

# **ECOLOGY & ENVIRONMENT**

## **National Institutional Bodies Related to Environment**

### **1. Ministry of Environment & Forests:**

- The Ministry of Environment & Forests is the nodal agency in the administrative structure of the Central Government, for the planning, promotion, co-ordination and overseeing the implementation of Environmental and Forestry programmes.
- The Ministry is also the Nodal agency in the country for the United Nations Environment Programme (UNEP).
- The principal activities undertaken by Ministry of Environment & Forests consist of:
  - a) Conservation & survey of flora, fauna, forests and Wildlife,
  - b) Prevention & control of pollution,
  - c) Afforestation & regeneration of degraded areas,
  - d) Protection of environment in the framework of legislations,
  - e) Welfare of animals.
- The main tools utilized for this include Environmental surveys, impact assessment, control of pollution, regeneration programmes, support to organizations, research to solve solutions and training to augment the requisite manpower, collection and dissemination of environmental information and creation of environmental awareness among all sectors of the country's population.

### **2. Central Pollution Control Board:**

- The Central Pollution Control Board (CPCB), is statutory organisation, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974.
- CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.
- It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986.
- Principal functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, to
  - (i) Promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and
  - (ii) Improve the quality of air and to prevent, control or abate air pollution in the country.
- In India, states do not pursue independent environmental policy of their own but adopt the policies formulated at the national level subject to such variations as may be necessary to suit to the local conditions. The central government has also been issuing guidelines to the states on various environmental matters.

### 3. Indian Board for Wildlife (IBWL)

- National Board for Wild Life is a “Statutory Organization” constituted under the Wildlife Protection Act, 1972.
- Primary function of the Board is to promote the conservation and development of wildlife and forests.
- It has power to review all wildlife-related matters and approve projects in and around national parks and sanctuaries.
- No alternation of boundaries in national parks and wildlife sanctuaries can be done without the approval of the NBWL.

### 4. National Green Tribunal

- The National Green Tribunal has been established for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected there with or incidental thereto.
- It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues.
- The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of Natural Justice.
- The Tribunal’s dedicated jurisdiction in environmental matters shall provide speedy environmental justice and help reduce the burden of litigation in the higher courts.
- The Tribunal is mandated to make and endeavour for disposal of applications or appeals finally within 6 months of filing of the same.

#### *Recent Judgments*

- Temporary ban on the registration of new diesel vehicles in Delhi in an effort to crack down on the alarming pollution levels in the national capital.*
- It held that if any hotel, dharamshala or ashram releases their domestic waste and sewage into Ganga or its tributaries then “it shall be liable to pay environmental compensation for causing pollution of the river at the rate of Rs 5,000 per day”.*
- The National Green Tribunal (NGT) ordered a complete ban on burning of any kind of garbage, leaves, plastic waste and rubber in the open in Delhi-National Capital Region (NCR) to control air pollution.*

### 5. National Tiger Conservation Authority

- The National Tiger Conservation Authority is a statutory body under the Ministry of Environment, Forests and Climate Change 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 under the said Act.

### 6. Wildlife Crime Control Bureau

- The Government of India constituted a statutory body, the Wildlife Crime Control Bureau in 2007, by amending the Wildlife (Protection) Act, 1972, a special Act to protect the wildlife in the country.

- The bureau would complement the efforts of the state governments, primary enforcers of the Wildlife (Protection) Act, 1972 and other enforcement agencies of the country.

#### 7. Genetic Engineering Approval Committee

- It functions under the Ministry of Environment and Forests.
- It is the apex body to accord environmental approval of activities involving large scale use of hazardous micro-organisms and recombinants in research and industrial production.
- It is also mandated with approving the release of genetically engineered organisms and products into the environment, including experimental field trials.

#### 8. Central Zoo Authority

- The Central Zoo Authority of India (CZA) is the body of the government of India responsible for oversight of zoos.
- It is an affiliate member of the World Association of Zoos and Aquariums.
- The Central Zoo Authority has been constituted under the Wild Life (Protection) Act.
- The main objective of the authority is to complement the national effort in conservation of wild life.
- Every zoo in the country is required to obtain recognition from the Authority for its operation.

#### 9. National Afforestation And Eco-Development Board

- The National Afforestation and Eco-Development Board (NAEB) is responsible for promoting afforestation, tree planting, ecological restoration and eco-development activities in the country, with special attention to the degraded forest areas and lands adjoining the forest areas, national parks, sanctuaries and other protected areas as well as the ecologically fragile areas like the Western Himalayas, Aravallis, Western Ghats, etc.
- It evolve mechanisms for ecological restoration of degraded forest areas and adjoining lands through systematic planning and implementation, in a cost effective manner.
- It restore fuelwood, fodder, timber and other forest produce on the degraded forest and adjoining lands in order to meet the demands for these items.
- It sponsor research and extension of research findings to disseminate new and proper technologies for the regeneration and development of degraded forest areas and adjoining lands.

#### 10. Wildlife Institute of India

- The Wildlife Institute of India (WII) is an autonomous institution under the Ministry of Environment Forest and Climate change, Government of India.
- WII carries out wildlife research in areas of study like Biodiversity, Endangered Species, Wildlife Policy, Wildlife Management, Wildlife Forensics, Spatial Modeling, Eco-development, Habitat Ecology and Climate Change. WII has a research facility which includes Forensics, Remote Sensing and GIS, Laboratory, Herbarium, and an Electronic Library.

#### 11. Compensatory Afforestation Fund Management and Planning Authority

- Compensatory Afforestation Fund Management and Planning Authority (CAMPA) has been created by the Ministry of Environment and Forests.

- It creates Compensatory Afforestation Fund (CAF) by the Ministry of Environment and Forests.
- The CAMPA Bill has established a Permanent National Compensatory Afforestation Fund under the Public Account of India. It also allows states to establish State Compensatory Afforestation Funds. The National Fund will be under the central government, and managed by a National Compensatory Afforestation Fund Management and Planning Authority (CAMPA). The central government will appoint a State CAMPA in each state. The State CAMPA will be responsible for the management of the State Fund.

