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FACULTY OF ENGINEERING AND
TECHNOLOGY

Lecture- 13

Ecosystems-Part 1



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Concept of Ecosystem

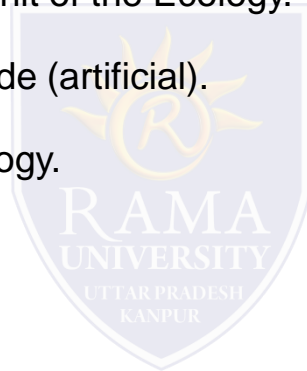
Ecosystem

Ecosystem is a community or group of living organisms live in together and interact with each other in a particular area.

Ecosystem is a structural and functional unit of the Ecology.

Ecosystems are either natural or man-made (artificial).

The study of ecosystem is known as Ecology.

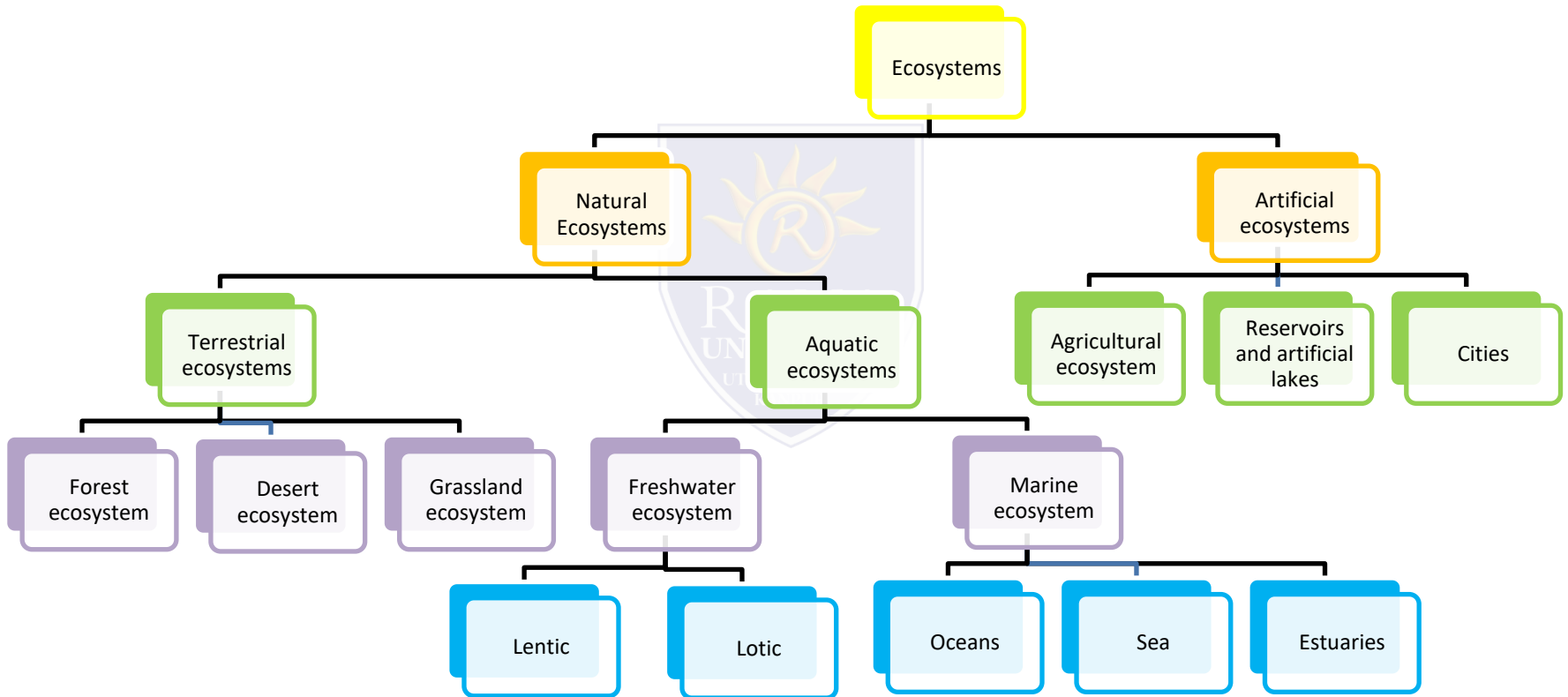


Types of the Ecosystem

There are two types of ecosystem

- 1) Terrestrial ecosystem
- 2) Aquatic ecosystem

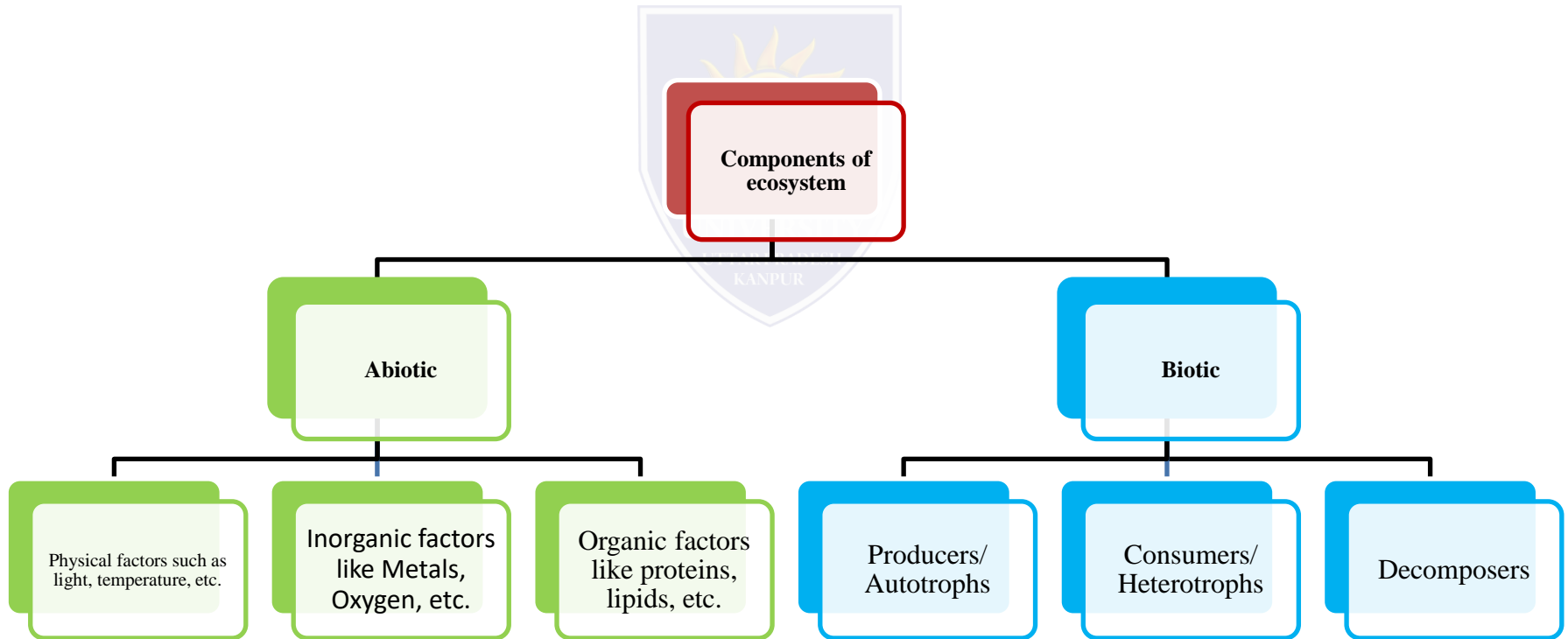
Types of Ecosystem



Structure of Ecosystem, Producers, Consumers and Decomposers

The ecosystem consists of two components that together make structure of the ecosystem

- 1) Abiotic components, e.g.: air, water, soil, mountains, minerals, etc.
- 2) Biotic components, e.g., plants, animals, human beings, microorganisms

