

# Environment

*CRISP, CONCISE & COMPLETE*

For UPSC CSE  
**PRELIMS 2025**  
JAN 2024 - APR 2025

CURRENT AFFAIRS MATERIAL





## ENVIRONMENT – CURRENT AFFAIRS

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Day 35

Topic 341

### 341. National Action Plan on Climate Change (NAPCC) 2008

- launched in **2008** by the **Prime Minister's Council on Climate Change**.
  - There are **8 national missions**
- National Solar Mission:**
    - Achieve **100 GW** of solar power capacity by **2022**.
  - National Mission for Enhanced Energy Efficiency (NMEEE):**
    - Perform, Achieve, and Trade (**PAT**) **scheme**.
  - National Mission on Sustainable Habitat:**
    - Strategies: **Green buildings**, urban transport improvements, and recycling initiatives.
  - National Water Mission:**
    - Target: **20% improvement** in **water use efficiency**.
  - National Mission for Sustaining the Himalayan Ecosystem:**
    - Protect the **Himalayan region's ecosystems** and biodiversity.
  - National Mission for a Green India (Green India Mission):**
    - Afforest/reforest 5 million hectares** of degraded forest lands.
  - National Mission for Sustainable Agriculture (NMSA):**
    - Agriculture resilient to climate change
  - National Mission on Strategic Knowledge for Climate Change:**
    - Enhance scientific research and **create knowledge platforms** to combat climate change.

#### National Action Plan on Climate Change

8 missions to address climate change concerns & promote sustainable development



**Q1021.** Consider the following statements:

- The National Action Plan on Climate Change (NAPCC) was launched in 2008 by the Prime Minister's Council on Climate Change.
- There are 8 national missions forming the core of the NAPCC.
- Perform, Achieve and Trade (PAT) is one of the initiatives under the National Mission for Enhanced Energy Efficiency (NMEEE).

Which of the statements given above is/are correct?

- 1 and 3 only
- 2 and 3 only
- 3 only
- 1, 2 and 3

Ans: d

**Sol:**

- Statement 1: Correct** The National Action Plan on Climate Change (NAPCC) was launched in 2008 by the Prime Minister's Council on Climate Change to address climate change and promote sustainable development.
- Statement 2: Correct** The NAPCC has 8 national missions as its core, including:
  - National Solar Mission
  - National Mission for Enhanced Energy Efficiency
  - National Mission on Sustainable Habitat
  - National Water Mission
  - National Mission for Sustaining the Himalayan Ecosystem
  - National Mission for a Green India
  - National Mission for Sustainable Agriculture
  - National Mission on Strategic Knowledge for Climate Change
- Statement 3: Correct** The Perform, Achieve, and Trade (PAT) scheme is a market-based mechanism under the National Mission for Enhanced Energy Efficiency (NMEEE). It aims to improve energy efficiency in energy-intensive industries by allowing them to trade energy-saving certificates.

**Q1022.** Consider the following statements:

**Statement-I:** Launched in 2008, the National Action Plan on Climate Change (NAPCC) aims to achieve low-carbon and climate-resilient





development for India, having 10 national missions forming the core of it.

**Statement-II:** India's Nationally Determined Contributions (NDCs) pledge to reduce the emissions intensity of GDP by 45% by 2030 from 2005 levels and generate 50% of electricity from non-fossil fuel sources by 2030.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement -II are correct, and Statement -II is the correct explanation for Statement -I
- (b) Both Statement-I and Statement -II are correct, and Statement -II is not correct explanation for Statement -I
- (c) Statement-I is correct, but Statement-II is incorrect.
- (d) Statement-I is incorrect, but Statement-II is correct.

Ans: d

**Sol: NAPCC:** Launched in 2008 to address climate change challenges in India. Aim to achieve low- carbon and climate-resilient development for India. There are 8 national missions forming core of the NAPCC.

**Q1023.** India announced National Action Plan on Climate Change (NAPCC) in 2018. It includes eight ambitious goals (sub- missions) set for the country to tackle climate change. Which of the following sub-missions are part of NAPCC?

1. National Solar Mission.
2. Nation Water Mission.
3. National Soil Mission.
4. National Mission for a Green India.
5. National Mission on Sustainable Agriculture.

- (a) 1, 2 and 3
- (b) 1, 2, 3 and 4.
- (c) 1, 2, 4, and 5.
- (d) 1, 3, 4 and 5.

Ans: c

**Sol:** The NAPCC has 8 national missions as its core, including:

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission

## ENVIRONMENT – CURRENT AFFAIRS

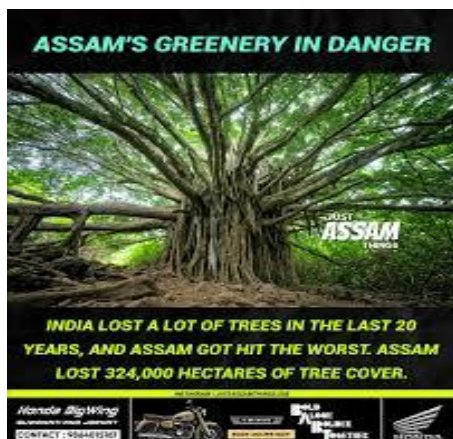
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a Green India
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

### Topic 342

#### 342. Global Forest Watch

- It is an open-source web application to monitor global forests in near real-time.
- It is a project of the Washington-based nonprofit research organization, the World Resources Institute (WRI).
- Current development-
- According to the latest data from the Global Forest Watch monitoring project, India has lost 2.33 million hectares of tree cover since 2000.
- Assam had the maximum tree cover loss at 3,24,000 hectares.





**Q1024.** As per the Global Forest Watch report in April 2024, how much tree cover has India lost since the year 2000?

- 1.5 million hectares
- 2.33 million hectares
- 3.5 million hectares
- 4.0 million hectares

Ans: b

**Sol:** According to the latest data from the Global Forest Watch monitoring project, India has lost 2.33 million hectares of tree cover since 2000.

**Q1025.** As per the Global Forest Watch report 2024 Which state in India had the maximum tree cover loss, amounting to 324,000 hectares?

- Mizoram
- Arunachal Pradesh
- Assam
- Nagaland

Ans: c

**Sol:** Assam had the maximum tree cover loss at 3,24,000 hectares.

**Q1026.** Consider the following statements about Global Forest Watch (GFW)

- GFW is an online platform that provides data and tools for monitoring forests.
- It was created by International Union for Conservation of Nature.
- Brazil and Indonesia are the two countries with the most tropical forest cover.

How many of the statements given above are correct?

- Only one
- Only two
- All three statements

(d) None of the statements

Ans: a

**Sol:**

- Statement 1: Correct** Global Forest Watch (GFW) is an online platform that provides data, tools, and interactive maps for monitoring forests in near real-time. It helps in tracking forest loss, degradation, and restoration globally.
- Statement 2: Incorrect** GFW was not created by the International Union for Conservation of Nature (IUCN). It is an initiative of the World Resources Institute (WRI), a global research organization.
- Statement 3: Incorrect:** Brazil and the Democratic Republic of Congo are the two countries with the most tropical forest cover.

### Topic 343

#### 343. Sea level rise

##### Current news?

- The Intergovernmental Panel on Climate Change (IPCC) has predicted a global sea level rise of about one metre by AD 2100.

##### Factors behind sea level rise-

- Thermal expansion
- Melting of glaciers and ice sheets

##### Impact of sea level rise

##### 1. Submersion of coastal areas

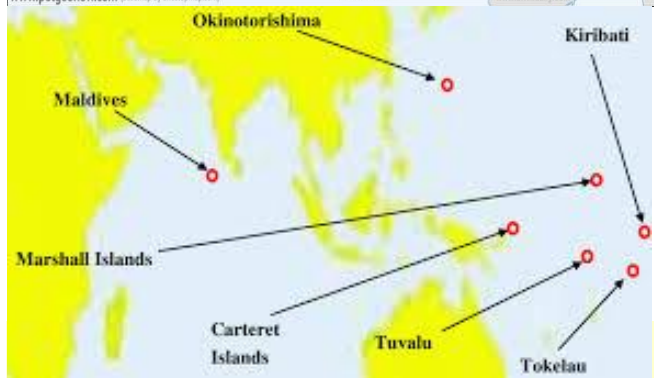
- As per a new study published in Science Journal, China's quarter of the coastal land will sink below sea level within a century due to land subsidence and climate change resulting in rise of sea levels.
- Indonesia shifting its capital from Jakarta to Nusantara(Borneo island) due to possible submergence of Jakarta in coming decades.

##### 2. Threat of disappearance of island states

- Maldives, Tuvalu, Kiribati, and the Marshall Islands.







**Q1027.** Consider the following statements regarding the Intergovernmental Panel on Climate Change (IPCC):

1. The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988.
2. The establishment of the IPCC was endorsed by UN General Assembly in 1988.
3. As per the IPCC Sixth Assessment Report, the global mean sea level is projected to rise by one metre.

How many of the above statements is/are correct?

- (a) Only one
- (b) Only two
- (c) All three statements
- (d) None of the statements

Ans: c

**Sol:**

- **Statement 1: Correct** The Intergovernmental Panel on Climate Change (IPCC) is a United Nations body established in 1988. It was created to provide scientific assessments on climate change, its impacts, and possible adaptation and mitigation measures.

- **Statement 2: Incorrect** The IPCC was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), not the World Bank.
- **Statement 3: Correct** The IPCC Sixth Assessment Report projects that the global mean sea level could rise by up to 1 metre or more by 2100 in high-emission scenarios.

**Q1028.** Consider the following statement about World Meteorological Organization (WMO).

1. It is an intergovernmental organization established by the ratification of the WMO Convention in 1950.
2. Along with UNEP, it has established Intergovernmental Panel on Climate Change (IPCC).
3. Italy's Celeste Saulo has been recently elected as the first female head of the World Meteorological Organization (WMO).

How many of the above statement/s is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

- **Statement 1: Correct** The World Meteorological Organization (WMO) is an intergovernmental organization that was established by the ratification of the WMO Convention on 23 March 1950. It became a specialized agency of the United Nations in 1951.
- **Statement 2: Correct** The WMO, along with the United Nations Environment Programme (UNEP), co-established the Intergovernmental Panel on Climate Change (IPCC) in 1988 to assess scientific information related to climate change.
- **Statement 3: Incorrect** Celeste Saulo of Argentina, not Italy was recently elected as the first female Secretary-General of the World Meteorological Organization (WMO). This marks a significant milestone in the organization's leadership.

**Q1029.** Which one of the following is the best example of repeated falls in sea level, giving rise to present-day extensive marshland?



- (a) Bhitarkanika Mangroves  
(b) Marakkanam Salt Pans  
(c) Naupada Swamp  
(d) Rann of Kutch

Ans: d

**Sol:-**

- **Option a is incorrect:** Bhitarkanika mangroves, located in Odisha, India, is a significant mangrove ecosystem. While it experiences tidal fluctuations, it is not primarily characterized by repeated falls in sea level. Rather, it is influenced by the riverine system and is considered an important breeding ground for various species, including the endangered saltwater crocodile.
- **Option b is incorrect:** Marakkanam salt pans, situated in Tamil Nadu, India, are salt marshes used for salt production. They are formed in low-lying coastal areas where seawater is allowed to evaporate, leaving behind salt crystals. However, these salt pans do not result from repeated falls in sea level but are created artificially by utilizing the existing seawater.
- **Option c is incorrect:** Naupada swamp, also known as Naupada Wetland, is located in Andhra Pradesh, India. It is a freshwater swamp and is not primarily influenced by repeated falls in sea level. Instead, it is formed by the inflow of freshwater from rivers and receives seasonal rainwater.
- **Option d is correct:** The Rann of Kutch, situated in Gujarat, India, is the best example among the options provided. It is a vast seasonal salt marsh that experiences significant fluctuations in sea level due to its geological history. The Rann of Kutch was once an arm of the Arabian Sea, and as the sea level fell over time, it transformed into a marshy land. The region is known for its unique ecosystem, supporting a diverse range of flora and fauna, including migratory birds and endangered species. The Rann of Kutch is also famous for the annual Rann Utsav, a cultural festival that celebrates the vibrant traditions of the region.

## Topic 344

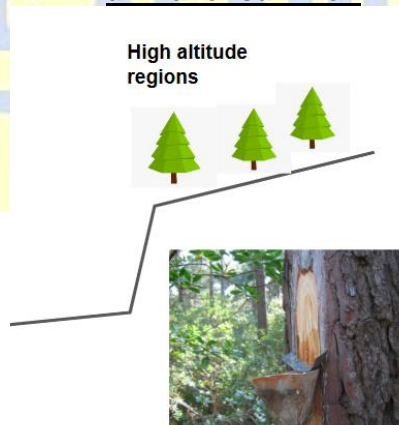
### 344. Forest Fire

### Why forest fire in high altitude region?

- High altitude areas support coniferous vegetation.
- Pine is an important coniferous vegetation.
- Pine releases turpentine oil (that contains alcohol) which is highly inflammable.
- Turpentine oil in Pine tree makes forest fire a frequent phenomena in higher altitude region.
- Turpentine oil usage- Herbal medicine, used in paints etc.

## Frequent forest fire states

- Uttarakhand and Himachal Pradesh witness a lot of forest fire every year.
- These forest fires are common usually in high altitude areas.
- Higher fire incidents are reported in March, April and May.
- According to experts, three factors cause the spread of forest fires — fuel load, oxygen and temperature.
- Fuel load- Pine released turpentine oil
- Oxygen is naturally available
- High Temperature is witnessed before arrival of summer.



**Q1030.** Which of the following tiger reserves of India has recently launched an advanced Artificial Intelligence (AI) system for early detection of forest fires?

- (a) Corbett Tiger Reserve  
(b) Pench Tiger Reserve  
(c) Bandipur Tiger Reserve  
(d) Periyar Tiger Reserve

Ans: b

**Sol:** Pench Tiger Reserve in Maharashtra has recently launched an advanced Artificial





Intelligence (AI) system for early detection of forest fires.

This state-of-the-art system features a high-resolution camera with a visual range of 15 kilometers, effectively covering more than 350 square kilometers of the reserve. The AI-powered platform, known as Pantera, leverages both camera feed and satellite-based data to provide real-time alerts of forest fires within three minutes. It can differentiate between smoke and clouds, minimizing false alarms and ensuring accurate and reliable alerts. Additionally, the system operates 24/7, including nighttime detection, and can forecast probable future fire incidents by analyzing data related to temperature, precipitation, wind, and past fire occurrences.

The project was implemented through a collaboration between Pench Tiger Reserve, Satpuda Foundation, Umgrameio (Brazil), and Forest Fire Tech, a division of Scaale Inc, USA. Part of the project was funded by Solar Industries India Ltd, Nagpur, with the rest by the Maharashtra government.

**Q1031.** Regarding forest fires, consider the following statements:

1. Dry deciduous forests experience severe fires compared to evergreen, semi-evergreen, and montane temperate forests.
2. The forests of Northeast India, Odisha, Maharashtra, Jharkhand, Chhattisgarh, and Uttarakhand are the most vulnerable to fires during the November to June period.

Which of the statements given above is/are not correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: d

**Sol:**

- **Statement 1: Correct** Dry deciduous forests are more prone to severe fires compared to evergreen, semi-evergreen, and montane temperate forests. This is due to the presence of dry leaves and grasses, which act as fuel for forest fires, particularly during the dry season.
- **Statement 2: Correct** Forests in Northeast India, Odisha, Maharashtra, Jharkhand, Chhattisgarh, and Uttarakhand are indeed

among the most vulnerable to forest fires, especially during the November to June period. This is attributed to factors such as dry weather, human activities like shifting cultivation, and natural fire cycles.

**Q1032.** Fire Ready Formula' is an initiative of which of the following?

- (a) Coalition for Disaster Resilient Infrastructure (CDRI).
- (b) United Nations Office for Disaster Risk Reduction (UNDRR).
- (c) International Union for Conservation of Nature (IUCN).
- (d) United Nations Environment Programme (UNEP).

Ans: d

**Sol:** The 'Fire Ready Formula' is an initiative of the United Nations Environment Programme (UNEP). In a report released in February 2022, UNEP called on governments to adopt this formula, recommending that 66% of wildfire-related expenditures be allocated to planning, prevention, preparedness, and recovery, with the remaining 34% dedicated to response efforts.

### Topic 345

#### 345. Whitley Gold Award

##### Whitley Award

- established in **1994** by **Edward Whitley**.
- referred to as **Green Oscars**.
- held annually by the **Whitley Fund for Nature (WFN)** to recognise conservationists of Global South.

##### Whitley Gold Award

- Each year a **Whitley Award alumnus** is chosen to receive the **Whitley Gold Award**.
- **Gold winners** also join the **Whitley Awards Judging Panel**.





### Current news?

- **Assam based conservationist Dr Purnima Devi Barman** has been chosen for **Whitley Gold Award 2024**.
- She received **Whitley Award in 2017**.

**Q1033.** Consider the following statements about the Whitley Award:

1. The Whitley Award was established in 1994 by Edward Whitley.
2. It is often referred to as the "Green Oscars."
3. The award is presented exclusively to conservationists from the Global North.
- How many of the statements given above are correct?

- (a) Only one  
(b) Only two  
(c) All three  
(d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** The Whitley Award was established in 1994 by Edward Whitley.
- **Statement 2: Correct.** The Whitley Award is commonly referred to as the "Green Oscars."
- **Statement 3: Incorrect.** The award recognizes conservationists from the Global South, not the Global North.

**Q1034.** Consider the following statements regarding the Whitley Gold Award:

1. The Whitley Gold Award is given annually to an alumnus of the Whitley Award.
2. Winners of the Whitley Gold Award join the judging panel of the Whitley Awards.
3. Purnima Devi Barman received the Whitley Gold Award in 2024.

How many of the statements given above are correct?

- (a) Only one  
(b) Only two  
(c) All three  
(d) None

Ans: c

**Sol:-**

- **Statement 1: Correct.** The Whitley Gold Award is presented annually to a Whitley Award alumnus.
- **Statement 2: Correct.** Gold winners join the Whitley Awards Judging Panel.
- **Statement 3: Correct.** Purnima Devi Barman won the Whitley Gold Award in 2024 for her conservation work.

