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BIODIVERSITY

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ABSTRACT

The term Biodiversity means biological diversity at different levels- from genetic diversity, species diversity to ecosystem diversity. Biodiversity is essential because we depend on other species and the ecosystem they create. Biodiversity gives us: ecosystem services, such as the fresh air,clean water and productive soils that we need to servive.Biodiversity Conservation emerges more important due to the globalize process of the world economy and also for the survival of the world as a balance habitat. Human beings can coexist only with the abundance and diversity of nature. Living things are independent intricately linked in birth,death and renewal. Human beings are just one small part of this voluminious and vibrant mosaic, yet they inflict increasing pressure and pain on species and the environment. As a result many plants and animals are at risk and under threat of extinction. They deserve our conservation.

I.INTRODUCTION

Biodiversity has been defined as the degree of varation in life on Earth. Biodiversity seeks to measure the different number of organisms living in a particular ecosystem. However, biodiversity is not equallyspread across the planet, but is in fact greater in the topics towards the equator, and in the Western Pacific ocean, where warmer sea surface temperatures attract life. At the present time, scientists estimate that there are between 10 to 14 milloion different speices of life on the planet. Thisis despite thefact that asmuch as 99 percent of all speices ever to have lived on earth have gone extint. Several major instances of mass extinction throughout earth's history have caused this, with the most recent being the mass extentition event 65 million years ago, which wiped out the dinosours. Conservation Raymond Dasmann coined the term "Biological Diversity" in 1968, but it was not until, the 1980s when the shortened term "Biodiversity" came into popular usage among scientists and the general public. Scientists now recognise four levals of biodiversity on the planet.

1. Taxonomic diversity (the number of speices)
2. Ecological diversity (diversity of place)
3. Morphological diversity (diversity in genetics)
4. Molecular diversity

The loss of biodiversity on the planet, linked to climate change, has serious implications for the future of life on earth. Diversity has inspired collectors to collect, painters to paint, world travellers to travel world, and researches to do research. The immeasurable variety of life hasv always fascinated people, arousing awe as well as the urge to describe, but ultimately also the desire to better and better understand this diversity. Such is the origin of biology. Ever since the timesof Swadeshi naturalist Carl on Linne, scientists have attempted to record

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or organise the diversity of organisms in a systematic manner- although by the last centuary it seemed that this endeavour was no longer as a pariority. Toxonomy and systematics, after all, had to be seen as old-fashioned and a bit quaint, as life scientists became existed about new methods that promised answer to fascinayting questionsabout the general functional principals and life and it propagation, biochemistry, psychology, and genetics.

II.REASONS FOR THE LOSS OF BIODIVERSITY ARE

The measure reagons for the loss of biodiversity are

- Newly introduced speices in the environment.
- Pollution
- Global warming
- Habitat destruction
- Environmental degradation
- Poor management
- Urbanization
- Over-exploitation of natural resources
- Inappropriate agriculture

III.WORLD WIDE FUND FOR NATURE

WWF's works (1994) to conserve biological through following strategy.

- Creating effective protected areas.
- Promoting sustainable of development practices, so linking conservation with human beings.
- Conserving species of special concern
- Reducing pollution by influcing public policy.
- Promoting the establishment of international treaties, national policies.
- Promoting environmental education to manage the natural resourses.

IV.OPEN QUESTION AND THE ROLE OF SCIENCE

Much has since been discussed regarding possible means of implementation, resulting obligations , and economic consequences. Yet one important aspect is at risk of being forgotten. The prerequisites for effective conservation and sustainable use are , first and foremost, the knowledge of biological diversity and the understanding of its functional relationship.This is where science comes in.For there are still too many open questions; only a portion of the inconceivable varities of life is known,and we have only just begun to grasp the intricate ways in which they are interrelated.

What is the purpose of biodiversity? What does diversity do? Are species rich biotic communities indeed more stable?The list if open questions goes on and the answers are hard to come by.

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SAILENT FEATURES OF BIOLOGICAL DIVERSITY ACT, 2002 (INDIA)

- To conserve and sustain biological diversity.
- To protect knowledge of local communities.
- Protection and rehabilitation of threatened species.
- To regulate and sustain biological resources of the country

INDIA –THE MEGA BIODIVERSITY COUNTRY

India is one of the 12 mega biodiversity countries in the world. India is rich in endemic species. With only 2.5% of the land area , India already accounts for 7.8% of the global recorded species. India is also rich in traditional and indigenous knowledge , both coded and informal.

THE FORMATION OF BIODIVERSITY HOTSPOTS

Reason for the great biodiversity, according to scientists ,is the history of the region since the uplifting of the Andes in the Tertiary Period. Glaciation during the ice ages and drought situations in warm periods ,accompained by major changes in vegetation, obviously prevented species from migrating and resulted in an enhanced evolution of species.Four regions with a particularly large number of endemic plant species have been indentified in Ecuador –the core area of this project is part of one of them.

Tropical forests are normally in a state of dynamic equilibrium, in which all stages of forest development coexist. The experts refer to this as a mosaic climax and it is this dynamism that they are see as one more reason for the broad biodiversity. Another characteristic feature of the research area is a high frequency of landslides presumably caused by the sheer weight of the forest and the instability of the water –saturated soil on the steep slopes.

