



Conserving Diversity, Conserving Planet

This article is based on “[A planet in crisis: on tangible outcomes from biological diversity convention](#)” which was published in The Hindu on 20/12/2022. It talks about Convention of Biological Diversity (CBD) and challenges related to Biodiversity conservation.

For Prelims: International Union for Conservation of Nature's red list, Convention of Biological Diversity (CBD), Biological Diversity Act in 2002, Forest Rights Act, Invasive alien species, India Business & Biodiversity Initiative (IBBI), Wetland (Conservation and Management) Rules 2010, National Plan for Conservation of Aquatic Ecosystem Wildlife Crime Control Bureau, Genetic Modification, Biosphere reserves.

For Mains: Convention on Biological Diversity, Significance of Biodiversity, Challenges Related to Biodiversity Conservation.

India is a megadiverse nation and the land of around 10% of the world's species. It also has a rich [cultural heritage](#) traced back to thousands of years. Much of Indian biodiversity is **intricately related to the socio-cultural practices** of the land.

Unfortunately, due to **population explosion, climate change and lax implementation of environmental policies**, several species are facing the threat of extinction. At least **97 mammals, 94 bird species and 482 plant species in India are threatened with extinction**, as per the [International Union for Conservation of Nature's red list](#) of plant and animal species that have been endangered.

This rapidly accelerating biodiversity loss led to a series of negotiations and agreements among countries like the [Convention of Biological Diversity \(CBD\)](#). But the current rate and scale of extinction is unprecedented. India must therefore **take serious steps in the direction of conserving biodiversity**.

What is the Convention on Biological Diversity?

- **Convention on Biological Diversity (CBD)** is a legally binding treaty to conserve biodiversity that has been in force since 1993. It has **3 main objectives**:
 - Conservation of biological diversity.
 - Sustainable use of the components of biological diversity.
 - Fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.
- It has been ratified by **196 nations**.
 - India enacted [Biological Diversity Act in 2002](#) for giving effect to the provisions of the **CBD**.

What is the Significance of Biodiversity?

- **To Meet Survival Needs:** Perhaps the most important value of biodiversity, particularly in India, is that it **meets the basic survival needs of a vast number of people.**
 - **Genes regulate all biological processes on the planet** and increase the ability of organisms to cope with **environmental stressors.**
 - Even today there are many **traditional communities which depend, wholly or partially,** on the surrounding natural resources for their daily needs of **food, shelter and clothing.**
- **Pharmaceutical Value:** Biodiversity has greatly contributed to **modern medicine and advancements in human health research** and treatment.
 - Many modern **pharmaceuticals** are derived from **plant species**, including the **anti-tumor agent Taxol from the Pacific yew tree and the antimalarial artemisinin from sweet wormwood.**
- **Aesthetic Value:** Each species and ecosystem adds to the **richness and beauty of life on Earth.** Highly diverse environments are prime **ecosystems that support many species in addition to being aesthetically beautiful, educational, and interesting recreation sites.**
- **Ethical Value:** Each species is **unique and has a right to exist.** Each species is worthy of respect regardless of its worth to human beings. This point of view was recognised in the **World Charter for Nature, adopted by the United Nations in 1982.**
- **Ecological Services:** Specific life forms present in a particular habitat helps in **providing conditions for other life forms to live in that environment.** Destroying one species can lead to further extinctions or changes.

What are the Challenges Related to Biodiversity Conservation?