**Q1035.** Consider the following statements regarding Purnima Devi Barman:

1. She was honored with the UNEP's 2022 Champions of the Earth Award in the Entrepreneurial Vision category.
2. She received the Whitley Gold Award from the Whitley Fund for Nature in 2024.
3. Her awards exclusively recognize efforts in environmental entrepreneurship.

How many of the statements given above are correct?

- (a) Only one  
(b) Only two  
(c) All three  
(d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** Purnima Devi Barman received the UNEP Champions of the Earth Award in 2022 in the Entrepreneurial Vision category.
- **Statement 2: Correct.** She won the Whitley Gold Award in 2024 for her grassroots conservation leadership.
- **Statement 3: Incorrect.** Her awards are not limited to environmental entrepreneurship; they also recognize broader contributions to grassroots conservation efforts.

## Topic 346

### 346. Purnima Devi Barman

- Awarded with **President award** for her efforts in **conservation of Hargila bird.**

### Hargila or Great Adjutant Stork

- Mostly found in Assam. Some of them found in Bihar.
- 2/3rd of world's population in Assam.





- **Till 13 years ago** this bird was **hunted in Assam(considered bad omen).**
- **Purnima Devi Barman** created a **group of women** for protection of Hargila- known as **Hargila army (10000 women).**

#### Awards

1. **Whitley Awards** also known as Green Oscars in 2017
2. **Nari Shakti Puraskar**
3. **World Female Ranger Award-2022**
  - by the global body 'How Many Elephants'.
0. **Champions of the Earth 2022**
  - **by UNEP-** UN's highest environmental recognition
  - **Dr Purnima Devi Barman (India)** has been honoured in the **Entrepreneurial Vision category**, Champions of the Earth 2022 award.



Hargila Army



Hargila Bird/Great Adjutant Stork

#### Hargilla bird-Protection Status

- 'Endangered' on the IUCN's Red List
- Schedule IV of the Indian Wildlife (Protection) Act, 1972.
- Only 3 breeding ground-Bihar/Assam/Cambodia
- Called Garuda in Bihar

**Q1036.** Consider the following statements regarding the Greater Adjutant Stork:

1. It is listed as Endangered in the IUCN Red List of Threatened Species.
2. Assam and Bihar in India are significant breeding centers for this species.
3. It is protected under Schedule IV of the Indian Wildlife (Protection) Act, 1972.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: c

Sol:

- **Statement 1: Correct.** The Greater Adjutant Stork is classified as Endangered on the IUCN Red List.
- **Statement 2: Correct.** Assam and Bihar, especially Bhagalpur's Kadwa Diara floodplains, are important breeding areas for this species.
- **Statement 3: Correct.** It is protected under Schedule IV of the Indian Wildlife (Protection) Act, 1972.

**Q1037.** Consider the following statements about the Greater Adjutant Stork:

1. The species primarily preys on fish, frogs, snakes, and carrion.
2. Habitat destruction and direct exploitation at nesting colonies are major threats to its population.
3. Its local name, "hargila," is derived from Assamese, meaning "bone-swallower."

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: c

Sol:

- **Statement 1: Correct.** The Greater Adjutant Stork is principally carnivorous, feeding on fish, frogs, snakes, eels, birds, and carrion.
- **Statement 2: Correct.** Threats to its population include habitat destruction, exploitation at nesting colonies, and wetland degradation.
- **Statement 3: Correct.** Its local name, "hargila," comes from Assamese and Bengali, meaning "bone-swallower."

**Q1038.** Consider the following statements about Living Root Bridges.

1. It is a suspension bridge formed by guiding the pliable roots of the rubber fig tree across a stream or river and allowing the roots to grow and strengthen over time.
2. It has been listed in UNESCO's World Heritage Sites.
3. In India, Living Root Bridges is found in Meghalaya only.

Which of the above statement/s is/are incorrect?



- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 2 only  
(d) 1, 2 and 3

Ans: b

**Sol:**

- **Statement 1: Correct.** Living Root Bridges are indeed suspension bridges formed by guiding the roots of the rubber fig tree (*Ficus elastica*) across a stream or river. Over time, the roots grow and strengthen to form a durable, natural bridge.
- **Statement 2: Incorrect.** While Living Root Bridges are recognized as an important example of bio-engineering and cultural heritage, they have not yet been listed as UNESCO World Heritage Sites.
- **Statement 3: Incorrect.** Living Root Bridges are primarily found in Meghalaya, but there are reports of similar bridges in other regions of the northeastern states of India like Nagaland etc. Thus, Statements 2 and 3 are incorrect, and the correct answer is B. 2 and 3 only.

### Topic 347

#### 347. Carbon Farming

- Carbon farming is a set of agricultural practices that aim to **store carbon** in the soil, plant material, wood, and leaves.
- Aims to **reduce the amount of carbon dioxide (CO<sub>2</sub>)**
- Agriculture is source of 3 Greenhouse gas Emission-
  - Nitrous Oxide (N<sub>2</sub>O)
  - Carbon dioxide (CO<sub>2</sub>)
  - Methane (CH<sub>4</sub>)

#### How Carbon farming can help?

- Carbon farming can reduce 2 out of 3 major GHG from agriculture sector i.e. Carbon dioxide (CO<sub>2</sub>) and Methane (CH<sub>4</sub>).
- It can help in **absorbing more carbon from atmosphere** and let release lesser carbon thus leading to overall Carbon Sequestration.
- This is why Carbon Farming is also known as a component of Climate Smart Agriculture.

#### Techniques employed within Carbon farming

#### 1. Rotational Grazing

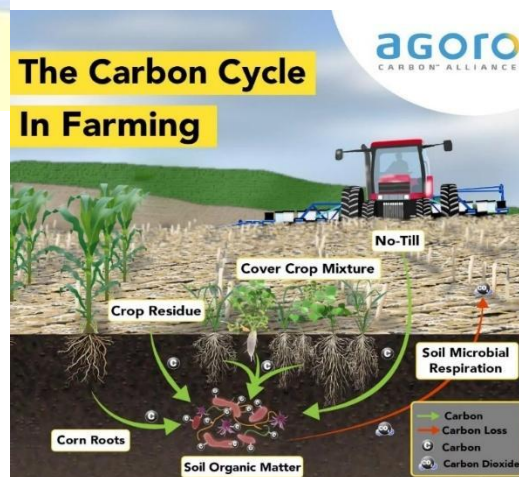
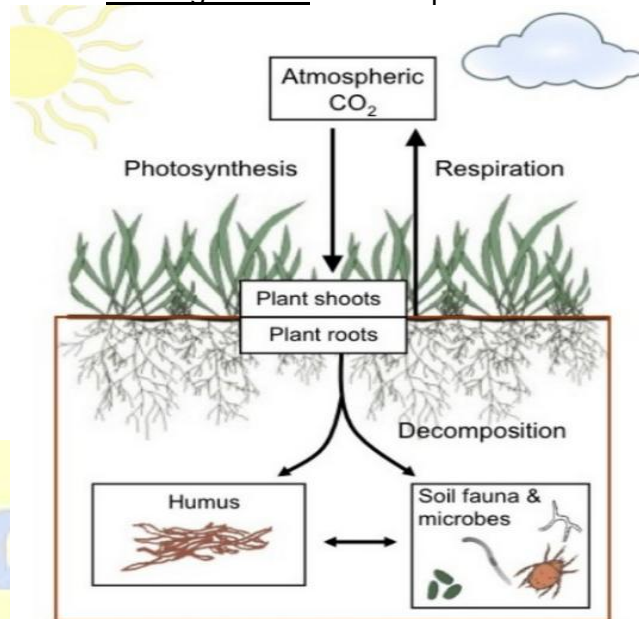
- This approach involves moving livestock to fresh pastures on a regular basis.

#### 2. Agroforestry

- Integrating trees and bushes into crop fields.

#### 3. No-till farming

- It involves planting crops straight into existing residue from the previous season.



**Q1039.** Consider the following statements regarding Carbon Farming:

1. Carbon farming aims to store carbon in soil, plant material, and other biomass.
2. It helps reduce emissions of all three greenhouse gases associated with agriculture—Carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), and Nitrous Oxide (N<sub>2</sub>O).





3. No-till farming and agroforestry are techniques employed in carbon farming.

How many of the above statements are correct?

- (a) Only one  
(b) Only two  
(c) All three  
(d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** Carbon farming focuses on storing carbon in soil and biomass to combat CO<sub>2</sub> emissions.
- **Statement 2: Incorrect.** Carbon farming reduces CO<sub>2</sub> and CH<sub>4</sub> emissions but not N<sub>2</sub>O.
- **Statement 3: Correct.** Techniques like no-till farming and agroforestry are integral to carbon farming practices.

Thus, only two statements are correct.

**Q1040.** Which of the following techniques is/are associated with Carbon Farming?

1. Rotational Grazing
2. No-till Farming
3. Monoculture Plantations
4. Agroforestry

Select the correct answer using the code given below:

- (a) 1, 2, and 3 only  
(b) 1, 2, and 4 only  
(c) 2 and 4 only  
(d) All of the above

Ans: b

**Sol:**

- Rotational Grazing, No-till Farming, and Agroforestry are established techniques of carbon farming.
- Monoculture Plantations are not considered part of carbon farming due to their limited carbon sequestration benefits and potential negative impacts on biodiversity.

Thus, 1, 2, and 4 are correct.

**Q1041.** Which of the following best describes the role of Carbon Farming in combating climate change?

1. Carbon farming reduces the amount of CO<sub>2</sub> and CH<sub>4</sub> emitted by agricultural activities.

2. It facilitates carbon sequestration by absorbing carbon from the atmosphere.

3. It is also known as a component of Climate Smart Agriculture.

4. It eliminates the need for fertilizers in agriculture.

Which of the above statements are correct?

- (a) 1, 2, and 3 only  
(b) 1 and 3 only  
(c) 2 and 4 only  
(d) 1, 2, 3, and 4

Ans: a

**Sol:**

- **Statements 1, 2, and 3 are correct:** Carbon farming reduces CO<sub>2</sub> and CH<sub>4</sub> emissions, sequesters carbon, and is a part of Climate Smart Agriculture.
- **Statement 4 is incorrect:** Carbon farming does not eliminate the need for fertilizers but may reduce reliance on them through sustainable practices.

## Topic 348

### 348. World Environment Day

- **World Environment Day** is celebrated across the globe on **June 5** every year.
- The day is observed to raise **global awareness** to take **positive environmental action** to protect nature and the planet Earth.
- It is observed on **5th of June every year since 1973** as part of the **United Nations Environment Programme** to build awareness to **save life on planet Earth**.

## History

- **World Environment Day** was established in **1972 by the United Nations at the Stockholm Conference** on the **Human Environment (5–16 June 1972)**, the first major international conference on environment protection.
- This year, the **theme** of the World Environment Day 2024 is **"Land Restoration, Desertification, and Drought Resilience"**.



### Some Partial Views of Stockholm Conference



**Q1042.** Which of the following is incorrectly paired?

1. World Water Day - 22nd March
  2. World Environment Day - 22nd April
  3. Earth Day - 5th June
  4. World Energy Conservation Day - 14th December
- (a) 2 and 3  
(b) 1 and 3  
(c) 3 and 4  
(d) 1 and 4

Ans: a

**Sol:** World Water Day: 22nd March — Correct.  
 World Environment Day: 5th June — Incorrect (It is observed on 5th June, not 22nd April).  
 Earth Day: 22nd April — Incorrect (It is observed on 22nd April, not 5th June).  
 World Energy Conservation Day: 14th December — Correct.

**Q1043.** Consider the following statements regarding World Environment Day:

1. World Environment Day has been observed annually since 1973 as part of the United Nations Environment Programme (UNEP).
2. The theme for World Environment Day 2024 is "Land Restoration, Desertification, and Drought Resilience."
3. The Stockholm Conference in 1972 was the first major international conference on environmental protection that led to the establishment of World Environment Day.

Which of the above statements is/are correct?

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 1, 2, and 3  
(d) 1 and 3 only

Ans: c

**Sol:**

- **Statement 1 is correct:** World Environment Day has been observed annually since 1973 under UNEP.
- **Statement 2 is correct:** The theme for 2024 is "Land Restoration, Desertification, and Drought Resilience."
- **Statement 3 is correct:** The Stockholm Conference (1972) led to the establishment of World Environment Day.

**Q1044.** With respect to the history and purpose of World Environment Day, consider the following statements:

1. World Environment Day was established at the United Nations Stockholm Conference on Human Environment in 1972.
2. It aims to raise awareness and promote global action to protect the environment and address environmental issues.
3. The day has been observed annually on 5th June since 1972.

Which of the statements given above is/are incorrect?

- (a) 1 only  
(b) 3 only  
(c) 1 and 2 only  
(d) 2 and 3 only

Ans: b

**Sol:**



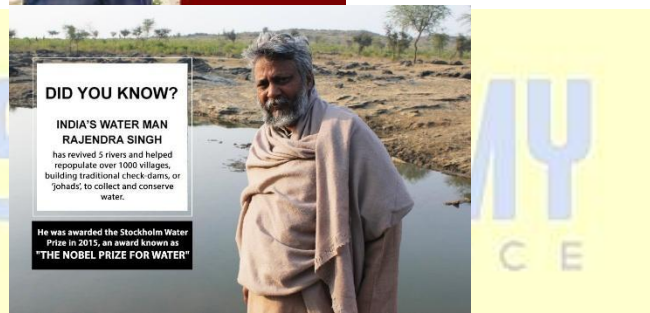
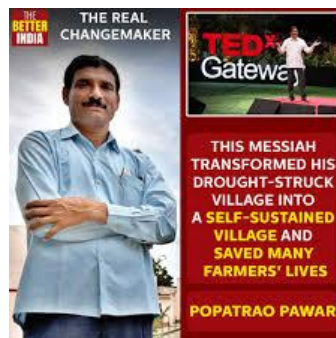


- **Statement 1 is correct:** The day was established at the Stockholm Conference (1972).
- **Statement 2 is correct:** Its primary aim is to raise awareness and promote global action for environmental protection.
- **Statement 3 is incorrect:** World Environment Day has been observed annually on 5th June since 1973, not 1972.

**Topic 349**

**349. Environment conservation initiatives**

- **Great Green Wall Initiative (Global initiative)**
  - Launched in 2007 by the African Union, the game-changing African-led Great Green Wall initiative aims to restore the continent's degraded landscapes and prevent extension of desert.
  - **India based initiative**
1. **Jadav Payeng**
    - Known as the **Forest Man of India**.
    - Spent 30 years of his life planting trees, creating a **real man-made forest of 1360 acres**.
    - **Molai Kathoni forest** is **one-man-made forest** created by **Jadav Payeng**.
    - **Molai forest** is a forest on **Majuli district** in the **Brahmaputra River** near **Kokilamukh, Assam, India**.
  2. **Rajendra Singh**
    - Known as **'waterman of India'**
    - helped villagers take charge of **water management** in their semi-arid area of **Thar Desert**, through the use of **Johad (small ponds)**, rainwater storage tanks, check dams etc
  3. **Popatrao Pawar**
    - Transformed **Hiware Bazar panchayat** in **Ahmednagar district of Maharashtra** from an **impoverished village** into a **model of development** through **soil and water conservation**.



**Q1045.** Consider the following statements regarding the Great Green Wall Initiative and environmental conservation in India:

1. The Great Green Wall Initiative was launched by the African Union in 2007 to combat desertification and restore degraded landscapes in Africa.
  2. Jadav Payeng, known as the Forest Man of India, created the Molai Kathoni forest, a man-made forest in Majuli district, Assam.
  3. Rajendra Singh, the Waterman of India, focused on water conservation in the semi-arid Thar Desert using techniques like Johad and check dams.
- Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2, and 3
- (d) 1 and 3 only

Ans: c

Sol:



- **Statement 1 is correct:** The Great Green Wall Initiative is an African-led project launched in 2007 by the African Union to prevent desert expansion and restore ecosystems.
- **Statement 2 is correct:** Jadav Payeng, the Forest Man of India, created the Molai Kathoni forest on Majuli island, Assam.
- **Statement 3 is correct:** Rajendra Singh worked on water conservation in the Thar Desert, employing Johads and other traditional techniques.

**Q1046.** With respect to environmental conservation efforts in India, consider the following statements:

1. Molai Kathoni forest, created by Jadav Payeng, spans approximately 1,360 acres and is located near Kokilamukh in Assam.
2. Popatrao Pawar transformed the village of Hiware Bazar in Maharashtra into a model of development through extensive soil and water conservation measures.
3. Rajendra Singh's efforts in water conservation have earned him global recognition, including the title "Forest Man of India."

Which of the statements given above is/are incorrect?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2, and 3

Ans: c

**Sol:**

- **Statement 1 is correct:** Molai Kathoni forest, created by Jadav Payeng, covers 1,360 acres and is located near Kokilamukh, Assam.
- **Statement 2 is correct:** Popatrao Pawar successfully transformed Hiware Bazar into a model of development using soil and water conservation techniques.
- **Statement 3 is incorrect:** Rajendra Singh is known as the "Waterman of India," not the "Forest Man of India." The latter title belongs to Jadav Payeng.

**Q1047.** Consider the following individuals and their environmental conservation efforts:

1. Jadav Payeng is known for his work in transforming the Thar Desert into a green space through large-scale tree plantation efforts.

2. The Great Green Wall initiative, launched by the African Union, aims to restore degraded landscapes and prevent desertification across Africa.

3. Popatrao Pawar's efforts in transforming Hiware Bazar in Maharashtra through soil and water conservation measures have turned the village into a model of sustainable development.

Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3 only

Ans: b

**Sol:**

- **Statement 1 is incorrect:** Jadav Payeng's work is specifically focused on creating the Molai Kathoni forest in Assam, not in the Thar Desert.
- **Statement 2 is correct:** The Great Green Wall initiative, launched by the African Union in 2007, aims to combat desertification and restore ecosystems across Africa.
- **Statement 3 is correct:** Popatrao Pawar transformed Hiware Bazar through various soil and water conservation techniques, turning it into a model of sustainable development.

### Topic 350

#### 350. Environment Impact Assessment

- EIA is a tool used to identify the environmental, social and economic impacts of a project prior to decision-making.
- It aims at minimising environmental damages due to development projects.
- A method to implement the concept of sustainable development.

#### Environment Impact Assessment provisions in India

- As per Environment (Protection) Act, 1986, which prevents industrial and infrastructural projects from being approved without proper oversight.
- It ensures that every project should go through the EIA process for obtaining prior environmental clearance.

