

Environment Class 09

6th March, 2024 at 9:00 AM

INSTITUTIONS CREATED UNDER THE WPA 1972 (09:10 AM)

- **1. National Board for Wildlife and State Wildlife Board:**
- NBWL serves as an apex body for **reviewing all wildlife-related matters** and approving projects in and **around parks and sanctuaries**.
- The board is advisory in nature and is chaired by the **Prime Minister**.
- **2. Central Zoo Authority:**
- It provides recognition to zoos and is also tasked with their regulation.
- The **Union Environment Minister** chairs it.
- **3. Wildlife Crime Control Bureau:**
- It collects intelligence related to organised wildlife crime and assists state governments.
- **4. National Tiger Conservation Authority:**
- The Govt. of India launched 'Project Tiger' in 1973 to promote the conservation of tigers.
- It has been converted into a statutory authority by an amendment to WPA in 2006.
- Under WPA, the area can be declared as a tiger reserve.
- The tiger reserve consists of a core area called 'Critical Tiger Habitat' and a buffer area around the core.
- Currently, there are 54 tiger reserves.
- **Schedules under the act:**
- The original act has six schedules which have been rationalized into **four schedules** in an amendment in 2022.
- **Schedule I: Animals with the highest level of Protection.**
- **Schedule II: Lesser Level of Protection**
- **Schedule III: Contains a List of Plants which cannot be cultivated without prior permission from the competent authority.**
- **Schedule IV: Specimens listed in the appendices under CITES.**
- The power to declare animals as vermin rests with the union government.
- It can declare an animal vermin in an area for a specified period.
- In 2022 Amendment was also in controversy by allowing the use of elephants for religious or any other purposes under specific regulations.

BIOSPHERE RESERVE (09:44 AM)

- Biosphere reserves are called learning places for sustainable development.
- They are places that provide solutions to many environmental challenges to reconcile the conservation of biodiversity along with its sustainable use by human beings.
- The BR are nominated by the **National Government** and remain under their sovereign jurisdiction.
- UNESCO can designate some of these reserves, as part of the **UNESCO-MAB program**.
- The biosphere reserve will have three main zones.
- **Core Area:** A strictly prohibited zone that contributes to the conservation of ecosystems.
- **Buffer Zones:** They surround the core area and are used for activities compatible with sound ecological practices.
- **Transition Area:** This is where communities foster in a sustainable economic way.

BIOLOGICAL DIVERSITY ACT 2002 (09:56 AM)

- It was passed by parliament to fulfil India's obligation towards the Convention on Biological Diversity.
- **It has the following features:**
- Conservation, Sustainable Use and Benefit Sharing.
- The act restricts activities such as the transfer of Indian genetic material outside the country.
- **This act creates a three-tier structure:**
- **National Biodiversity Authority (NBA)**
- **State Biodiversity Boards (SBB)**
- **Biodiversity Management Committees (BMC)**
- Any foreign individual or entity needs the approval of the NBA, to obtain biological resources and associated knowledge for commercial utilisation.
- An Indian company has to do the same but from the State Biodiversity Board.
- BMC register a 'People Biodiversity Register' which records local biodiversity and traditional knowledge.
- Any entity first needs to obtain consent from BMC based on agreeable terms.
- **Biodiversity heritage sites:**
- Under this act, the state government can declare an area as a Biodiversity Heritage Site.
- These are unique and ecologically fragile ecosystems with one or more following characteristics.
- The richness of wildlife species
- High endemism
- Presence of rare and threatened species
- Species of evolutionary significance
- Wild ancestors of domesticated species.
- Having significant cultural and aesthetic values.
- **The act was amended in 2023 following major features:**
- It exempted Ayush Practitioners.
- The act has decriminalized all offences but the penalty has been increased from 1 lakh to 50 lakh.

TAXONOMIC CLASSIFICATION (10:40 AM)

- Taxonomic classification is the hierarchical system used to organize and categorize living organisms based on shared characteristics and evolutionary relationships.
- It consists of seven levels: **Kingdom, Phylum, Class, Order, Family, Genus, and Species.**
- This system helps scientists classify and understand the diversity of life on Earth.
- **The taxonomic classification of Homo sapiens is as follows:**
- Kingdom: Animalia
- Phylum: Chordata
- Class: Mammalia
- Order: Primates
- Family: Hominidae
- Genus: Homo
- Species: Homo sapiens

GLOBAL WARMING AND CLIMATE CHANGE (11:08 AM)

- **Mechanisms of Global Warming:**
- **Greenhouse effect:** The earth's temperature depends upon the balance between energy entering and leaving the planet's system.
- Sunlight comprises mainly **UV (~10%), visible light (~43%), and infrared (~47%)**.
- However, the maximum intensity occurs around visible light. That is why, most of the species have adapted to see in visible light.
- When sunlight reaches the Earth's surface, it can either be reflected into space or absorbed by the Earth.
- **The reflectivity of the earth's surface is called Albedo.**
- The average albedo of the earth is about 30 percent.
- However, snow can have as high as 90 percent albedo.
- As the earth absorbs solar energy, it warms up and being a warm body it emits radiation primarily in the infrared part of the spectrum called **long-wave radiation**.
- Greenhouse gases in the atmosphere absorb some of this outgoing radiation and re-radiate it in all directions including towards the earth's surface.
- This phenomenon is called as **greenhouse effect** which is essential for maintaining a temperature suitable for life without it earth can become much colder during the night very fast.
- Any imbalances, even if small in energy coming in and going out will lead to a new thermal equilibrium at different temperatures.
- The recent buildup of greenhouse gases in the atmosphere is contributing to this heat imbalance causing an average rise in temperature called global warming.
- Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other aspects of the earth's climate system.
- Apart from greenhouse gases, even **changing the albedo** of the earth's surface **can contribute to climate change**.
- **Climate Feedback:**
- These are natural processes that respond to global warming by off-setting (**Negative Feedback**) or further increasing the changes (**Positive Feedback**).
- **Ice-albedo feedback** is an example of a positive feedback mechanism.
- **Water Vapour Feedback:** Water vapour has high global warming potential and Global warming leads to more water vapour.

The topic for the next class: Factors behind Climate Change (Anthropogenic and Natural)