## 12. Zoological Survey of India

- The Zoological Survey of India (ZSI) was established to promote the survey, exploration and research of the fauna in the region.
- The activities of the ZSI are coordinated by the Conservation and Survey Division under the Ministry of Environment, Forest and Climate Change, Government of India.
- Primary objectives are: Exploring, Surveying, Inventorying and Monitoring of faunal diversity in various states, selected ecosystems and protected areas of India; Taxonomic studies of the faunal components collected; Status survey of Threatened and Endemic species; Preparation of Red Data Book, Fauna of India and Fauna of States.
- Secondary objectives are: GIS and Remote Sensing studies on recorded animal diversity as well as on threatened species; Chromosomal Mapping and DNA Barcoding.

## 13. Botanical survey of India

- The Botanical Survey of India (BSI) is the apex research organization under the MOEF for carrying out taxonomic and floristic studies on wild plant resources of the country.
- The prime objective of the Botanical Survey of India (BSI) is to undertake intensive floristic surveys and collect accurate and detailed information on the occurrence, distribution, ecology and economic utility of plants in the country.

## 14. Forest Survey of India

- Forest Survey of India (FSI) is engaged in the assessment of the country's forest resources on a regular interval.
- It is involved in forest cover assessment of the country on biennial basis by interpretation of satellite data on a two-year cycle and presents the information in the form of 'India State of Forest Report'.
- It also form inventory of forests and Trees Outside Forests (TOF) in both urban and rural areas.

## 15. Animal Welfare Board of India

- The Animal Welfare Board of India (AWBI) scheme relates to provision of assistance for the following type of activities:
  - a) Financial assistance to animal welfare organizations for maintaining the stray animals in distress and for their treatment (financial assistance based on the number of animals kept for their fodder, water, minor treatment etc).
  - b) Human education programmes for the welfare of animals are implemented by the AWBI. Capital expenditure at the Board's headquarters i.e. expenditure on non-recurring items such as purchase of assets/equipments.

- c) Expenditure on a variety of other animal welfare activities such as rescue of cattle from illegal smuggling and transportation, rehabilitation of rescued circus animals, lab animals, inspections, legal expenses in connection with court cases pertaining to animal welfare, mobile clinics is also incurred.

### Constitutional Provisions Related to Environment

- **Article 48-A:** “The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country”.
- **Article 51-A(g):** “It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.”
- **Article 21:** “No person shall be deprived of his life or personal liberty except according to procedure established by law.”
- **Article 47:** “The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.”
- **The 42nd amendment** to the Constitution was brought about in the year 1974 makes it the responsibility of the State Government to protect and improve the environment and to safeguard the forests and wildlife of the country. The latter, under Fundamental Duties, makes it the fundamental duty of every citizen to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.
- The subjects related to environment in the **7th schedule** of the Constitution: Industries; Regulation and development of oil fields and mineral oil resources; Regulation of mines and mineral development; Regulation and development of inter-State rivers and river valleys; Fishing and fisheries beyond territorial waters; Forests; Protection of wild animals and birds, etc. As conferred by Article 246(1), while the Union is supreme to make any law over the subjects enumerated in List I, the States, under Article 246 (3), enjoy competence to legislate on the entries contained in List II, and both the Union and the States under Article 246(2) have concurrent jurisdiction on entries contained in List III. In the event of a clash, the Union enjoys a primacy over States in that its legislation in the Union and the Concurrent List prevails over State legislations. Also, the Parliament has Residuary Powers to legislate on any matter not covered in the three Lists (Art. 248).
- The environmental functions listed for the **rural local governments** include land improvement, land consolidation and soil conservation, minor irrigation, water management and watershed development, fisheries, social forestry and farm forestry, minor forest products, drinking water, fuel and fodder non-conventional energy sources and maintenance of community assets.
- For **urban local bodies**, the list includes subjects like, water supply for domestic, industrial, and commercial purposes; public health, sanitation, conservancy and solid waste management; and urban forestry, protection of the environment and promotion of ecological aspects, provision of urban amenities and, facilities such as parks, gardens and playgrounds are listed.

### International Institutions/Treaties Related to Environment

#### 1. IPCC:

- The Intergovernmental Panel on Climate Change (IPCC) is the international body for assessing the science related to climate change.

- The IPCC was set up in 1988 by the World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP) to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.
- IPCC assessments provide a scientific basis for governments at all levels to develop climate-related policies, and they underlie negotiations at the UN Climate Conference – the United Nations Framework Convention on Climate Change (UNFCCC).

## 2. WMO:

- The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 191 Member States and Territories.
- WMO provides a framework for international cooperation in the development of meteorology and operational hydrology and their practical application.

## 3. UNEP:

- The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.
- UNEP work encompasses: Assessing global, regional and national environmental conditions and trends; Developing international and national environmental instruments and Strengthening institutions for the wise management of the environment.

## 4. SCAR:

- The Scientific Committee on Antarctic Research (SCAR) is an inter-disciplinary committee of the International Council for Science (ICSU).
- SCAR is charged with initiating, developing and coordinating high quality international scientific research in the Antarctic region (including the Southern Ocean), and on the role of the Antarctic region in the Earth system.

## 5. Global Environment Facility:

- It unites 183 countries in partnership with international institutions, civil society organizations (CSOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives.
- The GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.
- The GEF also serves as financial mechanism for the following conventions:
  - a) Convention on Biological Diversity (CBD)
  - b) United Nations Framework Convention on Climate Change (UNFCCC)
  - c) UN Convention to Combat Desertification (UNCCD)
  - d) Stockholm Convention on Persistent Organic Pollutants (POPs)
  - e) Minamata Convention on Mercury

**6. International Union for Conservation of Nature and Natural Resources:**

- It is an international organization working in the field of nature conservation and sustainable use of natural resources.
- It is involved in data gathering and analysis, research, field projects, advocacy, lobbying and education.

