

# **UNIT 1**

## **THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES**

# 1) DEFINITION, SCOPE AND IMPORTANCE

## 2) NEED FOR PUBLIC AWARENESS

- a) Institutions in Environment
- b) People in Environment

- **Definition:** Environmental studies deals with every issue that affects a living organism.
- It is essentially a multidisciplinary approach that brings about an appreciation of our natural world and human impact on its integrity.
- It is an applied science, as it seeks practical answers to the increasingly important question of how to make human civilisation sustainable on the finite resources that are available.

## **Differences between Environmental science Vs Environmental studies**

**Environmental Science** deals with **fundamental scientific knowledge** in mathematics, chemistry, physics, and biology coupled with specialization in a particular area of science to provide advanced scientific and quantitative understanding of contemporary environmental challenges.

**Environmental Studies** that provides a broadly integrated understanding to the **social, political and historical facets of our environmental challenges** with focus on policy, law, and sociality aspect of these challenges.

**Both are interdisciplinary subjects.**

## For example, imagine an oil spill in a lake caused by an equipment malfunction.

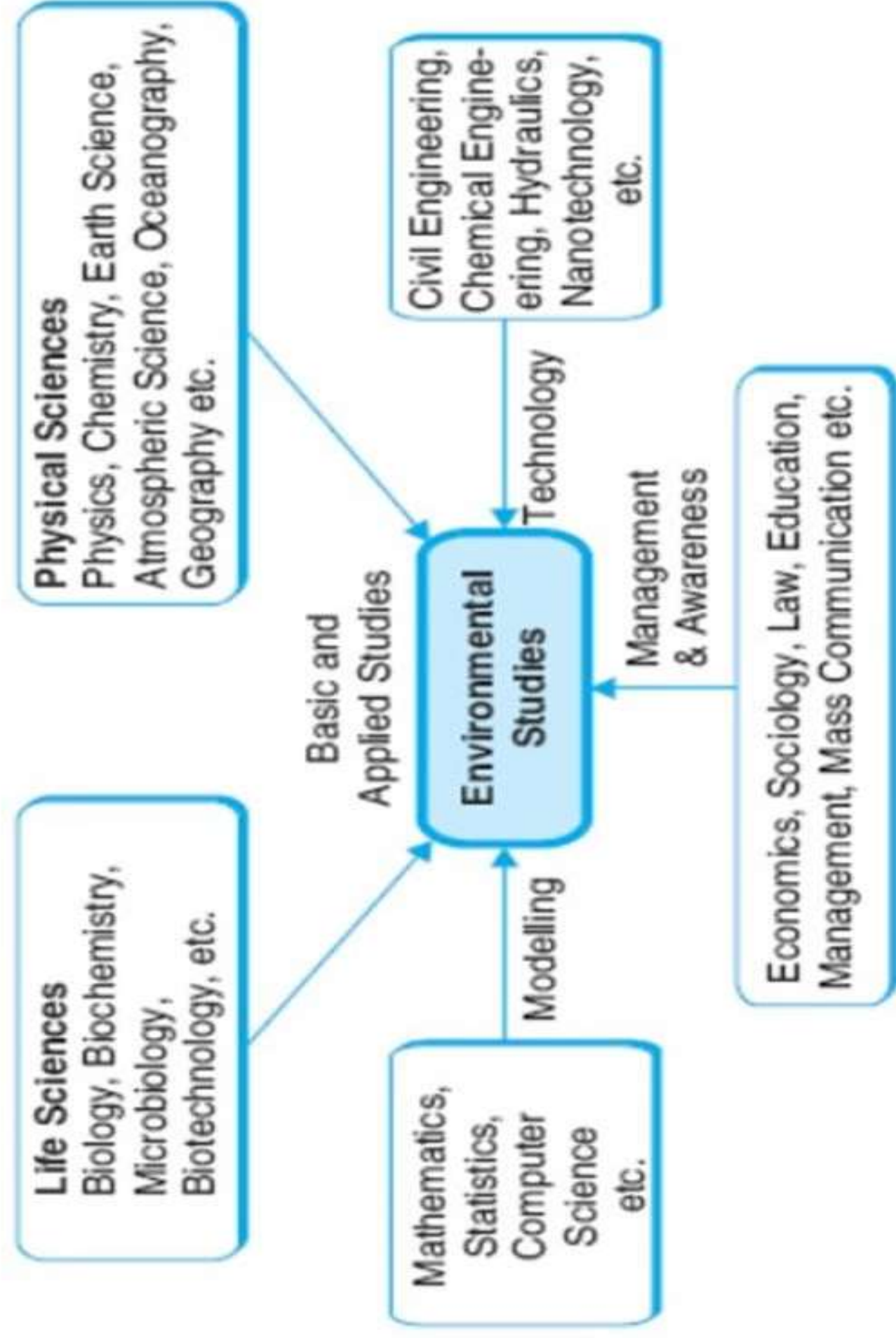
In this case, an **Environmental Sciences** might examine this situation by asking questions such as:

- How much oil was spilled?
- Where will this oil go, and how will it quantitatively affect chemical, physical, and biological environmental systems?
- What is the environmental risk of this oil spill to humans, animals, and habitats and how can we assess it?
- What will be the long-term outcome of this spill on environmental systems, and how can we prevent this from happening in the future from a scientific standpoint?

Conversely, an **Environmental Studies** major might examine this situation by asking questions such as:

- ✓ What are the **economic and social impacts** of this oil spill?
- ✓ What **policies, laws, and regulations** are in place that were/were not followed in this situation? If there aren't any policies, regulations, or laws in place, how can I work with my local government to improve this situation?
- ✓ How can I **educate my community** about this oil spill and its effects on the environment?
- ✓ How can my community **prevent this from happening** again? And if not, how can they prepare?

## Multidisciplinary nature of environmental studies.

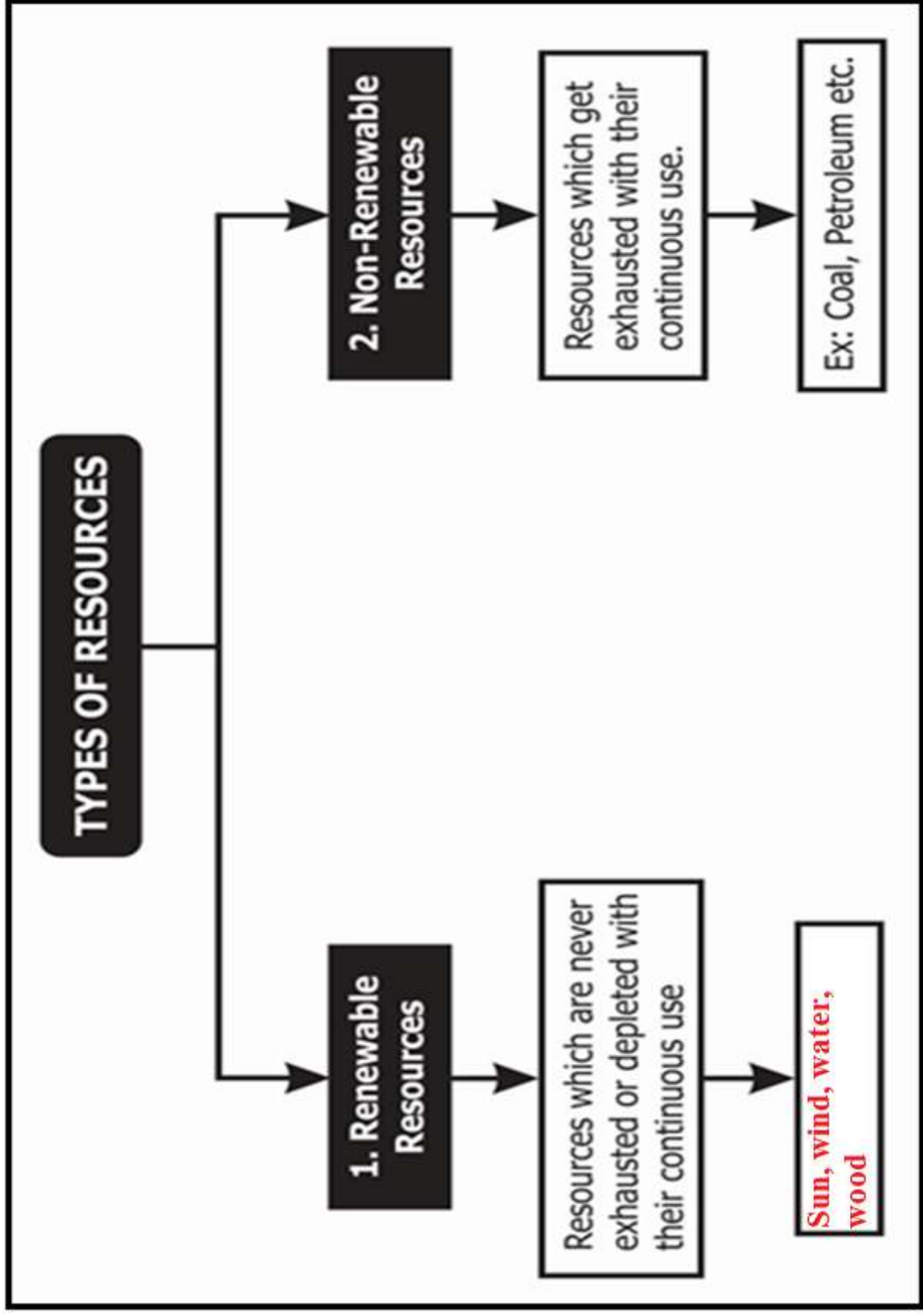


# SCOPE

- 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, physics, chemistry, 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.
- If we study the natural history of the areas in which we live, we would see that our surroundings were originally a natural landscape, such as forest, a river, a mountain, a desert, or a combination of these elements.
- Most of us live in landscapes that have been profoundly modified by human beings – in villages, towns or cities.
- But even those of us who live in cities must get our food supply from the surrounding villages.
- Thus our daily lives are inextricably linked to our surroundings and inevitably affect them.

# SCOPE

Environment is referred to as 'Mother Nature'





# Natural resources are indispensable and limited –

- **RENEWABLE RESOURCES** – is a natural resource that can replenish with the passage of time either through biological reproduction or other naturally occurring process. However, if the rate at which the RR is consumed exceeds its renewal rate, renewal and sustainability would not be ensured. Ex. **Water, wood.**
- **NON-RENEWABLE RESOURCES** - are those which will be exhausted in the future if we continue to extract these without a thought for subsequent generations. **Eg. Natural gas, minerals and oil**

