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Biodiversity: The Web of Life

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Abstract
Life on this earth has constantly evolved for last four billion years to form the present spectacular richness of living world. Biodiversity plays a vital role in the material well being of man. Widespread loss of biodiversity has put man's existence at stake. Biodiversity loss is a natural evolutionary process; having been accelerated on account of anthropogenic stresses, habitat loss, invasion of aliens, pests and pathogens, etc. All these events are more or less associated with the human interference to the nature.

Keywords: Biodiversity, Web, Life

Introduction
Nature has enriched the planet earth with millions of living organisms, which are essentially interrelated and interdependent to each other, and finally compose a living web on the earth. Each of the living entities has its own role in maintaining the matrix of life, to grow itself and also to allow others to live in sound harmony. Diversity is the key for ensuring the continuance of life on earth. It is also a fundamental requirement for the adaptation, survival and continued evolution of species. The concept of biodiversity represents how life is organised and how it interacts on our planet. Life on this earth has constantly evolved for last four billion years to form the present spectacular richness of living world. The fossil records indicate that, on average; life has steadily increased in diversity and complexity over time to produce the present richness. Since the advent of human-being, rapid decline began in the number of species, and many of the species have to be categorized as extinct. Biodiversity loss is a natural evolutionary process; having been accelerated on account of anthropogenic stresses, habitat loss, invasion of aliens, pests and pathogens, etc. All these events are more or less associated with the human interference to the nature. When conservationists sum up human impacts, they talk about the biodiversity crisis and the fact that human activities are driving many species toward extinction. The real costs of biodiversity loss are already recognized to pose a significant barrier to the achievement of the Millennium Development Goals (MDGs). One thing, however, is certain: the accelerated extinction of organisms causes a loss not only of genetic resources but also of ecosystem services.

Meaning and Definition
The Earth's biodiversity or the variety and variability of genes, species, populations and ecosystems, provide goods and services that support human livelihoods, fulfill aspirations and help societies adapt to changing circumstances. This diversity is found in the natural ecosystems of forests, savannahs, pastures and rangelands, deserts, tundra, rivers, lakes, islands, seas and gardens/ particularly traditional subsistence gardens, and includes the relationships between the living organisms and their physical environment.
According to Convention on Biological Diversity (CBD) (UNEP 1992), Biodiversity refers to: 'The variability among living, inter alia, terrestrial, marine and other aquatic systems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems'. The second most-used definition of Biodiversity is sponsored by the Global-Biodiversity Strategy (WRL IUCN and UNEP 1992) and is as follows: 'The totality of genes, species and ecosystems in a region'. The current popular term for this richness and diversity of life is Biodiversity or Biological diversity.

In- Situ and Ex- Situ Conservation
India has a long history of in-situ conservation of fauna through protected areas. In-situ conservation or conservation of species in their natural habitats is considered to be the most appropriate way of conserving biodiversity, while ex-situ conservation is complementary to in-

situ methods providing "insurance policy" against species extinction. Protected areas are the main device for in-situ conservation, relying on ecosystems to sustain themselves, with some help. According to CBD, ex-situ conservation is defined as the conservation of the components of biological diversity outside their natural habitats. To complement the efforts made for in-situ conservation attention has been paid to ex-situ conservation also.

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Importance of Biodiversity

Biodiversity plays a vital role in the material well-being of man as well. Widespread loss of biodiversity has put man's existence at stake. The diverse organisms interact with the environment over billions of years and provide an atmosphere to breathe, soil to grow crops and fresh water to drink. So conservation should aim at the totality of life, preserving each and every element of nature. Besides, there are moral and aesthetic grounds for conservation of each individual species. Blanket preservation of millions of species might safeguard few. The science of biodiversity as conceived has provided deep insight into the strategy of biological conservation. Conservation of totality of life is thus the primary focus for biodiversity study.

Values and Uses

Benefits derived directly from biodiversity are numerous. Man depends on other animals, plants, fungi and microorganisms for his food, fuel, fibre, fodder, medicine and many other raw materials as daily requirements. To sum up, the various uses and values are listed below:

- Economical
- Aesthetic
- Ethical and moral
- Recreational
- Cultural values
- Medicinal
- Research and development value

Loss of Biodiversity

Loss of species is associated with the loss of ecological functions that the extinct species performed. Extinction is the complete disappearance of all Individuals of a species without producing progeny. The extinction of species has always been a natural part of evaluation. The fossil records show that since life originated about four billion years ago the vast majority of species that have existed are now extinct. Unsustainable consumption of natural resources by humans is driving nearly all the floral and faunal forms to extinction. Extinction, which is a natural process, has got aggravated in the form of increased rate (possibly several thousand times the natural rate) solely, due to human impact.

