

## CHAPTER 6

### CONSERVATION EFFORTS IN INDIA

#### 6.1 Project Tiger

Project Tiger is a Centrally Sponsored Scheme launched in Jim Corbett National Park in 1973 with the following objectives:

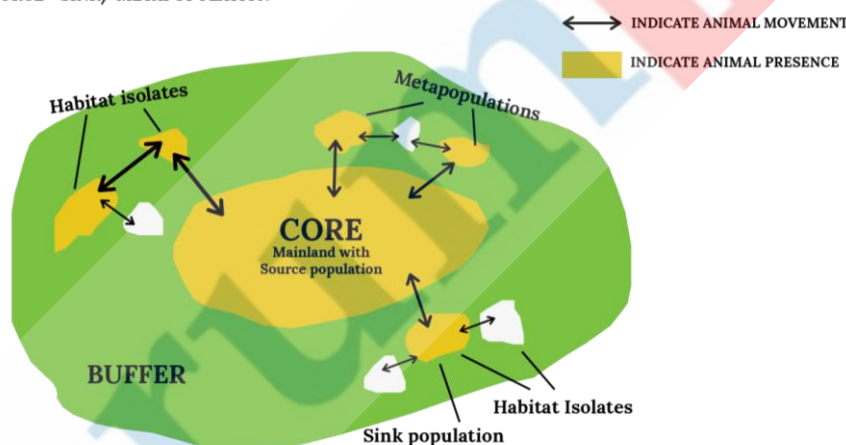
1. To ensure maintenance of available population of tigers in India for scientific, economic, aesthetic, cultural and ecological value.
2. To preserve, for all times, the areas of such biological importance as a national heritage for the benefit, education and enjoyment of people.

Aim of Project Tiger was the conservation of endangered species as well as harmonizing the rights of tribal people living in and around the tiger reserves.

Under Project Tiger, Tiger Reserves are constituted on a 'core-buffer' strategy. The State Governments shall, on the recommendation of the National Tiger Conservation Authority (NTCA) notify an area as a tiger reserve.

Tiger Reserve includes:

#### TIGER LAND TENURE DYNAMICS SOURCE - SINK/ METAPOPULATION



1. **Core zone:**
  - a. The core area is kept free of biotic disturbances and forestry operations. Activities like collection of minor forest produce, human disturbances, grazing etc. are not allowed.
  - b. These areas are required to be kept inviolate for the purpose of tiger conservation, without affecting the rights of the Scheduled Tribes or such other forest dwellers.
  - c. These areas are notified by the State Governments in consultation with an Expert Committee.
2. **Buffer Zone:**
  - a. The Act defines Buffer Zone as the area peripheral to the core area. It provides supplementary habitat for dispersing tigers as well as offering scope for existence of human activity.
  - b. The limits of such areas are determined by consultation with the concerned Gram Sabha and an Expert Committee constituted for that purpose.

Modification in the boundaries of a Tiger Reserve can be done only on a recommendation of the NTCA and it should also be approved by the National Board of Wildlife (NBWL).

**National Tiger Conservation Authority (NTCA)** is a statutory body under the MoEFCC. It was established in 2005 following the recommendation of the Tiger Task Force.

NTCA was constituted under enabling provisions of the Wildlife Protection Act 1972, as amended in 2006, for strengthening tiger conservation, as per powers and functions assigned to it.

The **four-year tiger census** is led by NTCA and the Wildlife Institute of India (WII), in collaboration with state forest departments. Some of the technologies used in estimating the number of tigers include:

1. M-STrIPES (a software-based tiger monitoring system launched by NTCA).
2. CaTRAT (Camera Trap Data Repository and Analysis Tool).
3. ExtractCompare.
4. Spatially explicit capture-recapture (SECR) method.
5. Cytochrome-b marker.
6. Maximum-Entropy Models (MaxEnt).

**13 tiger range countries** that are a part of Global Tiger Recovery Programme include Bangladesh, Bhutan, Nepal, India, China, Lao PDR, Cambodia, Myanmar, Malaysia, Indonesia, Thailand, Vietnam and Russian Federation.

