



International Biosphere Reserve Day 2023

For Prelims: [Biosphere Reserve](#), [World Biosphere Reserve Day](#), Man and the Biosphere (MAB) Programme

For Mains: Biosphere Reserves Main Zones, Functions

Source: TH

Why in News?

The second anniversary of [International Biosphere Reserve Day](#), celebrated on **November 3**, annually highlights the critical importance of [biosphere reserves\(BR\)](#) in safeguarding our environment and promoting sustainability.

- In this context, the [United Nations Educational, Scientific and Cultural Organization \(UNESCO\)](#) partnered with the **Ministry of Environment, Forests and Climate Change** and the [National Centre for Sustainable Coastal Management](#), concluded the **10th South and Central Asian Biosphere Reserve Network Meeting (SACAM)** in Chennai, India.
 - The SACAM event, themed "**Ridge to Reef**," facilitated collaboration on sustainable environmental practices in South and Central Asia.

What is World Biosphere Reserve Day?

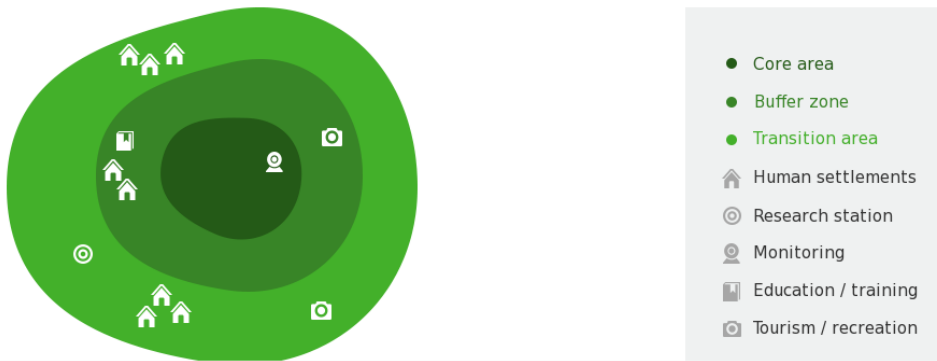
- This day celebrates the role of biosphere reserves in **conserving biodiversity** and promoting sustainable development.
- Established by **UNESCO in 2022**, to be observed annually on November 3.
- Aims to raise awareness, share best practices, and showcase achievements of the **World Network of Biosphere Reserves (WNBR)**.

What is a Biosphere Reserve?

- **About:**
 - Biosphere reserves are 'learning places for [sustainable development](#)'.
 - They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between **social and ecological systems**, including **conflict prevention and management of biodiversity**.
 - They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine and coastal ecosystems.
 - Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.
- **Features:**
 - Biosphere reserves consist of **three main zones**:
 - The **core area** is the strictly protected zone, where natural processes and biodiversity are preserved.

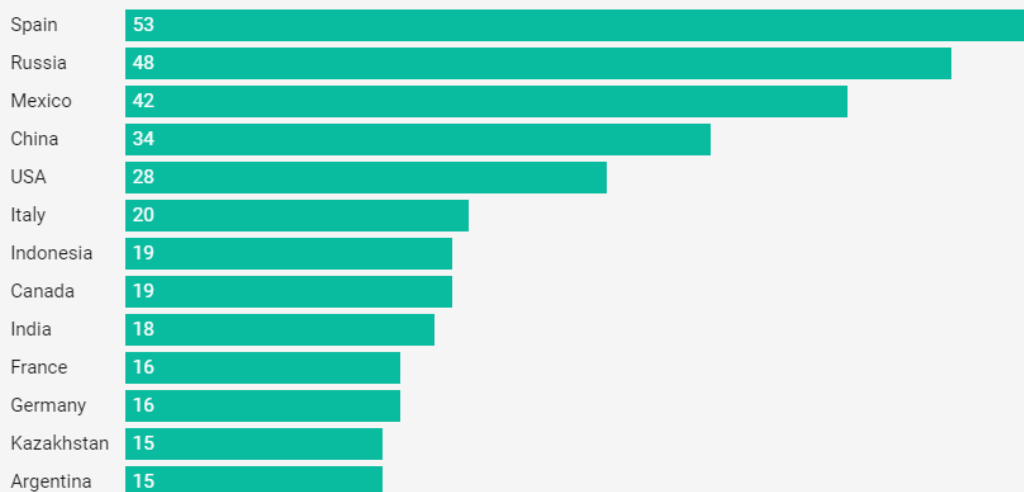
- The **buffer zone** surrounds the core area, where human activities are compatible with conservation and research objectives.
- The **transition area** is the outermost zone, where sustainable development and human well-being are promoted.

