





**Most Trusted Learning Platform**



## Polar Bears

- Polar bears in Hudson Bay are dying at a fast rate and females and younger polar bears are the worst affected, according to a new government survey. ✓
- Polar bears are the largest carnivorous land mammals on Earth. ✓
- Polar bears are one of the most significant predators in the Arctic region and they keep biological populations in balance. ✓
- The big kills made by them serve as a food resource for scavengers like Arctic foxes and Arctic birds.
- Most polar bears occur north of the Arctic Circle to the North Pole.
- There are some populations south of the Arctic Circle in the Hudson Bay of Manitoba, Canada. Polar bears live in Alaska, Canada, Russia, Greenland, and some northern islands owned by Norway, such as Svalbard.





## Polar Bears

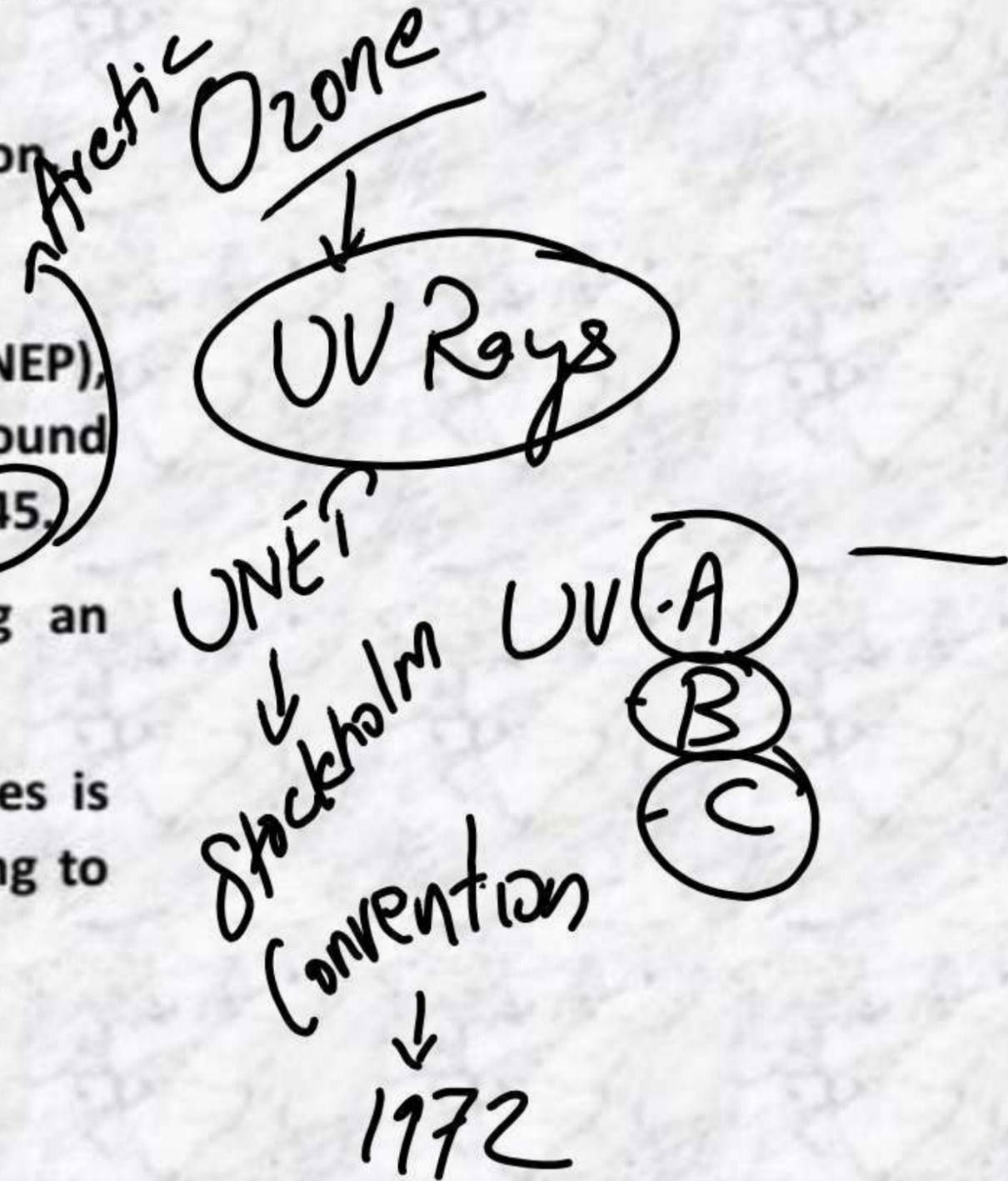
- Western Hudson Bay has witnessed a drop of around 50% in the population of polar bears since the 1980s.
- Conservation Status
- IUCN: Vulnerable ✓
- CITES: Appendix II ✓
- Polar bears get less time to hunt due to the breaking of sea ice in summer and refreezing later in winter with rising global temperatures



