



## Cold Desert Biosphere Reserve

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### Why in News?

The [Cold Desert Biosphere Reserve \(CDBR\)](#) in Himachal Pradesh, along with **25 other biosphere reserves** across several countries, has been included in [World Network of Biosphere Reserves \(WNBR\)](#) by UNESCO.

- **São Tomé and Príncipe (island country of Central Africa)** becomes the **first state** to have its **entire territory** designated as a **biosphere reserve**.

### What are Key Facts Regarding the Cold Desert Biosphere Reserve?

- **Location:** In the **Trans-Himalayan region**, the reserve covers the **entire Spiti Wildlife Division** and adjoining areas of the **Lahaul Forest Division**, including **Baralacha Pass, Bharatpur, and Sarchu** (altitudes **3,300–6,600 m**).
  - It was declared a **biosphere reserve in 2009**, becoming India's **16th** and first **high-altitude cold desert biosphere reserve**.
- **Landscape:** It integrates [Pin Valley National Park](#), [Kibber Wildlife Sanctuary](#), [Chandratal Wetland](#), featuring **windswept plateaus, glacial valleys, alpine lakes, and high-altitude desert**, making it one of the **coldest and driest ecosystems in WNBR**.
- **Floral Diversity:** It contains **14 endemic, 68 native, and 62 threatened plant species**, including key medicinal plants such as *Salix spp.*, *Betula utilis* etc.
  - It supports **hardy alpine grasses, medicinal herbs**, and rare stands of **Willow-leaved [sea-buckthorn](#), Himalayan birch, and Persian juniper**.
- **Faunal Diversity:** It is home to **rare and endangered species**, including the [snow leopard](#), **Himalayan wolf, Tibetan antelope, Himalayan brown bear, Himalayan griffon, Himalayan ibex, bearded vulture, red fox, and Tibetan gazelle**.

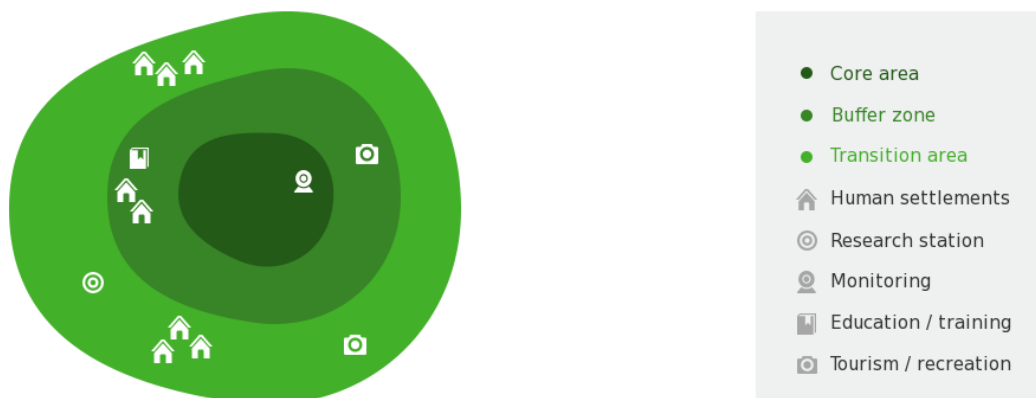
### What is the World Network of Biosphere Reserves?

- **About:** The **World Network of Biosphere Reserves (WNBR)** consists of a **dynamic and interactive network of sites of excellence**.
- **Objective:** It promotes **North-South, South-South and South-North-South collaboration** and represents a **unique tool for international cooperation** through the **exchange of experiences and know-how, capacity-building** and the **promotion of best practices** among **Biosphere Reserves**.
- **UNESCO Affiliation:** The WNBR operates under the [United Nations Educational, Scientific and Cultural Organization](#)'s (UNESCO) [Man and the Biosphere Programme](#).
- **Global Coverage:** The WNBR now includes **785 sites in 142 countries**, with an additional **one million sq km of natural areas** brought under protection since 2018 — **equivalent to the size of Bolivia**.

### Biosphere Reserve

- **About:** A **Biosphere Reserve (BR)** is an international designation by **UNESCO** for significant **natural and cultural landscapes**, covering extensive **terrestrial, coastal, or marine ecosystems**, or a **combination** of these.
  - They are an **in situ conservation** method that balances **economic and social development** with **cultural and natural preservation**, exemplifying **harmonious human-environment coexistence**.
- **Function:** Biosphere reserves serve three main **functions**:
  - **Conservation:** Protecting **biodiversity** and cultural diversity.
  - **Economic Development:** Promoting socio-culturally and **environmentally sustainable growth**.
  - **Logistic support:** Facilitating development through **research, monitoring, education, and training**.
- **Structure of BR:** Biosphere reserves achieve their functions through **three zones**:
  - **Core areas:** **Strictly protected** for conservation of landscapes, ecosystems, species, and genetics (e.g., **National Park or Wildlife Sanctuary**)
  - **Buffer zones:** Surround the core for eco-friendly activities supporting **research, monitoring, training, and education**.
  - **Transition area:** Where communities engage in **socio-culturally and ecologically sustainable** economic and human activities.

The three zones that characterise a Biosphere Reserve are



- **Criteria for Designation of BR:** A site should have a **protected, minimally disturbed core area** of conservation value, large enough to sustain viable populations across all **trophic levels** and representing a **bio-geographical unit**.
  - It should involve **local communities**, incorporating their knowledge in biodiversity preservation, and support the **preservation of traditional tribal or rural lifestyles** for harmonious environmental use.

## Biosphere Reserve in India

- **Overview:** India launched the **Biosphere Reserve scheme in 1986**, guided by the **UNESCO MAB Programme**, as **India is a signatory** to the landscape approach promoted by MAB.
- **Financial Assistance:** Under the scheme, **funding is provided** in a **90:10 ratio** to the **North Eastern Region States** and **three Himalayan states**, and in a **60:40 ratio** to other states for the **maintenance, improvement, and development** of biosphere reserves.
  - The **State Government** prepares the **Management Action Plan** for each reserve, which is then **approved and monitored** by the **Central MAB Committee**.
- **BR in India:** India has **18 biosphere reserves**, of which **13 are now listed** in **UNESCO's WNBR**.

## Conclusion

The Cold Desert Biosphere Reserve exemplifies **high-altitude ecosystem conservation** and sustainable human-environment coexistence. Its inclusion in UNESCO's **World Network of Biosphere**

**Reserves** reinforces India's commitment to biodiversity protection, cultural preservation, and sustainable development through integrated management, research, and community participation under the MAB Programme framework.

**Drishti Mains Question:**

**Q.** Explain the concept of a Biosphere Reserve as defined by UNESCO's Man and the Biosphere (MAB) Programme. How does its three-zonal structure aim to reconcile the conflict between conservation and development?

## **UPSC Civil Services Examination, Previous Year's Question (PYQs)**

### **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)**