

Biosphere Reserves in India

[UPSC Notes]

What are Biosphere Reserves in India?

The biosphere can be defined as water, atmosphere, and land that provide life to the planet. The word “reserve” implies that this is a special area that is designated to maintain a balance between sustainable use and conservation.

- As we have mentioned above that BR is designated by UNESCO, and the main goal behind it is to create a special environment for both people and nature. It simply teaches how human beings and nature can co-exist and fulfill each other's needs.
- UNESCO biosphere reserve in India is a great initiative toward the protection of nature and making sure the healthy growth of the local economy at the same time. BR includes one or more sanctuaries and National Parks. Here protection is provided to all the living organisms around the boundaries.

Biosphere Reserves in India UPSC

The topic of Biosphere Reserves in India is important and can be asked about in Geography or Environment. The topic can be asked in both UPSC Prelims and UPSC Mains. To ensure that you can answer all questions from Biosphere Reserves in India UPSC, you must learn all the names and their location on the map.

The UNESCO Biosphere Reserve in India is an important topic as few questions have been asked in the UPSC Previous Year Question Papers. Download the UPSC Prelims Papers to check if you can solve them.

History of Biosphere Reserves in India

UNESCO released the biosphere reserve network in 1971, two years after the initiation of the biosphere program and MAB- Man. According to the law, these regions are related to the IUCN (International Union for Conservation of Nature)

- BR also aims to balance the social development and economic and maintenance of the cultural values as well as the preservation of nature. However, the Biosphere Reserve is not covered under any law.
- The first Biosphere Reserves was established in 1979, and now there are 701 Biosphere Reserves across 124 countries, and among them, there are 21 transboundary sites.

Structure of Biosphere Reserves in India

UNESCO Biosphere Reserve in India has three zones namely the core area, buffer zone, and transition area.

Core Areas:

The Core Area is the safest area of a Biosphere Reserve, and it may include endemic animals and plants. It is the most suitable area for numerous animal species, and plants and may include centers of endemism. Core areas of a Biosphere Reserve often conserve the wild relatives of the economic species. A core area being a sanctuary or national park regulated/protected under the Wildlife Act, 1972.

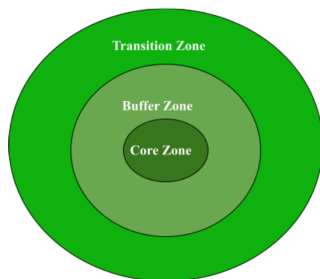
Buffer Zone:

To simply put, the buffer zone surrounds or adjoins the core zone. Here the activities and uses are managed in such a way that helps in the protection of the natural condition of the core zones. Here the activities and uses include demonstration, restoration sites to increase the value of the resources, tourism,

limited recreation, grazing, fishing, etc, which are permitted to reduce their impact on the core zone.

Transition Zone:

This area is the outermost part of the Biosphere Reserve. In this zone greatest activity is permitted to increase the human and economic development that is sustainable. This includes croplands, settlements, and managed forests for economic uses.



