

CONCEPT OF BIODIVERSITY

Biodiversity:

Biodiversity = variability among living organisms from all sources including *inter alia*, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part.

The value of biodiversity is yet unknown. The sum of all different species of organisms may range from 10-100 millions. However 1.75 million species i.e. 20% have been discovered. The scientists have agreed that life on the earth is now going to face with the most severe extinction episode like Cretaceous and Dinosaurs.

Instead of global climatic change, humans are the cause of this latest mass extinction. During past 25 years has attracted attention of biologists on variability among living flora and fauna of the world. Several softwares are developed to accommodate such data. In this context biologists have taken an attempt to give a real definition of biodiversity. Hence a logical extension ^{so many} in previous definition of biodiversity has appeared which is known as Concept of Biodiversity. A few of them are worthwhile to describe here so that a broad and real meaning of Biodiversity may be developed.

1. Norse and Mc Manus (1980): They put forward first of all the term "Biological diversity" in 1980 which contains two concepts - (a) Genetic diversity and (b) Ecological diversity.
2. W. G. Rosen (1985): The term Biological diversity was shortened by Rosen in 1985 as Biodiversity. Biodiversity includes all ^{life} forms, ecosystems and ecological processes. i.e. it reflects the totality of

genes, species and ecosystems of a region.

3. Congress office of technology assessment, USA (1989):

The biodiversity encompasses variety of the world organisms including their totality of genes, species, different ecosystems and their relative abundance.

4. Reid and Miller (1989): Biodiversity is the variety of the world's organisms including their genetic diversity and the assemblages they form. It is line of control for the natural biological wealth that undergirds (bind below) human life and well being. It encompasses the interrelationships of genes, species and ecosystems.

5. Mc Neely et-al (1991): Biodiversity encompasses all species of microorganisms, plants and animals and their ecosystems and ecological processes of which they are parts. It acts like umbrella for the degree of various types of varieties including both the number and frequency of ^{their} ecosystems, species or genes in a given assemblage.

6. Mc-Allister (1991): Biodiversity is the genetic and taxonomic variety in living organisms of a given area, environment, ecosystem or the whole planet.

7. Fiedler and Jain (1992): Biodiversity is full range of variety and variability within and among living organisms, their associations and habitat orientated ecological complexes. It also encompasses ecosystem, species, landscape and genetic level of diversity.

8. Wilson (1992) Biodiversity is the variety of organisms considered at all levels like genetic variants belonging to same species through arrays of species to arrays of genera, families and other higher taxonomic levels including the variety of ecosystems which comprise both the

communities of organisms within particular habitats and the physical conditions under which they live.

9. Johnson (1993): Biodiversity is the variability among living organisms from all sources like inter alia (अन्य नाम), terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This also includes diversity within species, between species and their ecosystems.
10. Saundlund et. al (1993): Biodiversity is the structural and functional variety of life forms at genetic, species, community, population and ^{their} ecosystem levels.
11. Steventon Swanson (1995): Biodiversity encompasses the relationships between species and their habitats that may be for a few acres to several areas of different continents.
12. Mallet (1996): Biodiversity consists the variety of morphology, behaviour, physiology and biochemistry of all living organisms.
13. Williams et. al (1996): Biodiversity is the total complexity of all life including great variety, varying behaviour and their interactions.

Conclusion: From the above definitions, it is clear that no one can be accepted as ideal. However it can be defined as noted below:

Biodiversity is a sum total of all the various of different species of microbial organisms, fungi, plant and animals living on earth and their ^{relationships} ~~various~~ habitats in which they live. It also includes the variety of their morphology, behaviourology, physiology and biochemistry and their interactions.

Ref: Biodiversity - Principles and conservation by Kumar & Asija. Agrobios publs Jodhpur 2004 : 1-6

Factors / causes responsible to determine biodiversity amongst living organisms;

The important factors are being described here:

1. Climatic change viz Temperature, Humidity, Rainfall, Wind direction, Wind velocity, etc
2. Pollution of soil, water and atmosphere:
3. Introduced (Exotic) species: species of any foreign country is grown as such e.g. Extensive use of Chinese guava.
4. Industrial agriculture and forestry e.g. Extensive use of non-native trees.
5. Habitat loss and fragmentation: Large human population have changed the habitat. The native pop. live in isolated zone e.g. Andaman & Nicobar.
6. Genetically modified organisms (GMO): cause unwanted side effect.
7. Over exploitation of plant and animal species: - Crashes of species alter ecosystems
8. Explosion in human population: In 2005 total population is 6 billion which would be double upto 2050.

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