## 6.2 Project Elephant

Project Elephant was launched in February 1992 as Centrally Sponsored Scheme to assist states having free ranging populations of wild elephants and to ensure long-term survival of identified viable populations of elephants in their natural habitats.

States are being given financial as well as technical assistance in achieving the following objectives of the project:

1. To protect elephants, their habitats and corridors.
2. To address issues of man-animal conflict.
3. Welfare of domesticated elephants.

**Monitoring of Illegal Killing of Elephants (MIKE)** Programme is mandated by COP resolution of CITES as an international collaboration that tracks trends in information related to the illegal killing of elephants from across Africa to Asia and to monitor effectiveness of field conservation efforts.

**Hathi Mere Saathi** is a campaign launched by MoEFCC in partnership with Wildlife Trust of India (WTI) to improve conservation and welfare prospects of elephants.

**E-8 countries** with significant population of elephants include India, Botswana, the Republic of Congo, Indonesia, Kenya, Sri Lanka, Tanzania and Thailand.

**E-50:50 forum** is held by the E-8 countries for adopting a common global vision on conservation, management and welfare of elephants across all range countries.

## 6.3 Vulture Conservation

India has nine species of vultures in the wild. However, there has been a constant decline in their population pushing them to the brink of extinction. Diclofenac Sodium, a non-steroidal anti-inflammatory drug administered to reduce inflammation and to reduce pain in certain conditions, is a probable cause for the decline.

Diclofenac Sodium is associated with kidney failure in vultures who are unable to break down the chemical diclofenac when they eat the carcass of animals administered with the drug. Considering this, Meloxicam is being used as a replacement for Diclofenac.

**Saving Asia's Vultures from Extinction (SAVE)** is a consortium of like-minded, regional and international organizations, created to oversee and coordinate conservation, campaigning and fundraising activities to help the plight of South Asia's vultures.

Partners involved in this consortium are Bird Conservation Nepal, Bombay Natural History Society, International Centre for Birds of Prey (UK), National Trust for Nature Conservation (Nepal), Royal Society for the Protection of Birds (UK).

## 6.4 Sea Turtle Project

Sea Turtle Conservation Project was launched in collaboration with UNDP in November, 1999. Wildlife Institute of India (WII) is the implementing agency of the project. While the project is being implemented in 10 coastal states of the country, special emphasis is laid on the State of Odisha.

## 6.5 Project Hangul

The Kashmir stag, also called as Hangul is a subspecies of Central Asian Red Deer. In Kashmir, it is found in the Dachigam National Park. To counter its declining population, Project Hangul was launched by the government of Jammu and Kashmir along with IUCN and WWF.

## 6.6 Captive Breeding

Captive Breeding, also known as "captive propagation", is the process of maintaining plants or animals in controlled environments, such as wildlife reserves, zoos, botanical gardens, and other conservation facilities.

E.g., captive breeding of lion tailed macaque in Arignar Anna Zoological Park, Chennai.

## 6.7 Biodiversity Conservation Measures

### Tiger Conservation:

1. **Global Tiger Initiative, 2008** is an alliance of governments, international organizations like World bank and civil society. It aims to save wild tigers from extinction and its scope was recently broadened to include snow leopards. The initiative is led by 13 tiger range countries including India, China, Russia, Nepal, Bhutan.
2. **St. Petersburg Declaration on Tiger Conservation** was adopted in 2010 under Global Tiger Initiative and TX2 was endorsed. TX2 aims at doubling the number of wild tigers.
3. **Conservation Assured Tiger Standards (CA|TS)** is a set of criteria which allows tiger sites to check if their management will lead to successful tiger conservation. It is a part of TX2.
4. First inter-state tiger translocation took place from Bandhavgarh Tiger Reserve in MP to Satkosia Tiger Reserve in Odisha.

NTCA is the nodal authority for **Cheetah reintroduction program**. Cheetah is a keystone species of the grasslands and its reintroduction will help dryland ecosystems of India to return to their natural state.