Hudson Bay  
Canada

# OZONE HOLE RECOVERY

- The ozone layer is part of the stratosphere, which lies 10-50 kilometres above the surface of the Earth
- Ozone protects life on Earth from the sun's ultraviolet (UV) radiation
- Almost 99% of ozone-depleting gases have been phased out.
- Projections from the United Nations Environment Programme (UNEP), suggest the Antarctic ozone layer will recover to 1980 levels by around 2066, with recovery in the rest of the world between 2040 and 2045.
- It has been estimated that the Montreal Protocol is saving an estimated 2 million people annually by 2030 from skin cancer.
- This huge reduction in the release of ozone-depleting substances is also helping to avoid 0.5°C of global warming by 2100, according to UNEP



# OZONE HOLE RECOVERY

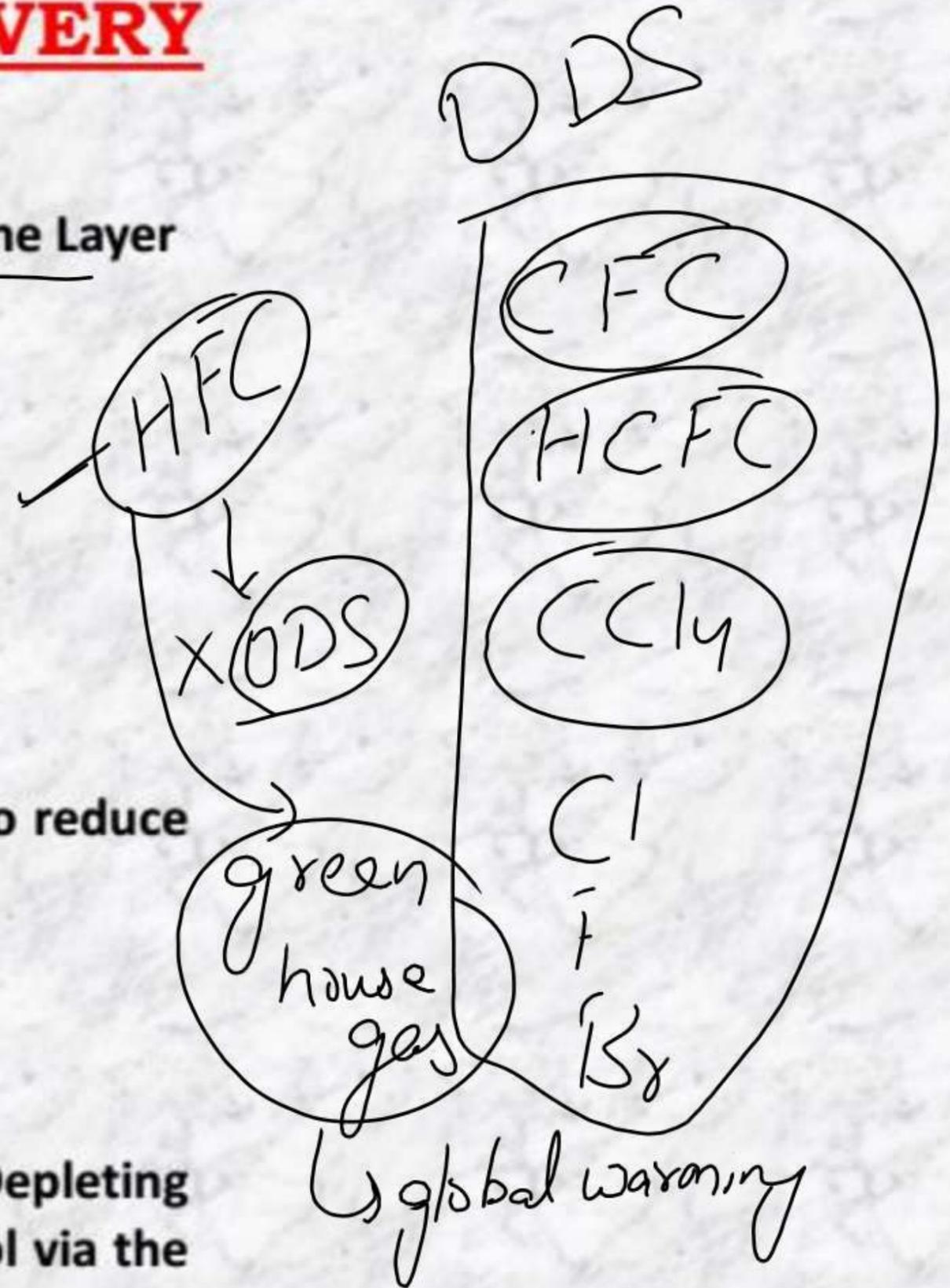
## Montreal Protocol on Substances that Deplete the Ozone Layer