**7. World Nature Organization:**

- The organization is focused on promoting activities, technologies, economies, and renewable energies which are regarded to be environment friendly; and reducing the impact of climate change.

**8. World Wide Fund for Nature:**

- It is an international non-governmental organization founded in 1961, working in the field of the wilderness preservation, and the reduction of humanity's footprint on the environment.

## Environmental Legislations

The constitutional provisions are backed by a number of legislations - Acts and rules. Most of our environmental legislations are Acts of the Parliament or the State Legislatures. These Acts generally delegate powers to regulating agencies, to make rules for the purpose of their implementation.

**1. The Water (Prevention and Control of Pollution) Act of 1974 and Amendment, 1988**

- The main objective of this act is to provide prevention and control of water pollution and maintaining or restoring of wholesomeness and purity of water (in the streams or wells or on land).
- The Act vests regulatory authority in State Pollution Control Boards and empowers these Boards to establish and enforce effluent standards for factories discharging pollutants into water bodies.
- A Central Pollution Control Board performs the same functions for Union Territories and formulates policies and coordinates activities of different State Boards.
- The State Pollution Control Boards control sewage and industrial effluent discharges by approving, rejecting or impose conditions while granting consent to discharge.

**2. The Air (Prevention and Control of Pollution) Act of 1981**

- The main objectives of this Act are to improve the quality of air and to prevent, control and abate air pollution in the country.
- Under the Air Act, all industries operating within designated air pollution control areas must obtain a "consent" (permit) from the State Boards.
- The states are required to prescribe emission standards for industry and automobiles after consulting the central board and noting its ambient air quality standards.

**3. The Environment (Protection) Act of 1986:**

- In the wake of the Bhopal tragedy, the Government of India enacted the Environment (Protection) Act of 1986.
- In this Act, main emphasis is given to "Environment", defined to include water, air and land and the inter-relationships which exist among water, air and land and human beings and other living creatures, plants, micro-organisms and property

- The Environment (Protection) Act 1986 contains significant innovations for its enforcement, not contained in any other pollution control legislation at the time of the Act's adoption. Section (19) provides that any person, in addition to authorized government officials, may file a complaint with a court alleging an offence under the Act. This "Citizens' Suit" provision requires that the person has to give notice of not less than 60 days of the alleged offence of pollution to the Central Government or the competent authority.
- Under the Act, the Central Government may, by notification in the office Gazette, make rules for the enforcement of the Act.

#### 4. The Wild Life (Protection) Act of 1972 and Amendment, 1982

- The Wild Life Act provides for state wildlife advisory boards, regulations for hunting wild animals and birds, establishment of sanctuaries and national parks, regulations for trade in wild animals, animal products and trophies, and judicially imposed penalties for violating the Act.
- An amendment to the Act in 1982, introduced a provision permitting the capture and transportation of wild animals for the scientific management of animal population.
- Indian government has also started some conservation projects for individual endangered species like Hungal (1970), Lion (1972), Tiger (1973), Crocodiles (1974), Brown-antlered Deer (1981) and Elephant (1991-92) Ganges Dolphin (1997).

#### 5. The Forest (Conservation) Act of 1980

- First Forest Act was enacted in 1927. This is one of the many surviving colonial legislations. It was enacted to consolidate the law related to forest, the transit of forest produce and the duty livable on timber and other forest produce.
- Subsequently, the Forest (Conservation) Act was promulgated in 1980 to make certain reforms over the preceding Act of 1927. The 1927 Act deals with the 4 categories of the forests, namely reserved forests, village forests, protected forests and private forests.
- A state may declare forest lands or waste lands as reserved forest and may sell the produce from these forests.
- The preservation of protected forests is enforced through rules, licenses and criminal prosecutions. Forest officers and their staff administer the Forest Act.

#### 6. Biodiversity Act 2000

- The main intent of this legislation is to protect India's rich biodiversity and associated knowledge against their use by foreign individuals and organizations without sharing the benefits arising out of such use, and to check biopiracy.
- The Act provides for setting up of a National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs) in local bodies.
- NBA and SBB are required to consult BMCs in decisions relating to use of biological resources or related knowledge within their jurisdiction and BMCs are to promote conservation, sustainable use and documentation of biodiversity.
- All foreign nationals or organizations require prior approval of NBA for obtaining biological resources and associated knowledge for any use.



- Indian individuals /entities require approval of NBA for transferring results of research with respect to any biological resources to foreign nationals/organizations.
- Collaborative research projects and exchange of knowledge and resources under these projects are exempted provided they are drawn as per the policy guidelines of the Central Government and have its approval the objectives of conservation, sustainable use and benefit sharing. However, Indian citizens/entities/ local people including (vaid and hakims) to have free access to use biological resources within the country for their own use, medicinal as well as Research purposes.

### Awards Related to Environment

S.No.	Awards	Area
1.	<b>Salim Ali National Wildlife Fellowship Award</b>	To inspire and promote, particularly the younger generation of wildlife managers and scientists for taking up research/experimental projects aimed at conservation of the rich wildlife heritage. Only for Indian Citizens.
2.	<b>Indira Priyadarshini Vriksha Mitra Award</b>	To recognize the pioneering and innovative contribution made by individuals and institutions in the field of afforestation/ wasteland development every year.
3.	<b>Indira Gandhi Paryavaram Award</b>	To Indian nationals or any Indian organisation for significant contributions in the field of environment.
4.	<b>Amrita Devi Bishnoi Wildlife Protection Award</b>	For showing exemplary courage or having done exemplary work for the protection of wildlife.
5.	<b>E.K. Janaki Ammal National Award on Taxonomy</b>	For outstanding work in Botanical and Zoological Taxonomy including work done in Micro-organisms.
6.	<b>Paryavaran Aur Van Mantralaya Vishisht Vaigyanik Puraskar</b>	Provide incentive to Group 'A' Scientists of the Ministry and its associated formations.
7.	<b>Medini Puraskar Yojana</b>	To Indian authors each year to encourage original works in Hindi on environment and its related subjects such as wildlife, water resources and conservation.

