

## **Biodiversity Park : An Innovative Approach for Conservation and Protection of Natural Heritage**

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### **ABSTRACT**

Biodiversity or biological diversity refers to all life forms with their manifold variety that occurs on the earth. It encompasses not only ecosystems population and species but the different subunits of species, each possessing unique characteristic attributes. Protection and conservation of biodiversity is not only a matter of emotion or aesthetics but it is very important for human as well as the entire ecosystem. We have already lost many species that once flourished in this environment. If not properly conserved, the present biodiversity will be drastically reduced in the face of the rapid development that is taking place. We shall have to preserve whatever little greenery is there and we shall have to create more green spaces to improve the biodiversity. The monitoring of biodiversity is an important aspect to realize the sign of changes. But such a monitoring cannot be done without creating a database of flora and fauna of the areas concerned. Biodiversity Park would serve the objectives of all the above issues in future. The main objective of such kind of park is to conserve the biodiversity of the specific area and to maintain the genetic stock available therein. In biodiversity Park, special thrust is also to be given for the conservation of rare, threatened and endangered species. The present work compiles aims and objectives of establishing a biodiversity park and its importance for the whole arena of universe.

**Key words : Biodiversity, Biodiversity park, Conservation.**

### **INTRODUCTION**

Biodiversity is the variability among living organisms including terrestrial, marine and aquatic ecosystems and the ecological complexes. This includes diversity within species, between species and of ecosystem. It forms the foundation of the vast array of ecosystem services that critically contribute to all human beings. Biodiversity is important in human managed as well as natural ecosystems. It is the foundation of ecosystem services to which mankind is intimately linked. The term 'biological diversity' or 'biodiversity' refers to the variety of life on Earth. It denotes to the wide variety of ecosystems and living organisms as animals, plants, their genes and habitats. The earth and evolution processes are very

ancient phenomena. The concept of biodiversity has its origin in the threshold of 1970. Biodiversity is the sauce of life. It is crucial for the functioning of ecosystems like oxygen, food, fresh water, fertile soil, medicines, shelter, protection from storms and floods, stable climate and recreation.

The innumerable plants, animals and microbes of biodiversity physically and chemically unite the atmosphere (the mixture of gases around the Earth), geosphere (the solid part of the Earth), and hydrosphere (the Earth's water, ice and water vapour) into one environmental system. Biodiversity or biological diversity is a neologism and a portmanteau word, from "bio" meaning life and

“diversity” meaning variation. It is the diversity of and in living nature. Diversity, at its heart, implies the number of different kinds of objects, such as species.

The word “biodiversity” is a contracted form of the term 'biological diversity'. The Convention on biological diversity defines biodiversity as: "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems."

Thus, biodiversity includes genetic variation within species, the variety of species in an area, and the variety of habitat types within a landscape. Biological diversity is of fundamental importance to the functioning of all natural and human-engineered ecosystems, and by extension to the ecosystem services that nature provides free of charge to human society. Living organisms play central roles in the cycles of major elements (carbon, nitrogen, and so on) and water in the environment, and diversity specifically is important in that these cycles require numerous interacting species.

Loss of biodiversity not only reduces the availability of ecosystem services but also decreases the ability of species, communities, and ecosystems to adapt to changing environmental conditions. Biodiversity is nature's insurance policy against disasters. Some people also include human cultural diversity as part of the earth's biodiversity. The variety of human cultures represents numerous social and technological solutions to changing environmental conditions.

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important aspect to realize the sign of changes. But such a monitoring cannot be done without creating a database of flora and fauna of the areas concerned.

In countries with fast growing economies, the urban areas expand rapidly in terms of population and infrastructure and the scenarios of natural heritage is wiped out. One of the innovative approaches to address the issue is to promote the creation of Biodiversity Parks that serve as nature reserves in urban matrix.

### **What are Biodiversity Parks**

Biodiversity Parks are unique landscapes of wilderness where ecological assemblages of native species in the form of biological communities are recreated and maintained over few hundred hectares of degraded or marginal lands. In other words Biodiversity Parks are nature reserves that harbour natural heritage of the area and have conservation, educational and cultural values and enhance the quality of environment in urban Centres.

The underlying principle of the Biodiversity Park is to recreate self sustaining ecosystems with native flora and fauna characteristic of the area for enhancing the quality of urban environment

### **Role of Biodiversity Park**

Biodiversity park is nothing but the effort to make balance between the nature and the mankind. As it is clear that the most important factor behind extinction and disappearance of any flora and fauna is human population and such kind of unbalance has disturbed the whole ecological and biological world. Biological diversity is a precious usual resource intended for the continued existence of mankind, a slow decrease of which might consequence inside vanishing of class economic worth in the direction of the person contest. The imperfect protection resources obtainable have to be listening carefully tactically on top of opportunities probable toward give way the most conservation advantage. Conserving biodiversity is

concerned with restoring the equilibrium between humans and atmosphere.

The Biodiversity Park has been established keeping in view so many points regarding conservation of flora and fauna. Some of the important role of biodiversity park are as :

1. It serves as nature reserve for the conservation of natural heritage of the city,
2. It enhances the quality of urban environment,
3. It serves as hub for education, cultural and conservation activities,
4. It connects biodiversity to the city and people,
5. It promotes eco-tourism,
6. It creates livelihood for local communities,
7. It serves as living laboratory for understanding the ecological processes and functions,
8. It buffers the local weather and serves as sink for Carbon-di-oxide and urban pollutants and serves as adaptation to climate change.
9. It preserves the rare endemic and threatened plant and animal species of the area.