- It is a protocol to Vienna Convention for the Protection of Ozone Layer
- It is an international treaty ✓
- Came into force in 1989 ✓
- Ratifies : 197 (Universal treaty)
- It is legally binding ✓

### Kigali Amendment

→ 2016

- All 197 countries, including India have agreed to a timeline to reduce the use of HFCs by roughly 85% of their baselines by 2045.
- Binding on countries from 2019.
- It also has provisions for penalties for non-compliance.
- NOTE: HFCs (Hydrofluoro carbons) are not Ozone-Depleting Substances but still they are included in the Montreal Protocol via the Kigali Agreement because they are potent global warming substances.



# OZONE HOLE RECOVERY

## Kigali Amendment

- It aims to phase out Hydrofluoro carbons (HFCs), a family of potent greenhouse gases by the late 2040s
- Under it, developed countries will also provide enhanced funding support
- Different timelines:
- First group: It includes richest countries like US and those in European Union (EU). They will freeze production and consumption of HFCs by 2018. They will reduce them to about 15% of 2012 levels by 2036.
- Second group: It includes countries like China, Brazil and all of Africa etc. They will freeze HFC use by 2024 and cut it to 20% of 2021 levels by 2045.
- Third group: It includes countries India, Pakistan, Iran, Saudi Arabia etc. They will be freezing HFC use by 2028 and reducing it to about 15% of 2025 levels by 2047

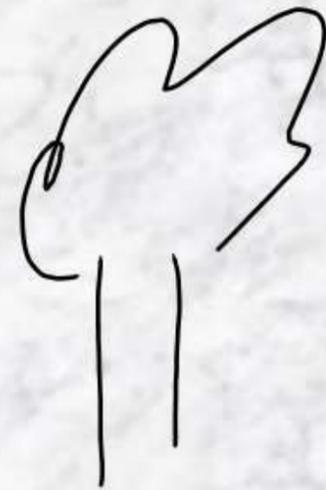
# CLOUD FOREST

→ higher elevation

CF 25

- Cloud Forests are montane rainforests
- They refer to the vegetation of tropical mountainous regions where there is heavy rainfall and persistent condensation resulting from the cooling of the moisture being pushed upwards by the mountains.
- They are usually characterized by a persistent, frequent and seasonal low-lying layer of mist and cloud cover usually at the canopy level.
- Cloud forests are rare since the exceptional conditions that create these forests are only found in tropical areas with tall mountains.
- Due to their unique characteristics, cloud forests are usually found along the sides of the mountains at elevations of between 3000 and 10000 feet but as low as 1650 feet in the Tropics between coordinates 23°N and 23°S.

more trees  
↓  
more rain



# CLOUD FOREST

- Only 1% of the global woodlands are considered as cloud forests following a decline from 11% in the 1970s due to interferences by human activities and global warming.
- Just 25 countries hold 90 per cent of the world's cloud forests
- They capture moisture from the air, providing fresh and clean water to people and industries below.
- These 25 countries have around 979 hydropower dams and around half of them use water from the cloud forest.
- CF25 is an investment initiative that aims to establish a collective of 25 countries that share cloud forests.
- The initiative aims to accelerate the international application of market templates and aggregate blended finance and data.

India is  
not a party

# THE WILDLIFE (PROTECTION) AMENDMENT ACT, 2022

Dec-2022

- ✓ It provides for certain permitted activities like grazing or movement of livestock and bona fide use of drinking and household water by local communities.
- ✓ It seeks to amend Section 43 of the principal Act to permit transfer or transport of a captive elephant for a religious or any other purpose by a person having a valid certificate of ownership.
- ✓ It inserts a new Schedule for specimens listed in the Appendices under CITES. (4 Schedules instead of 6)
- ✓ Schedule I – Animals with greater protection ✓
- ✓ Schedule II - Animals with lesser protection
- ✓ Schedule III – Protected Plant species
- ✓ Schedule IV – CITES species