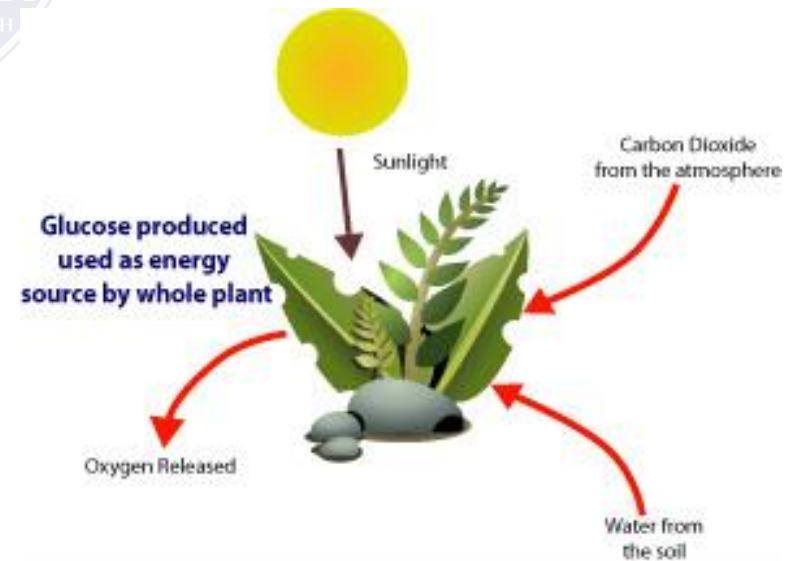
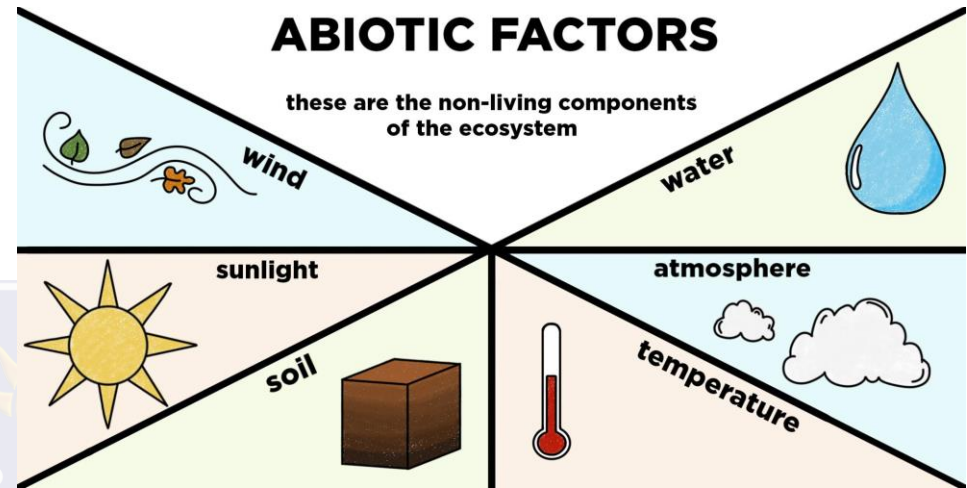


Abiotic components of ecosystem:

Abiotic structure of ecosystem is characterized by all non-living entities/materials present in air, water and soil such as minerals, light, rainfall, temperature, etc.

Biotic components of ecosystem include:

- 1) **Autotrophs or producers-** These are the living organisms that prepare their own food. e.g., plants, blue-green algae, photosynthetic bacteria (purple bacteria), chemosynthetic bacteria, etc.



2) Heterotrophs or consumers-

These are organisms which cannot prepare their own food and depends on producers for their nutritional requirement. They are also known as consumers. E.g. fungi, animals, humans, etc.

Consumers or heterotrophs are further classified into three depending upon their feeding habits i.e.,

- **herbivores**, who eat plants;
- **carnivores**, that only feed on flesh;
- **omnivores**, that eat both plants and flesh.

Herbivore

An animal that eats almost only plants.



Carnivore

An animal that eats almost only meat.



