

# Week 2: ecosystems, evolution and biodiversity - assignments- environmental scien...

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Environmental Science Environmental Science Ecosystem is defined as a community which consists of living and non-living organisms living together, intermingling with one another and with the environment and in some way or the other effecting and influencing the life of each other. Ecosystems can be of different varieties, they may be very large or very small. The main source of energy in any ecosystem is the sunlight. Every ecosystem consists of certain components- the producer, the consumer, the non-living matter and the decomposers. If any one or more of the components are not present in an ecosystem, the ecosystem cannot survive. Most of the ecosystems are man-made and a very few natural ecosystems are left because of human activities (Schulze & Mooney, 1994).

The structure of an ecosystem consists of two major parts. The first part consists of the biotic components that are the living components of the ecosystem. The second component is the abiotic component which consists of non-living components of the system. A fresh water aquarium is a very good example of ecosystem. The structure of aquarium consists of both biotic and abiotic organisms. Every ecosystem must have a source of energy and the source of energy in an aquarium is usually a tube light or a bulb. This light energy is the source of energy in this case and it provides the required energy to the plants to carry out the process of photosynthesis and produce energy. Fresh water fishes that are present in the aquarium are the consumers and the micro-organisms that are present in the aquarium are the decomposers, they consume the energy as well as decompose the living matter into non-living matter so that the nutrients, minerals and organic matter can be again utilized by the plants. The soil in the aquarium contains

the abiotic components like nutrients and minerals and the fresh water also contains different gases which are also the part of abiotic components. The function of the aquarium system is to transfer the energy that is absorbed by the plants to the animals of the ecosystem. This ecosystem also purifies the water and replenishes the environment with the nutrients and minerals. It also provides a habitat to many of the organisms.

By varying any of the organisms or conditions in the aquarium the entire ecosystem can be badly affected. For example if the light in the ecosystem is removed the plants will not be able to carry out the process of photosynthesis and thus will not be able to convert the light energy into an energy that can be consumed by the animals and micro-organisms and thus the entire ecosystem will soon die out. Likewise if the fishes which are the consumers are removed from the ecosystem then there would be no one to consume up the energy and there would be no waste produced which the decomposers could convert into nutrients and minerals. This will eventually lead to a deficiency of nutrients and minerals and the plants will die out and gradually the entire ecosystem will die out.

#### References

Schulze, E.-D., & Mooney, H. A. (1994). Biodiversity and ecosystem function. Berlin: Springer-Verlag.