### Environment Schemes

#### SCHEMES RELATED TO FORESTATION

1.	<b>Compensatory Afforestation</b>	It refers to afforestation and regeneration activities carried out as way of compensating for forest land that is diverted to non-forest purposes.
2.	<b>National Mission for a Green India</b>	To Increase forest/tree cover on 5 m ha of forest/non-forest lands and improved quality of forest cover on another 5 m ha (a total of 10 m ha), improve ecosystem services and carbon sequestration as a result of treatment of 10 m ha, increase forest-based livelihood income for 3 million forest dependent households and enhance annual CO <sub>2</sub> sequestration of 50-60 million tonnes by the year 2020.

3.	<b>Social forestry</b>	Social forestry as an instrument of sustainable development i.e. to provide food security, fuel security and livelihood security with eco-friendly approach to development.
4.	<b>Nagar Van-Udyan</b>	To create 200 City Forests in the Country. A City Forest will be developed in each City with Municipal Council.
5.	<b>School Nursery Yojana</b>	To involve children in raising saplings in nurseries created inside their school campuses.

#### SCHEMES FOR WETLAND AND COASTAL ECOSYSTEM MANAGEMENT

1.	<b>Ramsar Convention</b>	It provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Montreux Record under the Convention is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.
2.	<b>'National Plan for Conservation of Aquatic Eco-systems'</b>	It aims at holistic conservation and restoration of lakes and wetlands for achieving desired water quality enhancement, besides improvement in biodiversity and the ecosystem, through an integrated and multidisciplinary approach with a common regulatory framework.
3.	<b>Central Scheme for conservation and management of mangroves &amp; coral reefs</b>	Its objectives are Survey and Demarcation, Afforestation & Restoration of Mangroves, Regeneration of Corals, Alternate and Supplementary Livelihoods, Protection Measures, and Education & Awareness related to mangroves and coral reefs.
4.	<b>Mangroves for the Future</b>	Its objective is to strengthen the environmental sustainability of coastal development. MFF is being coordinated by International Union for Conservation of Nature, IUCN covering, initially, six Tsunami affected countries namely India, Indonesia, Maldives, Seychelles, Srilanka and Thailand.
5.	<b>Integrated Coastal Zone Management Programme</b>	It is an initiative by World Bank to assist Government of India (GoI) in building national capacity for implementation of comprehensive coastal management approach in the country, and piloting the integrated coastal zone management approach in states of Gujarat, Orissa and West Bengal.
6.	<b>Marine Protected Areas</b>	Marine Protected Areas (MPAs) in India comprise national parks and wildlife sanctuaries declared in coastal wetlands, especially mangroves, coral reefs and lagoons, under Wildlife (Protection) Act, 1972.

#### SCHEMES FOR WATER CONSERVATION

1.	<b>Namami Gange</b>	It aims at Ganga Rejuvenation by combining the existing ongoing efforts and planning under it to create a concrete action plan for future.
2.	<b>Yamuna Action Plan</b>	It is a bilateral project between the Government of India and Japan. It aims at sewage treatment and solid waste management along with river front development.

3.	<b>Prime Minister Krishi Sinchayee Yojana</b>	To achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation (Har Khet ko pani), improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies.
4.	<b>National Water Mission</b>	For comprehensive water data base in public domain and assessment of the impact of climate change on water resource and promotion of citizen and state actions for water conservation, augmentation and preservation.
5.	<b>Integrated Watershed Management Programme</b>	It aims at harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water; prevention of soil run-off; rain water harvesting and recharging of the ground water table and promoting sustainable livelihoods.

#### SCHEMES FOR CONSERVATION OF WILDLIFE

1.	<b>Project Tiger</b>	To ensure maintenance of a viable population of Tigers in India for scientific, economic, aesthetic, cultural and ecological values, and to preserve for all times, areas of biological importance as a national heritage for the benefit, education and enjoyment of the people.
2.	<b>Project elephant</b>	To protect elephants, their habitat and corridors, to address issues of man-animal conflict and welfare of domesticated elephants.
3.	<b>Project snow leopard</b>	To safeguard and conserve India's unique natural heritage of high-altitude wildlife populations and their habitats by promoting conservation through participatory policies and actions.
4.	<b>Biodiversity conservation and rural livelihood improvement project</b>	To develop and promote new models of conservation at the landscape scale through enhanced capacity and institution building for mainstreaming biodiversity conservation outcomes.  It is in link with World bank
4.	<b>Saving Asia's Vultures from Extinction (SAVE)</b>	Created to oversee and co-ordinate conservation, campaigning and fundraising activities to help the plight of south Asia's vultures,
5.	<b>Indian Rhino Vision (IRV) 2020</b>	To protect and increase the population of the one-horned rhinoceros. IRV 2020 is a partnership between the Assam Forest Department, the Bodoland Territorial Council, WWF, IRF, and the US Fish and Wildlife Service.
6.	<b>Monitoring the Illegal Killing of Elephants (MIKE)</b>	To provide information needed for elephant range States to make appropriate management and enforcement decisions, and to build institutional capacity within the range States for the long-term management of their elephant populations. It has been launched by CITES.