### **Important Elements of the Biodiversity Park**

The concept of biodiversity park has been developed with goal to conserve and save our ecosystem. It is a scientific approach but there is need of participation of the entire human population. Such kind of park is not the picnic spots but the most reliable and effective effort to save this earth.

There are so many important factors important for establishment of a biodiversity park. It is the natural and protected home for all kinds of plants and animal. The Biotechnology department should see the modern approach of conservation strategies. There is also need to develop a propagation centre for multiplication of plants. This center will consist of a rooting chamber, a mist chamber, a hardening chamber, a platform for making the potting mix and other related sections. Observations on all aspects

covering seed germination, rooting growth performance etc will be compiled methodically. There is also need to establish an interpretation centre for educational awareness, interpretation and extension of diverse flora and fauna of natural world. It may be easily propagated through booklets, pamphlets and other reports. In addition to all these segments, there is also need to be a strong management committee for making this dream and project fruitful.

A Biodiversity Park can have many structural components. Some of the components are as:

1. A nature conservation zone that have terrestrial biological communities, and a mosaic of wetlands interspersed with grasslands, all of which represent natural heritage; and
2. A visitor zone where there is a herbal garden, butterfly conservatory, a climbers groove, a scented garden, a natural Interpretation Centre, a recreational garden with walkways, conservatories of endemic, rare and threatened plants of the area, and representatives of ecosystems found in the area.

### **Concept of Biodiversity park**

Biodiversity Park is a part of urban infrastructure. The Biodiversity Park Concept was implemented for the first time in Delhi by Delhi Development Authority (DDA) – a land-owning and city building local government agency in collaboration with the Centre for Environmental Management of Degraded Ecosystems of the University of Delhi. The DDA has notified six Biodiversity Parks: (i) Yamuna, (ii) Aravalli, (iii) Neela Hauz, (iv) Kamla Nehru Ridge, (v) Tilpath Valley, and (vi) Yamuna river front. Of these, Yamuna and Aravalli Biodiversity Parks are fully functional and both the Parks are Natural Reserves of Delhi today.

In the state of Jharkhand too, a Biodiversity Park has been established at Ranchi over an area of 542 acres of protected forests of Lalkhatanga and Garkhatanga of Khijri block. The main objective of this park is to conserve the biodiversity of the Ranchi plateau and to maintain the genetic stock available

therein. Special thrust is to be given for the conservation of rare, threatened and endangered species of Jharkhand as well as that of India. A part of this garden is to be made to serve the purpose of Botanical garden with a purpose of creating public awareness and imparting environmental education to the general mass.

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Presently following activities have been taken up in the park.

*Medicinal Garden:* A medicinal garden housing more than 100 species of medicinal plants has been established and is being maintained.

*Zone of Indigenous species:* In this zone 115 species have been planted over an area of 5 ha.

*Zone of exotic species:* It is spread over an area of 4 ha and 64 species of exotic plants have been planted here.

*Bambusetum:* A bambusetum has been established over an area of 4 ha, where 24 species of bamboos have been planted.

*Grass Zone:* Spread over an area of 0.5 ha, 33 species of grasses have been planted here.

*Aquatic Garden:* In this garden 15 species of aquatic plants have been planted. There is a good collection of different varieties of lillies & lotus in this garden.

*Palm Garden:* It is spread over an area of 1 ha, where forty five species of palms and cycads have been planted.

*Rose Garden:* A beautiful rose garden is being developed in the park over an area of 1 acre.

*Grass Lawn and Shrubbery :* A rich lush green grass lawn with shrubbery all around has been developed near the main entrance of the park, where a magnificent entrance plaza has been constructed.

*Conservatories:* Conservatories are being developed

in the park, where the indigenous & endemic plant species are being made to bring back.

*Water harvesting and water conservation:* The whole park area is having undulating terrain with many natural nallas passing through it. Underground water level of the park area is very low and it is very difficult to get water even after going 1000 ft deep. So thrust is being given to check the run off water & store it by constructing check dams and other structures and barriers across nallas. In fact, a special drive has already been taken up to convert the whole area into a "zero run off zone". The ultimate objective is to make this "water scarce zone" into a "water surplus zone".

## Discussion & Conclusion

Biodiversity park has been the necessity and integral part of our environment for proper functioning and existence of ecological world. Biodiversity is the heritage of nature and it should be conserved both for welfare of the human population in particular and the natural environment in general. The establishment of biodiversity park is one of the innovative and positive approach to promote the conservation of natural resources in urban matrix. Due to increasing industrialisation, human population, overgrazing and urbanisation, the biological diversity needs strong management strategies and the establishment of biodiversity park is one of the strongest effort in this field. It is necessary for protection, conservation, propagation and extension of the genetic resources of the ecosystem. It needs technical and other important inputs too. A biodiversity park must have plants and propagules of different species, collected from all the parts keeping in view that they are also the integral part of this atmosphere. Much more stress should be given on the endangered and threatened species.

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