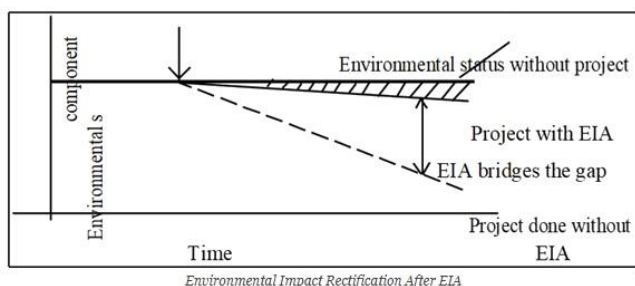
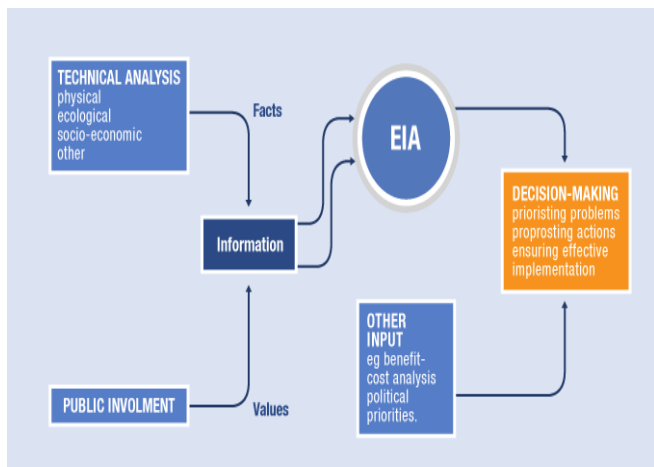
#### EIA covers projects such as-

- mining of coal or other minerals,
- infrastructure development,

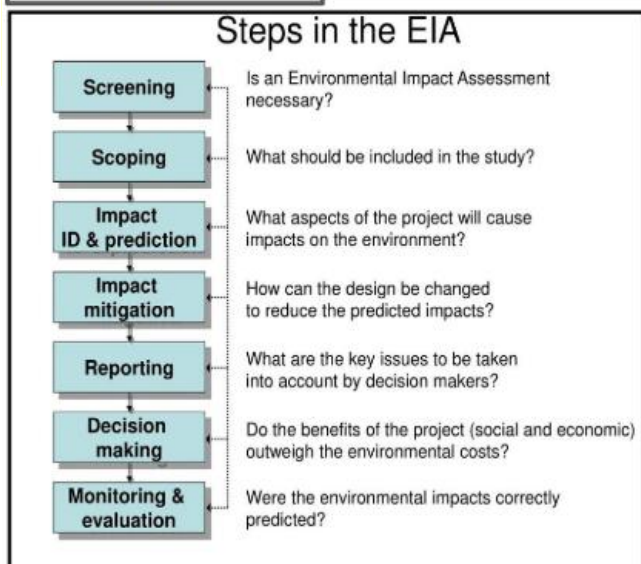




- thermal, nuclear and hydropower projects,
- real estate and other industrial projects.



### Seven steps of EIA



**Q1048.** The environment impact assessment consists of number of steps with each step equally important in determining the overall performance of the project. Arrange the following steps in correct chronological order:

1. Scoping.

2. Impact-analysis.
  3. Screening.
  4. Mitigation.
- (a) 1, 2, 3, 4  
(b) 4, 3, 2, 1  
(c) 3, 2, 4, 1  
(d) 3, 1, 2, 4

Ans: d

**Sol:** The Environment Impact Assessment (EIA) process generally follows this order:

1. Screening (3): This is the initial step where it is determined whether a project needs an EIA or if it qualifies for a simplified process based on its type, size, or location.
2. Scoping (1): This step involves identifying the key environmental issues that need to be addressed during the EIA process, determining the scope of the assessment.
3. Impact-analysis (2): This step involves evaluating the potential environmental impacts of the project and their significance.
4. Mitigation (4): After identifying the potential impacts, measures to mitigate or minimize the adverse effects are proposed.

**Q1049.** Who has the responsibility to provide notice for public hearing under Environment Impact Assessment (EIA)?

- (a) District Collector  
(b) Gram Panchayats  
(c) State Pollution Control Board  
(d) Forest Advisory Committee

Ans: c

**Sol:** Under the Environment Impact Assessment (EIA) process, the State Pollution Control Board (SPCB) has the responsibility to provide notice for public hearings. The purpose of the public hearing is to involve the local communities, stakeholders, and the general public in the assessment process, allowing them to raise concerns or give feedback on the proposed project.

**Q1050.** Consider the following statements:

1. The Ministry of Environment, Forest & Climate Change (MoEF&CC) is responsible for managing India's environmental and forest policies excluding the Coastal Regulatory Zone.



2. The Environment Impact Assessment (EIA) Notification, 2006, aims to regulate different development projects in the country according to their potential environmental impacts.

3. The Central Government has the authority under the Environment (Protection) Act, 1986 to issue Coastal Regulation zones.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three statements
- (d) None of the statements

Ans: b

**Sol:**

- **Statement 1 is incorrect.** The Ministry of Environment, Forest & Climate Change (MoEF&CC) is indeed responsible for managing India's environmental and forest policies, but it also oversees the Coastal Regulation Zone (CRZ) through the CRZ Notification. Hence, the statement about MoEF&CC excluding the Coastal Regulation Zone is incorrect.
- **Statement 2 is correct.** The Environment Impact Assessment (EIA) Notification, 2006, regulates the environmental clearance process for different development projects in India, ensuring they are assessed based on their potential environmental impacts.
- **Statement 3 is correct.** Under the Environment (Protection) Act, 1986, the Central Government does have the authority to issue regulations concerning the Coastal Regulation Zones (CRZ).

**Day 36**

**Topic 351**

### 351. Mitigation vs Adaptation

- **Two approaches** in principle to deal with **climate change** are **Mitigation vs Adaptation**.

#### Climate change mitigation

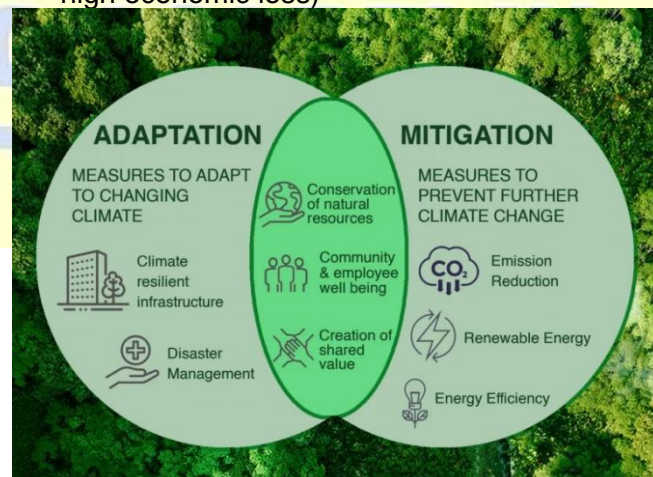
- It means avoiding and **reducing emissions** of heat-trapping **greenhouse gases** into the atmosphere to prevent the planet from warming to more extreme temperatures.
- **UNFCCC** mainly aims at **mitigation** ie reducing GHGs emission.

#### Climate change adaptation

- It means **altering our behavior**, systems, and—in some cases—ways of life **to protect our families**, our economies, and the environment in which we live from the **impacts of climate change**.

#### Economic Survey 2023-24 on fighting climate change-

1. **1.5- or 2-degree thresholds** are chosen **arbitrarily(mitigation strategy)**
  - They are **not natural thresholds** for climate change.
  - There are **no climate impacts** that get **triggered only** after these **limits are crossed**, and not before.
2. **Equitable society is equally important**
  - It was **possible to imagine** a **warmer world** that was **more equitable** and **resilient** than a world in which the **1.5-degree threshold** was **achieved at all costs**.
3. **Adaptation** and **Mitigation needs to be balanced** (only focus on mitigation may lead to high economic loss)





**Q1051.** Consider the following statements about Climate Change Performance Index (CCPI 2025) report:

1. It was released by German watch, New Climate Institute, and UNEP.
  2. Denmark was ranked 1st in the Climate Change Performance Index (CCPI 2025).
  3. India ranks 10th in this year's CCPI, remaining among the highest performers.
  4. India and the U.K. are the only two G20 countries among the high performers in the CCPI.
- How many of the above statement/s is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

1. It was released by German watch, New Climate Institute, and UNEP.

This statement is **incorrect**. The CCPI 2025 was released by Germanwatch, NewClimate Institute, and Climate Action Network (CAN) International. The United Nations Environment Programme (UNEP) was not involved in its publication.

2. Denmark was ranked 1st in the Climate Change Performance Index (CCPI 2025).

This statement is **incorrect**. In the CCPI 2025, the top three ranks remain vacant as no country performed well enough to achieve an overall 'very high' rating. Denmark is the highest-ranked country, occupying the 4th position.

3. India ranks 10th in this year's CCPI, remaining among the highest performers.

This statement is **correct**. In the CCPI 2025, India is not ranked 10th. The United Kingdom holds the 6th position, and India is not among the top performers.

4. India and the U.K. are the only two G20 countries among the high performers in the CCPI.

The statement is **Correct**. Both India (10th) and the United Kingdom (6th) are among the high performers in the CCPI 2025. No other G20 countries are in the high-performing category.

**Q1052.** Which set of the following gases is most important for greenhouse effect?

- (a) Carbon dioxide, Methane, Chlorine, Nitric oxide.
- (b) Nitric oxide, Methane, Ethane, Chlorfluoro carbons.
- (c) Carbon dioxide, Methane, Nitrous oxide, Water vapour.
- (d) Carbon Monoxide, Sulphur dioxide, Methane, Water vapour

Ans: c

**Sol:** The most important gases responsible for the greenhouse effect are those that can absorb and emit infrared radiation, thus trapping heat in the Earth's atmosphere. The correct set is:

C. Carbon dioxide, Methane, Nitrous oxide, Water vapour.

**Additional Information:**

1. Carbon dioxide (CO<sub>2</sub>): The most significant greenhouse gas due to its abundance and long lifespan in the atmosphere.
2. Methane (CH<sub>4</sub>): A potent greenhouse gas with a much higher warming potential than CO<sub>2</sub>, although present in smaller amounts.
3. Nitrous oxide (N<sub>2</sub>O): A powerful greenhouse gas with significant heat-trapping ability.
4. Water vapour (H<sub>2</sub>O): The most abundant greenhouse gas, though its concentration depends on temperature and other atmospheric processes. It amplifies the greenhouse effect through positive feedback.

**Q1053.** In the context of environment, the term "dirty dozen" refers to

- (a) 12 ozone depleting substances.
- (b) 12 persistent organic pollutants.
- (c) 12 harmful greenhouse gases.
- (d) 12 heavy metals.

Ans: b

**Sol:** The "dirty dozen" is a group of chemicals identified under the Stockholm Convention on Persistent Organic Pollutants as being highly toxic, persistent in the environment, bio accumulative, and capable of long-range environmental transport. These substances pose significant risks to human health and ecosystems.



The original "dirty dozen" includes:

- Aldrin
- Chlordane
- DDT
- Dieldrin
- Endrin
- Heptachlor
- Hexachlorobenzene (HCB)
- Mirex
- Toxaphene
- Polychlorinated biphenyls (PCBs)
- Dioxins
- Furans

These chemicals were targeted for elimination or severe restriction globally under the Stockholm Convention.



**Q1054.** Which of the following functions as the Central Coordinating Authority for response to Oil spills in Indian waters.

- (a) Society of Integrated Coastal Management (SICOM).
- (b) Indian Coast Guard (ICG).
- (c) National Centre for Sustainable Coastal Management (NCSCM)
- (d) Indian Navy (IN).

Ans: b

**Sol:** The Indian Coast Guard (ICG) is the designated Central Coordinating Authority for responding to oil spills in Indian waters. It is responsible for:

- Preventing and controlling marine pollution.
- Coordinating responses to oil spills under the National Oil Spill Disaster Contingency Plan (NOS-DCP).
- Conducting regular drills and exercises to ensure preparedness for oil spill emergencies.

The other options:

1. Society of Integrated Coastal Management (SICOM): Primarily focuses on promoting sustainable coastal management practices in India.
2. National Centre for Sustainable Coastal Management (NCSCM): Works on research and advisory services related to coastal and marine ecosystems.
3. Indian Navy (IN): Has a role in maritime security but is not the primary agency for oil spill response.

### Topic 352

#### 352. Oil spill near Philippines

- **Sinking** of the **oil tanker MT Terra Nova** led to **massive oil spill** in **South China Sea**.

#### How do oil spills impact the environment?

1. **Disrupts photosynthesis process**
2. Due to its **lighter density compared to water**, it forms a layer on top surface.
3. This obstructs sunlight and disrupts photosynthesis in marine plants (microscopic algae) and phytoplankton, which are crucial for oxygen production.
4. **Disrupts food chain**
5. The **microscopic algae (plants in ocean)** are consumed by fish and other marine animals, and form the base of multiple food chains.
6. **Toxic exposure** to marine animals causing **bioaccumulation**
7. **Oil coating the feathers of birds** leading to **drowning**





**Q1055.** Recently, 'oilzapper' was in the news. What is it?

- (a) It is the latest technology to control the accidentally caused flames from oil wells
- (b) It is a genetically engineered high biofuel yielding maize variety.
- (c) It is an eco-friendly technology for the remediation of oil sludge and oil spills.
- (d) It is the latest technology developed for under-sea oil exploration

Ans: c

**Sol:** Oilzapper is a bioremediation technology that uses a combination of hydrocarbon-degrading bacteria to clean up oil spills and oil sludge. These bacteria break down hydrocarbons present in the oil into less harmful substances like carbon dioxide and water. It is considered an eco-friendly and effective method for mitigating the environmental impact of oil contamination.

The technology was developed in India by the TERI (The Energy and Resources Institute) in collaboration with the Oil and Natural Gas Corporation (ONGC).

**Q1056.** The bird that was affected by an oil spill in Kosasthalaiyar river of Tamil Nadu in December 2023:

- (a) Spot-billed Pelican  
(b) Flamingo  
(c) Macaw  
(d) Pigeon

Ans: a

**Sol:** In December 2023, an oil spill in the Kosasthalaiyar River, Tamil Nadu, severely impacted local wildlife, particularly the Spot-billed Pelican (*Pelecanus philippensis*). These pelicans, which feed by diving for fish, became coated in oil, impairing their ability to fly and maintain buoyancy. Rescue operations led to the rehabilitation of several affected pelicans.

- **Wildlife Trust of India**  
Other bird species, including Painted Storks, Lesser Cormorants, and Black-winged Stilts, were also affected by the spill.
- **The New Indian Express**  
The incident highlighted the vulnerability of aquatic birds to environmental disasters and underscored the importance of rapid response

and rehabilitation efforts to mitigate ecological damage.

## Topic 353

### 353. Bioaccumulation and Important terms

### Bioaccumulation:

- The gradual **build up of a substance** (usually toxic chemicals) **in an organism over time**, typically because the substance is absorbed faster than it is excreted.
- Eg **Mercury accumulation in fish** over their lifespan.

### **Biomagnification:**

- The process by which the concentration of a toxic substance increases as it **moves up the food chain.**
- Eg DDT in birds of prey (e.g., eagles), leading to reproductive issues like eggshell thinning.

**Bioconcentration:**

- The process by which a **substance builds up in an organism** directly from its **environment** (e.g., water or air), not through food.
- Example: Fish absorbing PCBs (Polychlorinated Biphenyls) directly from contaminated water.

## Biodegradation

- The natural breakdown of organic substances by microorganisms like bacteria or fungi.
- Reduces bioaccumulation risks.
- Oil spills in oceans being broken down by oil-eating bacteria.

## Bioremediation



The **deliberate use of microorganisms** or plants to clean up contaminated environments (soil, water, air).



**Q1057.** The intake and retention of a substance in an organism entirely by respiration from water in aquatic ecosystems or from air in terrestrial ones is called as

- (a) Bioaccumulation
- (b) Biomagnification
- (c) Bioconcentration
- (d) Eutrophication

Ans: c

**Sol:** Bioconcentration refers to the process where an organism absorbs and retains a substance (such as a chemical or pollutant) directly from the surrounding environment (water in aquatic ecosystems or air in terrestrial ecosystems) through respiration, skin, or other interfaces. This happens without the organism consuming contaminated food or water.

**Q1058.** It involves the introduction of a group of natural microbial strains or a genetically engineered strain to treat contaminated soil or water. It is used in municipal waste water treatment to restart activated sludge bioreactors. Identify X.

- (a) Bioventing
- (b) Bioaccumulation
- (c) Bioaugmentation
- (d) Biosparging

Ans: c

**Sol:** Bioaugmentation involves the introduction of natural or genetically engineered microbial strains into contaminated environments (soil or water) to enhance the degradation of pollutants. This technique is widely used in:

- Treating contaminated soil or water.
- Municipal wastewater treatment to restart or improve the efficiency of activated sludge bioreactors.
- Bioremediation efforts to break down specific contaminants like hydrocarbons or pesticides.

**Q1059.** In the context of solving pollution problems, what is/are the advantage/advantages of bioremediation technique?

1. It is a technique for cleaning up pollution by enhancing the same biodegradation process that occurs in nature.

2. Any contaminant with heavy metals such as cadmium and lead can be readily and completely treated by bioremediation using microorganisms.

3. Genetic engineering can be used to create microorganisms specifically designed for bioremediation.

Select the correct answer using the code given below:

- (a) 2 and 3 only
- (b) 1 and 3 only
- (c) 1 only
- (d) 1, 2, and 3

Ans: b

**Sol:** Bioremediation is a technique that uses microorganisms such as bacteria, fungi, and algae to degrade or remove pollutants from contaminated sites. Some advantages of bioremediation in solving pollution problems include:

1. It is a technique for cleaning up pollution by enhancing the same biodegradation process that occurs in nature. Bioremediation is a natural and cost-effective way to clean up contaminated sites. Microorganisms that are naturally present in the environment are utilized to degrade pollutants, which means that bioremediation is a sustainable approach that has minimal impact on the environment.
2. Any contaminant with heavy metals such as cadmium and lead can be readily and completely treated by bioremediation using microorganisms. This statement is **incorrect**. Bioremediation is effective for treating organic pollutants such as hydrocarbons, pesticides, and solvents. However, heavy metals cannot be biodegraded by microorganisms. Instead, other techniques such as chemical precipitation or ion exchange must be used to remove heavy metals from contaminated sites.
3. Genetic engineering can be used to create microorganisms specifically designed for bioremediation. Genetic engineering can be used to modify microorganisms to enhance their ability to degrade specific pollutants. For example, scientists have engineered bacteria that can break down plastic waste. This approach has the potential to create highly efficient and specialized microorganisms for bioremediation.