List of Biosphere Reserves in India

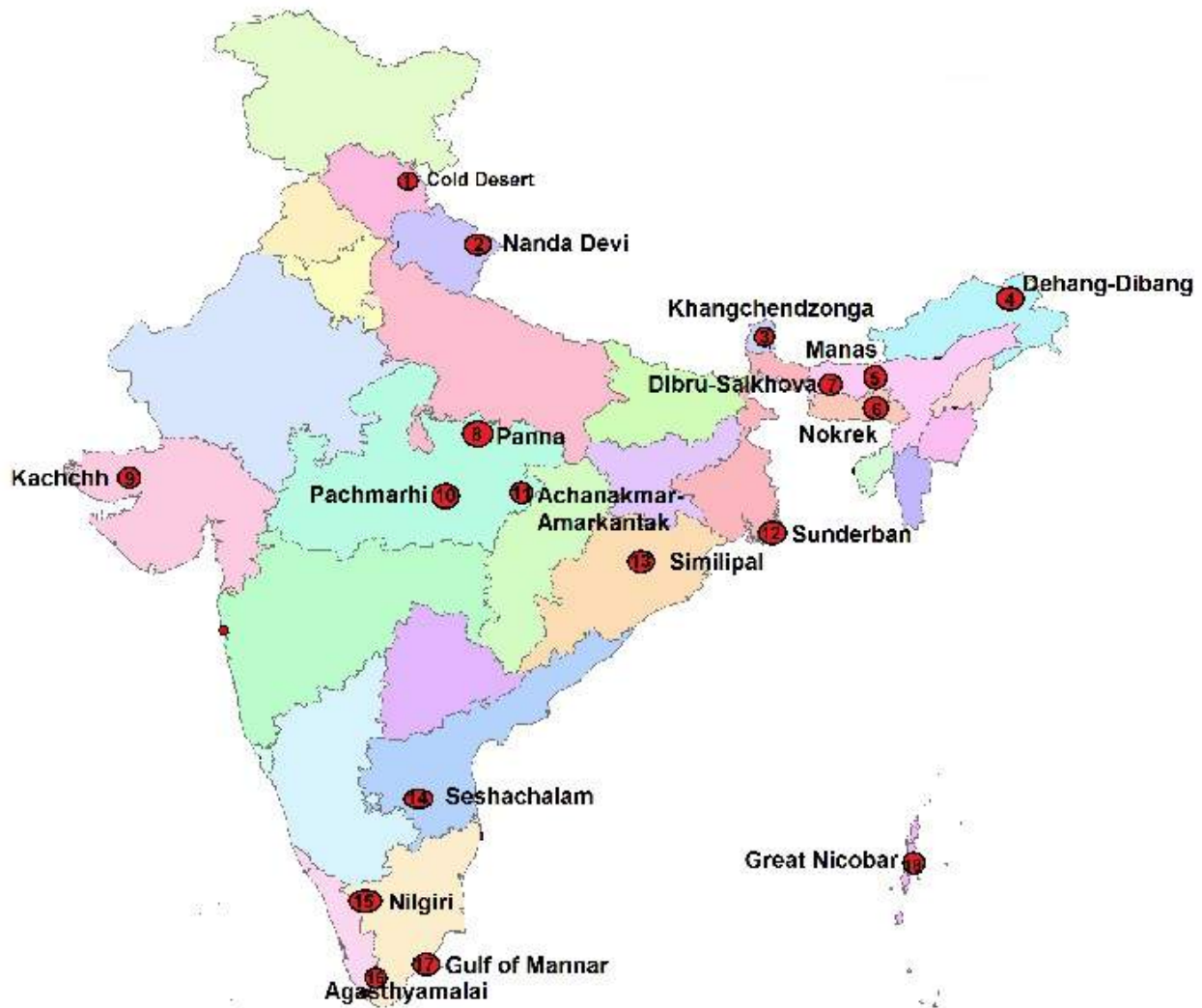
There are 18 Biosphere Reserves in India. Biosphere Reserves are announced by the central or state government, and the government can nominate them under the UNESCO's MAB Programme after its establishment as BR.

UNESCO Biosphere Reserve in India	Year of Notification	Location (States)
Nilgiri	1986	Part of Wayanad, Nagarhole, Bandipur and Madumalai, Nilambur, Silent Valley, and Siruvani hills (Tamil Nadu, Kerala, and Karnataka).
Nanda Devi	1988	Part of Chamoli, Pithoragarh, and Bageshwar districts (Uttarakhand).
Nokrek	1988	Part of Garo Hills (Meghalaya).
Great Nicobar	1989	Southernmost islands of Andaman And Nicobar (A&N Islands).
Gulf of Mannar	1989	The Indian part of the Gulf of Mannar between India and Sri Lanka (Tamil Nadu).

Manas	1989	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup, and Darang districts (Assam).
Sunderbans	1989	Part of the delta of Ganges and Brahmaputra river system (West Bengal).
Simlipal	1994	Part of the Mayurbhanj district (Orissa).
Dibru-Saikhowa	1997	Part of Dibrugarh and Tinsukia Districts (Assam).
Dehang-Dibang	1998	Part of Siang and Dibang Valley in Arunachal Pradesh.
Pachmarhi	1999	Parts of Betul, Hoshangabad, and Chindwara districts of Madhya Pradesh.
Khangchendzonga	2000	Parts of Khangchendzonga hills and Sikkim.
Agasthyamalai	2001	Neyyar, Peppara, and Shendurney Wildlife Sanctuaries and their adjoining areas in Kerala.
Achanakamar – Amarkantak	2005	Covers parts of Anupur and Dindori districts of M.P. and parts of Bilaspur districts of Chhattishgarh State.
Kachchh	2008	Part of Kachchh, Rajkot, Surendra Nagar, and Patan Civil Districts of Gujarat State.