Our natural resources can be **compared with money in a bank**. If we use it rapidly, the capital will be reduced to zero. On the other hand, if we use only the interest, it can sustain us over the longer term. This is called sustainable utilisation or development.

<b><u>OVER USAGE OF RESOURCES BY VARIOUS HUMAN ACTIVITIES</u></b>	
<b>Industrial development</b>  Resources – land, water, air	resources like fossil fuels, water etc are being exhausted)
<b>Intensive agriculture</b>  Resource - land	large amounts of land are being converted into agricultural lands. Thus leading to loss of habitat and biodiversity. This also leads to pollution by pesticides, fertilizers over used for increased food production
<b>Intensive aquaculture</b> Resource – water, land	-do-
<b><u>CONSEQUENCES:</u></b>	
Air pollution Water pollution Land pollution	Minimata disaster; Bhopal gas tragedy (MIC) Cancers, loss of biodiversity, extinction, Variety of diseases etc

# **IMPORTANCE:**

- **Productive value of nature**

The world's species contain an incredible and uncountable number of **complex chemicals**. These are the raw materials that are used for developing new **medicines** and **industrial products** and are a **store house** from which **to develop thousands of new products** in the future using principles of **biotechnology**.

- **Food**

- **Fuel**

## **AESTHETIC VALUE OF NATURE:**

- **Aesthetic** (characterized by an appreciation of beauty or good taste)
- This is created by developing **National Parks** and **Wildlife Sanctuaries** in relatively undisturbed areas. A true wilderness experience has not only recreational value but is an incredible learning experience.
- One can **appreciate** the magnificence of a **mountain**, the power of the **sea**, the **beauty of a forest**, and the vast expanse of the desert.
- It has also **inspired artists to develop visual arts** and writers and **poets** to create their works that vitalize our lives.

### **Recreational value of nature:**

- Wildlife tourism
- Green spaces
- Gardens
- Botanical gardens
- Zoological parks
- Aquariums

### **Advantages**

- Recreational – i.e provide relief and relaxation
- Key tools in educating people
- Psychological and physical health
- Create a deep respect and love for nature.