#### SCHEMES FOR CLIMATE CHANGE MANAGEMENT

1.	<b>National Solar Mission</b>	To make solar energy competitive with fossil-based energy options by increasing the share of solar energy in the total energy mix.
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2.	<b>National Mission for Enhanced Energy Efficiency</b>	To address national problems of inefficient energy use.
3.	<b>National Mission on Sustainable Habitats</b>	To make habitats sustainable through improvements in energy efficiency in buildings, management of solid waste and a modal shift to public transport.
4.	<b>National Water Mission</b>	Aims at conserving water, minimizing wastage, and ensuring more equitable distribution and management of water resources.
5.	<b>National Mission for Sustaining the Himalayan Ecosystem</b>	Calls for empowering local communities especially Panchayats to play a greater role in managing ecological resources.
6.	<b>National Mission for Sustainable Agriculture</b>	Aims to make Indian agriculture more resilient to climate change by identifying new varieties of crops
7.	<b>National Mission on Strategic Knowledge on Climate Change</b>	To work with the global community in research and technology development by collaboration through different mechanisms
8.	<b>National Mission for a Green India</b>	Aims at enhancing ecosystem services such as carbon sinks.
9.	<b>Perform, Achieve and Trade</b>	For trading energy-efficiency certificates in large energy-intensive industries under the National Mission for Enhanced Energy Efficiency
10.	<b>Renewable Purchase Obligations</b>	For creating domestic markets for renewable energy through regulatory interventions at state level.

## International Conventions

1.	<b>Convention on Biological Diversity</b>	For conserving biodiversity, sustainable use of biological resources and equitable sharing of benefits arising from its use.
2.	<b>CITES</b>	To protect wild plants and animals affected by international trade.
3.	<b>Bonn Convention</b>	To conserve terrestrial, marine and avian migratory species throughout their range.
4.	<b>International Treaty on Plant Genetic Resources for Food and Agriculture</b>	For the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity.
4.	<b>World Heritage</b>	To identify and conserve the world's cultural and natural heritage.
5.	<b>International Plant Protection Convention</b>	To protect world plant resources, including cultivated and wild plants by preventing the introduction and spread of plant pests and promoting the appropriate measures for their control.
6.	<b>MARPOL</b>	To minimize pollution of the seas, including dumping, oil and exhaust pollution.

7.	<b>London Convention</b>	To promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter.
8.	<b>Basel Convention</b>	It is designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries (LDCs).
9.	<b>Montreal Protocol</b>	To protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.
10.	<b>Stockholm Convention</b>	It aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). They possess a particular combination of physical and chemical properties such that, once released into the environment, they remain intact for exceptionally long periods of time.
11.	<b>UNFCCC</b>	It is the Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change
12.	<b>Nagoya Kuala Lumpur Supplementary Protocol on Liability and Redress (Supplementary Protocol) to the CPB</b>	The term "liability" is normally associated with the obligation under the applicable law to provide for compensation for damage resulting from an action for which that person is deemed to be responsible.
13.	<b>Minamata Convention</b>	To protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.
14.	<b>Rotterdam Convention</b>	The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.

## Basic Terminologies Associated with Environment

- **Ecology:** Ecology may be defined as the scientific study of the relationship of living organisms with each other and with their environment.
- **Ecosystem:** An ecosystem includes all of the living things (plants, animals and organisms) in a given area, interacting with each other, and also with their non-living environments (weather, earth, sun, soil, climate, atmosphere).
- **Biomes:** Biomes are very large ecological areas on the earth's surface, with fauna and flora (animals and plants) adapting to their environment. Biomes are often defined by abiotic factors such as climate, relief, geology, soils and vegetation.
- **Ecological niche:** The term niche means the sum of all the activities and relationships of a species by which it uses the resources in its habitat for its survival and reproduction.
- **Ecological succession:** Ecological succession is the gradual process by which ecosystems change and develop over time. Primary succession is the series of community changes which occur on an entirely new habitat which has never been colonized before. For example, a newly quarried rock face, sand dunes, Rocks left from retreating glacier. Secondary succession is the series of community changes which take place on

a previously colonized, but disturbed or damaged habitat. For example, after felling trees in a woodland, land clearance or a fire.

- **Amensalism:** This is a negative association between two species in which one species harms or restricts the other species without itself being adversely affected or harmed by the presence of the other species. Ex. bread mould fungi *Pencillium*.
- **Predation:** In this type of interaction predator captures, kills and eats an animal of another species called the prey.
- **Parasitism:** In this type of interaction, one species is harmed and the other benefits.
- **Competition:** This is an interaction between two populations in which both species are harmed to some extent.
- **Commensalism:** In this relationship one of the species benefits while the other is neither harmed nor benefited. Ex. relationship between trees and epiphytic plants.
- **Mutualism:** This is a close association between two species in which both the species benefit. Ex. Sea anemone, attached to a shell inhabited by a hermit crab.
- **Neutralism:** Neutralism describes the relationship between two species which do interact but do not affect each other.
- **Food Chain:** Transfer of food energy from green plants (producers) through a series of organisms with repeated eating and being eaten is called a food chain. There are two types of food chains: (i) Grazing food chains: which starts from the green plants that make food for herbivores and herbivores in turn for the carnivores. (ii) Detritus food chains: start from the dead organic matter to the detritivore organisms which in turn make food for protozoan to carnivores etc.
- **Food Web:** Food web is a network interconnected food chains existing in an ecosystem. Food webs are more realistic models of energy flow through an ecosystem.
- **Biogeochemical Cycles:** More or less circular pathways, through which the chemical elements, including all the essential elements of the protoplasm, circulate in the biosphere from environment to organisms and back to the environment, are known as the biogeochemical cycles.
- **Hotspots in India:** A biodiversity hotspot is a biogeographic region with a significant reservoir of biodiversity that is threatened with destruction. An area is designated as a hot spot when it contains at least 0.5% of plant species as endemic. Hotspots in India are: Western Ghats and the Eastern Himalayas.
- **Nitrogen fixation:** This process involves conversion of gaseous nitrogen into Ammonia, a form in which it can be used by plants. It can be done by Lightening, Symbiotic bacteria and Cyanobacteria.
- **Eco-tone:** Although plant species grow in association with each other in groups as communities in nature, there is hardly distinguishable a point or sharp line of distinction between the two different communities. There is generally a zone of transition, presenting a situation of special ecological interest between two different types of communities, which is known as an eco-tone.
- **Bio-fertilisers:** Biofertilizers are defined as preparations containing living cells or latent cells of efficient strains of microorganisms that help crop plants' uptake of nutrients by their interactions in the rhizosphere when applied through seed or soil.