**Elephant Conservation** is our national heritage animal, protected under Schedule I of WPA and Appendix I of CITES.

1. **Gaj Yatra** is a nationwide campaign led by Wildlife Trust of India (WTI) and International Fund for Animal Welfare (IFAW), both NGOs protect elephants.
2. **Project Elephant** is a Centrally Sponsored Scheme launched in 1992 for elephant conservation.
3. **Asian Elephant Alliance**, launched in 2015 in London is an umbrella of five NGOs- Elephant Family, IFAW, IUCN Netherlands, World Land Trust and WTI.

## Rhino Conservation

1. “**New Delhi Declaration on Asian Rhinos 2019**” for the conservation and protection of the species was signed by five Asian Rhino Range Countries- India, Nepal, Bhutan, Indonesia and Malaysia.
2. **Indian Rhino Vision 2020** is implemented by the Assam government with the support of WWF-India. The goal was set to populate potential rhino habitat areas identified- Manas National Park, Dibru Saikhowa WLS, Laokhowa WLS, Bura Chapori WLS and Orang with a viable population of rhinos through translocations from Kaziranga National Park and Pobitora Wildlife Sanctuary. Accordingly, a Special Rhino Protection Force (SPF) has been established from people living in the fringe areas of the Kaziranga National Park.

## Snow Leopard Conservation:

1. **Global Snow Leopard and Ecosystem Program (GSLEP)** is an inter-governmental alliance of 12 Snow Leopard Range Countries.
2. **Project Snow Leopard** is a Centrally Sponsored Scheme launched for protection and preservation of snow leopards and is operational in five Himalayan states- J&K, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.
3. The **SECURE Himalaya project** is a part of “Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development” (Global Wildlife Program) funded by the Global Environment Facility (GEF).

The project promotes sustainable management of alpine pastures and forests in the high range Himalayan ecosystems to secure conservation of globally significant wildlife, including endangered snow leopard and their habitats to ensure sustainable livelihoods and socio-economic benefits for communities in the selected high-altitude landscapes in the Trans and Greater Himalayan regions.

**Operation Save Kurma** was conducted by Wildlife Crime Control Bureau (WCCB) to combat the rising illegal trade in live turtles and its parts from the country.

India's first **wildlife conservation reserve dedicated exclusively to blackbuck** will be set up in the trans-Yamuna region of Allahabad in UP. Blackbucks are native to the Indian subcontinent and has been classified as Least Concern by IUCN. Few National Parks and Sanctuaries inhabited by blackbucks include Velavadar WLS in Gujarat and Ranibennur Blackbuck Sanctuary in Karnataka.

**Crocodile Conservation and Breeding Project** was initially launched in Odisha in 1975 and subsequently in other States with technical help from the Food and Agricultural Organization (FAO) and UNDP.

1. India is home to three species of Crocodile i.e., Gharial (Critically Endangered), Mugger (Vulnerable) and Saltwater Crocodile (Least Concern).
2. Bhitarkanika Mangroves is said to house 70% of India's estuarine or saltwater crocodile conservation whose conservation started in 1975.

## 6.8 Miscellaneous

**South Asia Wildlife Enforcement Network (SAWEN)** is a regional intergovernmental wildlife law enforcement support body launched in 2011 in Paro, Bhutan. Its secretariat is located in Kathmandu, Nepal.

SAWEN's regional network comprises of eight South Asian Countries- Afghanistan, India, Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka and Maldives.

**Central Asian Flyway (CAF)** is among the nine flyways in the world. It encompasses overlapping migration routes over 30 countries for different waterbirds linking their northernmost breeding grounds in Siberia to the southernmost non-breeding (wintering) grounds in West and South Asia, the Maldives and the British Indian Ocean Territory.



India has a strategic role in the flyway as it provides critical stopover sites to birds known to use this migratory route. Birds from three different flyways (CAF, The East Asian–Australasia Flyway and Asian East African Flyway) are reported to visit the Indian subcontinent.

**Cultural Model of Conservation** is a concept which respects the rights of indigenous peoples and other bearers of traditional knowledge and prevents social conflicts. Under this mode, human presence is not considered a threat to nature, rather both co-exist and support each other.

