(a) Energy: basically from the sun is essential for maintenance of life. In the case of plants the sun directly supplies the necessary energy. Since animals cannot use solar energy directly they obtain it indirectly by eating plants or animals or both. Energy determines the distribution-organisms in the environment.

(b) Materials: (a) organic compound proteins, carbohydrates, lipids, humic substances which are formed from inorganic into them on decomposition. (b) Inorganic carbon, carbon dioxide, water, sulphur, nitrates, phosphates, and ions of varietals are essential for organisms to survive.

(c) Climatic factors: light, heat, temperature, wind, humidity, rainfall, snowfall etc.

(d) Edaphic factors (structure and composition of soil along with its physical and chemical characteristics): also exert significant influence on the organisms.

Biotic components: biotic components include living organisms comprising plants, animals and decomposers and are classified according to their functional attributes into producers and costumers.

(a) Produces- Autotrophs (self-nourishing) are green plants as they synthesize carbohydrates from simple inorganic raw materials like carbon dioxide and water in the presence of sunlight by the process of photosynthesis for themselves, and indirectly for other non-producers. In terrestrial ecosystem, producers are basically herbaceous and woody plants while in marine and fresh water ecosystems produce are various species of microscopic algae.

Chemosynthetic bacteria are also producers. However, unlike the plants which constitute major producers, these bacteria, which are found in deep ocean trenches where sun energy is absent, derive energy via the process of chemosynthesis from the hydrogen sulphide seeping through cracks in the sea floor.

(b) Consumers- Heterotrophs (other nourishing) are incapable of photosynthesis and depend on organic food derived from animals, plants or both. Consumers can be divided into two broad groups mainly micro and macro consumers.

(i) Macro consumers or phototrophs feed on plants or animals or both and are categorized on the basis of their food sources.

Herbivores are primary consumers which feed on plants e.g. cow, rabbit. Carnivores feed on animals. Secondary consumers feed on primary consumers e.g. wolves.

Carnivores which feed on secondary consumers are called tertiary consumers e.g. lions which can eat wolves. Organisms which consume both plants and animals are called omnivores e.g. men.

(ii) Macro consumers- Saprotrophs (decomposers or osmotrophs) are chiefly bacteria and fungi which obtain energy and nutrients by decomposing dead organic substances (detritus) of plant and animal origin.

Some of the products of decomposition such as inorganic nutrients released in the ecosystem are reused by producers and thus recycled. Earthworm and certain soil organisms such as
Environmental components

Among the abiotic components knowledge of physical environmental factors like light, temperature, winds, water, soil etc. is important if we wish to understand the survival, distribution, abundance and adaptability of organisms in different ecosystems of the earth. Variation in light and head significantly affect the distribution and behavior of the biotic components. Green plants trap suns’ energy and convert it into chemical energy though the process of photosynthesis. In animals, light reception is the most important sensory modality in the exploration environment. Most animals are equipped with light receptors, which to a great extent influence their behavior. Organisms are adapted to a certain range of temperature only in which they can survive and reduce. Plants and animals tolerate extremes of temperature by developing special structural and physiological adaptations or develop special strategies to avoid unfavorable temperature regimes. Wind is yet another important factor which affects the distribution and behavior of organisms. The importance of wind is especially prominent in case of plants which have special needs to withstand high wind velocity.

Light

The sun is the ultimate source of energy for all activities in our biosphere. The electromagnetic radiations from the sun supply energy which warms up the earth and the atmosphere to provide a favorable global temperature for the living organisms. In addition, light plays a variety of roles in the living world. It is essential for photosynthesis, the process by which light is converted into usable chemical energy. It is involved in the transmission of information, for instance, it helps plants and animals to program their life cycles, coordinates the opening of buds and flowers, dropping of leaves and a variety of other physiological processes. Variation in the amount of light generally affects the local distribution of plants. In animals light regulates reproduction, hibernation and migration and of course makes vision possible. All these biological phenomena are readily influenced by variation in the intensity, and by seasonal or diurnal variations of light.

Temperature

Temperature is the major physical environmental factor which profoundly influences the vital activities of living organisms like, metabolism, growth and reproduction. The primary effect of temperature is on the stability and activities of enzymes which carry out and regulate the biochemical reactions in the cells. Temperature also affects the properties of biomembranes. We know that there are large temperature differences over the earth to which organisms must adapt. Temperature and availability of water in an area largely determine the types of plants and animals that can grow, survive and reproduce there. Every organism has a certain range of tolerance for temperature delineated by an upper and lower lethal temperature, which vary from species to species. Thus, temperature is one of the factors that limit the geographical distributions of plants and animals. Temperature also indirectly influences the availability of water which itself is an important ecological factor. Before we describe the