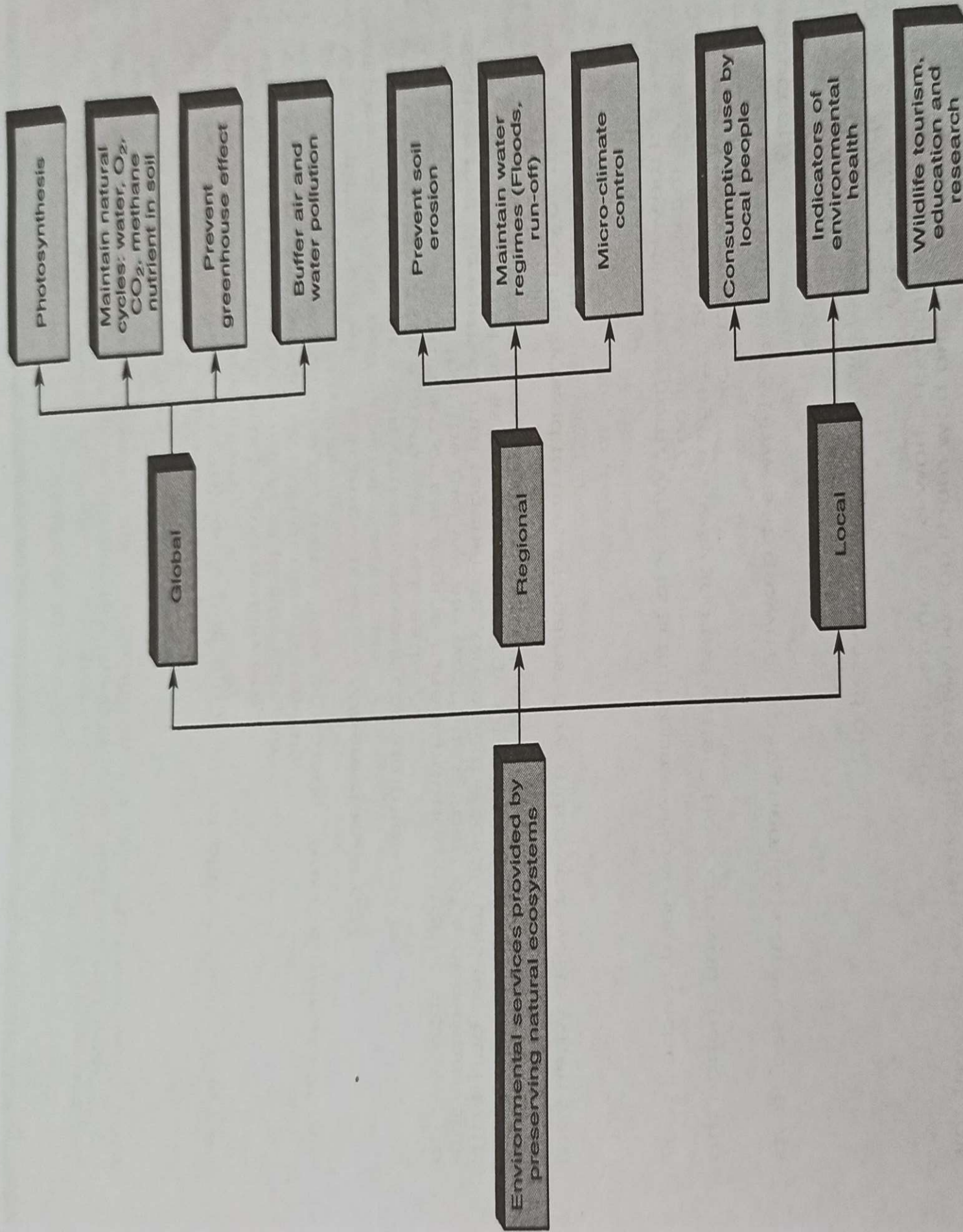
## THE OPTION VALUES OF NATURE:

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.



# Institutions in Environment





wildlife research

**BNHS**  
**India** CONSERVING  
NATURE SINCE 1883

Popular magazines –

1) Hornbill 2) Journal on Natural History.