Importance of Biodiversity :-- Biodiversity is the variability among living organisms, including genetic and structural difference between individual and within and between species. The world biodiversity has a total of 1,263,500 species of plants and animals while India Has only 51,828 Species(table-1) It provide us with all the necessities of life and sustains and nourishes us Biodiversity plays a direct role in climate regulation. Climate always changes resulting in evolutionary changes in the species. Biodiversity is important in following ways-

1) **Pest control:-** conserving biodiversity can control99% of potential crop pests.
2) **Pollination and crop production :-** Without plant and animal interactions, no pollination will be possible and hence would lead to decline in crop yield.
3) **Soil formation and maintenance of soil quality:-** The activities of microbes and animal condion soils, break down organic matter, form soil and prevent soil erosion.
4) **Maintain water quality:-** Trees and forest soils purify water; prevent siltation of rivers and reservoirs arising due to soil erosion and landslides.

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5) **Maintain air quality:-** Plant purify the air and regulate the composition of the atmosphere,by taking in CO_2 during photosynthesis and liberating oxygen in the atmosphere.
6) **Climate stabilization:**- Oceans, soil and vegetationare huge carbon sinks and help reduce the CO_2 in atmosphere. In rainforests the surface temperature is maintained by regular rains, while in cold regions the temprature is regulated by forest acting as insulators and windbreaks.
7) **Provision of food security:-** biodiversity in the term of plants and animals is ultimate source of food, fiber,fuel and shelter. Biodiversity conservation will lead to strengthening of ecosystem resilience and will improve the ability of ecosystem to provide important services during increasing climate pressures.
8) **Prevention and mitigation of natural disasters:-** Ecosystem biodiversity prevents erosion, nutrient loss, landslides, floods and impact of storms.
9) **Detoxification and decomposition of wastes:**- about 130 billions matric tons of organic waste is processed every year by earth's decomposing organisms .

IMPACTS OF CLIMATE CHANGE ON BIODIVERSITY

i. Vegetation:- The vegetation is exhibiting the following changes;

A. Migration of vegetation Towards a higher attitude:- In Nanital, species such as *Berberisasiatica, Taraxacumofficinale, Jasminumofficinale* etc. have shifted from 1000to 2000m height . Teak dominated forests are predicted to replace the Sal trees in central India and also the confers may be replaced by the deciduous types. According to climatologists and palynologists, temperature changes of 3 degree C may lead to forest movement of 250 km at a rate of 2.5km/year which is ten times the rate of natural forest movement.

B. Invasive species:- invasive species' are a threat to native species being more tolerant to climatic variations .

C. Changes in phonological behavior:- Climate/seasons affects the normal life cycle of the plant (4). The crops show early flowering and maturation which has shortened their grain fill period and yield.

D. Increase in the pest attacks:- Due to climate change, pests have increased in number. Variation in temperature and precipitation patterns can result in more frequent drought and floods making indigenous plants more vulnerable to pests and disease.

E. Forests fires:- Forests fires have increased in number due to high temperature conditions.

ii. Animals:- Sensitivities of the species' to even a slight change in the climate leads to their extinction as in case of the golden toad. Polar bears are in danger due to reduction in Arctic ice cover. North Atlantic right whale may become extinct, as planktons, its main food have shown decline due to climate change. A change in ocean temperature leads to loss of the living corals of Australia's Great Barrier Reef.

FOREST: A NATURAL ASSET OF GREAT VALUE

Forests are self sufficient energy –rich ecosystems .They are not merely groups of trees but large communities of diverse organisms which interact with living or non-living components of the environment .We depend on forests for every need of our life and all basic requirement .Forests continue to supply us with vital natural resources, produce oxygen, absorb carbon dioxide and prevent the soil from erosion. We are dependent on them not only for food, medicine, shelter, fuel and other products but also for wild life.

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Forests form a major factor of environmental conservation and have an appreciable effect on the climate .They offer protection to the animals' .They increase local precipitation, enrich soil with fallen leaves and regulate water flow in hills and prevent soil erosion. They supply timber fuel wood, pulp wood and support varied industrial activities, offer employment and are gene reserves for both flora and fauna.

V.WILDLIFE: OUR BIOLOGICAL HERITAGE

The term wildlife is commonly referred to represent the non domesticated animals living in a natural habitat. But in its widest sense, it includes all flora and fauna of the natural habitat. Our country is endowed with a particularly rich biological heritage. It is a great natural wealth. Some of them are the mighty elephant, the spotted deer, the blackbuck the one horned rhinoceros and the prestigious lion and the tiger. But today our wildlife wealth is poorer than ever. Our wildlife resources need serious economic management only then there will be a suitable platform upon which to build our conservation program.

VI.CONCLUSION

It is the apt time to work together, participate and pay special attention to see that use of biological resources is sustainable now and in the longer run, for the benefit of all life on earth. It is our duty to foster an integral approach in all the uses of biological resources. We should educate and actively promote actions to reduce polution and conserve biological resources.

The gap between the demand and supply can only be met through sincere effort, proper managerial skills and implementation of policy decisions in letter and spirits; we will have to put on more resources for it which will lead us to a sustainable development. Efficient and effective environmentally benign productive technologies that can serve and enhance the resource base of crops, animal husbandry, foresty and and inland and marine fishries, deserve much importance.

Earth is the where we all live; so if any part of the planet is harmed, it affects all of us. Every minute there are forces at work that threaten the earth's health. So all of us should take care of it.

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