The three zones that characterise a Biosphere Reserve are



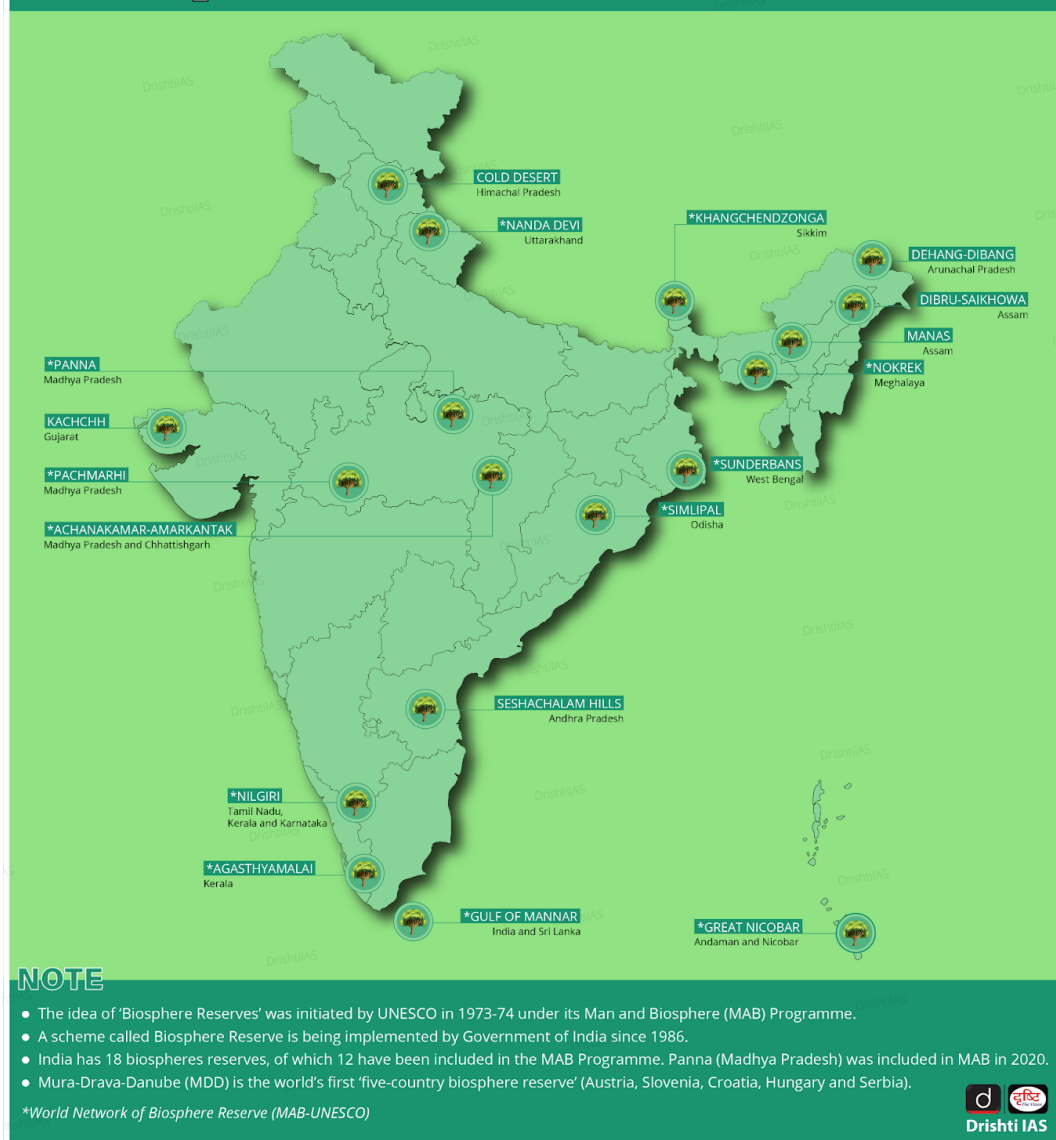
- Biosphere reserves are **nominated by national governments** and remain under the sovereign jurisdiction of the states where they are located.
- Biosphere reserves are designated by **UNESCO under the Man and the Biosphere (MAB) Programme** which was launched in 1971.
 - The MAB Programme aims to improve the relationship between **people and their environment** and to foster the integration of natural and social sciences.
 - The MAB Programme also supports the implementation of the [2030 Agenda for Sustainable Development](#) and the [post-2020 global biodiversity framework](#).
- Biosphere reserves are part of the **World Network of Biosphere Reserves (WNBR)**, which currently comprises **748 sites in 134 countries, including 22 transboundary sites**.
 - The WNBR facilitates the exchange of information, knowledge, and best practices among biosphere reserves and their stakeholders.
 - The WNBR also fosters cooperation and innovation for addressing global challenges such as [climate change](#), [biodiversity loss](#), [poverty](#), and [pandemics](#).