In conclusion, the correct answer is option (b) 1 and 3 only. Bioremediation is a natural and cost-effective way to clean up contaminated sites, and genetic engineering can be used to create specialized microorganisms for bioremediation. However, heavy metals cannot be biodegraded by microorganisms, so bioremediation is not effective for treating heavy metal contamination.

### Topic 354

#### 354. PM JI-VAN yojana

#### Pradhan Mantri Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran

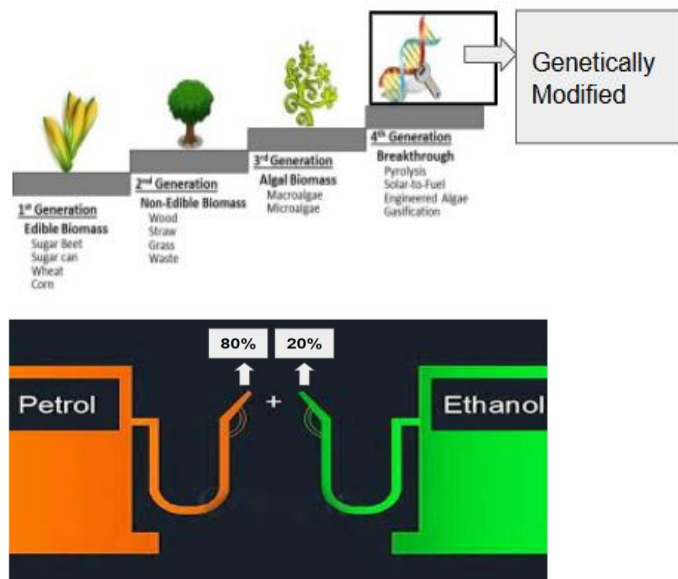
- Aims to promote the production-**2G ethanol**
- **Public sector undertakings (PSUs), private industries, and entrepreneurs** are eligible to set up **2G ethanol plants** under this scheme.
- The scheme provides financial assistance in the form of **Viability Gap Funding (VGF)**.

#### Viability Gap Funding (VGF)

- It is a type of **Public Private Partnerships (PPP)**.
- Under this **one-time grant is provided** by the government to support infrastructure projects that are **economically justified** but fall short of **financial viability**.

#### Ethanol blending policy

- Production of **E-20 petrol by 2025**.
- It means **blending 20 per cent ethanol** in petrol by **2025**.



**Q1060.** With reference to Pradhan Mantri Jaiv Indhan Vatavaran Anukool Fasal Awashesh Nivaran (PM-JI-VAN) Yojana, consider the following statements:

1. It aims to create an ecosystem for setting up commercial projects and boost Research and Development in the second-generation (2G) ethanol sector.
2. Municipal solid waste and fossil fuel waste are primarily targeted for ethanol production under the PM-JI-VAN Yojana.

Which of the statement(s) given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: a

**Sol:**

- **Statement 1 is correct.** The PM-JI-VAN Yojana provides financial support to set up Second Generation (2G) ethanol projects using lignocellulosic biomass and other renewable feedstocks. It aims to enhance commercial viability and promote R&D for developing and adopting technologies in the 2G ethanol sector. India's first 2G ethanol plant was established by Indian Oil Corporation at Panipat.
- **Statement 2 is incorrect.** The primary focus of the PM-JI-VAN Yojana is on using lignocellulosic biomass and other renewable feedstocks, such as agricultural residues, forestry waste, and non-food biofuel feedstocks, for ethanol production. The scheme provides financial support through Viability Gap Funding (VGF) to make 2G ethanol projects economically viable.

**Q1061.** With reference to polyethylene terephthalate, the use of which is so widespread in our daily lives, consider the following statements:

1. Its fibres can be blended with wool and cotton fibres to reinforce their properties.
2. Containers made of it can be used to store any alcoholic beverage.
3. Bottles made of it can be recycled into other products.





4. Articles made of it can be easily disposed of by incineration without causing greenhouse gas emissions.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4
- (c) 1 and 4
- (d) 2 and 3

Ans: a

**Sol:** Its fibres can be blended with wool and cotton fibres to reinforce their properties.

- **Statement 1 is correct.** Polyethylene terephthalate (PET) fibres can indeed be blended with wool and cotton to improve the durability, wrinkle resistance, and moisture-wicking properties of these natural fibres. Containers made of it can be used to store any alcoholic beverage.

- **Statement 2 is incorrect.** PET containers are commonly used for non-alcoholic beverages like water, soft drinks, and juices. However, they are not suitable for storing alcoholic beverages, especially those with high alcohol content, as alcohol can degrade the plastic. Bottles made of it can be recycled into other products.

**Statement 3 is correct.** PET is one of the most widely recycled plastics. Bottles made of PET can be recycled into products like clothing, carpeting, and new plastic containers.

- Articles made of it can be easily disposed of by incineration without causing greenhouse gas emissions.

**Statement 4 is incorrect.** While PET can be incinerated for energy recovery, the process does release carbon dioxide (CO<sub>2</sub>) and other greenhouse gases.

Therefore, it is not entirely free from greenhouse gas emissions during incineration.

**Q1062.** Lead, ingested or inhaled, is a health hazard. After the addition of lead to petrol has been banned, what still are the sources of lead poisoning?

1. Smelting units
2. Pens and pencils
3. Paints
4. Hair oils and cosmetics

Select the correct answer using the codes given below:

- (a) 1, 2 and 3 only
- (b) 1 and 3 only
- (c) 2 and 4 only
- (d) 1, 2, 3 and 4

Ans: b

**Sol:**

- **Option 1** suggests that smelting units, pens and pencils, and paints are sources of lead poisoning. While smelting units and paints can indeed be sources of lead, pencils no longer use lead.
- **Option 2**, the correct answer, proposes that smelting units and paints are sources of lead poisoning. This is accurate because both contain lead; smelting units as a part of their processing of metals and many paints, particularly older ones, include lead components.
- **Option 3** suggests that pens and pencils, and hair oils and cosmetics are sources of lead poisoning. This is incorrect because neither of these is typically a source of lead.
- **Option 4** claims that all four options are sources of lead poisoning, but as previously discussed, pencils and cosmetics typically don't contain lead and hence, can't be sources of lead poisoning.

### Topic 355

#### 355. Neelakurinji listed in IUCN Red list

##### Habitat

- Montane grasslands at high altitudes (1,340 to 2,600 meters) mainly in the Western Ghats.

##### Blooming Cycle

- Once every 12 years, a phenomenon known as "gregarious blooming."

##### Height

- Typically grows up to 3 meters tall.

##### Ecological Importance

- The flowers attract pollinators like species of insects, birds and provide a food source.

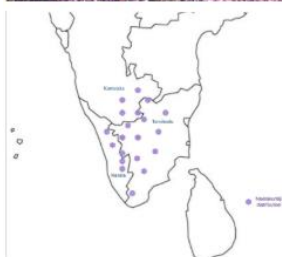
##### Threats

- Threatened mainly due to conversion for tea and softwood plantations, and urbanisation.

##### Current news?



- Neelakurinji has recently been included in the **IUCN Red List** of threatened species under the **Vulnerable category**.



### Distribution of Neelakurinji

**Q1063.** For the first time, Neelakurinji (*Strobilanthes kunthiana*), the purplish flowering shrub, known for blooming once in 12 years, has been included in the IUCN's Red List of threatened species. It has been listed under which of the following category?

- (a) Near Threatened  
(b) Vulnerable  
(c) Critically Endangered  
(d) Endangered

Ans: b

**Sol:** Neelakurinji has recently been included in the IUCN Red List of threatened species under the Vulnerable category.

**Q1064.** Consider the following about Neelakurinji flowers:

1. It is the famed shrub found in Western Ghats, covering the slopes of Tamil Nadu and Karnataka only.
  2. These flowers are said to grow at an altitude of less than 1300 meters and it blooms once in 12 years.
  3. There are 250 variations of these flowers found across the world, of which 46 variations are seen in India.
  4. These flowers also attract bees that pollinate, it leads to extraction of a rare kind of honey.
- Which of the above statement/ statements is/are correct?

- (a) 3 and 4 only  
(b) 1 and 2 only  
(c) 1 and 3 only  
(d) 2 and 4 only

Ans: a

**Sol:**

1. It is the famed shrub found in Western Ghats, covering the slopes of Tamil Nadu and Karnataka only.

- **This statement is incorrect.** Neelakurinji is found in the Western Ghats across multiple states, including Kerala, Tamil Nadu, and Karnataka. Therefore, its distribution is not limited to just Tamil Nadu and Karnataka.

2. These flowers are said to grow at an altitude of less than 1300 meters, and it blooms once in 12 years.

- **This statement is incorrect.** Neelakurinji typically grows at altitudes between 1,340 and 2,600 meters. The claim that they grow at altitudes of less than 1,300 meters is inaccurate. However, it is correct that Neelakurinji blooms once every 12 years.

3. There are 250 variations of these flowers found across the world, of which 46 variations are seen in India.

- **This statement is correct.** Globally, there are about 250 species of Neelakurinji, and approximately 46 of these species are found in India.

4. These flowers also attract bees that pollinate, leading to the extraction of a rare kind of honey.

- **This statement is correct.** The mass flowering of Neelakurinji attracts bees, leading to the production of a rare and valuable honey known as Kurinjithen. This honey is considered special due to its unique flavor and limited availability, as it can only be harvested during the blooming period.

**Q1065.** Which of the following statement/s is/are incorrect about the Kasturirangan Committee?

1. The Committee was set up in 2010 to come up with the Karnataka Wildlife Action Plan.
2. The Committee recommended the importance of involving local communities in environmental management, seeking a balance between development and conservation.



3. The Karnataka Government has supported the recommendations of the report.

4. After the committee's report, a Gadgil Committee on Western Ghats was prepared.

- (a) 1, 2 and 3
- (b) 2, 3 and 4
- (c) 1, 3 and 4
- (d) 1, 2, and 4

Ans: c

**Sol:**

1. The Committee was set up in 2010 to come up with the Karnataka Wildlife Action Plan.

**Incorrect.** The Kasturirangan Committee was not set up for the Karnataka Wildlife Action Plan. It was set up in 2012 by the Ministry of Environment, Forest and Climate Change (MoEFCC) to look into the protection of the Western Ghats and provide recommendations for their preservation.

2. The Committee recommended the importance of involving local communities in environmental management, seeking a balance between development and conservation.

**Correct.** One of the key recommendations of the Kasturirangan Committee was to ensure local community participation in conservation and to find a balance between development and environmental protection in the Western Ghats.

3. The Karnataka Government has supported the recommendations of the report.

**Incorrect.** The Karnataka Government has had reservations about the recommendations of the Kasturirangan Committee, particularly regarding the declared ecologically sensitive areas. The government was concerned about the impact of these recommendations on local development and livelihood.

4. After the committee's report, a Gadgil Committee on Western Ghats was prepared.

**Incorrect.** The Gadgil Committee was actually set up before the Kasturirangan Committee, in 2010, to assess the ecological status of the Western Ghats. Kasturirangan's committee was an update and revision of the Gadgil Committee's recommendations.

### Topic 356

#### 356. Swallowtail butterflies

- large and diverse group of butterflies.

- They are notable for their distinctive tail-like extensions on the hindwings, which resemble the tails.
- India hosts 77 of the 573 swallowtail butterfly species.
- IUCN designated the northeastern part India (especially Assam), where 69 species have been recorded, a 'swallowtail-rich zone' under the Swallowtail Conservation Action Plan."
- Swallowtail butterflies are indicator species.

#### Current context

- IUCN has expressed concerns over the overexploitation of 25 species of Citrus plants valued for their medicinal properties.
- This threatens the swallowtail butterflies in the forest habitats of a part of Assam.
- Assam often referred to as the "citrus belt of the world" for its richness of Citrus fruits like Kaji Nemu and Gul Nemu lemons.



The Paris peacock (Papilio paris) is a species of swallowtail butterfly found in India's northeast. SPECIAL ARRANGEMENT

- Indicator species
- Those species whose abundance and health reflect the broader health of the environment they inhabit.

**Q1066.** Which of the following statements about swallowtail butterflies is/are correct?

1. Swallowtail butterflies are named for the tail-like extensions found on their forewings.
  2. India hosts over 15% of the total global swallowtail butterfly species.
  3. The northeastern part of India, particularly Assam, has been recognized by IUCN as a 'swallowtail-rich zone.'
- (a) Only 1 and 2 are correct.
  - (b) Only 2 and 3 are correct.
  - (c) Only 3 is correct.
  - (d) All statements are correct.

Ans: b





**Sol:**

- **Statement 1: Incorrect.** Swallowtail butterflies are notable for the tail-like extensions on their *hindwings*, not forewings.
- **Statement 2: Correct.** India hosts 77 species of swallowtail butterflies, which is approximately 13.4% of the global total of 573 species, rounding up to over 15%.
- **Statement 3: Correct.** IUCN designated the northeastern part of India, especially Assam, as a 'swallowtail-rich zone' under the Swallowtail Conservation Action Plan.

**Q1067.** Which of the following statements regarding threats to swallowtail butterflies in Assam is/are correct?

1. Overexploitation of Citrus plants valued for medicinal properties poses a threat to swallowtail butterflies.
  2. Assam is often referred to as the "citrus belt of the world" due to its diversity of Citrus plants.
  3. The Swallowtail Conservation Action Plan highlights the impact of habitat loss due to deforestation as a primary threat to these butterflies.
- (a) Only 1 and 2 are correct.  
 (b) Only 2 and 3 are correct.  
 (c) Only 1 and 3 are correct.  
 (d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Correct.** Overexploitation of 25 species of Citrus plants has been highlighted by IUCN as a threat to swallowtail butterflies in Assam.
- **Statement 2: Correct.** Assam is indeed referred to as the "citrus belt of the world" for its richness in Citrus fruits like Kaji Nemu and Gul Nemu lemons.
- **Statement 3: Incorrect.** The Swallowtail Conservation Action Plan specifically addresses threats like overexploitation of Citrus plants but does not primarily highlight deforestation in the given context.

**Q1068.** Which of the following statements is/are incorrect regarding swallowtail butterflies?

1. Swallowtail butterflies serve as indicator species for their ecosystems.

2. The richness of Citrus plants in Assam has no direct connection to the survival of swallowtail butterflies.

3. Assam is home to 69 out of the 573 global swallowtail butterfly species.

- (a) Only 1 is incorrect  
 (b) Only 2 is incorrect  
 (c) Only 2 and 3 are incorrect  
 (d) All statements are correct

Ans: b

**Sol:**

- **Statement 1: Correct.** Swallowtail butterflies are indeed indicator species, reflecting the health of their ecosystems.
- **Statement 2: Incorrect.** The richness of Citrus plants in Assam is directly connected to the survival of swallowtail butterflies, as these plants serve as hosts and food sources for their larvae.
- **Statement 3: Correct.** Assam is home to 69 species of swallowtail butterflies, as recorded under the Swallowtail Conservation Action Plan.

### Topic 357

#### 357. Living Planet Report 2024

##### Living Planet Report

- Published by the international non-profit **World Wide Fund for Nature.**
- It is published every **2nd year.**
- Prepared in **collaboration** between **WWF International** and the **Zoological Society of London.**

##### Current news?

- **Living Planet Report 2024,** released **recently.**

##### Findings of Living Planet Report 2024

- **73% decline** in monitored **wildlife populations** has been observed between **1970 and 2020.**
- The report is based on **Living Planet Index (LPI).**
- The LPI, provided by the **Zoological Society of London,** tracked **35,000 population** trends across **5,495 species** **from 1970 to 2020.**

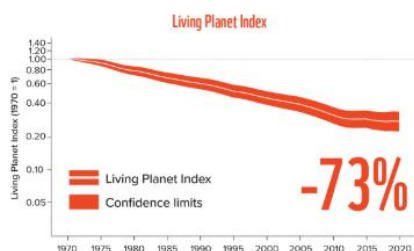
##### Main cause behind decline:



- Habitat loss, degradation, over-exploitation, invasive species, diseases, and food consumption patterns.

### Recommendation

- The report emphasizes the need for a **“collective effort”** over the **next five years** to tackle the **interconnected crises** of **climate change** and **biodiversity loss**.



**Q1069.** Which of the statement/s are correct?

- Global Resources Outlook was published by the International Energy Agency.
  - Global Waste Management Outlook 2024 was published by the UNEP and International Solid Waste Association.
  - Living Planet report is a biennial assessment by conservation organisation of the World Wildlife Fund (WWF).
- (a) 1 only  
 (b) 1 and 2 only  
 (c) 2 and 3 only  
 (d) 3 only

Ans: c

**Sol:**

- Statement 1: Global Resources Outlook 2024 was published by the International Energy Agency.
  - Incorrect.** The Global Resources Outlook 2024 was published by the United Nations Environment Programme (UNEP) through its International Resource Panel, not by the International Energy Agency.  
United Nations Environment Programme

## ENVIRONMENT – CURRENT AFFAIRS

- Statement 2: Global Waste Management Outlook 2024 was published by UNEP and International Solid Waste Association.
  - Correct.** The Global Waste Management Outlook 2024 was jointly published by the United Nations Environment Programme (UNEP) and the International Solid Waste Association (ISWA).  
United Nations Environment Programme
- Statement 3: Living Planet Report is a biennial assessment by conservation organisation of the World Wildlife Fund (WWF).
  - Correct.** The Living Planet Report is a biennial assessment published by the World Wildlife Fund (WWF) that evaluates the state of the world's wildlife populations and ecosystems.