# Convention on International

App-I Trade in Endangered Species

~~App-II~~

App-III

of flora and fauna

CITES

W

WPA - 1972

WPA - 2022

↳ Six schedules

Schedules - 4

Schedule V - Vermin species

# THE WILDLIFE (PROTECTION) AMENDMENT ACT, 2022

- ✓ Amendment to Section 6 to constitute Standing Committee to exercise such powers and duties as may be delegated to it by the State Board for Wildlife.
- ✓ Amendment to Section 43 to permit elephants, a Schedule I animal, to be used for 'religious or any other purpose'.
- ✓ It inserted Section 49E to empower Central government to designate a Management Authority to grant export or import permits for trade of specimens.
- ✓ It also inserts Section 49F to empower Central government to designate a Scientific Authority to advice on aspects related to impact on the survival of the specimens being traded
- ✓ The Bill seeks to regulate the control of sanctuaries. It provides that the Chief Wildlife Warden shall act in accordance with the management plans for the sanctuary, to be prepared as per Central guidelines.

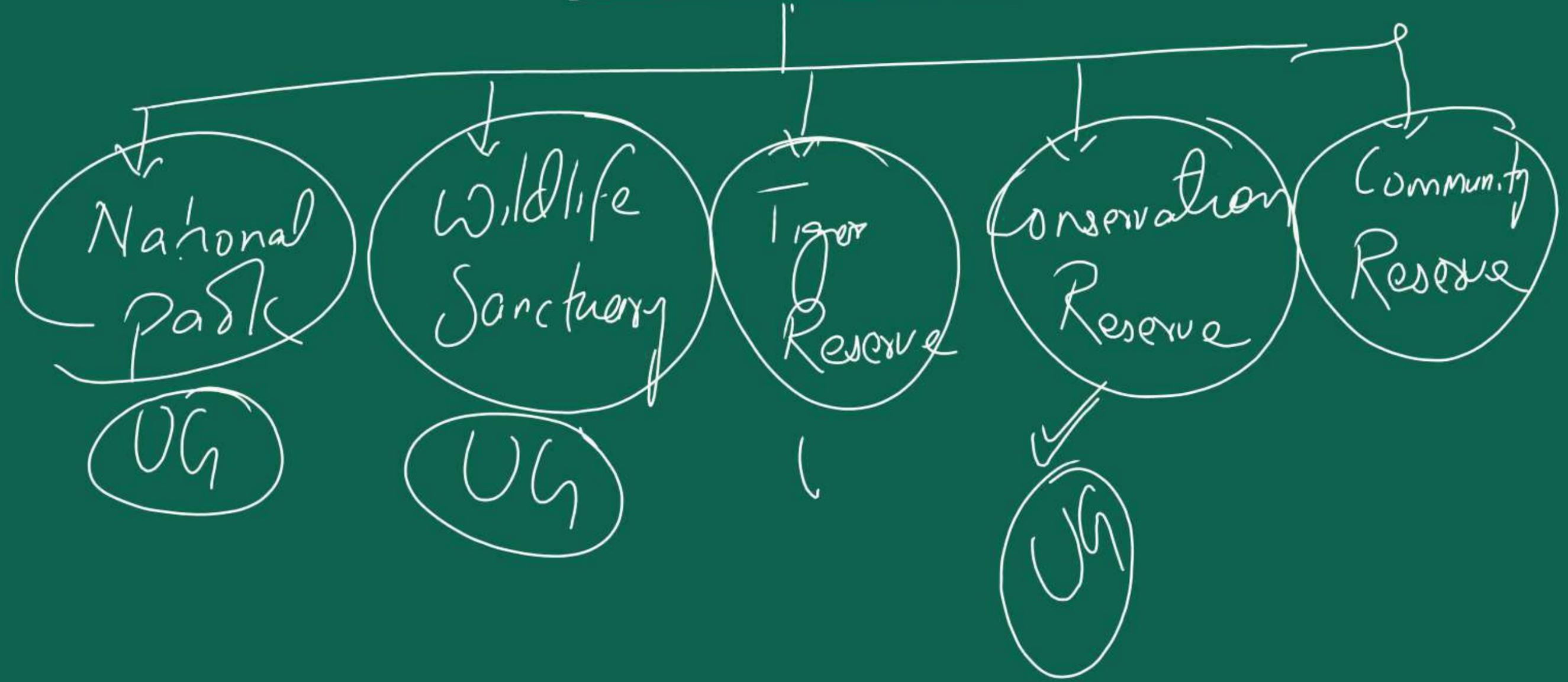
# THE WILDLIFE (PROTECTION) AMENDMENT ACT, 2022

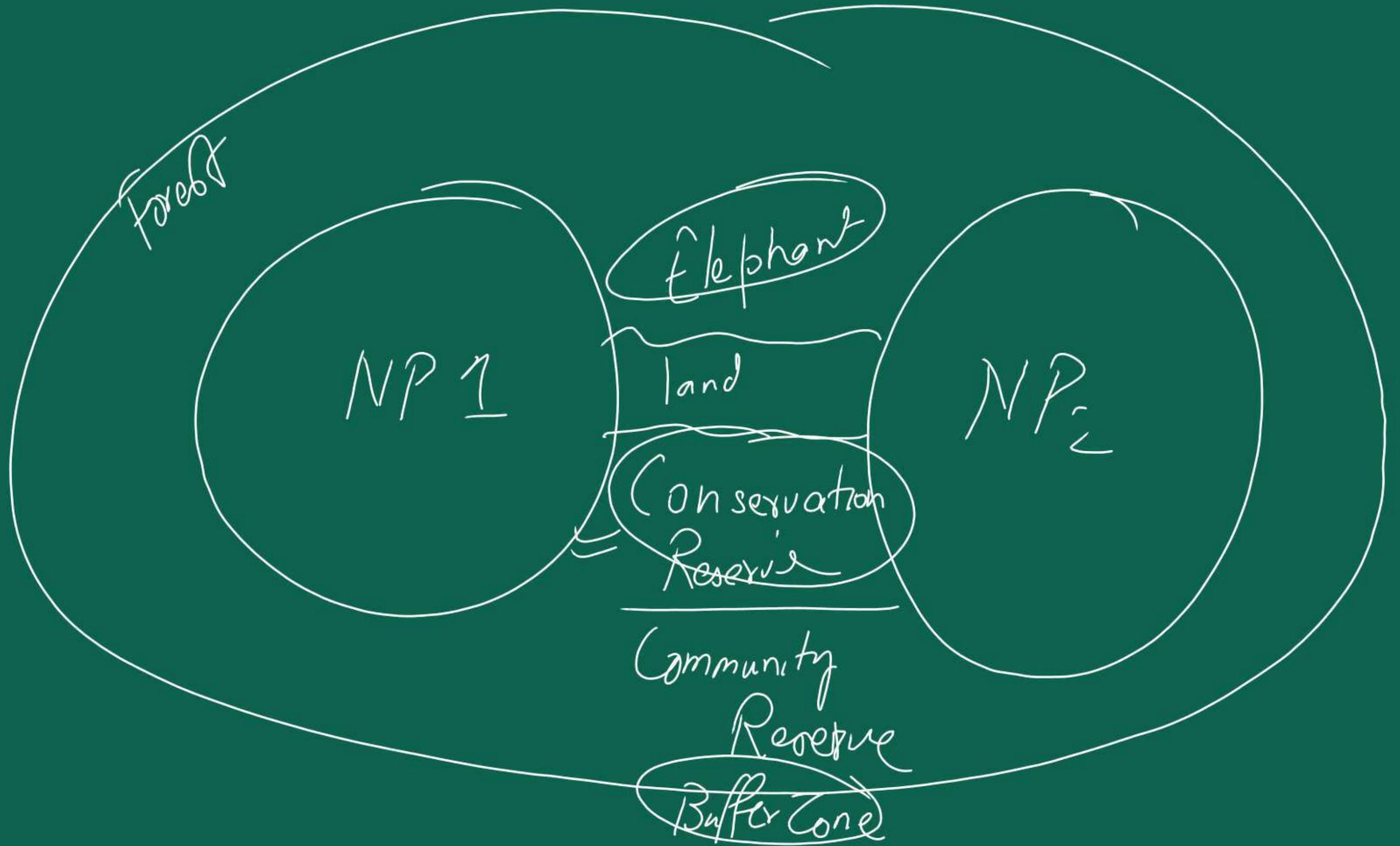
- ✓ It also empowers both Central and State governments to declare areas adjacent to national parks and sanctuaries as a conservation reserve, for protecting flora and fauna, and their habitat.
- ✓ The <sup>act</sup> Bill also empowers Central government to regulate and stop the import, trade or possession of invasive plant or animal alien species.
- ✓ It further requires every person possessing live specimens of scheduled animals to obtain a registration certificate from the Management Authority.
- ✓ It provides that people may “voluntarily surrender” any captive animals to the Chief Wildlife Warden, and such surrendered animals will become property of the state government.
- ✓ The Bill also enhances the penalties prescribed for violation of provisions of the Act. For ‘General violations’, maximum fine is increased from Rs 25,000 to Rs. 1 lakh. In case of Specially protected animals, the minimum fine of Rs. 10,000 has been enhanced to Rs. 25,000.