- **Normal Species:** Species whose population levels are considered to be normal for their survival, such as cattle, sal, pine, rodents, etc.
- **Endangered Species:** These are species which are in danger of extinction. Endangered (EN), a designation applied to species that possess a very high risk of extinction as a result of rapid population declines of 50 to more than 70 percent over the previous 10 years (or three generations), a current population size of fewer than 250 individuals, or other factors. The examples of such species are black buck, crocodile, Indian wild ass, Indian rhino, lion tailed macaque, sangai (brow antler deer in Manipur), etc.
- **Vulnerable Species:** Vulnerable (VU), a category containing those species that possess a very high risk of extinction as a result of rapid population declines of 30 to more than 50 percent over the previous 10 years (or three generations), a current population size of fewer than 1,000 individuals, or other factors. The examples of such species are blue sheep, Asiatic elephant, Gangetic dolphin, etc.
- **Rare Species:** Species with small population may move into the endangered or vulnerable category if the negative factors affecting them continue to operate. The examples of such species are the Himalayan brown bear, wild Asiatic buffalo, desert fox and hornbill, etc.
- **Endemic Species:** These are species which are only found in some particular areas usually isolated by natural or geographical barriers. Examples of such species are the Andaman teal, Nicobar pigeon, Andaman wild pig, mithun in Arunachal Pradesh.
- **Critically endangered:** Critically Endangered (CR), a category containing those species that possess an extremely high risk of extinction as a result of rapid population declines of 80 to more than 90 percent over the previous 10 years (or three generations), a current population size of fewer than 50 individuals, or other factors
- **Extinct Species:** These are species which are not found after searches of known or likely areas where they may occur. A species may be extinct from a local area, region, country, continent or the entire earth. Examples of such species are the Asiatic cheetah, pink head duck.
- **Invasive species:** New species entering a geographical region are called exotic or alien species. Introduction of such invasive species may cause disappearance of native species through changed biotic interactions. Invasive species are considered second only to habitat destruction as a major cause of extinction of species. Exotic species are having large impact especially in island ecosystems, which harbour much of the world's threatened biodiversity.
- **Keystone species:** Keystone species are species that enrich ecosystem function in a unique and significant manner through their activities, and the effect is disproportionate to their numerical abundance. Their removal initiates changes in ecosystem structure and often loss of diversity.
- **Umbrella species:** An umbrella species are typically large and require a lot of habitat. By protecting this larger area, other species are protected as well. Umbrella species generally have the following characteristics: their biology is well known, they are easily observed or sampled, they have large home ranges, they are migratory, and have a long lifespan. Tigers are an example of umbrella species.
- **Indicator species:** A species that is particularly sensitive to environmental conditions and therefore can give early warning signals about ecosystem health. Because they are so sensitive, a decline in indicator species' health can signal air and water pollution, soil contamination, climate change or habitat fragmentation. Example: Lichen.
- **Foundation species:** The foundation species physically modify the environment and produce and maintain habitats that benefit other organisms that use those habitats. Example: Corals build coral reefs that many other species use.

- **Critical Link species:** They play an important role in supporting network species by functioning as pollinators, nutrient circulators or absorbers.
- **Edge Species:** The Species which are found most abundantly in ecotone boundary.
- **Blue Carbon:** Blue carbon is the carbon captured by the world's oceans and coastal ecosystems. The carbon captured by living organisms in oceans is stored in the form of biomass and sediments from mangroves, salt marshes and seagrasses.
- **Earth Hour:** Earth Hour is a worldwide grassroots movement uniting people to protect the planet, and is organised by WWF.
- **Carbon Tax:** It levies a fee on the production, distribution or use of fossil fuels based on how much carbon their combustion emits.
- **Green Bonds:** A green bond is a debt instrument with which an entity raises money from investors. The issuer of a green bond publicly states that capital is being raised to fund 'green' projects, which typically include those relating to renewable energy, emission reductions and so on. Indian firms like Indian Renewable Energy Development Agency Ltd and Greenko had issued green bonds.
- **BIOFIN:** Biodiversity Finance Initiative is a global partnership addressing the biodiversity finance challenge in a comprehensive manner. The Initiative provides an innovative methodology enabling countries to measure their current biodiversity expenditures, assess their financial needs in the medium term and identify the most suitable finance solutions to bridge their national biodiversity finance gaps. BIOFIN is managed by the UNDP Ecosystems and Biodiversity Programme, in partnership with the European Union and the Governments of Germany and Switzerland,
- **South Asia Wildlife Enforcement Network:** SAWEN is a Regional network is comprised of eight countries in South Asia: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. It aims at working as a strong regional inter-governmental body for combating wildlife crime by attempting common goals and approaches for combating illegal trade in the region
- **Wildlife corridors:** It is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development, or logging). This allows an exchange of individuals between populations, which may help prevent the negative effects of inbreeding and reduced genetic diversity (via genetic drift) that often occur within isolated populations. Corridors may also help facilitate the re-establishment of populations that have been reduced or eliminated due to random events (such as fires or disease).
- **Carbon Sink:** A carbon sink is a natural or artificial reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period. It is of two types- Natural and Artificial. **The natural sinks are:** Absorption of carbon dioxide by the oceans via physicochemical and biological processes; Photosynthesis by terrestrial plants whereas the **artificial sinks are:** Landfills; Carbon capture and storage proposals, etc.
- **Bio-chemical Oxygen Demand (BOD):** It is the amount of dissolved oxygen needed (i. e., demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period. BOD indicates the amount of putrescible organic matter present in water. Therefore, a low BOD is an indicator of good quality water, while a high BOD indicates polluted water. BOD can be used as a gauge of the effectiveness of wastewater treatment plants
- **Chemical Oxygen Demand (COD):** COD analysis is a measurement of the oxygen-depletion capacity of a water sample contaminated with organic waste matter. Specifically, it measures the equivalent amount



of oxygen required to chemically oxidize organic compounds in water. COD is used as a general indicator of water quality and is an integral part of all water quality management programs.

