

④ Biogeochemical cycles

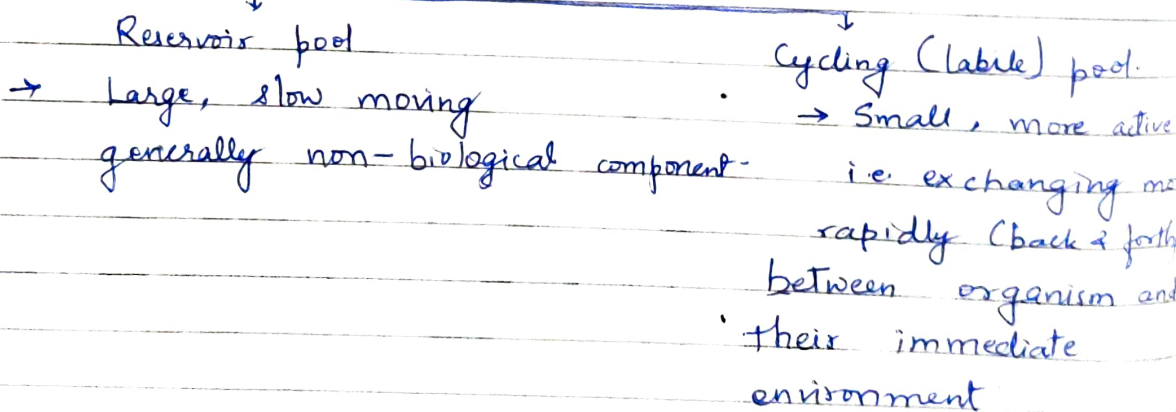
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Carbon
Nitrogen
Oxygen
Sulphur

Biogeochemical cycle (Def): - The chemical elements including all the essential elements of life, tend to circulate in the biosphere in characteristic pathways from environment to organism and back to the environment. These more or less circular pathways are known as biogeochemical cycles. These essential elements are nutrients so called as nutrient-cycling.

Nutrient Cycles



Many elements have multiple reservoir pools, and some (like nitrogen) have multiple labile pools

→ When we consider ecosphere as a whole, biogeochemical cycles fall in 2 basic categories:

- (a) gaseous type - atmosphere and hydrosphere.
- (b) Sedimentary type - earth crust

Some elements are needed in larger quantities such as Carbon, hydrogen, nitrogen and oxygen, other are needed in small.

Whatever the quantitative need may be, essential elements exhibit definite biogeochemical cycles. The non-essential elements (not required for life), though less closely coupled with organisms, also cycle, often flowing along with essential elements either in water cycle or because of chemical affinity with them.

- * Biogeochemistry, a science founded in ~~1926~~ by Russian V. I. Vernadskij (~~1935~~) and involves the study of exchange of materials between living and non-living components of the ecosphere.
- * Elements in nature are not homogeneously distributed, nor are they present in the same chemical form throughout the ecosystem.

- Note:
- ① Pollution has frequently been defined as resources misplaced.
 - ② Human beings are unique in not only requiring 40 essential elements but also using nearly all the other elements, including the newer synthetic ones. Humankind has so speeded up the movement of many materials that the self-regulating processes that tend to maintain homeostasis are overwhelmed and the nutrient cycling cycles tend to become imperfect.

The ^{aim} ~~role~~ of conservation of natural resources in broadest sense is to make acyclic processes become more cyclic. The concept of recycling must become the major goal for societies. The recycling of water is a good beginning because if the hydrologic cycle can be maintained and repaired, there is a better chance of controlling the nutrients that move along with the water.