



## 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)**

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**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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