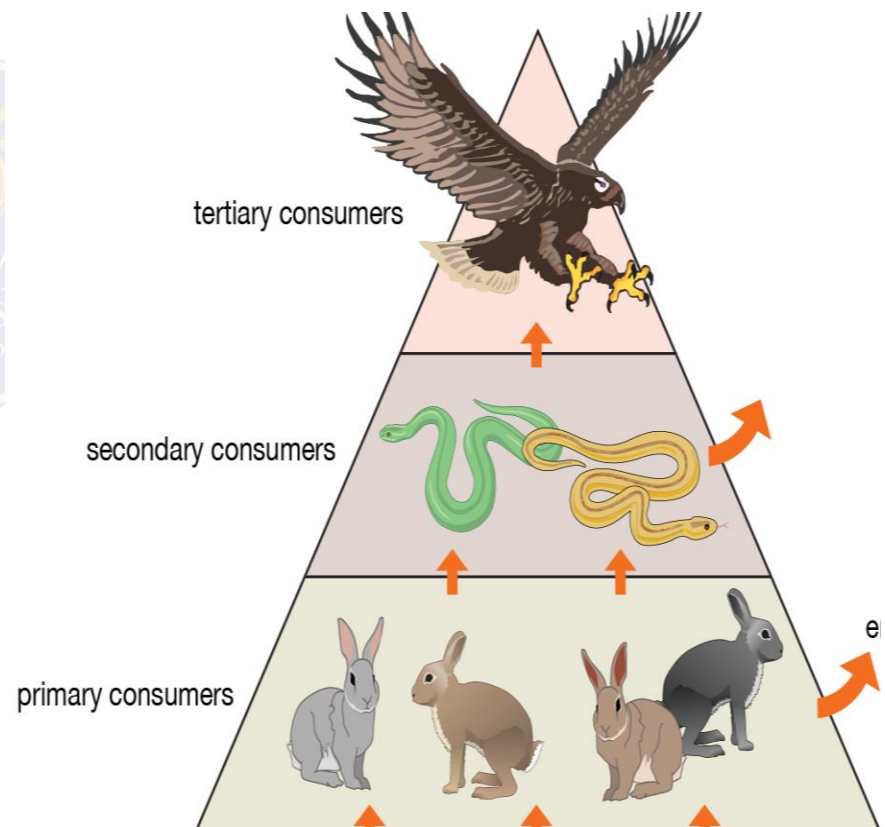
Omnivore

An animal that eats plants and meat.

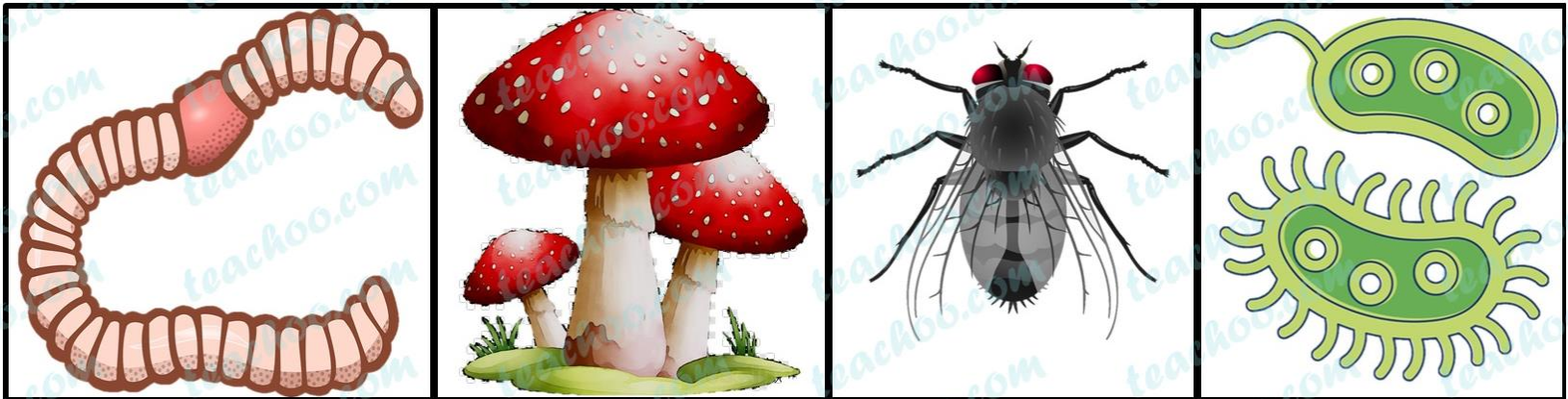


Within an ecological food chain, consumers are categorized as primary consumers, secondary consumers, tertiary consumers.

- **Primary consumers** depend on plants (autotrophs) and are herbivores. E.g., cows, caterpillars, grasshoppers, etc.
- **Secondary consumers** are carnivores that depend on primary consumers such as tiger, lions, etc., however omnivores are also considered as secondary consumers as they eat both plants and animals like bear, mice, chimpanzees, etc.
- **Tertiary consumers**, also known as Apex consumers or Apex predators are usually present at the top of food chain and are capable of feeding secondary and primary consumers for their nutritional requirement. e.g., Human beings.



- 3) **Decomposers**- They feed on dead and decaying materials like animal waste, fallen plant leaves, etc. for their nutritional needs. They decompose or breakdown organic materials. They are also known as Saprophytes. e.g., bacteria, fungi, etc.



Worm

Mushroom

Insects

Bacteria