P

WPA-1972

# Protected Areas





# FOREST (CONSERVATION) RULES, 2022

- **On June 28, the Central government notified the Forest Conservation (FC) Rules, 2022, to replace the Rules of 2003 and subsequent amendments to it (2004, 2014, 2017).**
- **The rules make a provision for private parties to cultivate plantations and sell them as land to companies who need to meet compensatory afforestation targets.**
- **The new rules will allow private developers to clear forest land for compensatory afforestation and development and infrastructure projects without the prior consent of gram sabhas, thereby violating an important provision of the FRA.**

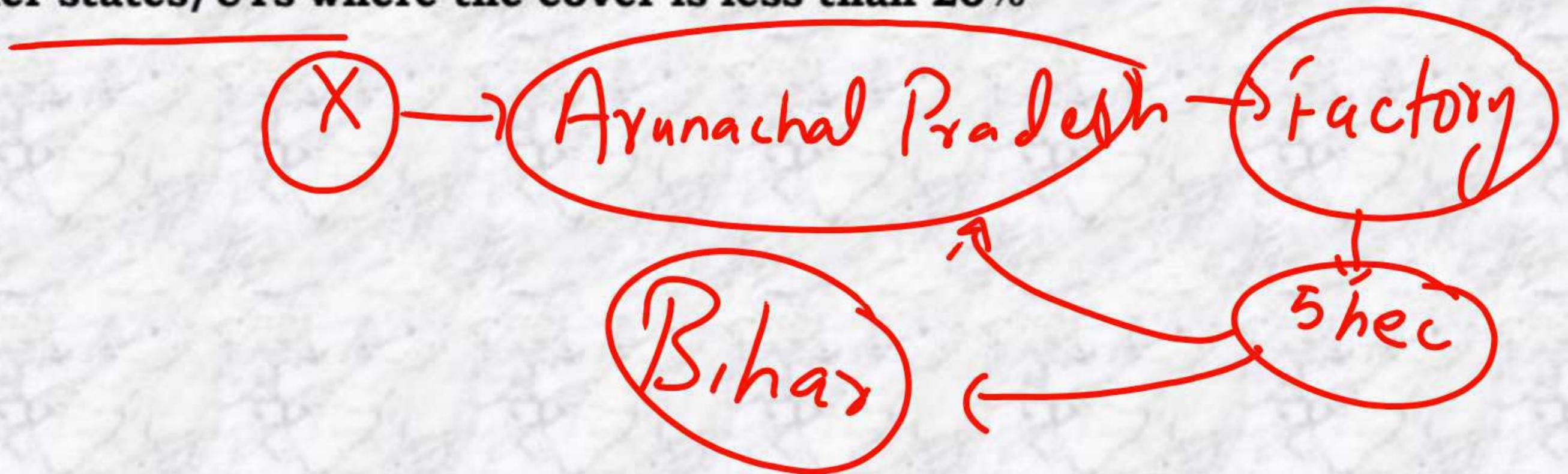


# FOREST (CONSERVATION) RULES, 2022

- **Earlier, the Union government was required to take the consent of the communities concerned before approving private projects. Now, it can approve the handover of forest land and collect payment from the private developer even before the State government obtains the approval of forest dwellers.**
- **It also provides for Right to construct structures for bonafide purposes including forest protection measures and residential units (up to an area of 250 sq meters as one-time relaxation)**
- **It constituted an Advisory Committee, a regional empowered committee at each of the integrated regional offices and a screening committee at State/Union Territory (UT) government-level.**

# FOREST (CONSERVATION) RULES, 2022

- The applicants for diverting forest land in a hilly or mountainous state with green cover covering more than two-thirds of its geographical area, or in a state/UT with forest cover covering more than one-third of its geographical area, will be able to take up compensatory afforestation in other states/UTs where the cover is less than 20%



# **SAMUDRAYAAN MISSION**

- **It is India's first manned deep ocean mission**
- **It is a project of the Ministry of Earth Sciences (MoES) under the Deep Ocean Mission.**
- **It is being developed by the National Institute of Ocean Technology (NIOT) in Chennai.**
- **The mission aims to send three people to a depth of 6,000 meters in a submersible called the MATSYA 6000.**

# SAMUDRAYAAN MISSION

Titanium alloy

- It aims to support the Blue Economy Initiatives of the Indian government and subsequently help India in achieving the target of over Rs. 100 billion “Blue Economy” through its ocean resources.
- MATSYA 6000 is made of 80mm-thick titanium alloy and has a diameter sphere of 2.1 meters to withstand 600 bar pressure at 6,000 metres depth under water which will be 600 times more than the pressure at sea level.
- The submersible has an endurance of up to 12 hours and an emergency endurance of 96 hours.