Countries with highest biosphere reserves



- Biosphere reserves are nominated by **national governments** and remain under the sovereign jurisdiction of the states where they are located.
- Biosphere reserves are also supported by other United Nations agencies, for example, the [United Nations Development Programme](#), the [United Nations Environment Programme](#), as well as the [International Union for Conservation of Nature](#).
- **Biosphere Reserves in India:**

Biosphere Reserves in India



What is the Importance of Biosphere Reserves?

- Biosphere reserves play a crucial role as **carbon sinks**, absorbing [carbon dioxide](#) from the atmosphere and contributing to climate change mitigation.
 - Acting as **pockets of hope in the face of the climate crisis**, the UNESCO biosphere reserves are hidden oases, protecting biodiversity, reducing pollution, and enhancing climate resilience.
- Biosphere reserves act as sanctuaries for a wide variety of ecosystems, including **tropical rainforests, alpine deserts, and coastal areas**, providing habitats for countless unique and endangered plant and animal species.
 - Biosphere reserves are home to more than **250 million people**, who depend on the ecosystem services and natural resources for their livelihoods.
- They promote sustainable economic development by offering opportunities for **eco-tourism** and other environmentally friendly activities, benefiting local communities.
- Biosphere reserves also showcase how to involve **local communities**, indigenous peoples, women, youth, and other stakeholders in decision-making and management processes.

What are the Challenges for Biosphere Reserves?

- Rapid [deforestation](#) threatens the integrity of ecosystems within biosphere reserves.

- Overharvesting of natural resources, such as timber and wildlife, can deplete reserves' ecological resources.
- **Habitat loss** due to human activities and urban expansion endangers various plant and animal species.
- The introduction of [invasive species](#) **disrupts the balance of native ecosystems**, impacting biodiversity.
 - Controlling and managing invasive species is an ongoing challenge.
- **Climate change** poses a significant threat, affecting the stability and resilience of ecosystems within biosphere reserves.
 - Altered weather patterns, rising temperatures, and extreme events can lead to ecosystem disturbances.
- Changes in **land use, such as agriculture, mining**, and infrastructure development, impact the natural landscape of reserves.
- Pollution from **agricultural runoff, industrial activities, and waste disposal** can harm the environment within biosphere reserves.
- Maintaining water quality and mitigating pollution is crucial for ecosystem health.
- Many biosphere reserves lack sufficient resources and funding for conservation and management efforts.

Way Forward

- **Strengthening Local Initiatives:**
 - Encouraging and supporting local communities to take an active role in managing and protecting these vital ecosystems is a critical way forward.
 - The successes of local community-driven conservation efforts, such as those in the [Sundarban Biosphere Reserve](#) and the [Gulf of Mannar Biosphere Reserve](#), should be highlighted.
 - In the Sundarban Biosphere Reserve in India, local communities are working together to **manage mangrove forests and protect the biodiversity** of the region.
 - In the **Gulf of Mannar Biosphere Reserve** in India, local communities, including women, are contributing towards conservation efforts by forming self-help groups, while the youth are getting engaged in eco-tourism.
 - The concept of '**plastic checkpoints**' introduced in the Gulf of Mannar Biosphere Reserve can serve as a model for addressing plastic waste in other biosphere reserves.
- **Empowering Sustainable Practices:**
 - Promote sustainable practices within biosphere reserves, emphasizing eco-friendly tourism and community involvement.
 - Encourage sustainable agriculture, responsible resource management, and waste reduction measures to minimize the ecological footprint.
- **Climate Resilience and Adaptation:**
 - Establish **climate-resilient strategies within biosphere reserves**, including measures to combat the impacts of climate change.
 - Develop adaptation plans to safeguard ecosystems and reduce vulnerabilities to changing weather patterns.
- **Resource Allocation and Funding:**
 - Advocate for increased **financial and technical support** for biosphere reserves, enabling them to fulfill their conservation and management goals.
 - Seek collaboration with international organizations, governmental bodies, and nonprofit entities to secure resources and expertise.

UPSC Civil Services Examination, Previous Year Question

Prelims

Q.1 Consider the following pairs: (2013)

1. Nokrek Biosphere Reserve : Garo Hills

2. Logtak (Loktak) Lake : Barail Range
3. Namdapha National Park : Dafla Hills

Which of the above pairs is/are correctly matched?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) None

Ans: (a)

Q.2 The most important strategy for the conservation of biodiversity together with traditional human life is the establishment of (2014)

- (a) biosphere reserves
- (b) botanical gardens
- (c) national parks
- (d) wildlife sanctuaries

Ans: (a)

Q.3 Out of all the Biosphere Reserves in India, four have been recognized on the World Network by UNESCO. Which one of the following is not one of them? (2008)

- (a) Gulf of Mannar
- (b) Kanchenjunga
- (c) Nanda Devi
- (d) Sunderbans

Ans: (b)