- **Green House Gas:** Greenhouse gases trap heat in the atmosphere, which makes the Earth warmer. There are ten primary GHGs; of these, water vapour (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) are naturally occurring. Perfluorocarbons (CH<sub>4</sub>, C<sub>2</sub>F<sub>6</sub>), hydrofluorocarbons (CHF<sub>3</sub>, CF<sub>3</sub>CH<sub>2</sub>F, CH<sub>3</sub>CHF<sub>2</sub>), and sulphur hexafluoride (SF<sub>6</sub>), are only present in the atmosphere due to industrial processes.
- **REDD:** Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. “REDD+” goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.
- **National Implementing Agencies:** Implementing entities are the **national, regional and multilateral institutions** accredited by the Adaptation Fund Board to receive direct financial transfers from the Fund in order to carry out adaptation projects and programmes. NABARD has been accredited by Green Climate Fund (GCF) Board as one of the National Implementing Entity (NIE) for GCF in India.
- **CBDR:** It is a concept whereby all nations have a common responsibility to take efforts to save the environment but since the developed nations have caused more harm so they should have differentiated responsibility. They should also assist the developing nations in environment adaptation and mitigation techniques.
- **INDC:** INDCs are the pledges countries will put forward early next year saying what they plan to do about climate change. Every country will submit the amount of emission it will take in order to bring the effect of global warming.
- **Indian INDC:** It aims to install 175GW of renewable power capacity by 2022 by setting a new target to increase its share of non fossil based power capacity from 30% to 40 % by 2030. It will also reduce its emission intensity per unit GDP by 33 to 35% below 2005 by 2030 and create an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide.
- **National Adaptation Fund:** ‘National Adaptation Fund’ with an initial corpus of Rs.100 crore has been set up to support adaptation actions to combat the challenges of climate change in sectors like agriculture, water, and forestry.
- **International Solar Alliance:** The International Solar Alliance was inaugurated by the Indian Prime Minister and French President in National Institute of Solar Energy (NISE) in Gwalpahari, Gurgaon along with the interim Secretariat of the ISA. It has been set up with UN as strategic partner. It is the India’s first international and inter-governmental organization of 121 Countries to have headquarters in India with United Nations as Strategic Partner. It creates a collaborative platform for increased deployment of solar energy technologies to enhance energy security and sustainable development. It improves access to energy and opportunities for better livelihoods in rural and remote areas and to increase the standard of living.
- **Ocean fertilization:** It is a type of climate engineering based on the purposeful introduction of nutrients to the upper ocean to increase marine food production and to remove carbon dioxide from the atmosphere.
- **Iron fertilization:** Iron fertilization is the intentional introduction of iron to the upper ocean to stimulate a phytoplankton bloom. This is intended to enhance biological productivity, which can benefit the marine food chain and is under investigation in hopes of increasing carbon dioxide removal from the atmosphere.

- **Eco-Sensitive Zone:** These are those areas ‘that are ecologically and economically important, but vulnerable even to mild disturbances, and hence demand careful management’. Therefore ‘ecologically and economically important’ areas are those areas that are biologically and ecologically ‘rich’, ‘valuable’ and or ‘unique’, and are largely irreplaceable if destroyed.
- **Pugmark method of Tiger Census:** The ‘pugmark census’ was invented in 1966 by Indian forester SR Choudhury. In this method, during a 1–2-week period, thousands of personnel would simultaneously fan out across India to search for tiger tracks. They were expected to locate tiger tracks and obtain plaster casts or tracings of the left hind pugmark. The pugmarks collected would be later compared to identify individual tigers relying on perceived differences in shape and other measurements. These ‘individual tiger identifications’ would be then refined through cross-comparisons among census blocks, reserves and larger regions to obtain ‘reliable estimates’ of wild tiger numbers in India.
- **Vermin:** Vermin are pests or nuisance animals, that spread diseases or destroy crops or livestock. Ex: few states have declared following animals as vermin. Monkeys – Himachal Pradesh; Nilgai – Bihar; Pig – Uttarakhand.
- **Blue economy:** The Blue Economy is envisaged as the integration of Ocean Economy development with the principles of social inclusion, environmental sustainability and innovative, dynamic business models.
- **National Air Quality Index:** It has been launched for monitoring the quality of air in major urban centres across the country on a real-time basis and enhancing public awareness for taking mitigative action. The Index is centred around five chief pollutants: Particulate Matter, Ozone, Nitrogen Dioxide and Carbon Monoxide. The unit of measurement is microgram (or milligram in the case of CO) per cubic meter. The AQI has been developed by the Central Pollution Control Board in consultation with IIT-Kanpur and an expert group comprising medical, air-quality professionals and other stakeholders.
- **Air pollutants:** A **primary pollutant** is an air pollutant emitted directly from a source. A **secondary pollutant** is not directly emitted as such, but forms when other pollutants (primary pollutants) react in the atmosphere. Examples of a secondary pollutant include ozone, which is formed when hydrocarbons (HC) and nitrogen oxides (NO<sub>x</sub>) combine in the presence of sunlight; NO<sub>2</sub>, which is formed as NO combines with oxygen in the air; and acid rain, which is formed when sulfur dioxide or nitrogen oxides react with water. Primary pollutants are PM, CO<sub>2</sub>, CO, SO<sub>2</sub>, SO<sub>3</sub>, N<sub>2</sub>O, NO, NO<sub>2</sub>, etc.
- **Particulate matter:** It is a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. Particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems.
- **Phyto-remediation:** Phyto-remediation is defined as “the process of restoration of quality of environment by the application of plants.” i.e. use of green plants based systems to detoxify or remove toxic, substances from contaminated air, water, soil and sediments, also called as green clean.
- **Bio-remediation:** Bioremediation is the process of using organisms to neutralize or remove contamination from waste. Bioremediation stimulates the growth of certain microbes that use contaminants as a source of food and energy. Contaminants treated using bioremediation include oil and
- **Ecological Footprint:** The Ecological Footprint is a resource accounting tool that measures how much biologically productive land and sea is used by a given population or activity, and compares this to how much land and sea is available. Productive land and sea areas support human demands for food, fiber, timber, energy, and space for infrastructure. These areas also absorb the waste products from the human economy. The Ecological Footprint measures the sum of these areas, wherever they physically occur on the planet. The Ecological Footprint is used widely as a management and communication tool by governments, businesses, educational institutions, and non-governmental organizations.

