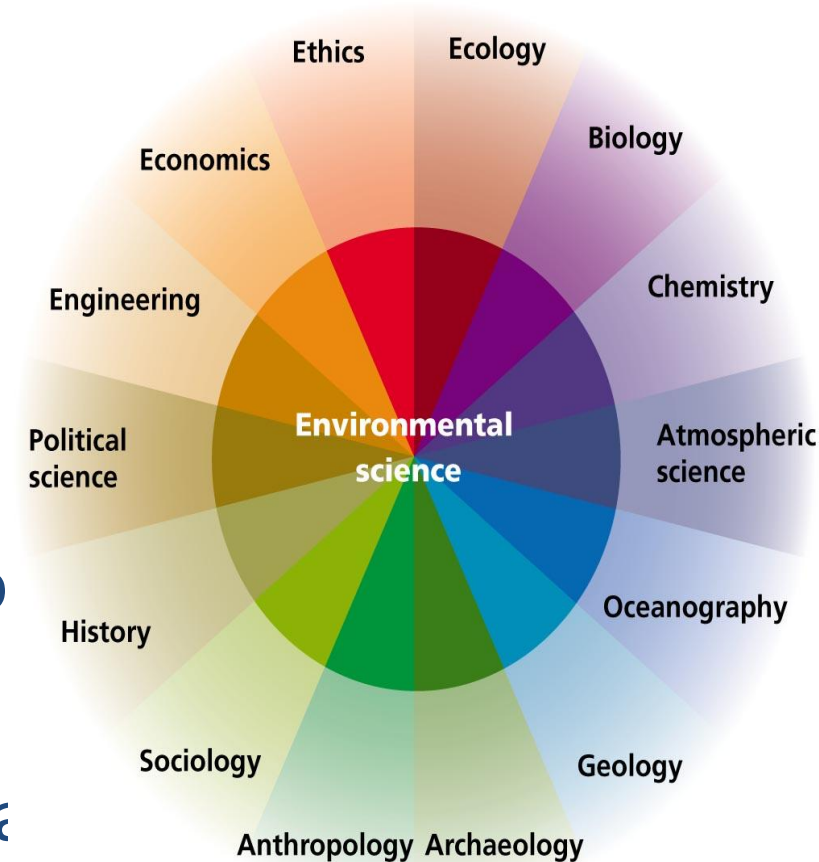


# Environmental Science :

The science of Environment studies is a multi-disciplinary science

It comprises various branches of studies like chemistry, physics, medical science, life science, agriculture, public health, sanitation engineering etc.



# Environmental Science

- **Environmental science** is the study of:
  - How the natural world works
  - How the environment affects humans and vice versa

## Environment: the total of our surroundings

- All the things around us with which we interact:

### *Biotic vs. Abiotic*

- Living things
  - Animals, plants, forests, fungi, etc.
- Nonliving things
  - Continents, oceans, clouds, soil, rocks
- Our built environment
  - Buildings, human-created living centers
- Social relationships and institutions

# Environment

- environment means the surrounding external conditions influencing development or growth of people, animal or plants; living or working conditions This involves three questions:
  1. What is Surrounded
  2. By what Surrounded
  3. Where Surrounded

# Definitions of Environment

- A person's environment consists of the sum total of the stimulation which he receives from his conception until his death.'
- The term environment is used to describe, in the aggregate, all the external forces, influences and conditions, which affect the life, nature, behaviour and the growth, development and maturity of living organisms.'