Some of the application of cultural model of conservation by different tribes include:

1. Bishnoi tribe of Rajasthan who consider trees as sacred.
2. Chenchu tribe of Andhra Pradesh who are involved in tiger conservation in Nagarjunasagar Srisailem Tiger Reserve (NSTR).
3. Maldhari tribes of Gujarat living in peaceful coexistence with lions.
4. Bugun tribe of Arunachal known for protecting the Critically Endangered bird Bugun Liocichla.
5. Nyishi tribe in Arunachal conserving hornbills in Pakhui/Pakke Tiger Reserve.

Government of India, in partnership with UNDP India initiated the **Indian Biodiversity Awards**. The award is conferred by the National Biodiversity Authority (NBA), which is a statutory body established under the Biological Diversity Act 2002 (BDA).

**Asian Waterbird/Waterfowl Census** is a part of International Waterbird Census and was held recently in India. It was jointly coordinated by the Bombay Natural History Society and Wetlands International.

**Bombay Natural History Society (BNHS)** is an NGO in India engaged in conservation and biodiversity research.

It is a partner of BirdLife International and has been designated as a ‘Scientific and Industrial Research Organization’ by Department of Science and Technology.

Its logo is the Great Hornbill.

**Wetlands International** is a global not-for-profit organization dedication to the conservation and restoration of wetlands.

It is headquartered at Netherlands.

**BirdLife International** is a global partnership of non-governmental organizations that strives to conserve birds and their habitats. It identifies “Important Bird and Biodiversity Areas”.

It is headquartered at Cambridge, UK.

India recently hosted the **Global Wildlife Program** during which India’s National Wildlife Action Plan (NWAP) for the period 2017–2031 was released.

Global wildlife Program was launched with the aim of working towards wildlife conservation and sustainable development by fighting against illicit trafficking in wildlife. Implementing agencies include World Bank, UNDP, UNEP and Asian Development Bank (ADB).

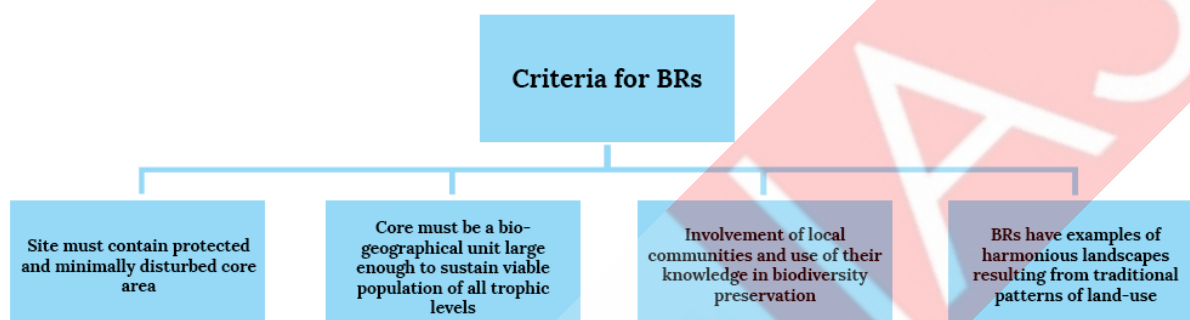
NWAP launched during Global Wildlife Program has several components like following landscape approach towards conservation, increasing role of private sector through Corporate Social responsibility (CSR) and preserving our genetic diversity. It is the third action plan that comes after the first plan in 1983 and second from 2002 till 2016.

**Laboratory for Conservation of Endangered Species (LaCONES)** is a dedicated laboratory of CSIR, Hyderabad. It is the only institute in the country working towards conservation of endangered wildlife using modern biotechnology.

## 6.9 Biosphere Reserves

Biosphere Reserve (BR) is an international designation by the UNESCO for representative parts of natural and cultural landscapes extending over large areas of terrestrial or coastal /marine ecosystems or a combination of both.

Biosphere Reserves tries to balance both economic and social development and maintenance of associated cultural values along with preservation of nature. In a way, BRs are living examples that nature and human beings can co-exist while respecting each others' needs.



Structure of Biosphere Reserves includes a Core Area, Buffer Zone and a Transition Zone.