Logo- horn bill

Salim Ali- Bird man of India

Salim Ali Center for Ornithology & Natural History  
(SACON), - Coimbatore



- 1) conduct regular courses in ornithology and natural history
- 2) conduct research in ornithology
- 3) data bank on Indian ornithology and natural history



## World Wide Fund for Nature (WWF)

It is an international non-governmental organization founded on April 29, 1961, and is working on issues regarding the conservation of research and restoration of the environment.

WWF has set up offices and operations around the world.

<http://wwwf.ru/>

The giant panda has become the symbol of WWF.



- 1) Offers training program,
- 2) Academic courses and
- 3) Advisory in wildlife research and management.

भारतीय वन्यजीव संस्थान  
Wildlife Institute of India

Dehradun





Established in 1890 at the Royal Botanic Gardens,  
**KOLKATA**

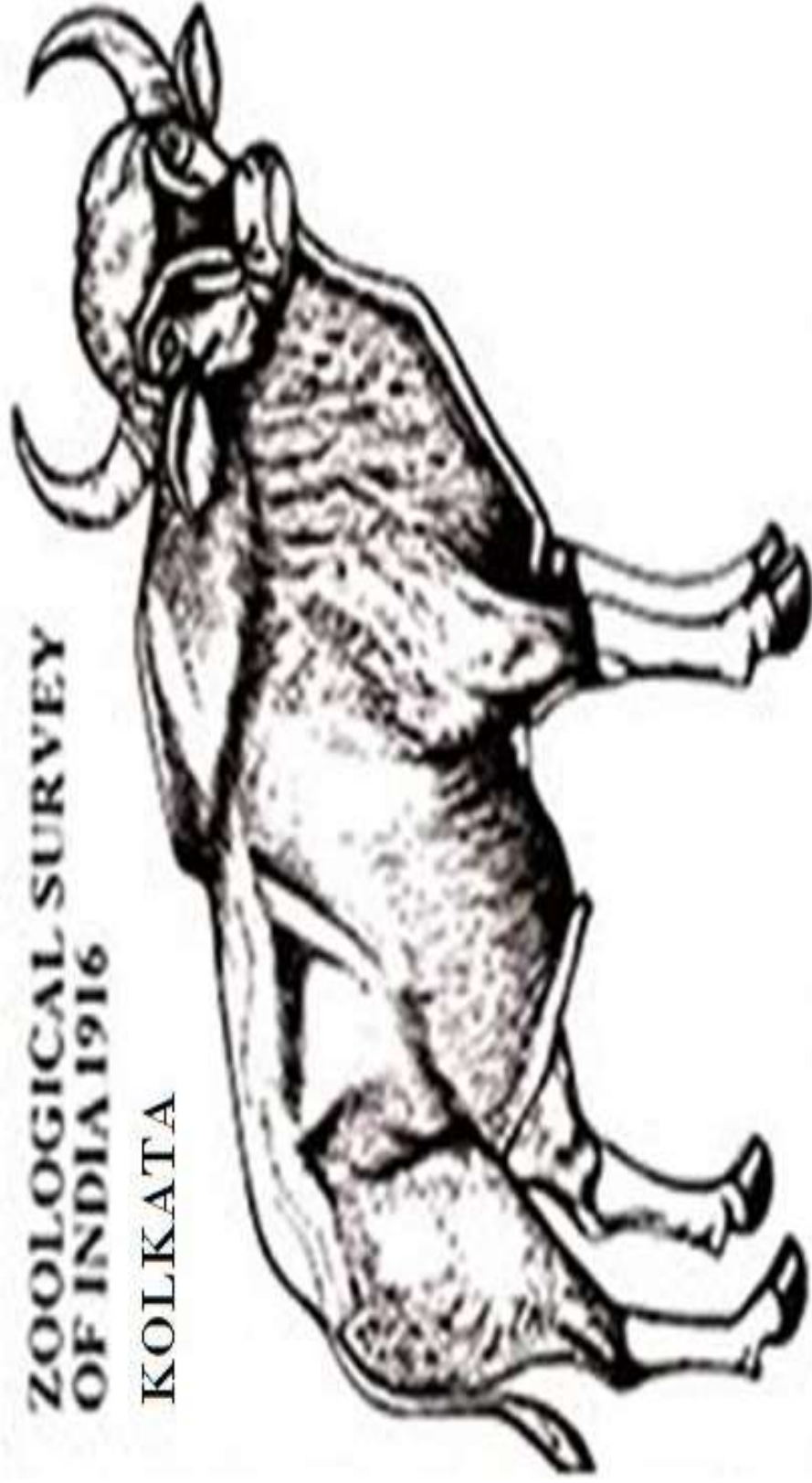
exploring the plant resources of the country and identifying plant species with economic virtue.

