Quadrant II – Transcript and Related Materials

Programme: Bachelor of Arts/Commerce/Science (First Year)

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Paper Title : Fundamentals of Ecology

Unit : II

Module Name: Ecosystems: Types (Natural, Artificial, Incomplete)

Module No : 16

Name of the Presenter: Mr. Stephen Fernandes

Notes

A system that includes all living organisms (biotic factors) in an area as well as its physical environment (Abiotic factors) functioning together as a unit.
The biotic factors and abiotic factors interact as a system and are linked to one another via nutrient cycles and energy flows**.**

Types of Ecosystems

Ecosystems can broadly be classified into three types, namely:

1. Natural Ecosystem – naturally occurring
2. Artificial Ecosystem – These are man-made ecosystems
3. Incomplete Ecosystem

1. **Natural Ecosystem**

A natural Ecosystem is a community of living and non-living entities and occurs freely in nature. Every component interacts together as a combined unit through physical, chemical and biological processes. The discriminating factor of natural ecosystems from other ecosystems is that they are completely natural. Their interactions in no way are influenced by human activity as seen in the case of artificial ecosystems. The components of natural ecosystems that bring about these interactions are soil, sunlight, air, water, plants, animals and

microorganisms. Each of these factors of the ecosystem is associated either directly or indirectly.

There are two main types of natural ecosystems:

- Terrestrial ecosystem: Land-based
- Aquatic ecosystem: Water-based

There are various other types of ecosystems. Listed below are the types of ecosystems which are categorized into either terrestrial or aquatic ecosystems

Forest Ecosystem

The forest ecosystem is classified on the basis of the climate which can either be tropical, temperate or boreal. In temperate zones, the forest ecosystem can have a deciduous, coniferous type or a combination of both types of flora. The tropics have rainforest ecosystems which include the most diverse animal and plant ecosystem in comparison to any region on the planet. In this region, trees are found growing tall, with denser foliage and humid environment wherein species are found right from the roots up till the canopy.

Grassland Ecosystem

The grassland ecosystems are found in steppes, savannas, and prairies, in the tropical and temperate regions. They can be found in colder regions and have a prevalent feature: semi-aridity. The trees in these regions are close to non-existence and flowers may be distributed along with the grass. These ecosystems are typical for animal-grazing.

Desert Ecosystem

The desert ecosystem can be seen existing in the arctic as well as the tropics. As presumed, not all of the deserts are hot. Some are usually windy. The most striking feature of this ecosystem is the amount of precipitation it receives, which is the least as compared to any other ecosystem. A few deserts are comprised of rocks while some have sand dunes. Flora is very rare, but highly adaptive animal species and insects are found here

Marine Ecosystem

The marine ecosystem refers to the aquatic ecosystem containing saltwater and harbours a range of species. This ecosystem is the vastest and the biggest ecosystem on earth. They not only embed the oceanic beds, but also the salt marshes, tidal zones, saltwater swamps, mangroves, coral reefs etc.

Freshwater Ecosystems

The freshwater ecosystem refers to the aquatic ecosystem containing consumable water, as opposed to marine ecosystems, they concern with the ecosystem found in the lakes, ponds, rivers, springs, freshwater swamps that have fresh water. They nurture planktons, algae, insects, amphibians and underwater plants.

2. Artificial Ecosystems

Ecosystems that are made by man for commercial or other benefits is known as an artificial ecosystem. These ecosystems are modified by humans for their own profit and can either be terrestrial or aquatic.

Example: Aquariums, crop fields, dams, gardens etc.

3. Incomplete Ecosystems

According to Southwick (1976), the ecosystem that do not contain all the four basic components, i.e., Abiotic substance, producers, consumers, decomposers are called incomplete ecosystem. Example- Abyssal depth of sea and caves lack producers but contain only consumers and decomposers

Glossary of terms/words:

- **Ecology**: the branch of biology dealing with the relations of organisms to one another and to their physical surroundings
- **Ecosystem**: a biological community of interacting organisms and their physical environment.
- **Habitat**: the place where an organism or a biological population normally lives or occurs.