# Scope of Environment

- The environment consists of four segments as under:
- **1. Atmosphere**
- **2. Hydrosphere**
- **3. Lithosphere**
- **4. Biosphere**

# Planet Earth

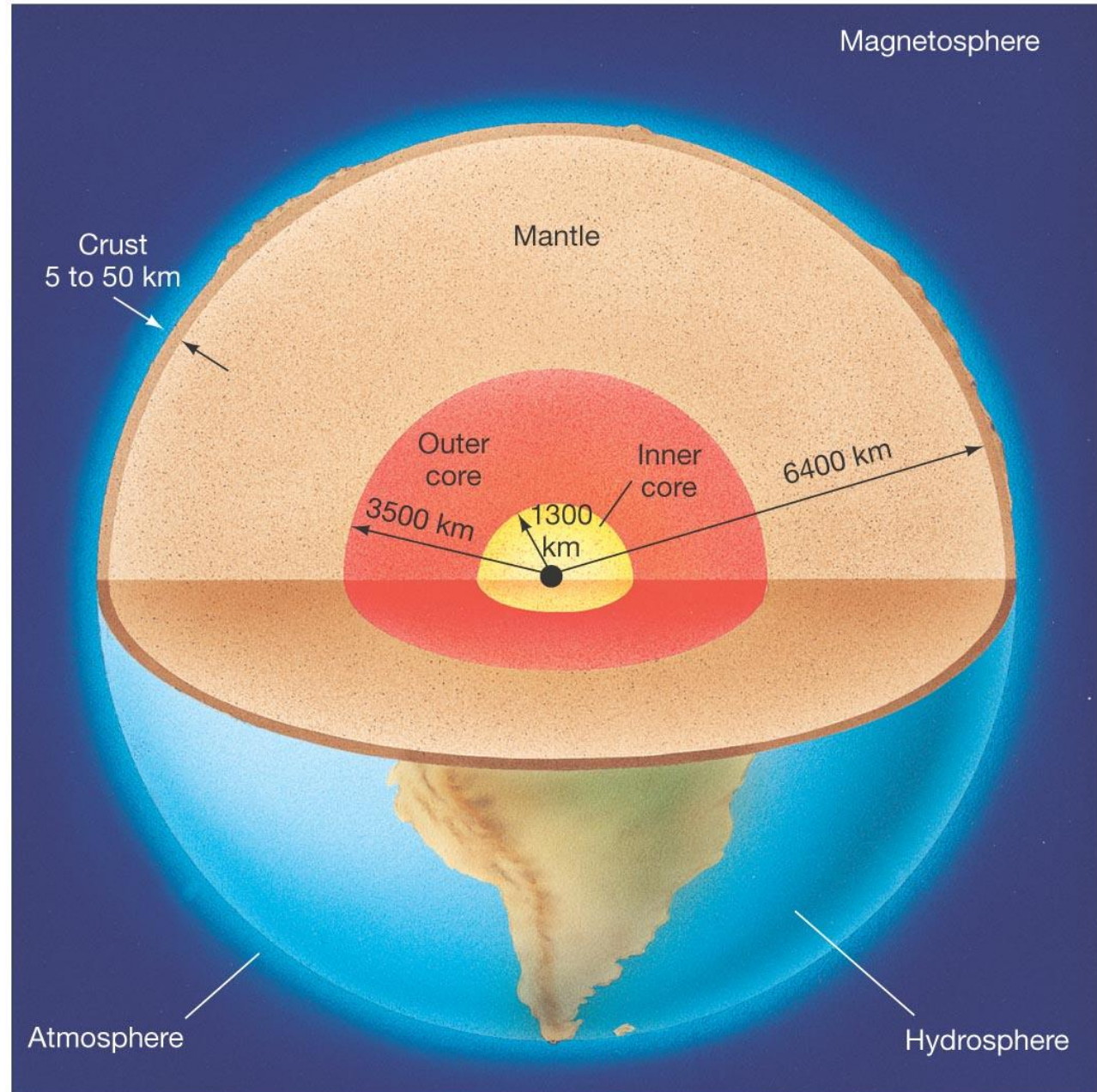
- **Geosphere (Lithosphere):**  
Crust: < 1% (Thin)  
Everest: 8.85 km

