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BIODIVERSITY CONSERVATION : STRATEGIES FOR FUTURE

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ABSTRACT

Man has ruthlessly exploited and destroyed wildlife habitats to obtain a higher standard of living and to accommodate an ever increasing human population. Loss, fragmentation or transformation of habitats have been mainly due to changes in land use such as urbanisation, industrialisation, agricultural development, vegetation manipulation shifting cultivation, introduction of exotics, etc. Natural habitats such as forest, grasslands deserts, wetlands mangroves coral reefs, etc. are under tremendous pressure due to increasing population densities and activities of human beings. Wildlife habitats are getting destroyed at an alarming rate with disastrous effects on the biodiversity. While a large number of species have become extinct in the recent past, the survival of many others is threatened. To make a habitat protection plan for the conservation of biodiversity in India, specific information regarding distribution and composition of habitats is required. The present paper is an attempt towards need to carryout biological surveys to find out the distribution of important habitat types on the basis of status of species such as rare, endangered, etc. and threats to them, so as to prevent future destruction of habitat and to ensure overall preservation of biodiversity.

KEYWORDS : Biodiversity, Habitat Destruction, Shifting Cultivation, Urbanisation, Endangered Species

Biodiversity forms the root of all living systems. India is fortunate enough to be ranked sixth among the 12 mega biodiversity countries. Its biological resources include 81000 species of animals and 50000 species of plants including lower phyla's. However due to habitat loss and over exploitation owing to burgeoning population, the biodiversity of our country is severely threatened and some species, which one abundantly found, have now become rare and some have even become extinct. The Indian cheetah (*Acinonyx jubatus*) is one such stark example.

In the recent years the concern of the government towards the conservation of biodiversity has grown considerably. This is amply reflected in the wildlife (Protection) Act 1972, forest conservation Act 1980 and the forest policy of 1988. A number of other non-governmental organisations are also working towards ex-situ and in-situ conservation of biodiversity.

Although species extinction is a natural process that will continue without human intervention. But it is a fact that present loss of species is many times faster than the erstwhile natural rate of extinction. Developing countries of Europe and North America have undertaken large scale commercial plantation on forest land and maintain biodiversity for their future requirement of plants and animal species. Developing countries in the tropical zone are rich in biodiversity, but face the dilemma of its conservation vis-à-vis economic development (Balmford et al., 1995; Ehrlich, 1994; Ishwaran, 1992; Sachs, 1992).

India ranks sixth among twelve mega biodiversity countries in the world. The estimated number of species in the world and in India has given in Table-1 and Table-2.

CAUSES OF BIODIVERSITY

The main causes of biodiversity loss are developmental pressure, market failure and intervention failure. The developmental pressure includes in the form of machines, loads, factories human capital, forest, wildlife, soil quality etc. the market indicate the real value of the biodiversity or it's by- products. For instance fuel wood, grasses, seeds, gum, etc. are exploited. The market considers it as zero priced commodities. Intervention by the government in the economy through subsidies, price controls physical output targets, exchange control, etc., leads to inefficiency. Environment quality is affected by excessive utilization of fertilizers and pesticides leading to increasing levels of pollutants in the environment. Various wings of the Government combine to cause degradation of habitat and loss of biodiversity.

In India, conservation of biodiversity is an age old concept and can be appreciated from the following inscription of emperor Ashoka's pillar-

- Forests are not to be burnt either uselessly or for killing (animals).
- Husks containing living being (i.e. insects) are not to be burnt.