International Seabed Authority

# ASIAN WATERBIRD CENSUS (AWC)

Jan 2024

## What is Flyway?

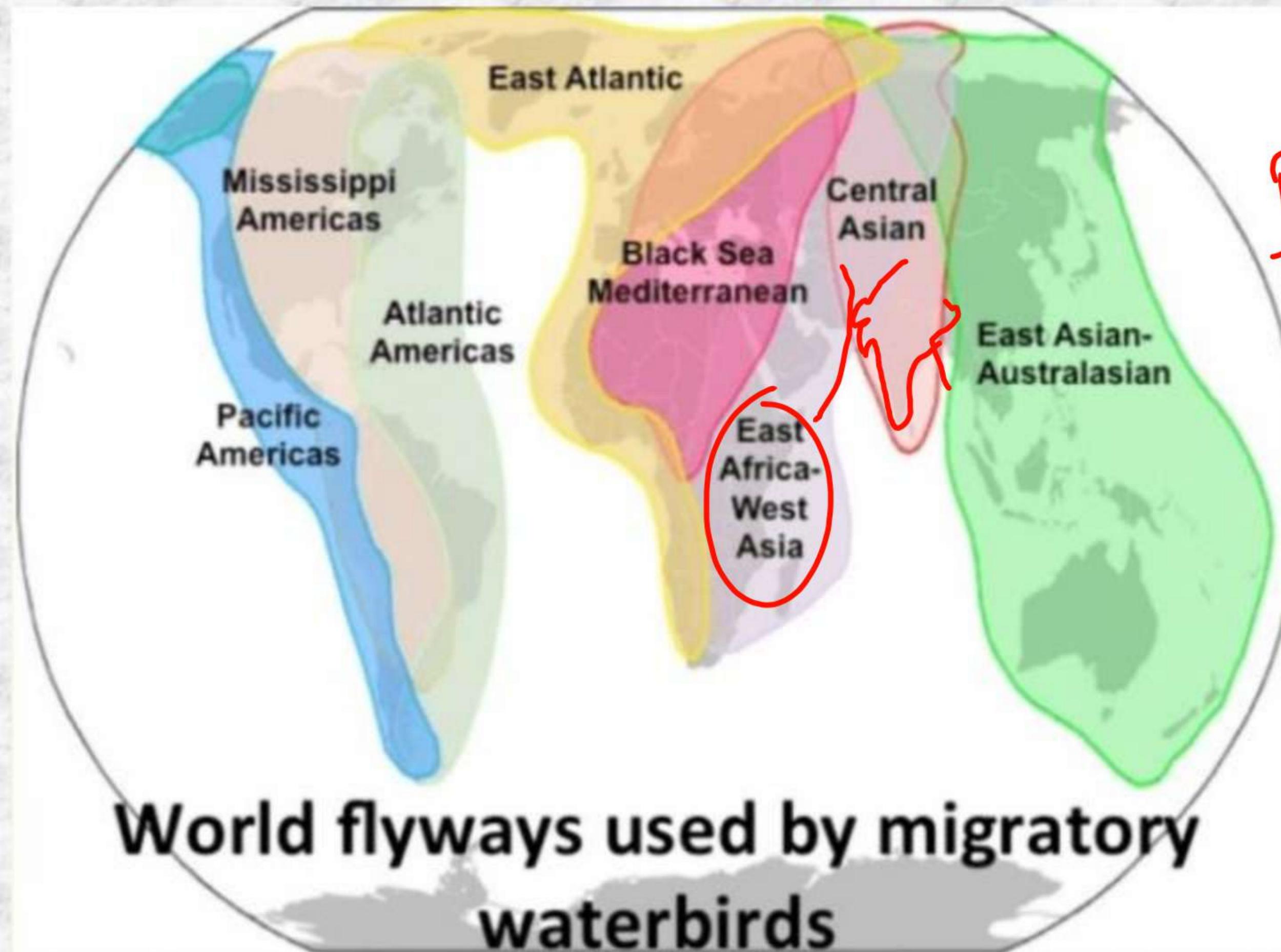
Flyways are the geographical area used by a single or group of migratory birds during their annual cycle.