**Q1070.** Which of the following statements regarding the Living Planet Report (LPR) is/are correct?

- The Living Planet Report is published annually by the World-Wide Fund for Nature (WWF).
  - The report is prepared in collaboration between WWF International and the Zoological Society of London.
  - The findings of the Living Planet Report 2024 indicate a 73% decline in monitored wildlife populations between 1970 and 2020.
- (a) Only 1 and 2 are correct  
 (b) Only 2 and 3 are correct  
 (c) Only 1 and 3 are correct  
 (d) All statements are correct

Ans: b

**Sol:**

- Statement 1: **Incorrect.** The Living Planet Report is published every two years, not annually.
- Statement 2: **Correct.** The report is prepared collaboratively by WWF International and the Zoological Society of London.
- Statement 3: **Correct.** The Living Planet Report 2024 highlights a 73% decline in monitored wildlife populations between 1970 and 2020.

**Q1071.** Which of the following statements about the Living Planet Report 2024 is/are incorrect?



1. The Living Planet Index (LPI) tracked 35,000 population trends across 5,495 species from 1970 to 2020.
  2. Over-exploitation and food consumption patterns are among the key causes of wildlife population decline.
  3. The report recommends a “collective effort” over the next decade to address biodiversity loss and climate change.
  4. The Zoological Society of London is responsible for providing the Living Planet Index.
- (a) Only 1 and 3 are incorrect  
(b) Only 3 is incorrect  
(c) Only 2 and 4 are incorrect  
(d) All statements are correct

Ans: b

**Sol:**

- **Statement 1: Correct.** The Living Planet Index tracked 35,000 population trends across 5,495 species between 1970 and 2020.
- **Statement 2: Correct.** Over-exploitation and food consumption patterns are among the main drivers of wildlife population decline.
- **Statement 3: Incorrect.** The report emphasizes a collective effort over the next *five* years, not a decade, to address biodiversity loss and climate change.
- **Statement 4: Correct.** The Zoological Society of London is indeed responsible for providing the Living Planet Index.

### Topic 358

#### 358. Geoengineering for combating climate change

- Geoengineering refers to **large-scale interventions** in **Earth's natural systems** aimed at combating climate change, particularly global warming.

There are **two primary categories of geoengineering**:

##### 1. **Carbon Dioxide Removal (CDR)**

- Afforestation
- Carbon sequestration like carbon agriculture

##### 2. **Solar Radiation Management (SRM)**

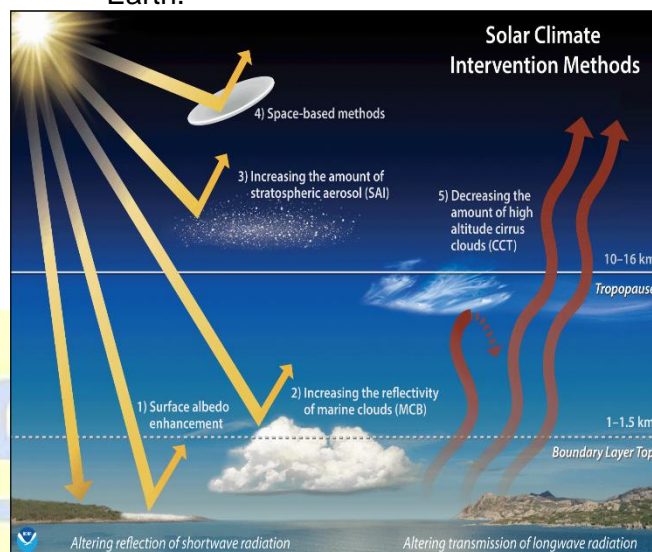
It can be done in several ways-

- a. **Stratospheric aerosol injection:** Spraying fine particles like sulfur into the stratosphere to reflect sunlight.

- b. **Cloud brightening:** Increasing the reflectivity of clouds by spraying seawater or other substances into them.
- c. **Space-based reflectors:** Placing mirrors or reflective objects in space to block some of the sunlight.

#### Current news?

- A **study** published in **Geophysical Research Letters** suggests that **diamonds could be more effective than sulfur** in reflecting sunlight and cooling the Earth.



**Q1072.** Which of the following statements regarding geoengineering is/are correct?

1. Carbon Dioxide Removal (CDR) involves methods like afforestation and carbon agriculture to combat climate change.
  2. Solar Radiation Management (SRM) includes techniques such as stratospheric aerosol injection and space-based reflectors.
  3. Cloud brightening involves spraying fine particles like sulfur into the stratosphere to reflect sunlight.
- (a) Only 1 and 2 are correct





- (b) Only 2 and 3 are correct  
 (c) Only 1 is correct  
 (d) All statements are correct

Ans: a

**Sol:**

- **Statement 1: Correct.** Carbon Dioxide Removal (CDR) methods include afforestation and carbon agriculture to remove CO<sub>2</sub> from the atmosphere.
- **Statement 2: Correct.** Solar Radiation Management (SRM) includes stratospheric aerosol injection, cloud brightening, and space-based reflectors to reflect sunlight and reduce global warming.
- **Statement 3: Incorrect.** Cloud brightening involves increasing cloud reflectivity by spraying seawater or other substances into clouds, not spraying sulfur into the stratosphere.

**Q1073.** Which of the following statements about geoeengineering techniques is/are incorrect?

1. Stratospheric aerosol injection involves the use of mirrors or reflective objects placed in space to block sunlight.
  2. A study in *Geophysical Research Letters* suggests that diamonds could be more effective than sulfur for stratospheric aerosol injection.
  3. Solar Radiation Management (SRM) directly removes carbon dioxide from the atmosphere to combat climate change.
- (a) Only 1 and 3 are incorrect.  
 (b) Only 2 is incorrect.  
 (c) Only 1 and 2 are incorrect.  
 (d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Incorrect.** Stratospheric aerosol injection involves spraying fine particles like sulfur into the stratosphere to reflect sunlight, not placing mirrors in space.
- **Statement 2: Correct.** The study suggests diamonds could be more effective than sulfur for reflecting sunlight and cooling the Earth.
- **Statement 3: Incorrect.** Solar Radiation Management (SRM) does not remove CO<sub>2</sub>; it focuses on reflecting sunlight to reduce global warming.

**Q1074.** Which of the following statements is/are correct regarding the study published in *Geophysical Research Letters*?

1. The study explores the potential of using diamonds instead of sulfur for stratospheric aerosol injection.
  2. Diamonds are considered more effective than sulfur due to their higher reflectivity and lesser environmental impact.
  3. Stratospheric aerosol injection using diamonds would eliminate the need for other Solar Radiation Management techniques.
- (a) Only 1 is correct.  
 (b) Only 1 and 2 are correct.  
 (c) Only 2 and 3 are correct.  
 (d) All statements are correct.

Ans: b

**Sol:**

- **Statement 1: Correct.** The study examines the use of diamonds as an alternative to sulfur for stratospheric aerosol injection.
- **Statement 2: Correct.** Diamonds are more reflective and may have fewer environmental side effects compared to sulfur.
- **Statement 3: Incorrect.** Using diamonds for stratospheric aerosol injection does not eliminate the need for other Solar Radiation Management techniques; it is one of several possible approaches.

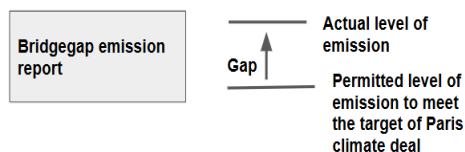
### Topic 359

#### 359. Emission Gap Report

- report from **UNEP**
  - assesses the gap between **anticipated emissions by 2030** and levels **consistent with the 1.5°C and 2°C targets** of the Paris Agreement.
  - This is also known as **Bridge gap** report
  - **United Nations Environment Programme**
  - It is an **international environmental authority** created after **Stockholm conference** on environment in 1972.
  - It is **headquartered in Nairobi, Kenya**
- Current news?**
- Annual Emission Gap Report has been **released by UNEP.**
  - The report, titled **“No More Hot Air... Please!”**



- The report emphasizes the need for significantly stronger climate action plans from countries.



**Q1075.** Which of the following statements regarding the Emission Gap Report is/are correct?

1. The Emission Gap Report assesses the difference between current emissions and levels consistent with the 1.5°C and 2°C targets of the Paris Agreement.
  2. It is published by the United Nations Environment Programme (UNEP), headquartered in Nairobi, Kenya.
  3. The report emphasizes bridging the gap by 2050 through stronger long-term climate commitments.
- (a) Only 1 and 2 are correct  
(b) Only 2 and 3 are correct  
(c) Only 1 and 3 are correct  
(d) All statements are correct

Ans: a

**Sol:-**

- **Statement 1: Correct.** The Emission Gap Report evaluates the gap between projected emissions by 2030 and the levels needed to meet the Paris Agreement's 1.5°C and 2°C targets.
- **Statement 2: Correct.** The report is published by UNEP, headquartered in Nairobi, Kenya.
- **Statement 3: Incorrect.** The report emphasizes stronger climate action plans in the near term, particularly by 2030, rather than focusing solely on 2050.

**Q1076.** Which of the following statements about the United Nations Environment Programme (UNEP) is/are incorrect?

1. UNEP was established after the Stockholm Conference on the Human Environment in 1972.
  2. UNEP serves as an international environmental authority and is headquartered in Geneva, Switzerland.
  3. The UNEP's Emission Gap Report is also known as the Bridge Gap Report.
- (a) Only 1 is incorrect  
(b) Only 2 is incorrect  
(c) Only 3 is incorrect  
(d) All statements are correct

Ans: b

**Sol:**

- **Statement 1: Correct.** UNEP was established after the Stockholm Conference on the Human Environment in 1972.
- **Statement 2: Incorrect.** UNEP is headquartered in Nairobi, Kenya, not Geneva, Switzerland.
- **Statement 3: Correct.** The Emission Gap Report is also referred to as the Bridge Gap Report.

**Q1077.** Which of the following statements is/are correct regarding the 2024 Emission Gap Report titled “No More Hot Air... Please!”?

1. The report highlights the need for stronger climate action plans to bridge the emission gap by 2030.
  2. It emphasizes the role of international collaboration in achieving the 1.5°C and 2°C targets of the Paris Agreement.
  3. The report recommends phasing out all fossil fuel use globally by 2030 to meet climate targets.
- (a) Only 1 and 2 are correct.  
(b) Only 2 and 3 are correct.  
(c) Only 1 is correct.  
(d) All statements are correct.

Ans: a

**Sol:-**

- **Statement 1: Correct.** The report stresses the urgency of implementing stronger climate



action plans by 2030 to bridge the emission gap.

- **Statement 2: Correct.** The report underscores the importance of international collaboration in meeting the Paris Agreement targets.
- **Statement 3: Incorrect.** While phasing out fossil fuels is critical, the report does not mandate a complete global phase-out by 2030; it focuses on strengthening commitments and actions aligned with the Paris Agreement goals.

### Topic 360

## 360. Flue Gas Desulphurisation

### What is Flue Gas Desulphurisation?

- It is a set of **technologies used** to **remove sulfur dioxide (SO<sub>2</sub>)** from **exhaust flue gases** of **fossil-fuel based thermal power plants**.

### Harmful impacts of Sulphur dioxide?

- **Health impact-** Respiratory diseases like asthma.
- **Environmental-** Causes acid rain.

### How Flue-gas desulfurization (FGD) works?

- Wet scrubbing using a **slurry of alkaline sorbent (CaOH)**.

### Current news?

- **New IIT-D study** has **challenged need** for **flue gas desulfurization (FGD)** in thermal power plants.
- The study states that the SO<sub>2</sub> emissions from coal-fired TPP stacks have **no significant impact** on ambient air quality **beyond a 60-kilometre radius** from the power plant.



**Q1078.** Which of the following statements about Flue Gas Desulphurisation (FGD) is/are correct?

1. FGD technologies are used to remove sulfur dioxide (SO<sub>2</sub>) from exhaust flue gases of thermal power plants.
  2. Wet scrubbing in FGD involves the use of an acidic sorbent like sulfuric acid to neutralize SO<sub>2</sub>.
  3. FGD technologies are critical for preventing acid rain caused by sulfur dioxide emissions.
- (a) Only 1 and 2 are correct  
 (b) Only 1 and 3 are correct  
 (c) Only 2 and 3 are correct  
 (d) All statements are correct

Ans: b

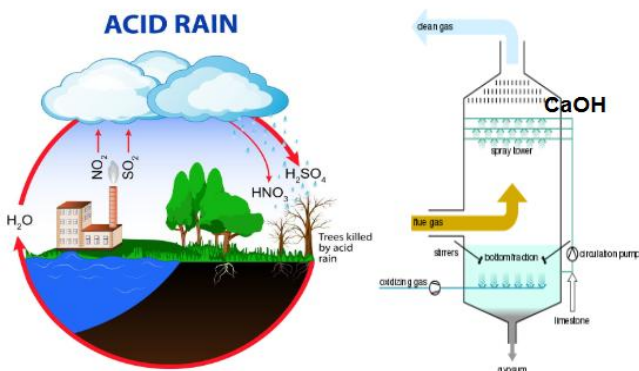
**Sol:**

- **Statement 1: Correct.** FGD is designed to remove sulfur dioxide (SO<sub>2</sub>) emissions from fossil-fuel-based thermal power plants.
- **Statement 2: Incorrect.** Wet scrubbing involves the use of an alkaline sorbent, such as calcium hydroxide (CaOH), not an acidic sorbent like sulfuric acid.
- **Statement 3: Correct.** FGD technologies help reduce SO<sub>2</sub> emissions, which are a major cause of acid rain.

**Q1079.** Which of the following statements regarding the harmful impacts of sulfur dioxide (SO<sub>2</sub>) emissions is/are incorrect?

1. SO<sub>2</sub> emissions contribute to respiratory diseases such as asthma in humans.
  2. SO<sub>2</sub> emissions cause acid rain, which damages ecosystems and infrastructure.
  3. According to a new IIT-D study, SO<sub>2</sub> emissions from thermal power plants significantly impact air quality within a 60-kilometre radius of the plant.
- (a) Only 1 is incorrect  
 (b) Only 3 is incorrect  
 (c) Only 1 and 2 are incorrect  
 (d) All statements are correct.

Ans: b





**Sol:**

- **Statement 1: Correct.** SO<sub>2</sub> emissions are known to cause respiratory diseases like asthma.
- **Statement 2: Correct.** SO<sub>2</sub> contributes to acid rain, which harms ecosystems, soil, and buildings.
- **Statement 3: Incorrect.** The IIT-D study suggests that SO<sub>2</sub> emissions from coal-fired thermal power plants have no significant impact on ambient air quality beyond a 60-kilometre radius.

**Q1080.** Which of the following statements is/are correct regarding the current debate on the need for Flue Gas Desulphurisation (FGD)?

1. An IIT-D study challenges the necessity of FGD in thermal power plants by claiming SO<sub>2</sub> emissions do not significantly affect air quality beyond a 60-kilometre radius.
  2. The study undermines the role of FGD in mitigating the global issue of acid rain.
  3. The findings of the study imply that FGD might be unnecessary for controlling local air quality impacts of thermal power plants.
- (a) Only 1 and 2 are correct  
(b) Only 1 and 3 are correct  
(c) Only 2 and 3 are correct  
(d) All statements are correct.

Ans: b

**Sol:**

- **Statement 1: Correct.** The IIT-D study questions the need for FGD, citing that SO<sub>2</sub> emissions have minimal impact on air quality beyond a 60-kilometre radius.
- **Statement 2: Incorrect.** The study does not directly address the global issue of acid rain, which FGD helps mitigate.
- **Statement 3: Correct.** The study implies that the primary justification for FGD—local air quality improvement—may not hold true in some cases.

**Day 37**

**Topic 361**

**361. International Union for Conservation of Nature**

**IUCN**

- global environmental organisation

- headquartered in Gland, Switzerland
- Created in 1948.
- Observer Status at -United Nations General Assembly

**Functions of IUCN?**

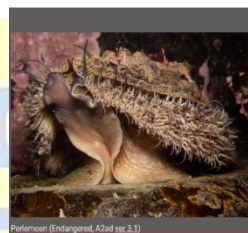
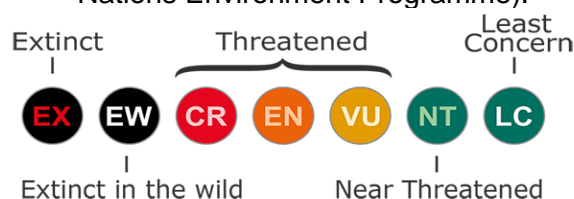
- Prepares the IUCN Red List
- Runs hundreds of conservation projects

**Funding of IUCN?**

- Funded by governments, bilateral and multilateral agencies

**Report**

- Protected Planet Report (IUCN publishes this report in association with United Nations Environment Programme).



#### What is The IUCN Red List?

Established in 1964, The International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global conservation status of animal, fungi and plant species.

The IUCN Red List is a critical indicator of the health of the world's biodiversity. Far more than a list of species and their status, it is a powerful tool to inform and catalyze action for biodiversity conservation and policy change, critical to protecting the natural resources we need to survive. It provides information about range, population size, habitat and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions.

The IUCN Red List Categories and Criteria are intended to be an easily and widely understood system for classifying species at high risk of global extinction. It divides species into nine categories: **Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild and Extinct.**

**Q1081.** With reference to the International Union for Conservation of Nature and Natural Resources (IUCN) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which of the following statements is/are correct?

1. IUCN is an organ of the United Nations and CITES is an international agreement between governments.
2. IUCN runs thousands of field projects around the world to better manage natural environments.
3. CITES is legally binding on the States that have joined it, but this Convention does not take the place of national laws.

Select the correct answer using the code given below.

- (a) 1 only  
(b) 2 and 3 only  
(c) 1 and 3 only



(d) 1, 2 and 3

Ans: b

**Sol:**

- **Statement 1 is incorrect.** The International Union for Conservation of Nature and Natural Resources (IUCN) is not an organ of the United Nations. It is an international organization dedicated to conservation and sustainable use of natural resources.
- **Statement 2 is correct.** The IUCN does run thousands of field projects around the world to better manage natural environments.
- **Statement 3 is also correct.** The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is legally binding on the States that have joined it, but it does not replace national laws.

**Q1082.** The “Red Data Books” published by the International Union for Conservation of Nature and Natural resources (IUCN) contain lists of?

1. Endemic plant and animal species present in the biodiversity hotspots.
2. Threatened plant and animal species.
3. Protected sites for conservation of nature and natural resources in various countries.