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Table 1 : List of Megabiodiversity Species

S.No.	Taxonomic Group	No. of Spp.
1.	Bacteria	3600
2.	Blue green algae	1700
3.	Fungi	46983
4.	Bryophytes	1700
5.	Gymnosperms	750
6.	Angiosperms	250000
7.	Insects	750000
8.	Sponges	5000
9.	Crustaceans	9000
10.	Molluscs	38000
11.	Star fishes	50000
12.	Fishes	6100
13.	Amphibians	19056
14.	Reptiles	6300
15.	Birds	9036
16.	Mammals	4008

Table 2 : Percentage of Megabiodiversity Species

S.No.	Taxonomic Group	No. of Spp.	Percentage
1.	Bacteria	850	0.8
2.	Fungi	23000	21.2
3.	Algae	2500	2.3
4.	Pteridophyta	1022	0.9
5.	Gymnosperm	64	0.1
6.	Angiosperm	15000	13.9
7.	Insecta	53430	49.3
8.	Mollusca	5050	4.7
9.	Pisces	2546	2.4
10.	Amphibia	204	0.2
11.	Reptilia	446	0.4
12.	Aves	1228	1.1
13.	Mammalia	372	0.3
Total		**108276**	**100**

Source: BSI & ZSI 1994

Parrots, myanas, wild ducks, small tortoises, boneless fish, young deer, bull, wild ass are declared as inviolable.

Changes in the consumption pattern have led to extinction and threat to the biodiversity over the years. Green revolution, no doubt gave tremendous boost to agriculture production but depend heavily on massive doses of inorganic fertilizers and pesticides causing soil and water pollution which has ultimately led to biodiversity loss.

Development both individual and societal and environment are two sides of the same coin. The awareness is needed for global environmental risks while designing any environmental strategy. Environmentally and socially disruptive economic behaviour must be changed. The stress should be on qualitative development based on efficient use of energy and natural resources, recycling of end products and minimising the use of non-biodegradable products. To sustain 1.5 billion people in India by the year 2025 heavy

financial investment and technology will be needed in agriculture, water resources, infrastructural development and so forth. Ecological balance will definitely be adversely affected to create liquidity despite our best effort not to do so (Adams, 1997; Anderson et al., 1997; Anon, 1994; Caley and Schluter, 1997; Elmes and Thomas 1992).

Despite all adversities one has to adopt viable strategies for the conservation of species as this will only guarantee our future and lead us towards the goal of sustainable society, sustainable economy, sustainable use and sustainable development. The strategy should be aimed at policy makers, all government and non-government organizations, private organizations, individual and intergovernmental organizations. This will help in achieving the objectives of biodiversity conservation and sustainable development (World Resource Institute, 1992, 1989-93).

SUGESSION

Some measures suggested as a part of long term planning are as follows:-

- Carrying capacity of the system should be maintained, over population in a particular region has to be avoided and excessive pressure on land must be reduced. It calls for changes in the present land use policy, overhauling of land tenure system and population control.
- Forest land will have to be used in such a way that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil now and in future.
- Protect the natural forest through the establishment of protected areas. The protected areas serve three basic functions benefits, education and recreation of the people.
- Speedy disposal of settlement problems.
- Biological resources in the protected areas can be assigned consumptive and non-consumptive values so that the conservation of biological diversity can be linked to sustainable socio-economic development.
- A need for change in the attitude of the field staff towards the interest of local people.
- Stress an integrated development and avoid the economic development of the people in and around the protected areas.
- Need people to change their consumption pattern and find alternatives on their own.
- Use of geographical information system and remote sensing techniques on forest resources, growth and biodiversity.
- Efforts should be made for genetic improvement and dissemination of multipurpose tree species that can grow in degraded areas.
- Need to develop low impact harvesting system and processing.
- Marketing management needs new directions and support.
- Socio- economic objectives are best pursued if the policies regarding land use, rehabilitation of degraded lands, benefit sharing, participatory planning and sustainable management.
- Sustainable development and biodiversity conservation will depend upon proper exploitation of economic potential of genetic diversity using biotechnology for the production of goods and services required by the increasing population.
- Social and anthropological research will required to determine individual and community needs.

At last but not least, the concept of conservation and development should permeates our thinking and perception, we are stakeholders, participants and decision makers in this struggle and can achieve the objectives by our concrete actions, strength and determination with the active support and participation of the people. We build a future in which we live in harmony with nature. When we come together with others anything is possible.

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