- Core Area:** It is the most protected area of a Biosphere Reserve and may contain endemic plants and animals. A Core Zone is kept free from human interference.
- Buffer Zone:** The Buffer Zone surrounds the Core Zone and activities in this zone are managed in a way that the Core Zone is protected in its natural conditions. Research and Educational activities are encouraged in this zone.
- Transition Zone:** It is the outermost part of the Biosphere Reserve where human ventures and conservation are done in harmony. This area includes human settlements, croplands and other areas for intensive recreation.

Functions of Biosphere Reserves include **Conservation, Development and Logistics Support**. Presently, there are 18 Biosphere Reserves in India. BRs are not intended to replace existing protected areas, rather it widens the scope of environmental protection and strengthens the Protected Area Network. Existing legally protected areas like National Parks, Wildlife Sanctuaries and Tiger Reserves may also become a part of BRs without change in their legal status.

**Man and Biosphere Programme (MAB)** is UNESCO's intergovernmental scientific programme launched in 1971 that aims to establish a scientific basis for the improvement of relationships between people and their environments.

MAB combines natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems.

12 out of 18 Biosphere Reserves are a part of World Network of Biosphere Reserves (WNBR), based on UNESCO Man and Biosphere (MAB) Programme list.

## 6.10 Biodiversity Hotspots

A Biodiversity Hotspot is a biogeographic region with significant levels of biodiversity that is threatened by human habitation. These are found throughout the world and not just confined to tropics. As per Conservation International, to qualify as a Biodiversity Hotspot, a region must qualify two strict criteria:

1. **Species Endemism:** It must contain at least 1500 species of vascular plants.
2. **Degree of threat:** It has to have lost at least 70% of its original habitat.

**Indian Biodiversity Hotspots** are:

1. The Himalayas
2. Indo-Burma
3. The Western Ghats
4. Sunderland

Some hotspots are much richer than others in terms of their biodiversity. They are classified as '**The Hottest Hotspots**'. Factors taken into consideration while defining Hottest Hotspots include endemic plants, endemic vertebrates, endemic plants/area ratio, endemic vertebrates/area ratio and remaining primary vegetation as a percentage of original extent.

Madagascar, Philippines, Sundaland, Indo-Burma, Western Ghats/Sri Lanka, Brazil's Atlantic Forest, Caribbean, Eastern Arc and Coastal Forests of Tanzania/Kenya are examples of The Hottest Hotspots.

## 6.11 Biodiversity Coldspots

Areas that have relatively low biological diversity but are also experiencing a high rate of habitat loss are considered as Biodiversity Coldspots. Although a Biodiversity Coldspot is low in species richness, it is also important to conserve, as it may be home to rare flora and fauna.

## 6.12 World Heritage Sites

World Heritage Sites is a place that is listed by UNESCO for its special cultural or physical significance. The list of World Heritage Site is maintained by the international 'World Heritage Programme', administered by the UNESCO World Heritage Committee. India has 38 World Heritage Sites that include 30 Cultural properties, 7 Natural properties and 1 Mixed site.

## 6.13 Eco-Sensitive Zones (ESZ)/Eco-Sensitive Areas (ESA)

The Environment Protection Act, 1986 does not mention the word "Eco-Sensitive Zones". However, the Section 3(2)(v) of the Act says that the Central government can restrict areas in which any industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards.

Besides, Section 5(1) of this Act says that Central government can prohibit or restrict the location of industries and carrying on certain operations or processes on the basis of considerations like biological

diversity of an area, maximum allowable limits of concentrations of pollutants for an area, environmentally compatible land use and proximity to protected area.

The above two clauses have been effectively used by the government to declare **Eco-Sensitive Zones/Eco-Sensitive Areas**. The same criteria have been used by the government to declare **No Development Zones**.

The Supreme Court has recently directed the Union Environment Ministry to declare 10 km area around 21 National Parks and Wildlife Sanctuaries across the country as ECZs. Activities prohibited in these ECZs include commercial mining, polluting industries, major hydroelectric projects etc. On the other hand, rain water harvesting, organic farming, ongoing agricultural practices etc. are permitted.