- **Erosion Traditional Breeding Systems:** **Commercial agriculture** and the need for more efficient breeds have increased as industrialization advances. This has led to a **gradual erosion of traditional breeding systems and loss of biodiversity.**
 - Further, there is a steady **loss of traditional knowledge** associated with ancient breeding systems.
- **Conflict Between Forest Rights and Wildlife Conservation:** The Supreme Court of India earlier raised the issue that **most of the protected areas in the country are notified without recognising the settlement rights of the tribal communities.**
 - The purpose of the **Forest Rights Act and the Wildlife Protection Act, amendment of 2006,** was to **democratise administration** and governance in protected areas, which is **yet to get actualised.**
- **Introduction of Exotic Species:** **Invasive alien species** include plants, animals and pathogens that are **non-native to an ecosystem** cause environmental harm or adversely affect ecological balance.
 - According to CBD reports, **invasive alien species have contributed to nearly 40%** of all animal extinction.
- **Global Warming and Climate Change:** It poses **threats to plant and animal species** as many organisms are **sensitive to carbon dioxide concentration** in the atmosphere that may lead to their disappearance.
 - Use of **pesticide, rise of tropospheric ozone, sulphur and nitrogen oxides from industries** also contribute to the degradation of natural ecosystems.
- **Choking Marine Biodiversity:** Due to lack of efficient plastic waste management, microplastics are getting **dumped into oceans choking and starving marine life** and causing **liver, reproductive, and gastrointestinal damage in animals** and directly impacting marine biodiversity.
- **Genetic Modification Concern:** **Genetically modified plants** impose high risks to the **disruption of ecosystem** and biodiversity because the better traits produced from engineering genes can result in the favouring of one organism.
 - Hence, it can **eventually disrupt the natural process of gene flow** and affect the sustainability of indigenous variety.

What are the Recent Initiatives Related to Biodiversity Conservation?

- **India:**
 - [India Business & Biodiversity Initiative \(IBBI\)](#)
 - [Wetland \(Conservation and Management\) Rules 2010](#)
 - [National Plan for Conservation of Aquatic Ecosystem](#)
 - [Wildlife Crime Control Bureau](#)
- **Global:**
 - [Nagoya Protocol](#)
 - [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#)
 - [World Wide Fund for Nature](#)

What Should be the Way Forward?

- **Protecting Entire Biosphere:** Conservation should not be limited to the **species level** but should be about the **conservation of the entire ecosystem**, including the **local communities**.
 - India needs more [biosphere reserves](#) to protect biodiversity and ensure **sustainability of the ecosystem**.
- **Native Gene Banks:** It is important to **preserve the indigenous variety** due to its ability to **adapt to diseases and nutritional value**.
 - [Gene banks](#) can be created that will assist various research institutions in conducting research as well as help in conserving indigenous crops.
- **Breaking Down Plastic Waste:** Plastic has become so **enmeshed in our ecosystem that bacteria have evolved to digest it**. Plastic-eating bacteria, discovered in Japan, have been cultivated and modified to **digest polyester plastics** (food packaging and plastic bottles), this can be a **way to prevent plastic dumping** into oceans and protect **marine biodiversity**.
- **Recognition of the Rights of the Indigenous People:** For preserving the rich biodiversity of the region, the **recognition of the rights of the forest dwellers who depend on the forests is as important as the declaration of natural habitat**.
 - Tribal peoples are generally regarded as the **best conservationists**, as they **connect with nature more spiritually**.
 - The cheapest and quickest way to conserve areas of high biodiversity is to **respect tribal peoples' rights**.

Drishti Mains Question

Discuss the major factors responsible for the loss of biodiversity in India. And suggest how India can effectively implement biodiversity protection policies.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q1. Two important rivers - one with its source in Jharkhand (and known by a different name in Odisha), and another, with its source in Odisha - merge at a place only a short distance from the coast of Bay of Bengal before flowing into the sea. This is an important site of wildlife and biodiversity and a protected area. Which one of the following could be this? (2011)

- (a) Bhitarkanika
- (b) Chandipur-on-sea
- (c) Gopalpur-on-sea
- (d) Simlipal

Ans: (a)

Q2. With reference to India's biodiversity, Ceylon frogmouth, Coppersmith barbet, Gray-chinned minivet and White-throated redstart are (2020)

- (a) Birds
- (b) Primates
- (c) Reptiles
- (d) Amphibians

Ans: (a)

Mains

Q. How does biodiversity vary in India? How is the Biological Diversity Act, 2002 helpful in the conservation of flora and fauna? **(2018)**

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