Mantle, Cores

- **Hydrosphere:**  
(oceans)  
Mariana Trench (6.9mi)  
~ 0.2 %

- **Atmosphere:** ~1%:  
30 km (99% of air)  
extends to 120 km

- **Biosphere:**



# Atmosphere

The atmosphere implies the protective blanket of gases, surrounding the earth:

*(a) It sustains life on the earth.*

*(b) It saves it from the hostile environment of outer space.*

*(c) It absorbs most of the cosmic rays from outer space and a major portion of the electromagnetic radiation from the sun.*

*(d) It transmits only here 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.*



# Hydrosphere:

The Hydrosphere comprises all types of water resources oceans, seas, lakes, rivers, streams, reservoir, polar icecaps, glaciers, and ground water.

*(i) Nature 97% of the earth's water supply is in the oceans,*

*(ii) About 2% of the water resources is locked in the polar icecaps and glaciers.*

*(iii) Only about 1% is available as fresh surface water-rivers, lakes streams, and ground water fit to be used for human consumption and other uses.*

# 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.*

# Biosphere

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

# Element of Environment

- **(1) Physical elements**
- Physical elements are as 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 economic, social and political elements are essentially manmade features

# ENVIRONMENT STUDIES: IMPORTANCE

- The environment studies enlighten us, about the importance of protection and conservation of our indiscriminate release of pollution into the environment
- At present a great number of environment issues, have grown in size and complexity day by day, threatening the survival of mankind on earth. We study about these issues besides and effective suggestions in the Environment Studies.

# IMPORTANCE

- Environment studies have become significant for the following reasons:
- **1. Environment Issues Being of International Importance**
- **2. Problems Cropped in The Wake of Development**
- **3. Explosively Increase in Pollution**
- **4. Need for An Alternative Solution**
- **5. Need To Save Humanity From Extinction**
- **6. Need For Wise Planning of Development**
- **7. Misra's Report**

# Misra's Report

- Misra (1991) recognized four basic principles of ecology, as under:
- *(i) Holism*
- *(ii) Ecosystem*
- *(iii) Succession*
- *(iv) Conversation*

- Misra (1991) has recognised four basic requirements of environmental management as
- under:
- *(i) Impact of human activities on the environment,*
- *(ii) Value system,*
- *(iii) Plan and design for sustainable development,*
- *(iv) Environment education.*



# Earth Summit

- Keeping in view 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.

# NEED FOR PUBLIC AWARENESS

- Some of the challenges are as under
- **1. Growing Population**
- **2. Poverty**
- **3. Agricultural Growth**
- **4. Need to Ground water**
- **5. Development And Forests**
- **6. Degradation of Land**
- **7. Reorientation of Institutions**
- **8. Reduction of Genetic Diversity**
- **9. Evil Consequences of Urbanisation**
- **10. Air and water Pollution**

# VARIOUS TYPES OF ENVIRONMENT

- According to Kurt Lewin, environment is of three types which influence the personality of an individual as under:
  - *(a) Physical Environment,*
  - *(b) Social and Cultural Environment, and*
  - *(c) Psychological Environment.*

# STRUCTURE OF ENVIRONMENT

- Environment is both physical and biological. It includes both living and non-living components.
- **(i) Physical Environment-** The Physical Environment is classified into three broad categories viz. *(i) Solid,*
- *(ii) Liquid*
- *(iii) Gas.*
- **(ii) Biological Environment**
- The biological of the environment consists of:
- *(i) Plants (flora)*
- *(ii) Animals (fauna).*

# Sustainable development

- **Sustainable development:** the use of resources to satisfy current needs without compromising future availability of resources for generations to come
- **Sustainability**
  - Leaves future generations with a rich and full Earth
  - Conserves the Earth's natural resources
  - Maintains fully functioning ecological systems of nature

# Conclusion

- Environmental science helps us understand our relationship with the environment and informs our attempts to solve and prevent problems.
- Identifying a problem is the first step in solving it
- Solving environmental problems can move us towards health, longevity, peace and prosperity
  - Environmental science can help us find balanced solutions to environmental problems for sustainable development