Select the correct answer using the codes given below:

- (a) 1 and 3
- (b) 2 only
- (c) 2 and 3
- (d) 3 only

Ans: b

**Sol:** The Red Data Books published by the International Union for Conservation of Nature and Natural Resources (IUCN) contain lists of threatened plant and animal species. These species are categorized according to the level of threat they face, such as critically endangered, endangered, vulnerable, etc. The purpose of these books is to draw attention to the conservation status of these species and to provide a basis for conservation action. The books also include information on the distribution, habitat, ecology, and threats to these species, as well as conservation measures that can be taken to protect them. The books are updated periodically

to reflect changes in the status of the species and the effectiveness of conservation measures.

**Q1083.** Which organisation publishes worldwide list of endangered species?

- (a) International Union for Conservation of Nature and Natural Resources (IUCN)
- (b) World Wide Fund for Nature (WWF)
- (c) United Nations Environment Programme
- (d) United Nations Development Programme

Ans: a

**Sol:** The International Union for Conservation of Nature (IUCN) compiles the Red List, a comprehensive inventory that assesses the global conservation status of species.

### Topic 362

#### 362. Wildlife Protection Act, 1972

- Wildlife (Protection) **Amendment Act**, 2022- conserve and protect wildlife
- **rationalise schedules** which list out species under the **Wildlife (Protection) Act, 1972.**

#### Rationalisation of schedules-

- **Reduces** the number of **schedules to Four (earlier Six)-**
  1. **Schedule I** - Animal species that will enjoy the **highest level of protection**
  2. **Schedule II** -Animal species that will be subject to a **lesser degree of protection**
  3. **Schedule III** -Protected **Plant species**
  4. **Schedule IV** -Specimens listed in the **Appendices under CITES** (scheduled specimens)

#### 2 important provisions

1. **Exception for ‘live elephant’**
  - **allows for Commercial Trade** In Live Elephants (contrary to the previous act)
2. **Voluntary surrender of captive animals**
  - voluntarily surrender any captive animals listed in either of the schedules of the act, without any compensation



Schedule I	Animal species with highest level of protection. Example: Blackbuck, Sloth Bear, Cheetah, Swamp Deer etc.
Schedule II	Animals with lesser levels of protection. Example: Nilgai, Indian Flying fox, Andaman Bulbul etc.
Schedule III	Protected Plant species. Example: Neel Kurinji, Pitcher plant, Tree turmeric etc.
Schedule IV	Specimens listed in Appendices under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Example: River Dolphin, Spider Monkeys, etc.

### **Bodies Constituted under the Act**

#### **1. National Board for Wildlife (NBWL):**

- NBWL serves as an apex body for the review of all wildlife-related matters and for the approval of projects in and around national parks and sanctuaries.

#### **2. State Board for Wildlife (SBWL):**

- The Chief Minister of the state/UT is the chairperson of the board.

#### **3. Central Zoo Authority**

#### **4. National Tiger Conservation Authority**

- NTCA was constituted in 2005 for strengthening **tiger conservation**.

#### **5. Wildlife Crime Control Bureau (WCCB)**

### **Five types of protected areas under the Act:**

- Wildlife Sanctuary, National Parks, Conservation Reserves, Community Reserves and Tiger Reserves.

**Q1084.** Which of the following statements regarding the Wildlife (Protection) Amendment Act, 2022 is/are correct?

- The Act reduces the number of schedules from six to four.
  - Schedule II under the Act includes plant species that are protected.
  - The Act allows for the commercial trade of live elephants.
  - Captive animals listed under the schedules can be voluntarily surrendered without compensation.
- (a) Only 1, 3, and 4 are correct.  
 (b) Only 2, 3, and 4 are correct.  
 (c) Only 1 and 2 are correct.  
 (d) All statements are correct.

Ans: a

**Sol:**

- Statement 1: Correct.** The Amendment Act rationalizes the schedules, reducing their number from six to four.
- Statement 2: Incorrect.** Schedule II includes animal species subject to a lesser degree of protection, not plants. Protected plant species are listed under Schedule III.
- Statement 3: Correct.** The Act introduces a provision allowing for the commercial trade of live elephants.
- Statement 4: Correct.** The Act permits the voluntary surrender of captive animals without any compensation.

**Q1085.** Which of the following statements about the Wildlife Protection Act and its institutions is/are incorrect?

- The National Board for Wildlife (NBWL) is responsible for approving projects in and around national parks and sanctuaries.
  - The State Board for Wildlife (SBWL) is chaired by the Governor of the respective state or UT.
  - The Wildlife Crime Control Bureau (WCCB) is tasked with combating organized wildlife crimes.
  - Five types of protected areas are recognized under the Act: Wildlife Sanctuaries, National Parks, Conservation Reserves, Community Reserves, and Biosphere Reserves.
- (a) Only 2 and 4 are incorrect.  
 (b) Only 1, 2, and 3 are incorrect.  
 (c) Only 1 and 4 are incorrect.  
 (d) All statements are correct.

Ans: a

**Sol:**

- Statement 1: Correct.** The NBWL reviews wildlife-related matters and approves projects in and around national parks and sanctuaries.
- Statement 2: Incorrect.** The SBWL is chaired by the Chief Minister of the respective state or UT, not the Governor.
- Statement 3: Correct.** The WCCB combats organized wildlife crimes.
- Statement 4: Incorrect.** The five types of protected areas under the Act are Wildlife Sanctuaries, National Parks, Conservation Reserves, Community Reserves, and Tiger Reserves, not Biosphere Reserves.





**Q1086.** Which of the following statements regarding the integration of CITES into the Wildlife Protection Act is/are correct?

1. Schedule IV includes specimens listed in the Appendices under CITES.
  2. CITES-listed specimens in Schedule IV enjoy the highest level of protection under the Act.
  3. The integration of CITES schedules aims to streamline wildlife trade regulations in India.
- (a) Only 1 and 2 are correct.  
 (b) Only 1 and 3 are correct.  
 (c) Only 2 and 3 are correct.  
 (d) All statements are correct.

Ans: b

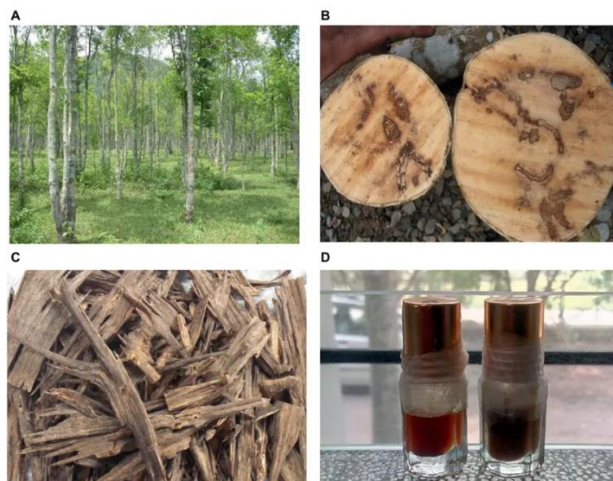
**Sol:**

- **Statement 1: Correct.** Schedule IV includes specimens listed in the Appendices under CITES.
- **Statement 2: Incorrect.** Schedule IV does not provide the highest level of protection; Schedule I is designated for species enjoying the highest protection.
- **Statement 3: Correct.** The integration of CITES into the Act facilitates streamlined wildlife trade regulations and compliance with international agreements.

### Topic 363

#### 363. CITES

- **CITES- Convention on International Trade in Endangered Species**
  - It is an International agreement to regulate trade in endangered species of Flora and Fauna.
  - CITES Secretariat-Geneva, Switzerland
  - The agreement was finalised in 1975.
  - India is its member since 1976.
  - **Classification of species**
1. **Appendix I-** Species threatened with extinction- Trade not permitted except in exceptional circumstances
  2. **Appendix II-** Species not threatened with extinction but on verge - Trade permitted in regulated manner
  3. **Appendix III-** Species given protection on request of a particular country



#### Current news?

- Some member countries of CITES wanted RST of Agarwood (Aquilaria malaccensis).
- This could have put trade limitations on Agarwood.
- India successfully prevented the inclusion of Agarwood in the Review of Significant Trade (RST).

#### Agarwood

- It is a fast-growing, subtropical forest tree.
- Found in West Bengal and North-Eastern States including Assam.

#### Climatic conditions

- Grows in areas with high rainfall, Low temperature variations between 20°C to 28°C
- Soil: Sandy loam and slightly acidic soils.

#### Uses of Agarwood

- Traditionally used as incense, perfumes, air fresheners etc

#### Conservation Status:

- IUCN Status: Listed as Critically Endangered.
- CITES: Listed in Appendix II in 1995 based on India's proposal at CoP9 in 1994.

**Q1087.** Which of the following statements about the classification of species under CITES is/are correct?

1. Appendix I includes species that are threatened with extinction, and trade in such species is permitted only in exceptional circumstances.
2. Appendix II includes species that are not currently threatened with extinction but could become so if trade is not regulated.



3. Appendix III provides protection to species based on a specific country's request and allows unrestricted trade for those species.

- (a) Only 1 and 2 are correct.
- (b) Only 2 and 3 are correct.
- (c) Only 1 and 3 are correct.
- (d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Correct.** Appendix I includes species threatened with extinction, and trade is permitted only in exceptional cases.
- **Statement 2: Correct.** Appendix II includes species that are not yet endangered but could become so without trade regulation.
- **Statement 3: Incorrect.** While Appendix III provides protection at a country's request, trade is not unrestricted but regulated.

**Q1088.** Which of the following statements regarding Agarwood (*Aquilaria malaccensis*) is/are incorrect?

1. Agarwood grows in tropical regions with high rainfall and requires alkaline soil for optimal growth.
  2. India proposed the inclusion of Agarwood in Appendix II of CITES during CoP9 in 1994.
  3. Agarwood is listed as Critically Endangered by the International Union for Conservation of Nature (IUCN).
  4. Agarwood is currently under the Review of Significant Trade (RST) of CITES.
- (a) Only 1 and 4
  - (b) Only 2 and 3
  - (c) Only 1 and 3
  - (d) Only 2 and 4

Ans: a

**Sol:**

- **Statement 1: Incorrect.** Agarwood requires sandy loam and slightly acidic soils, not alkaline soils.
- **Statement 2: Correct.** India proposed Agarwood's inclusion in Appendix II during CoP9 in 1994.
- **Statement 3: Correct.** Agarwood is listed as Critically Endangered by the IUCN.

- **Statement 4: Incorrect.** India successfully prevented Agarwood from being included in the Review of Significant Trade (RST).

**Q1089.** Which of the following statements regarding India's role in the context of Agarwood and CITES is/are correct?

1. India has been a member of CITES since 1975, a year before Agarwood was listed in Appendix II.
  2. India successfully prevented the inclusion of Agarwood in the Review of Significant Trade (RST).
  3. The climatic conditions for Agarwood cultivation in India include low rainfall and temperatures ranging between 15°C and 20°C.
  4. Agarwood's listing in Appendix II allows for regulated trade of the species.
- (a) Only 1 and 3 are correct.
  - (b) Only 2 and 4 are correct.
  - (c) Only 1, 2, and 4 are correct.
  - (d) All statements are correct.

Ans: b

**Sol:**

- **Statement 1: Incorrect.** India became a member of CITES in 1976, after Agarwood's listing proposal.
- **Statement 2: Correct.** India successfully opposed the inclusion of Agarwood in the Review of Significant Trade.
- **Statement 3: Incorrect.** Agarwood grows in areas with high rainfall and temperatures ranging from 20°C to 28°C.
- **Statement 4: Correct.** The listing of Agarwood in Appendix II permits regulated trade of the species.

### Topic 364

#### 364. Kaziranga National Park

##### Kaziranga

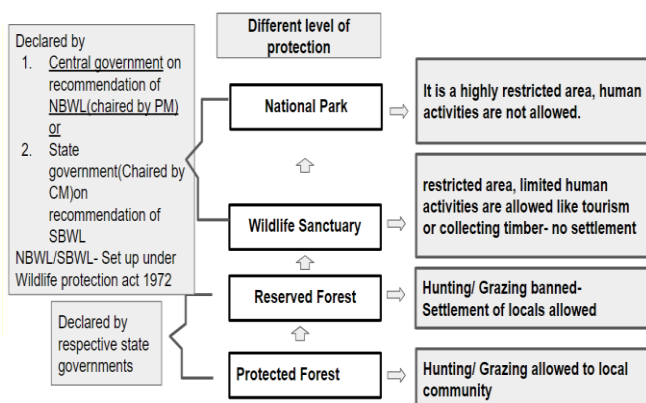
- **1905-Proposed Reserve Forest**-on request of **Mary Curzon (Wife of Viceroy Lord Curzon)**
- **Reserve Forest 1908/Game Sanctuary 1916**
- **Wildlife Sanctuary-1950**
- declared as a **National Park on 11th February 1974.**
- **UNESCO Heritage Site 1985**
- **Tiger Reserve 2007**



- Important Bird Area-Birdlife International

**Note-**

- National parks can be declared both-Central Government /State governments.
- No alteration of the boundaries of a national park shall be made except on a resolution passed by the State Legislature.
- First- National Park Jim Corbett National Park, Nainital district of Uttarakhand state.
- Largest National Park Hemis National Park, Leh district of Ladakh and J&K.
- The Ministry of Environment, Forests, and Climate Change manages the national parks.
- The Minister of Environment, Forest and Climate Change is the Vice-Chairperson of NBWL.



Kaziranga is famous for 'Big Five' animals, ie, Great Indian One horned Rhinoceros, Indian Elephant, Royal Bengal Tiger, Eastern Swamp Deer and Wild Water Buffalo.

**Q1090.** Which of the following protected area harbours the largest stretch of lowland rainforests in India?

- (a) Nameri National Park  
(b) Dehing Patkai National Park.  
(c) Kaziranga National Park.

(d) Keibul-Lamjao National Park.

Ans: b

**Sol:** Dehing Patkai National Park: Located in Assam, this park is known for harboring the largest stretch of lowland rainforests in India. It is also referred to as the "Amazon of the East" due to its rich biodiversity and unique rainforest ecosystem.

**Q1091.** Which of the following statements regarding Kaziranga National Park is/are correct?

1. Kaziranga was declared a Wildlife Sanctuary in 1916 and later upgraded to a National Park in 1950.
2. It was declared a UNESCO World Heritage Site in 1985 due to its exceptional biodiversity and role in conserving one-horned rhinoceroses.
3. Kaziranga was declared a Tiger Reserve in 2007, emphasizing its role in big cat conservation.
4. The boundaries of Kaziranga National Park can be altered by the Ministry of Environment, Forests, and Climate Change without any involvement of the State Legislature.

- (a) Only 2 and 3 are correct.  
(b) Only 1, 2, and 3 are correct.  
(c) Only 2, 3, and 4 are correct.  
(d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Incorrect.** Kaziranga was declared a Game Sanctuary in 1916 and became a Wildlife Sanctuary in 1950. It was designated as a National Park in 1974.
- **Statement 2: Correct.** Kaziranga is a UNESCO World Heritage Site, recognized in 1985 for its biodiversity and conservation efforts.
- **Statement 3: Correct.** Kaziranga became a Tiger Reserve in 2007.
- **Statement 4: Incorrect.** The boundaries of a National Park can only be altered by a resolution passed by the State Legislature.

**Q1092.** Which of the following statements about National Parks in India is/are incorrect?

1. The first National Park in India was Kaziranga National Park, declared in 1905.
2. The largest National Park in India is Hemis National Park, located in the Leh district of Ladakh.





3. Both Central and State Governments have the authority to declare National Parks.
4. The Minister of Environment, Forest and Climate Change serves as the Vice-Chairperson of the National Board for Wildlife (NBWL).
- (a) Only 1 and 3
- (b) Only 1
- (c) Only 1 and 4
- (d) All statements are correct.

Ans: b

**Sol:**

- **Statement 1: Incorrect.** The first National Park in India was Jim Corbett National Park, declared in 1936, not Kaziranga.
- **Statement 2: Correct.** Hemis National Park is the largest National Park in India.
- **Statement 3: Correct.** Both Central and State Governments can declare National Parks.
- **Statement 4: Correct.** The Minister of Environment, Forest and Climate Change is the Vice-Chairperson of NBWL.

## Topic 365

### 365. Wildlife Week and Van Mahotsav

## National Wildlife Week

- **National Wildlife Week** is annually celebrated across India between **2nd to 8th October** with an aim to protect and **preserve the flora and fauna of India.**
- National Wildlife Week theme 2024: **“Wildlife Conservation through Co-existence”**.

## History of Wildlife Week

- The Indian Board of Wildlife was constituted and the idea of Wildlife Week was conceptualised in 1952 to raise awareness about the long term goals of protecting the **wildlife of India**.
- Initially, in 1955 the Wildlife day was celebrated which was later upgraded as **Wildlife Week in 1957**.

### Note

- Wildlife Week is different from Van Mahotsav

## Van Mahotsav

- celebrated from July 1 to July 7, every year.
- since 1950

- Declared as a **national activity** by the then Minister of **Food and Agriculture** **Kanaivalal Maneklal Munshi.**



**Q1093.** Which of the following statements regarding National Wildlife Week in India is/are correct?

1. National Wildlife Week is celebrated annually from July 1 to July 7.
  2. The concept of Wildlife Week was initiated in 1952 by the Indian Board of Wildlife.
  3. Initially, a Wildlife Day was celebrated in 1955, which was later expanded to Wildlife Week in 1957.
  4. The theme for Wildlife Week 2024 is "Wildlife Conservation through Co-existence."
- (a) Only 2, 3, and 4 are correct.  
(b) Only 1 and 3 are correct.  
(c) Only 2 and 4 are correct.  
(d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Incorrect.** Wildlife Week is celebrated annually from October 2 to October 8, not in July.
- **Statement 2: Correct.** The Indian Board of Wildlife conceptualized Wildlife Week in 1952.
- **Statement 3: Correct.** Wildlife Day, first celebrated in 1955, was later upgraded to Wildlife Week in 1957.
- **Statement 4: Correct.** The theme for Wildlife Week 2024 is "Wildlife Conservation through Co-existence."

**Q1094.** Which of the following statements about Van Mahotsav is/are incorrect?

1. Van Mahotsav is celebrated annually from July 1 to July 7 across India.
2. The initiative was declared as a national activity by Kanaivalal Maneklal Munshi, who was the then



Minister of Environment, Forests, and Climate Change.