Cold Desert	2009	Pin Valley National Park and surroundings; Chandratal and Sarchu & Kibber Wildlife Sanctuary in Himachal Pradesh.
Seshachalam Hills	2010	Seshachalam Hill Ranges covering parts of Chittoor and Kadapa districts of Andhra Pradesh.
Panna	2011	Part of Panna and Chhattarpur districts in Madhya Pradesh.





International Status of Biosphere Reserves in India

The government nominates Biosphere Reserves that meet the minimal criteria and conditions for the inclusion in the world network of Biosphere Reserves under UNESCO's Man and Biosphere Reserve. According to UNESCO, as of July 2021, there are 714 Biosphere Reserves across 129 countries in the world.

- **Man and Biosphere Programme-** It was launched in 1971. It is an intergovernmental scientific program that tries to establish a scientific basis for the betterment of relations between environments and people. MAB combines economics, social sciences, and education to better human livelihoods and protect natural and managed ecosystems. The national government nominates Biosphere Reserves for inclusion in the world network of biospheres. Then the committee of the MAB program recognizes the BRs after fulfilling the criteria.

Panna Biosphere Reserve got the international status of UNESCO protected Biosphere Reserve in 2020. With this, 12 out of 18 Biosphere Reserves in India have become a part of the World Network of Biosphere Reserves. They are as follows.

- Nilgiri Biosphere Reserve
- Gulf of Mannar Biosphere Reserve
- Sundarbans Biosphere Reserve
- Nanda Devi Biosphere Reserve
- Pachmarhi Biosphere Reserve
- Nokrek Biosphere Reserve
- Simlipal Biosphere Reserve
- Achanakmar-Amarkantak Biosphere Reserve
- Great Nicobar Biosphere Reserve
- Agasthyamala Biosphere Reserve
- Kanchenjunga Biosphere Reserve
- Panna Biosphere Reserve

The WBNP (World Network of Biosphere Reserves) includes globally chosen areas. It has an interactive and vibrant network of sites. The main goal is to promote the harmonious assimilation of people and nature. If the government declares one area as Biosphere Reserve, it can be nominated for UNESCO's MAB program. If UNESCO accepts it, the Biosphere Reserve will be a part of the WNBR or World Network of Biosphere Reserves.

Criteria for Designation of Biosphere Reserves

Certain conditions need to be met to meet the criteria for the designation of Biosphere Reserves. Following are some conditions that a site must have.

- A site must have a minimally disturbed and effectively protected core area of nature conservation value.
- The core area must be typical of a biogeographical unit, and it should be large enough to support viable populations that represent all the trophic levels in the ecosystem.
- Here the management authorities need to ensure the coordination of local communities to get knowledge and experiences to link socio-economic development and biodiversity conservation while managing all the issues.
- Areas potential for keeping rural modes of living or traditional tribes for proper use of the environment.

Functions of Biosphere Reserves in India

Each Biosphere Reserves in India fulfill these three functions as

Conservation Function

- To conserve genetic species, landscapes, resources, and ecosystems.
- Prevent the man-animal conflict
- Apart from the wildlife, customs and culture of tribes are also protected

Logistic Support Function

- To provide support for analyzing conservation issues and promote environmental education, research activities, and training for the establishment of sustainable development.

Development Function

- to promote sustainable economic and human development that is sustainable on an ecological and sociocultural ecological level. It aims to strengthen the three pillars of development: economic, social, and protection of the environment.

Distribution of Biosphere Reserves in the World

Here is the distribution of Biosphere Reserves across the world

- 85 sites in 31 countries in Africa

- 302 sites in 38 countries in Europe and North America
- 157 sites in 24 countries in Asia and the Pacific
- 33 sites in 12 countries in the Arab States
- 130 sites in 21 countries in Latin America and the Caribbean.

Difference Between Biosphere Reserves, Wildlife Sanctuaries, and National Park

Biosphere Reserves:

The ICC (International Coordination Council) of UNESCO's designation of BR for natural areas came to life in November 1971. Biosphere Reserves are areas covering land which include multiple sanctuaries, national parks, and reserves. There are three zones in the Biosphere Reserves- Core, Transition, and Buffer. Here no species from outside are allowed. It is also used for research and conservation purposes.

National Park:

National parks are home to birds, animals, and species which are marked by state and central governments. The land is owned by the government, and this area is safe from human exploitation, and pollution. Here grazing, cutting, and outside species are not allowed.

Wildlife Sanctuary:

In this area, endangered species are kept, and it is protected from any activity that might harm the animals. This area is protected by a private or governmental agency and designed for the protection of the wild fauna. Outside activities are strictly prohibited here.