Reasons for Loss of Biodiversity

Casual Factors of threat may be natural or manmade. Following are the major causes of biodiversity losses.

- Development Pressure
- Encroachment
- Exploitation
- Human Induced Disasters
- Management of Natural Resources
- Management of Human Resources
- Political and Policy Issues

International Conventions and Treaties

- The United Nations Conference on the Human Environment, Stockholm, 1972
- CITES: Convention on International Trade in Endangered Species of wild fauna and flora 1992
- Foreign Trade (development and regulation) Act, 1992
- The Earth Sumit at Rio De Janerio 1992
- The Rio Declaration on Environment and Development, or Rio Declaration 1992
- The Convention on Biological Diversity (C8D) or Biodiversity Convention 1992
- Forest principles 1992
- Agenda 21
- Cartagena Protocol or the Biosafety Protocol 2000
- Ramasar Convention 1971 (The convention on wetlands of international importance, especially as waterfowl habitat.)
- Convention on Conservation of Migratory Species of Wild Animals (1979)
- Regional Sea Program or Action Plan for the Protection and Management of the Marine and Coastal Environment of South Asia Sea Region 1974
- Conference Of The Parties(COP) to CBD
- 2010-The Global Biodiversity Challenge

National Legislation

- Forest Act, 1927.
- Forest (conservation) Act, 1947.
- The Indian Wildlife (Protection) Act, 1972.
- Environment Protection Act, 1986
- The Wildlife (Protection) Amendment Act, 1991
- Biological Diversity Act, 2002

Role of Judiciary in Protection and Conservation of Biodiversity

In a forest area, fishing operations were being carried out. The authorities initiated the process to declare the area a wildlife sanctuary, and restrained the fishing operations. The Andhra Pradesh HC in Kumapuraju Rangaraju v. Government of AP, interfering with the matter, held that no authority is entitled to interfere with fishing operations in the area until the final notification is issued under the WPA.

In T.N. Godavaraman v. Union of India it was held that all commercial activities inside the sanctuary are prohibited. Even the formation of fish tanks for aquaculture, which has got the effect of restraining the flow of water into or outside the sanctuary, has to be stopped.

In Center for Environmental Law, WWF-I v. Union of India, the Supreme Court passed an order to effectively control poaching in forests. The administration was directed to ensure that forest guards in sanctuaries and national parks are provided modern arms, communication facilities, that is,

wireless sets and other necessary equipment, so as to effectively oppose poachers who possess modern weapons.

In Jakdhar Chakma v. Dy Commissioner, Ajzwal, the court held that if the procedure prescribed for declaration of an area as sanctuary is not followed, then the declaration itself becomes illegal.

Establishment of saw mills adjacent to forest areas better enables poachers to convert the same into timber. To avoid this, the Orissa Saw Mills and Saw Pits (Control) Act, 1991 was enacted, imposing a total ban on the saw mill businesses within a distance of ten kilometres from reserved forest. The validity of the said enactment was challenged stating that it infringes the fundamental right to carry on trade. The Supreme Court in Sushila Saw Mills v. State of Orissa, has held that the legislation is in public interest, intended to preserve forest wealth and environment, and to stop the illicit felling of forest growth. Thus it is nor violative of Article 14, and is not arbitrary, unreasonable, or discriminatory.

Conclusion and Suggestions

In India, creation of Sanctuaries, National Parks and Biosphere Reserves has been adopted as the major task of achieving the objectives of conservation. Success in conservation programs can be achieved through participatory approach and promoting traditional knowledge, innovations and practices. There is ample scope for amalgamation of traditional practices and modern scientific knowledge for solving the problems of PAs and biodiversity conservation in the region. Legislation is only useful, if adequately implemented and such implementation is lacking in many cases. Future efforts to protect species and to prevent rare ones from slipping towards extinction will depend on a deeper understanding of the biology of rarity and extinction and a sense of how human interactions with the biosphere affect them. A world scheme for accomplishing the preservation of the maximum amount of biodiversity possible would be the most important single contribution that the people of our generation could make to the future.

Suggestions

- Protection and sustainable use of plant and animal genetic resources through appropriate laws and practices.
- To promote and use positive conservation skills.
- New laws, funding for equipment, research, and informing the community about the biodiversity is required.
- Reduction of load on the Environment and Protected Areas.
- Enhancing Awareness and Public Support.
- A common international goal should be set to conserve biodiversity.
- To support recycling programs.
- Waste management and energy efficiency need more restrictions.
- Conservation action frequently needs to be tailored to specific circumstances affecting particular species and supported by adequate knowledge on species.

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