3. The primary aim of Van Mahotsav is to promote afforestation and the preservation of forest ecosystems.

4. Van Mahotsav is a part of the Wildlife Week celebrations.

- (a) Only 2 and 4  
(b) Only 1 and 3  
(c) Only 4  
(d) All statements are correct.

Ans: a

**Sol:-**

- **Statement 1: Correct.** Van Mahotsav is celebrated annually from July 1 to July 19.
- **Statement 2: Incorrect.** The initiative was declared a national activity by Kanaiyalal Maneklal Munshi, but he was the Minister of Food and Agriculture, not Environment, Forests, and Climate Change.
- **Statement 3: Correct.** Van Mahotsav promotes afforestation and the preservation of forest ecosystems.
- **Statement 4: Incorrect.** Van Mahotsav is separate from Wildlife Week.

**Q1095.** Which of the following statements correctly differentiates between Wildlife Week and Van Mahotsav?

1. Wildlife Week focuses on the conservation of fauna, while Van Mahotsav emphasizes afforestation and forest preservation.
  2. Wildlife Week was conceptualized in 1952, while Van Mahotsav was initiated in 1955.
  3. Both Wildlife Week and Van Mahotsav are celebrated in October to raise awareness about environmental conservation.
  4. Wildlife Week is associated with the Indian Board of Wildlife, whereas Van Mahotsav was introduced by Kanaiyalal Maneklal Munshi.
- (a) Only 1 and 4 are correct.  
(b) Only 1, 2, and 4 are correct.  
(c) Only 3 and 4 are correct.  
(d) All statements are correct.

Ans: b

**Sol:-**

- **Statement 1: Correct.** Wildlife Week focuses on protecting fauna, while Van Mahotsav

promotes afforestation and forest conservation.

- **Statement 2: Correct.** Wildlife Week was conceptualized in 1952, and Van Mahotsav started in 1950.
- **Statement 3: Incorrect.** Wildlife Week is celebrated in October, while Van Mahotsav is celebrated in July.
- **Statement 4: Correct.** Wildlife Week is linked to the Indian Board of Wildlife, and Van Mahotsav was introduced by Kanaiyalal Maneklal Munshi.

## Topic 366

### 366. Wild Ass population estimation

- **Indian wild ass**
- The Indian wild ass is an endangered species and is **found only in the Little Rann of Kutch** and **Great Rann of Kutch of Gujarat**.
- It is protected under the **Schedule I** of the **Wildlife Protection Act** and was listed as **endangered by the IUCN**.
- **Current news?**
- As per **10th Wild Ass Population Estimation** (WAPE), 2024 the population of Indian wild asses in Gujarat has **increased by 26.14%** in the **last four years**.
- The estimated population now stands at 7,672, compared to 6,082 in the 2020 WAPE.



The 10th Wild Ass Population Estimation (WAPE), 2024, conducted by Gujarat government earlier this year. *File*

**Q1096.** If one wants to see Indian wild ass (*Equus hemionus khur*) in the natural habitat, which of the following state would one has to visit?

- (a) Rajasthan  
(b) Gujarat  
(c) Madhya Pradesh  
(d) Odisha

Ans: b



**Sol:** The Indian wild ass (*Equus hemionus khur*), also known as the Khur, is primarily found in the Little Rann of Kutch in Gujarat. This region serves as the primary habitat for this species and is part of the Indian Wild Ass Sanctuary, which was established to protect this endangered animal.

**Q1097.** Which of the following statements regarding the Indian wild ass (*Equus hemionus khur*) is/are correct?

1. The Indian wild ass is exclusively found in the Little Rann of Kutch and Great Rann of Kutch in Gujarat.
  2. It is protected under Schedule II of the Wildlife Protection Act, 1972.
  3. The Indian wild ass is listed as endangered by the IUCN.
  4. The species has shown a population increase of over 25% in the last four years, as per the 2024 Wild Ass Population Estimation.
- (a) Only 1, 3, and 4 are correct.  
 (b) Only 2 and 4 are correct.  
 (c) Only 1 and 4 are correct.  
 (d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Correct.** The Indian wild ass is exclusively found in the Little Rann of Kutch and Great Rann of Kutch in Gujarat.
- **Statement 2: Incorrect.** The species is protected under Schedule I of the Wildlife Protection Act, 1972, not Schedule II.
- **Statement 3: Correct.** It is listed as endangered by the IUCN.
- **Statement 4: Correct.** The population of the Indian wild ass has increased by 26.14%, from 6,082 in 2020 to 7,672 in 2024, as per the 10th Wild Ass Population Estimation (WAPE).

**Q1098.** Which of the following statements about the Indian wild ass (*Equus hemionus khur*) is/are incorrect?

1. The population of Indian wild asses in Gujarat was estimated to be 7,672 in 2020, as per the Wild Ass Population Estimation (WAPE).
2. The species is found in multiple states across India, including Gujarat and Rajasthan.
3. The Indian wild ass is protected under Schedule I of the Wildlife Protection Act, 1972.
4. The IUCN status of the Indian wild ass is "vulnerable."

- (a) Only 1 and 4  
 (b) Only 2 and 4  
 (c) Only 1, 2, and 4  
 (d) Only 2 and 3

Ans: c

**Sol:**

- **Statement 1: Incorrect.** The population of the Indian wild ass was 6,082 in 2020, and it increased to 7,672 in 2024 as per the Wild Ass Population Estimation (WAPE).
- **Statement 2: Incorrect.** The Indian wild ass is exclusively found in Gujarat, specifically in the Little Rann of Kutch and Great Rann of Kutch.
- **Statement 3: Correct.** The species is protected under Schedule I of the Wildlife Protection Act, 1972, providing it the highest level of protection.
- **Statement 4: Incorrect.** The Indian wild ass is listed as endangered, not vulnerable, by the IUCN.

### Topic 367

#### 367. Asiatic Golden Cat in Manas

##### Asiatic Golden Cat

- It is a medium sized cat with relatively long legs.
- They are known as the "fire cat" in Thailand and Burma, and as the "rock cat" in parts of China.

##### Distribution

- The species occurs in Southeast Asia, from Nepal and Tibet to Southern China, Sumatra and India.

##### Conservation Status:

- IUCN: Near threatened
- CITES: Appendix I
- Wildlife (Protection) Act of India, 1972: Schedule I

##### Current news?

- After a long absence, the Asiatic Golden Cat has been spotted again in Assam's Manas National Park.
- The sighting marks a significant conservation success.







Asiatic golden cat photographed in Chikagonda area of the Manas National Park. – Photo: Assam Forest Dept, Aaranyak & Panthera

**Q1099.** Consider the following statements about the Asiatic Golden Cat:

1. It is commonly referred to as the "rock cat" in Thailand and Burma.
2. The species is distributed across Southeast Asia, including India, Nepal, and Sumatra.
3. It is a small-sized feline with short legs.
4. The species has been recently rediscovered in Assam's Manas National Park.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

- **Statement 1: Incorrect.** The Asiatic Golden Cat is known as the "fire cat" in Thailand and Burma, not the "rock cat" (which is its name in parts of China).
- **Statement 2: Correct.** The species is indeed distributed across Southeast Asia, including India, Nepal, Tibet, Sumatra, and Southern China.
- **Statement 3: Incorrect.** The Asiatic Golden Cat is a medium-sized feline with relatively long legs.
- **Statement 4: Correct.** The species was recently sighted in Assam's Manas National Park after a long absence, marking a conservation success.

**Q1100.** Which of the following statements regarding the conservation status of the Asiatic Golden Cat is/are correct?

1. It is listed as "Endangered" under the IUCN Red List.

2. It is included in Schedule I of the Wildlife (Protection) Act of India, 1972.

3. It is included in Appendix I of CITES.

4. Its recent sighting in Manas National Park highlights its recovery from "critically endangered" status.

- (a) 2 only
- (b) 1 and 4 only
- (c) 2 and 3 only
- (d) 1, 3, and 4 only

Ans: c

**Sol:**

- **Statement 1: Incorrect.** The Asiatic Golden Cat is classified as "Near Threatened" by the IUCN Red List, not "Endangered."
- **Statement 2: Correct.** It is listed in Schedule I of the Wildlife (Protection) Act of India, 1972, granting it the highest protection.
- **Statement 3: Correct.** It is included in Appendix I of CITES, which provides the highest level of international trade protection.
- **Statement 4: Incorrect.** Although its sighting in Manas National Park is a conservation success, the species is not recovering from "critically endangered" status.

**Q1101.** With reference to the recent sighting of the Asiatic Golden Cat in Assam's Manas National Park, consider the following statements:

1. The sighting highlights the park's successful conservation efforts.
2. The Asiatic Golden Cat had never been recorded in Manas National Park prior to this sighting.
3. Manas National Park is part of a UNESCO World Heritage Site.
4. The Asiatic Golden Cat is unique to the Indian subcontinent and not found elsewhere.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 3, and 4 only
- (d) 1, 2, and 3 only

Ans: a

**Sol:**

- **Statement 1: Correct.** The sighting of the Asiatic Golden Cat underscores the



conservation success in Manas National Park, which has been a focus of wildlife recovery initiatives.

- **Statement 2: Incorrect.** The Asiatic Golden Cat had been recorded in Manas National Park before, but its recent sighting marks its return after a long absence.
- **Statement 3: Correct.** Manas National Park is part of a UNESCO World Heritage Site and is recognized for its rich biodiversity.
- **Statement 4: Incorrect.** The Asiatic Golden Cat is distributed across Southeast Asia and is not unique to the Indian subcontinent.

### Topic 368

#### 368. Harry Messel Award for rhino conservation

- Assam's eminent conservation scientist **Bibhab Kumar Talukdar** was awarded '**The Harry Messel Award**' for Conservation Leadership by the **Species Survival Commission (SSC)** of the International Union for Conservation of Nature (**IUCN**).
- The award was presented to him during the ongoing **5th IUCN SSC Leaders' Meeting** in **Abu Dhabi**.
- Talukdar was recognised for his significant **contributions to one horn rhino conservation**.

#### The Harry Messel Award

- The "Harry Messel Award for Conservation Leadership" is a **prestigious honor** conferred by the International Union for Conservation of Nature (**IUCN**) under **its Species Survival Commission**.
- **Named** after Canadian-born **Australian physicist and educator Harry Messel**.



**Q1102.** Which of the following statements about the Harry Messel Award is/are incorrect?

1. It is named after a Canadian-born physicist and conservationist, Harry Messel.
  2. The award is given by the United Nations Environment Programme (UNEP) for leadership in conservation.
  3. It specifically recognizes contributions made in the conservation of endangered species, including rhinos.
  4. It has been instituted under the IUCN's Species Survival Commission.
- (a) 1 and 3 only  
(b) 2 only  
(c) 2 and 3 only  
(d) 1, 2, and 4 only

Ans: b

Sol:

- **Statement 1: Correct.** The award is named after Harry Messel, a Canadian-born physicist and educator.
- **Statement 2: Incorrect.** The award is not conferred by the United Nations Environment Programme (UNEP) but by the IUCN's Species Survival Commission (SSC).
- **Statement 3: Correct.** The award recognizes leadership in conservation, particularly for endangered species.
- **Statement 4: Correct.** The Harry Messel Award is instituted under the Species Survival Commission (SSC) of IUCN.

**Q1103.** Consider the following statements:

1. The Harry Messel Award for Conservation Leadership honors individuals contributing significantly to wildlife conservation.
2. IUCN's Species Survival Commission is an international body dedicated to species conservation and sustainable use.
3. Harry Messel, the award's namesake, was an Australian conservationist with a background in physics and education.
4. The IUCN is responsible for maintaining the Red List of Threatened Species, which includes rhinos.



Which of the above statements are correct?

- (a) 1, 2, and 3 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) All four

Ans: d

**Sol:**

- **Statement 1: Correct.** The award celebrates individuals contributing to wildlife conservation and leadership.
- **Statement 2: Correct.** The Species Survival Commission (SSC) of IUCN is an international body focused on species conservation and sustainable use.
- **Statement 3: Correct.** Harry Messel, an Australian conservationist, had a background in physics and education.
- **Statement 4: Correct.** The IUCN Red List of Threatened Species is a globally recognized resource for assessing species' conservation status, including rhinos.

**Q1104.** Which of the following organisation has come up with "Rhino Bond", a first-of-its-kind, outcome-based, financial instrument that channels investments to achieve conservation outcomes - measured in this case by an increase in rhinos in South Africa?

- (a) World Bank.
- (b) United Nations Environment Programme (UNEP).
- (c) World Wide Fund for Nature (WWFN).
- (d) Greenpeace.

Ans: a

**Sol:** The World Bank introduced the "Rhino Bond," an innovative financial instrument aimed at supporting rhinoceros' conservation in South Africa. This outcome-based bond is designed to channel private investment into conservation projects, with returns linked to measurable conservation outcomes. In this case, the increase in rhino populations within specific protected areas serves as the performance indicator.

### Topic 369

#### 369. Earth Day and Earth Hour

##### Earth Day

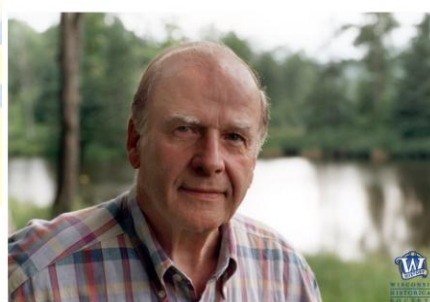
- Every year, **April 22** is celebrated as **Earth Day** to **raise public awareness** about the

**environment** and inspire people to save and protect it.

- Theme for Earth Day 2024-Planet vs. Plastics
- **Theme for Earth Day 2025 ' "Our Power, Our Planet"'**
- celebrated since 1970.
- The idea of commemorating such a **day was propounded** by **Gaylord Nelson, an American environmentalist and politician.**
- **The Paris Agreement** was also **opened** for signature on 22 April 2016 – Earth Day.
- coordinate celebration of Earth Day by **Earthday.org** (formerly Earth Day Network)-a **nonprofit organization**

##### Earth Hour

- Organised by **World Wide Fund for Nature (WWF)**
- On **last Saturday of March**, as a symbol of **commitment to the planet**
- Encouraging individuals, communities, and businesses to **turn off non-essential electric lights, for one hour, from 8:30 to 9:30 p.m.**



US Senator Gaylord Nelson, known as father of modern environmentalist movement

**Q1105.** Which of the following had hosted the Sustainable Finance for Tiger Landscapes Conference on Earth Day 2024 to mobilise the funding for conservation of tigers and their habitats across Asia?

- (a) India
- (b) Kazakhstan
- (c) Bhutan
- (d) Russia

Ans: c

**Sol:** On Earth Day, April 22, 2024, the Royal Government of Bhutan hosted the Sustainable Finance for Tiger Landscapes Conference in Paro,





Bhutan. The conference aimed to mobilize USD 1 billion over the next decade for the conservation of tigers and their habitats across Asia. The event was held under the royal patronage of Her Majesty the Queen, Jetsun Pema Wangchuck, and brought together tiger range countries, private and public sector donors, international development agencies, and conservation organizations to foster collaboration and innovative solutions for tiger conservation.

**Q1106.** Consider the following statements about Earth Day:

1. Earth Day was first celebrated in 1970 to raise public awareness about environmental conservation.

The theme for Earth Day 2024 is "Planet vs. Plastics," while the theme for 2025 is "Our Power, Our Planet."

2. The Paris Agreement was opened for signature on Earth Day in 2016.

3. Earthday.org, a nonprofit organization, coordinates the global celebration of Earth Day.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d

**Sol:**

- **Statement 1: Correct.** Earth Day was first celebrated in 1970 to raise awareness about environmental issues.
- **Statement 2: Correct.** The themes for Earth Day 2024 and 2025 are indeed "Planet vs. Plastics" and "Our Power, Our Planet" respectively.
- **Statement 3: Correct.** The Paris Agreement was opened for signature on April 22, 2016, marking Earth Day as a significant date in global environmental action.
- **Statement 4: Correct.** The global coordination of Earth Day celebrations is managed by Earthday.org, formerly known as the Earth Day Network.

**Q1107.** Which of the following statements about Earth Day and Earth Hour is/are incorrect?

1. Earth Day is organized by the World-Wide Fund for Nature (WWF) and observed on the last Saturday of March.

2. Earth Hour encourages turning off non-essential electric lights for one hour, from 8:30 to 9:30 p.m.

3. Earth Day is commemorated annually on April 22 and aims to inspire global action for environmental protection.

4. The idea of Earth Day was proposed by Gaylord Nelson, an American environmentalist and politician.

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 and 4 only
- (d) 2, 3, and 4 only

Ans: b

**Sol:**

- **Statement 1: Incorrect.** Earth Hour, not Earth Day, is organized by the World-Wide Fund for Nature (WWF) and is observed on the last Saturday of March. Earth Day is coordinated by Earthday.org and celebrated on April 22.
- **Statement 2: Incorrect.** This describes Earth Hour, not Earth Day. Earth Hour encourages individuals, communities, and businesses to turn off non-essential electric lights for one hour as a symbol of commitment to the planet.
- **Statement 3: Correct.** Earth Day is celebrated annually on April 22 to inspire action for environmental conservation.
- **Statement 4: Correct.** The idea of Earth Day was proposed by Gaylord Nelson, a prominent American environmentalist and politician.

