

((FOUNDATIONS of Medicine))

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Environment:

Eco = place of living

Examples: forest, ocean, small lake, etc.

Ecosystem constitutes from abiota and biota components.

Food chain: system of transferring energy from one level to another.

Any ecosystem contains three biotic structures:

1. **Producers:** Autotrophs which produce energy by photosynthesis process



Plankton + Plants

2. **Consumers:**

Primary consumers: Animals feed on plants which vary from mite to elephant.

Secondary consumers: Sheep eat plant.

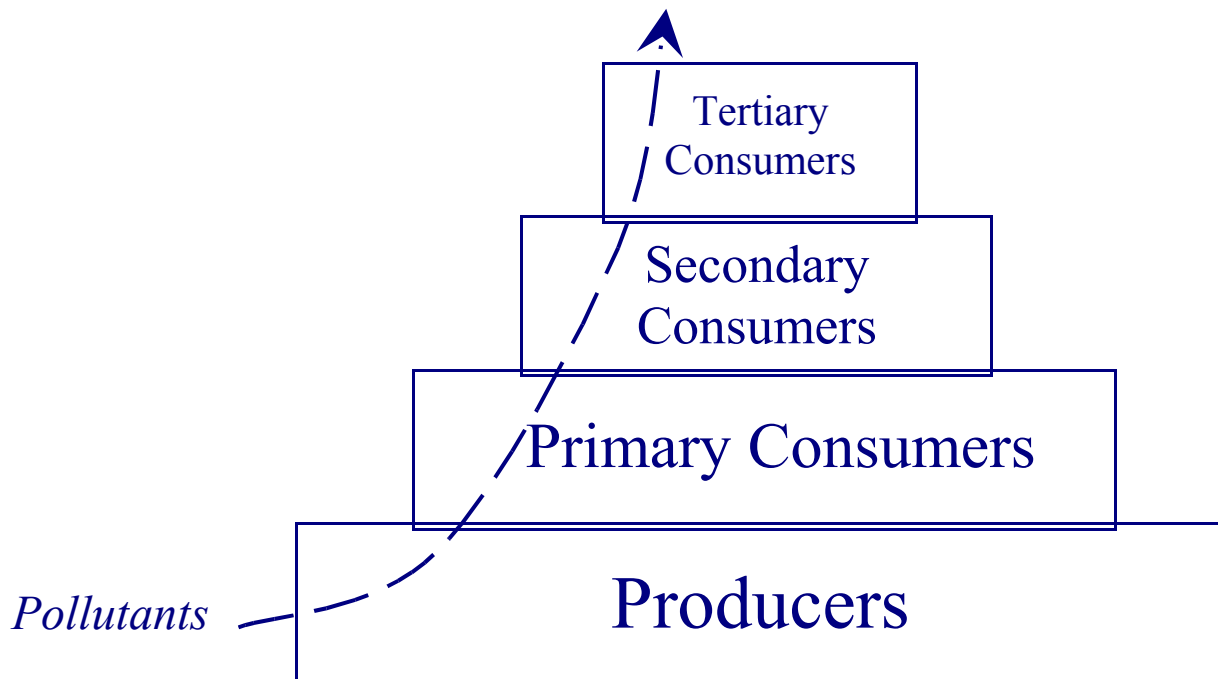
Wolves eat sheep.

Secondary consumers are called carnivores or predators.

Those who eat both plants and animals are called omnivores.

Man is omnivorous (primary, secondary, and tertiary consumer)

3. **Decomposers:** Fungus and bacteria eat fecal wastes by rotting of organic materials. This type of feeding is called absorptive nutrition.



Environmental Balance: is a sort of harmony between different components of environmental system.

Biodegradable Material: any material that can be degraded by microbes.

Non-biodegradable Material: any material that can not be degraded by microbes.

Bioaccumulative Material: is the material that can accumulate the body, e.g. DDT*, lead, mercury, etc.

Biomagnification: increase the concentration of a given substance as we go up in food chain.

Ant → Bird → Fox

Biodiversity: in any system we have different species of organisms.

Simplification of ecosystem: changing complex system with good biodiversity to a simple system with very few species.

Atmosphere:

- ◆ Troposphere 14km
- ◆ Stratosphere 90km
- ◆ Mesosphere 350km
- ◆ Thermosphere

* DDT : An insecticide that is also toxic to animals and humans.

Community Air Pollution: Presence of unwanted or undesirable materials in the air. Air pollution also affect animals, plants, and well-fare.

Air Pollutants: those impurities which present in sufficient concentration enough to produce adverse health effects.

E.g.: SO_x, NO_x, Total suspended particles, O₃, Lead.

Threshold Limit Value (TLV): is the concentration of air pollutant below which there is no harmful effect on human beings.

T.L.V:

- SO₂ = 0.03 PPM*
- CO = 9 PPM
- NO = 0.05 PPM
- Lead = 1.5 μgm / m³
- Ozone = 0.12 PPM

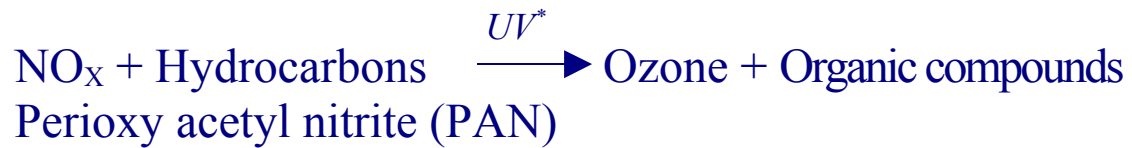
Main climatic factors which affect the concentration of air pollutants:

- ◆ Humidity.
- ◆ Speed and direction of the wind.
- ◆ Geography of the area.

* PPM: Part Per Million

Sources of Air Pollution:

1. **Combustion:** smoke contains carbon sulfur, aerosol of tar droplets, and polycyclic hydrocarbons.
2. **Photochemical Pollution:**



3. **Smog:** smoke polluted fog.
4. **Industrial Sources:** chemical industries.

* UV: Ultra-Violet