The Central National Herbarium (CNH), or Calcutta herbarium, is one of the oldest and largest herbaria in the world.

[Red list of endangered species is formed by BSI](#)

**ZOOLOGICAL SURVEY  
OF INDIA 1916**

**KOLKATA**



Research, and documentation on various aspects  
of animal taxonomy  
Preparation of Red Data Book, Fauna of India,  
and Fauna of States.

<p>Bombay Natural History Society (BNHS) – 1883</p> <p>Mumbai</p>	<p>wildlife research;</p> <p>One of its greatest scientists was Dr. Salim Ali whose ornithological work on the birds of the Indian subcontinent is world famous. Popular magazine – Hornbill; Journal on Natural History.</p>
<p>Salim Ali Center for Ornithology and Natural History (SACON), Coimbatore</p>	<p>a variety of field programs that have added to the country's information on our threatened biodiversity.</p>
<p>World Wide Fund for Nature (WWF-I), New Delhi- 1969</p>	<p>wildlife education and awareness. It runs several programs including the Nature Clubs of India program for school children</p>
<p>Wildlife Institute of India (WII), Dehradun - 1982</p>	<p>training establishment for Forest Officials and Research in Wildlife Management.</p>
<p>Center for Science and Environment (CSE), New Delhi:</p>	<p>organizing campaigns, holding workshops and conferences, and producing environment related publications (State of India's Environment', Down to Earth)</p>
<p>Centre for Environment Education (CEE), Ahmedabad:</p>	<p>A wide range of programs on the environment and produces a variety of educational material. CEE's Training in Environment Education {TEE} program has trained many environment educators.</p>
<p>Botanical survey of India (BSI )</p>	<p>Plant taxonomy</p>
<p>Zoological Survey of India (ZSI)</p>	<p>Animal taxonomy , maintaining specimens</p>

# People in Environment

PEOPLE IN ENVIRONMENT		
Charles Darwin	Origin of Species (theory of evolution)	the close relationship between habitats and species
Rachel Carson	Silent Spring	effects of pesticides on nature and mankind.
Salim Ali Bird man of India Padmabhushan Padmavibhushan	The book of Indian birds Common birds The fall of sparrow (autobiography)	leading conservation scientist and influenced environmental policies in our country for over 50 years.
M S Swaminathan	MS Swaminathan Research Foundation in Chennai, Father of Green revolution in India	Brought Green revolution in India (high yielding varieties of rice and wheat were planted in India) biodiversity conservation both of cultivars and wild biodiversity.
M C Mehta	famous environmental lawyer.	protecting the Taj Mahal, cleaning up the Ganges River, banning intensive shrimp farming on the coast, initiating Government to implement environmental education in schools and colleges, and a variety of other conservation issues.
Sunderlal Bahugna	Chipko Movement Slogan: "ecology is permanent economy"	The name of the movement comes from the word 'embrace', as the villagers hugged the trees, and prevented the contractors' from felling them.

- **Need for Public Awareness:**

- As the earth's natural resources are rapidly dwindling and our environment is being increasingly degraded by human activities, it is evident that something needs to be done.
- It is the prevention of environmental degradation that must become a part of all our lives.
- Protecting our environment is economically more viable than cleaning it up once it is damaged.
- Individually, we can play a major role in environmental management.
- We can reduce wastage of natural resources and we can act as watchdogs that inform the Government about resources that lead to pollution and degradation of the environment.
- This can only be made possible through public awareness.
- Mass media such as newspapers, radio, television strongly influence public opinion.
- If each of us feels strongly, about the environment, the press and media will add to our efforts



- There are several Government and Non Government Organisations working towards environmental protection in our country.
- They have created a growing interest in environmental protection and conservation of nature and natural resources.
- We are living on 'spaceship earth' with a limited supply of resources. Each of us is responsible for spreading this message to as many people as possible.