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In situ conservation

To conserve & maintain the plant diversity in its natural habitat. It endorses emphatically the restoration of degraded land, protection of species which are nearly lost or facing extinction (endangered) as has been categorized by IUCN (International union for conservation of nature).It allows the plant & animals for continued and sustained evolution.

This can be done by establishing the followings-

1-Biosphere reserves

2- National parks

3- Wild life sanctuaries etc.

Biosphere reserves

The term 'biosphere' refers to all of the land, water and atmosphere that supply life on earth. The word 'reserve' means that it is a special area recognized for balancing conservation with sustainable use.

A biosphere reserve is an area proposed by its residents, ratified by a national committee, and designated by UNESCO's Man and Biosphere (MAB) programme, which demonstrates innovative approaches to living and working in harmony with nature. Each biosphere reserve demonstrates practical approaches to balancing conservation and human use of an area. They are excellent examples of community-based initiatives that protect the natural environment while ensuring the continued healthy growth of the local economy.

One of the primary objectives of MAB is to achieve a sustainable balance between the goals of conserving biological diversity, promoting economic development, and maintaining associated cultural values.

Total biosphere reserves worldwide are approx. 620, and in India it is 18 till 2011, out of which 9 are part of world network of Biosphere reserves.

The main characteristics of biosphere reserves are:

- having a zonation pattern for conservation and development;
- focusing on a multi-stakeholder approach, with particular emphasis on the involvement of local communities in management;

- forming a tool for conflict resolution of natural resource use, through development of dialogues;
- Integrating cultural diversity and biological diversity, especially the role of traditional knowledge in ecosystem management;
- Demonstrating sound policies based on research and subsequent monitoring;
- Being sites for education and training; and, importantly,
- Participating in a World Network.

Zones in Biosphere reserves

- 1- Core zone
- 2- Buffer zone
- 3- Transition zone or Manipulative zone

Core zone:

Includes protected areas, as they act as reference points on the natural state of the ecosystems represented by the biosphere reserves. Information from these core areas may be used to assess the sustainability of activities, or the maintenance of environmental quality, in surrounding areas.

Buffer zone:

Surrounds or is contiguous to the core area. Activities are organized so they do not hinder the conservation objectives of the core area, but rather help to protect it. The buffer zone might be an area for experimental research, or may involve ways to manage natural vegetation, agricultural land, forests, fisheries etc. to enhance overall quality of production while conserving natural processes and biodiversity. This zone may also accommodate education, training, tourism, and recreation facilities. In many biosphere reserves the buffer zone is regarded as an area in which human use is less intensive than what might be found in the transition zone.

Transition zone or Area of Cooperation:

The large outer area of a reserve where people live and work, using the natural resources of the area in a sustainable manner. The term 'area of cooperation' underscores the role of cooperation as the main tool to achieve the objectives of the biosphere reserve. It is here that the local communities, conservation agencies, scientists, civil associations, cultural groups, businesses and other stakeholders agree to work together to manage and use the area in a sustainable way that will benefit the people who live there.