- **Water footprint:** The water footprint measures the amount of water used to produce each of the goods and services. **Green water footprint** is water from precipitation that is stored in the root zone of the soil and evaporated, transpired or incorporated by plants. **Blue water footprint** is water that has been sourced from surface or groundwater resources and is either evaporated, incorporated into a product or taken from one body of water and returned to another, or returned at a different time. Irrigated agriculture, industry and domestic water use can each have a blue water footprint. **Grey water footprint** is the amount of fresh water required to assimilate pollutants to meet specific water quality standards.
- **Coral reefs:** Corals live in very nutrient poor waters and have certain zones of tolerance to water temperature, salinity, UV radiation, opacity, and nutrient quantities. Zooxanthellae live symbiotically within the coral polyp tissues and assist the coral in nutrient production through its photosynthetic activities. These activities provide the coral with fixed carbon compounds for energy, enhance calcification, and mediate elemental nutrient flux.
- **Coral bleaching:** Coral bleaching occurs when the relationship between the coral host and zooxanthellae, which give coral much of their colour, breaks down. Without the zooxanthellae, the tissue of the coral animal appears transparent and the coral's bright white skeleton is revealed. The main cause of coral bleaching is heat stress resulting from high sea temperatures. Other stressors can also cause bleaching, including freshwater inundation (low salinity) and poor water quality from sediment or pollutant run-off.
- **Wetland:** Wetlands mean an area of marsh, peatland or water, natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt and all inland and coastal waters such as lakes, reservoirs, tanks, backwaters, lagoons, creeks, estuaries and man-made wetlands. But it does not include river channels and paddy fields.
- **Mangroves:** Mangroves are plants that survive high salinity, tidal regimes, strong wind velocity, high temperature and muddy anaerobic soil – a combination of conditions hostile for other plants. The mangrove ecosystems constitute a symbiotic link or bridge between terrestrial and marine ecosystems. They are found in the inter-tidal zones of sheltered shore, estuaries, creeks, backwaters, lagoons, marshes and mud-flats. West Bengal has the maximum of mangrove cover in the country followed by Gujarat and Andaman & Nicobar Islands.
- **Estuaries:** An estuary is a body of water formed where freshwater from rivers and streams flows into the ocean, mixing with the seawater. Estuaries provide places for recreational activities, scientific study, and aesthetic enjoyment. Thousands of species of birds, mammals, fish, and other wildlife depend on estuarine habitats as places to live, feed, and reproduce. Estuaries also help to maintain healthy ocean environments. They filter out sediments and pollutants from rivers and streams before they flow into the oceans, providing cleaner waters for marine life.

### Important National Parks

S.No.	National parks	State	Rivers	Key Species
1.	<b>Corbett National Park</b>	Uttarakahnd	Ramganga, Kosi, Sonanadi	Tigers
2.	<b>Kaziranga National Park</b>	Assam	Brahmaputra, Diphlu, Mora Diphlu and Mora Dhansiri	endangered One-Horned Rhinos
3.	<b>Bandipur National Park</b>	Karnataka	Kabini River, Moyar River	Elephants, Chital, Gaur, wild boar, Sambhar

4.	<b>Bandhavgarh National Park</b>	Madhya Pradesh	Son River, Johilla River and Umrar River.	Highest density of tigers
5.	<b>Periyar National Park</b>	Kerala	Periyar and Pamba Rivers	Elephants
6.	<b>Gir National Park</b>	Gujarat	Hiran, Shetrunji, Datardi, Shingoda, Machhundri, Godavari and Raval	Lion
7.	<b>Kanha National Park</b>	Madhya Pradesh	Banjar and Halon	Swamp Deer, Tiger
8.	<b>Ranthambore National Park</b>	Rajasthan	Banas and Chambal River	Tiger
9.	<b>Manas National Park</b>	Assam	Manas River	wild water buffalo, Elephants
10.	<b>Silent Valley National Park</b>	Kerala	Kunthi River	Lion Tailed Macaque

### Species in News

S.No.	Species	News
1	<b>Gangetic River dolphin</b>	It is declared as city animal of Guwahati.
2	<b>Himalayan Griffons vultures</b>	Haryana Government has launched Asia's first 'Gyps Vulture Reintroduction Programme'
3	<b>Bramble Cay melomys</b>	It is first mammal species driven to extinction by human-induced climate change.
4	<b>Golden Mahseer fish</b>	The population of the golden mahseer has seen decline in recent times in rivers of Himachal Pradesh as they are hunted for sport and food.
5.	<b>Himalayan brown bears</b>	They are found in states of Jammu and Kashmir, Himachal Pradesh, and Uttaranchal. Recently spotted in Kargil region.
6.	<b>Sangai deer</b>	It is confined to small patches in Manipur, Myanmar, Thailand, Laos, Vietnam and southern China. Scientists are planning for its relocation to conserve them.
7.	<b>Borean Orangutan</b>	Recently declared as critically endangered due to hunting and destruction of forest habitats.
8.	<b>Kikiki huna</b>	The smallest known flying insect has been found for the first time in India in Tamil Nadu.
9.	<b>White Tiger</b>	The world's maiden 'White Tiger Safari is opened' at Mukundpur in Satna district in the State's Vindhya region.