

# Components of Environment

Non living  
OR

Physical component.

Living or Biological  
component

Atmosphere

Hydrosphere

Lithosphere

Biosphere

(Plants, microbes,  
animals,  
man/wild)

Unit:-2

## \* Natural Resources:-

→ Resources is defined as form of matter & energy which is essential for the functioning of organisms, populations and ecosystems. Man depends on the resources for his day to day living. These resources are air, water, soil, forests, vegetables, milk, fish, animals, energy (fossil fuels, solar power) etc.

Unit:-

## \* Classification:-

→ The resources are classified as renewable & non-renewable or conventional & non-conventional.

coal reserve of the world. Again the solar energy available on earth for 45 min is enough to meet our energy demand for one year.

The major problem is that sunlight is difficult in nature & difficult to be stored & utilize. But with advance tech. of present high cost may be cut down so that solar energy can be utilized on large scale in future at present, solar energy is 10 times more expensive than thermal power. But with advance tech. it will be cheaper & hold the key to meet our energy demands in future.

## General Ecological Principles.

**Ecology**:- A study of organisms interactions with the abiotic & biotic components of their environment.

**Biosphere**:- The total living world & all aspects of the environment with which it interacts.

**Ecosystem**:- Self contained group of interacting communities.

**community**:- self contained group of interacting species.

**Population**:- self contained group of interacting species individuals of the same species.

### \* Renewable Resources :-

→ These are exhausted within a limited period but can be regenerated & used again i.e. recycled. For eg. Forests, plants, water, solar energy, etc. Forests are renewable resources since after falling of trees for wood fuel, etc. they can be recovered by fresh plantation (afforestation).

### \* Non-Renewable Resources :-

→ These can't be renewed after being exhausted. Eg:- fossil fuel, natural gas & mineral. All these took thousands of years of their formation under the earth's surface. Non-renewable resources get exhausted due to over-exploitation by man & thus they can neither be generated or renewed.

### \* Conventional Energy Resources :-

→ The conventional energy resources are fossil fuel (coal, petroleum) wind, natural gas, hydroelectricity & nuclear energy.

→ 33% petroleum diesel, 27% coal, 5% nuclear energy are consumed by us.

## \* What is Environment?

→ Environment is the sum total of all conditions and influence that affect the development and life of all living organisms on the earth.

## \* What is ecology?

→ The scientific study of the relationship of living organisms with each other and with the environment.

(Ernst Haeckel, 1870).

## \* What is Ecosystem?

→ Definition :-

⇒ It is a unit or biosystem that includes all the organisms which function together (biotic community) in a given area where they interact with the physical environment.

⇒ The Ecosystem is the functional unit in ecology as it comprises the biotic (living) & abiotic (non-living). The latter has close interaction, essential for maintenance of life systems. The interaction is performed by energy flow (solar energy) in the mechanism & cycling of materials (Natural cycle).

## (e) Nuclear power:-

- It contributes 5% of total generated energy. Nuclear power plants do not emit polluting gases such as carbon dioxide, sulphur dioxide, like thermal power plants. But they have some severe drawbacks i.e. they are very costly & they release large quantities of radioactive fission products.
- The radioactive waste remains lethal for thousands of years for this no foolproof disposal method has been devised.
- In India the production target was fixed at 10,000 MW by 2000 AD, but actual, Tarapur, Rajasthan & Chennai.
- At present nuclear fission is used to produce nuclear power. Heavy large atoms like uranium & plutonium split up into smaller atoms when bombarded by fast neutrons.
- In India the production was fixed by 1000.

This heat is utilized to produce steam at high temp. & pressure. The latter is then used to run a steam turbine which is linked with the generator producing electricity.

Thermal Power contributes (15,000 megawatts (MW)) of electricity i.e. 70% of India's power supply. Some of the major thermal power stations of the national thermal power corporations (NTPC) of India are at Singrauli & Rihand in UP, Talihari in Orissa & Tarkwa in West Bengal.

### 3) Methanol ( $\text{CH}_3\text{OH}$ ) :-

→ It is a convenient liquid fuel produced from coal.



### 4) Petroleum or Mineral Oil :-

→ USA is largest consumer of petroleum in the world (about 30%).

→ The world reserve of petroleum is about 800 billion barrels.

(1 barrel = 31.5 gallons = 120 litres) which will last for less than 100 years.