These include breeding areas, moult, stop-overs, staging (birds gathering before migration) and wintering areas.

How many flyways pass through the Indian sub-continent?

There are nine flyways in the world, and three of these flyways pass through the Indian Subcontinent.

- 1) Central Asian Flyway (CAF)
- 2) East Asian Australasian Flyway (EAAF)
- 3) Asian East African Flyway (AEAF)



Ramsar site  
↓  
75  
↓  
flyway

# DARK SKY RESERVE

- The Department of Science & Technology (DST) has set up India's first Dark Sky Reserve in Hanle, Ladakh.
- Hanle, which is about 4,500 metres above sea level, hosts telescopes and is regarded as one of the world's most optimal sites for astronomical observations.
- A Dark Sky Reserve is a designation given to a place that has policies in place to ensure that a tract of land or region has minimal artificial light interference.
- The International Dark Sky Association is a U.S.-based non-profit that designates places as International Dark Sky Places, Parks, Sanctuaries and Reserves, depending on the criteria they meet.
- A dark sky reserve requires a "core" area that has clear sky without any light pollution, which can enable telescopes to see the sky in its natural darkness.



→ Ladakh

# NATIONAL DIGITAL UNIVERSITY

- The National Digital University will start working in the academic year 2023-2024.
- It will operate with its partner universities which can be either private or public universities.
- It will function on a "hub and spoke model" where the MOOC (Massive Open Online Course) portal is "the hub" and the partner universities are "the spoke".
- The institution will function under a hub-and-spoke model, which is where one product is delivered to various stakeholders from a central location.

# NATIONAL DIGITAL UNIVERSITY

- The digital content for various courses will be hosted on the Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) platform.
- The IT and administrative services will be provided through the government's Samarth portal.
- The university will offer exclusively online courses from its partner institutes, which could be both private and public universities, so far as they follow the NDU's model.
- The students can opt for certificate, diploma, or degree courses.

# NATIONAL DIGITAL UNIVERSITY

NEP-2020

- NDU will allow students to pursue multiple courses at a time from the various partner institutes of NDU.
- Students will be able to register for programmes of individual universities through this Digital University.
- NDU aims to give students the liberty to design their own courses.

# FOURTH INDUSTRIAL REVOLUTION- INDUSTRY 4.0

10 2010

- Industry 4.0, the Fourth Industrial Revolution, and 4IR all refer to the current era of connectivity, advanced analytics, automation, and advanced-manufacturing technology that has been transforming global business for years.
- Steam propelled the original Industrial Revolution; electricity powered the second; preliminary automation and machinery engineered the third; and cyberphysical systems—or intelligent computers—are shaping the Fourth Industrial Revolution.

Web 1.0 — Page visit  
↳ Information

Web 2.0 — user started  
creating data

Web 3.0 — Blockchain  
more control to  
users.

# FOURTH INDUSTRIAL REVOLUTION- INDUSTRY 4.0

**Four fundamental features:**

- 1. connectivity, data, and computational power: cloud technology, the Internet, blockchain, sensors**
- 2. analytics and intelligence: advanced analytics, machine learning, artificial intelligence**
- 3. human-machine interaction: virtual reality (VR) and augmented reality (AR), robotics and automation, autonomous guided vehicles**
- 4. advanced engineering: additive manufacturing (such as, 3-D printing), renewable energy, nanoparticles**

# GENERATIVE ARTIFICIAL INTELLIGENCE, Multi Modal AI

- Generative AI enables users to quickly generate new content based on a variety of inputs.
- Inputs and outputs to these models can include text, images, sounds, animation, 3D models, or other types of data.
- Generative AI algorithms can be used to create new, original content, such as images, videos, and text, that's indistinguishable from content created by humans.
- This can be useful for applications such as entertainment, advertising, and creative arts.
- For example, popular applications like ChatGPT, which draws from GPT-3, allow users to generate an essay based on a short text request.
- On the other hand, Stable Diffusion allows users to generate photorealistic images given a text input.

# GENERATIVE ARTIFICIAL INTELLIGENCE, Multi Modal AI

- **Multimodal AI refers to artificial intelligence systems and models that can process and understand information from multiple modalities or sources of data.**
- **Modalities in this context refer to different types of data, such as text, images, audio, video, and sensor data.**
- **Multimodal AI aims to integrate and analyze information from these diverse sources to make more comprehensive and context-aware decisions.**





# KHAN GLOBAL STUDIES

Most Trusted Learning Platform

**THANKS FOR WATCHING**