### Topic 370

#### 370. Hydroponics Technology and Miyawaki Method

##### Hydroponics Technology

- modern method of farming
- not rooted in soil but float on water
- Water is given high concentration of minerals
- growing plants at faster rate

##### In news

- Hydroponics started at the Guwahati zoo to feed animals

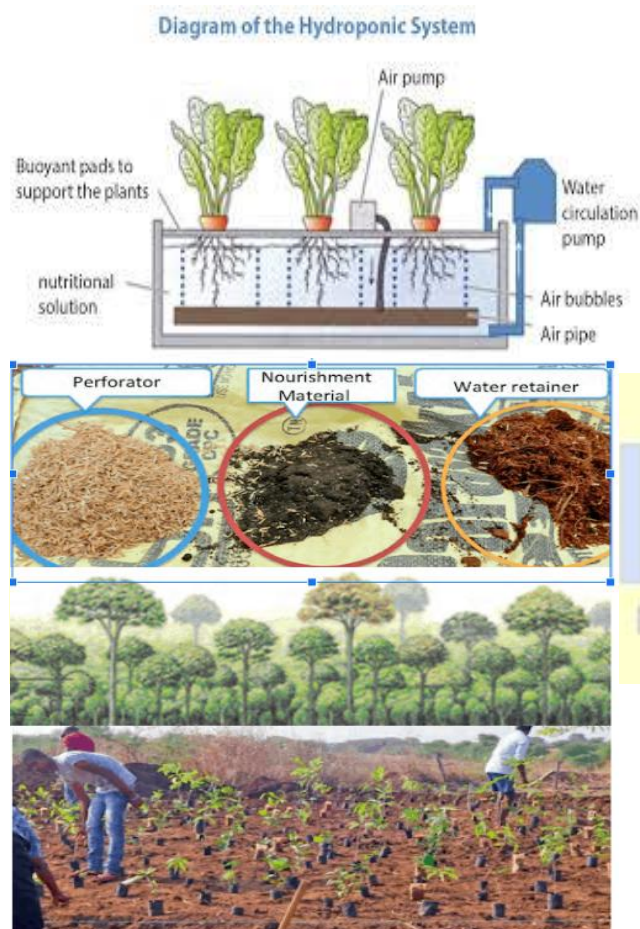
##### Miyawaki method



- pioneered by **Japanese botanist Akira Miyawaki**
- helps build dense, **native forests**.
- **10 times faster** and the resulting plantation is 30 times denser than usual.

**This method involves following steps-**

1. Determine the **soil texture and quantify biomass**
2. Select **tree species for plantation**.
3. Plant the trees in a **specific arrangement**



**Q1108.** Consider the following statements about hydroponics technology:

1. Hydroponics is a farming method where plants are grown on water, not rooted in soil.
2. This method involves the use of water enriched with a high concentration of minerals.
3. Hydroponics allows plants to grow at a faster rate than traditional soil-based farming.
4. Hydroponics is being implemented at the Guwahati Zoo to cultivate medicinal plants for research.

How many of the above statements are correct?

- (a) Only two

- (b) Only one  
(c) Only three  
(d) All four

Ans: c

**Sol:**

- **Statement 1: Correct.** Hydroponics is a modern farming technique where plants are grown on water rather than soil.
- **Statement 2: Correct.** The water used in hydroponics is enriched with a high concentration of minerals to provide nutrients for plant growth.
- **Statement 3: Correct.** Plants grown hydroponically exhibit faster growth rates compared to traditional methods.
- **Statement 4: Incorrect.** Hydroponics at the Guwahati Zoo is used to grow plants to feed animals, not for cultivating medicinal plants.

**Q1109.** Which of the following statements about the Miyawaki method is/are incorrect?

1. The Miyawaki method was developed by Japanese botanist Akira Miyawaki to create dense, native forests.
2. This method produces forests that grow 10 times slower and are 30 times less dense than usual plantations.
3. The steps in the Miyawaki method include determining soil texture, quantifying biomass, and planting trees in a specific arrangement.
4. The Miyawaki method is used primarily for ornamental tree plantations.

- (a) 2 only  
(b) 2 and 4 only  
(c) 1, 3, and 4 only  
(d) All four

Ans: b

**Sol:**

- **Statement 1: Correct.** The method was indeed developed by Akira Miyawaki to create dense and native forests.
- **Statement 2: Incorrect.** The Miyawaki method leads to forests that grow 10 times faster and are 30 times denser than usual.
- **Statement 3: Correct.** The method involves specific steps like determining soil texture, quantifying biomass, and planting trees in an arrangement.





- **Statement 4: Incorrect.** The Miyawaki method is not for ornamental plantations but focuses on creating dense native forests.

**Q1110.** Consider the following statements about hydroponics technology and the Miyawaki method:

1. Both techniques are modern methods aimed at enhancing the speed and density of plant growth.
2. While hydroponics involves growing plants without soil, the Miyawaki method focuses on planting trees in soil with specific arrangements.
3. The Miyawaki method has been used for forest restoration, whereas hydroponics is primarily used for cultivating crops or feeding animals.
4. Both techniques aim to promote biodiversity and sustainable land use.

Which of the above statement(s) is/are correct?

- (a) 2 and 3 only
- (b) 1, 2, and 3 only
- (c) 1, 3, and 4 only
- (d) All four

Ans: a

**Sol:**

- **Statement 1: Incorrect.** While both methods enhance plant growth, their purposes and applications differ. Hydroponics is primarily for crops or animal feed, and the Miyawaki method is for forest restoration.
- **Statement 2: Correct.** Hydroponics avoids soil altogether, whereas the Miyawaki method relies on soil and specific tree arrangements.
- **Statement 3: Correct.** The Miyawaki method is associated with forest restoration, while hydroponics is focused on crops or feed.
- **Statement 4: Incorrect.** Hydroponics does not inherently promote biodiversity like the Miyawaki method does. Instead, it is a method to optimize plant growth efficiency.

**Day 38**

**Topic 371**

### 371. Eco Sensitive Zone around Gir National Park

#### What are Eco Sensitive Zone?

- Buffer zones around Protected Areas — national parks, wildlife sanctuaries, tiger reserves, etc.

#### Prohibited activities

- Commercial mining, stone quarrying, large hydroelectric projects, polluting industries, brick kilns, etc. are not allowed in ESZ.

#### Regulated activities

- Commercial establishment of hotels, resorts, small-scale non-polluting industries and the construction of civic amenities are regulated.

#### Who declares an Eco-Sensitive Zone?

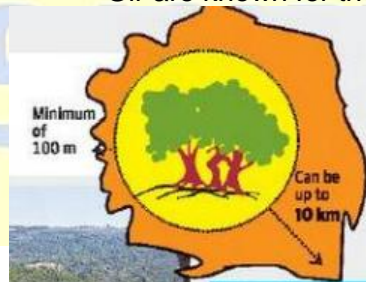
- **MoEFCC** (Ministry of Environment Forest and Climate Change) **Eco-Sensitive Zone** declared as per **Environment Protection Act 1986**.

#### Current context

- **MoEFCC** notified **ESZ around Gir National Park**.

#### Gir National Park

- **The Gir Forests** is the only natural habitat of Asiatic lions.
- The Gir National Park and Wildlife Sanctuary is located in the **Junagadh district of Gujarat**.
- **Associated Tribe- "Maldharis" Tribes** of Gir are known for their conserving Gir lions



- **Extent of Eco Sensitive Zone**
- It can be minimum of **100 m** and maximum **10 km**.
- While the **10-km rule** is implemented as a **general principle**, the extent of its **application can vary (can go beyond 10 km)**.



African lion

Asiatic lion





- **Asiatic Lions**
- **Asiatic Lions** are restricted to **Gir National Park** in the **state of Gujarat**.
- '**Endangered**' by **IUCN Schedule-I** of the **Wildlife (Protection) Act, 1972**.
- It was also known as the **"Indian lion" and the "Persian lion"**.

**Q1111.** Which of the following statements are correct with reference to Eco Sensitive Zone (ESZ) around the protected areas (national park, wildlife sanctuaries, etc.)?

1. They are declared as per the Wildlife Protection Act, 1972 and Rules.
2. No new commercial construction of any kind is permitted within 1 km from the boundary of protected area or up to the extent of ESZ whichever is nearer.
3. Setting up of new saw mill is prohibited activity within the eco sensitive zone.
4. National Board of Wildlife (NBWL) is empowered to permit any prohibited activity within the ESZ.

Choose the correct answer from the options given below:

- (a) 1, 2 and 3
- (b) 2, 3 and 4
- (c) 2 and 3
- (d) 1 and 4

Ans: c

**Sol:**

- **Statement 1 Incorrect:** Eco Sensitive Zones (ESZ) are not declared under the Wildlife Protection Act, 1972. They are declared under the Environment (Protection) Act, 1986 by the Ministry of Environment, Forest and Climate Change (MoEFCC) to regulate certain activities around protected areas.
- **Statement 2 Correct:** The ESZ Notification often prohibits new commercial construction activities within 1 km of the protected area boundary or within the designated ESZ area.
- **Statement 3 Correct:** The setting up of new sawmills is generally listed as a prohibited activity within the ESZ to protect the environment and prevent deforestation.
- **Statement 4 Incorrect:** The National Board of Wildlife (NBWL) does not have the authority to permit prohibited activities within the ESZ. Activities within the ESZ are regulated by the guidelines issued by MoEFCC, and any

exemptions would require specific approval, typically through a legal or regulatory process.

**Q1112.** Eco-sensitive zones are the areas declared under the Environment Protection Act (EPA), 1986. Which of the following activities are regulated?

1. Setting of industries causing pollution.
2. Establishment of hotels.
3. Introduction of exotic species.
4. Commercial use of firewood.

Select the correct answer using the code given below:

- (a) 1 and 4 only
- (b) 2 and 3 only
- (c) 1, 2 and 3 only
- (d) 1, 2, 3 and 4

Ans: b

**Sol:** Prohibited activities in ESZs: Commercial mining, sawmills, industries causing pollution, the establishment of major hydroelectric projects (HEP), and commercial use of wood.

Regulated activities in ESZs: Felling of trees, establishment of hotels and resorts, commercial use of natural water, erection of electrical cables, drastic change of agriculture system, Introduction of exotic species.

**Q1113.** Which of the following pairs (National Park State/Union Territory) is not correctly matched?

- (a) Pin Valley - Jammu and Kashmir
- (b) Rajaji - Uttarakhand
- (c) Simlipal - Odisha
- (d) Bandipur - Karnataka

Ans: a

**Sol:** Pin Valley- Himachal Pradesh.

### Topic 372

### 372. Pygmy Hog Conservation Programme

#### Pygmy Hog

- Very **small sized pigs**.
- They are about **55 to 71 cm long** and stand at 20–30 cm with a tail of 2.5 cm.
- They weigh **6.6–11.8 kg**.
- **Mammals**
- Their population is **dwindling fast**.
- **Critically Endangered in IUCN Red Data Book**.



- **Schedule I** in Wildlife Protection Act/**Appendix I** of CITES
- **Only viable population -Manas Tiger Reserve in Assam.**
- Found in very small numbers at **Orang national Park** and **Sonai Rupai Wildlife Sanctuary.**
- They live in **grasslands.**
- It is one of the very **few mammals** that **build its own home,** or nest, **complete with a 'roof'.**
- It is an **indicator species.**

#### **Conservation of Pygmy Hogs**

- The Pygmy Hogs were **thought to be extinct.**
- But some of the Pygmy Hogs were **seen near Manas National park in 1971.**
- Thus in **1995 Pygmy Hog Conservation Programme (PHCP)** was launched by **IUCN, Assam government** in association with Aranyak NGO.
- A **Pygmy Hog Conservation Centre in Guwahati was established.**



Over a period of time many Pygmy Hogs have been bred in PHCC, Guwahati and then left open in Manas National Park

Current News- 18 Pygmy hogs left open in Manas national Park.



**Gerald Durrell**, a conservationist, first highlighted the **need to conserve Pygmy Hogs** in 1970.

**Q1114.** Consider the following:

1. Star tortoise
2. Monitor lizard
3. Pygmy hog
4. Spider monkey

Which of the above found in India?

- (a) 1, 2 and 3 only
- (b) 2 and 3 only

- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Ans: a

**Sol:** Among the options provided, the following are naturally found in India:

1. Star tortoise
2. Monitor lizard
3. Pygmy hog

**Q1115.** Consider the following statements regarding the Pygmy Hog:

1. Pygmy Hogs are mammals weighing between 6.6–11.8 kg and are critically endangered as per the IUCN Red Data Book.
2. The Pygmy Hog is listed in Schedule II of the Wildlife Protection Act, 1972, and Appendix II of CITES.
3. Pygmy Hogs are indicator species and build nests with a roof, which is rare among mammals.
4. The only viable population of Pygmy Hogs is found in the Manas Tiger Reserve in Assam.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** Pygmy Hogs are mammals weighing 6.6–11.8 kg and are critically endangered according to the IUCN Red Data Book.
- **Statement 2: False.** The Pygmy Hog is listed under Schedule I of the Wildlife Protection Act, 1972, and Appendix I of CITES, not Schedule II or Appendix II.
- **Statement 3: True.** Pygmy Hogs are indicator species and are one of the few mammals that build nests with a roof.
- **Statement 4: True.** The only viable population is in the Manas Tiger Reserve in Assam, though small numbers exist in Orang National Park and Sonai Rupai Wildlife Sanctuary.

**Q1116.** Which of the following statements about the Pygmy Hog Conservation Programme (PHCP) are correct?



1. The Pygmy Hog Conservation Programme was launched in 1995 by IUCN, the Assam government, and the NGO Aranyak.
  2. Gerald Durrell highlighted the conservation need for Pygmy Hogs in 1970, and the Pygmy Hog Conservation Centre was later established in Guwahati.
  3. Pygmy Hogs were rediscovered near Manas National Park in 1971, leading to conservation actions.
  4. The PHCP focuses on relocating Pygmy Hogs to multiple tiger reserves across India.
- Select the correct answer using the code given below:
- (a) 1 and 2 only
  - (b) 1, 2, and 3 only
  - (c) 2 and 4 only
  - (d) All 4

Ans: b

**Sol:**

- **Statement 1: True.** The PHCP was launched in 1995 by IUCN, the Assam government, and the NGO Aranyak.
- **Statement 2: True.** Gerald Durrell highlighted the conservation need in 1970, and the Pygmy Hog Conservation Centre was established in Guwahati as part of conservation efforts.
- **Statement 3: True.** Pygmy Hogs were rediscovered near Manas National Park in 1971, which sparked conservation initiatives.
- **Statement 4: False.** The PHCP does not focus on relocating Pygmy Hogs to multiple tiger reserves but primarily works on preserving their habitats and reintroduction into specific protected areas.

### Topic 373

#### 373. Elephant Census

- Conducted **every five years** by the **Wildlife Institute of India (WII)** under '**Project Elephant**'.

#### Elephant Census 2017

- The 2017 census recorded **29,964 wild Asian elephants** in India.
- **60% of the global Asian elephant in India.**

#### Top States

1. **Karnataka** reported the **highest number- 6,049**
2. **Assam followed** with approximately 5,719 elephants.
3. **Kerala**

#### Project Elephant

- Launched in **1992**.
- It is a **Centrally-Sponsored Scheme**.
- Aim-**improve elephant habitat** and corridors, **reduce Human-elephant conflict**

#### Current news?

- Elephant census for 2022-2023 has been conducted.
- The estimated elephant numbers in India (**excluding the Northeast**) for 2022-2023 are around **15,887**, which is a **19.9% decline** from the **2017 count**.
- **Northeast Figures Awaited.**



#### Conservation Status of Asian Elephant

- IUCN: Endangered
- Wildlife (Protection) Act, 1972: Schedule I.
- CITES: Appendix I

#### ELEPHANT NUMBERS IN INDIA (2012-2023)

Landscapes	2012	2017	2022-23	Change
Central & Eastern	2,906	3,168	1,864	-41.2%
Western Ghats	16,204	14,522	11,961	-17.6%
Shivalik-Gangetic	1,637	2,096	2,062	-1.6%
India (except NE)	20,747	19,825	15,887	-19.9%
Northeast	9,239	10,139	9,866*	NA

\* NE figures are extrapolated from 2017, count pending

Data: MoEF/WII



**Q1117.** Consider the following statements about Elephants:

1. Asian Elephants are smaller in size compared to African Elephants.
2. Asian elephants have a single-domed head, while African Elephants have twin-domed head.
3. Only some male Asian elephants have tusks, while both female and male African elephants have tusk.





4. Asian elephants only have one finger-like extensions at the tip of their trunks, while African elephants have two.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** Asian elephants are generally smaller in size compared to African elephants.
- **Statement 2: False.** Asian elephants have twin-domed heads, whereas African elephants have a single-domed or flatter head.
- **Statement 3: True.** Only some male Asian elephants have tusks (referred to as "tuskers"), while both male and female African elephants usually have tusks.
- **Statement 4: True.** Asian elephants have one finger-like extension at the tip of their trunk, while African elephants have two.

**Q1118.** Consider the following statements about the Elephant Census and distribution of elephants in India:

1. Karnataka recorded the highest number of wild Asian elephants in the 2017 census, followed by Assam.
2. The 2017 census reported that India is home to 60% of the global Asian elephant population.
3. The 2022-2023 census recorded a decline of 19.9% in the estimated number of elephants compared to the 2017 census.
4. The 2022-2023 census has already included figures from the Northeast region of India.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** Karnataka reported the highest number of elephants (6,049) in the 2017 census, followed by Assam (5,719).
- **Statement 2: True.** India is home to 60% of the global Asian elephant population as per the 2017 census.

- **Statement 3: True.** The estimated elephant numbers for 2022-2023 (excluding the Northeast) are around 15,887, reflecting a 19.9% decline from 2017.
- **Statement 4: False.** The figures from the Northeast are still awaited in the 2022-2023 census.

Thus, three statements are correct.

**Q1119.** Which of the following statements about the conservation of Asian elephants and Project Elephant are correct?

1. Asian elephants are listed as "Endangered" by the IUCN and included under Schedule I of the Wildlife (Protection) Act, 1972.
2. Project Elephant, launched in 1992, is a Centrally-Sponsored Scheme aimed at reducing human-elephant conflict and improving elephant habitats and corridors.
3. Under CITES, the Asian elephant is listed in Appendix II, which regulates international trade to prevent overexploitation.
4. The 2022-2023 census was conducted under the aegis of Project Elephant by the Wildlife Institute of India (WII).

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2, and 4 only
- (c) 2 and 3 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** Asian elephants are listed as "Endangered" by the IUCN and included under Schedule I of the Wildlife (Protection) Act, 1972, providing the highest level of protection.
- **Statement 2: True.** Project Elephant, launched in 1992, is a Centrally-Sponsored Scheme with objectives including improving elephant habitats and reducing human-elephant conflicts.
- **Statement 3: False.** The Asian elephant is listed in Appendix I of CITES, not Appendix II, which affords the highest level of international protection.
- **Statement 4: True.** The 2022-2023 census was conducted under Project Elephant by the Wildlife Institute of India (WII).



**Topic 374**

**374. Steps taken to curb Human elephant conflict**

**1. Gaj Yatra initiative**

- Its aim is to make elephant corridors free from human interference in 12 elephant range states.

**2. Radio collaring of Elephants** to track the movements of elephant herd

**3. RE-HAB initiative**

- Under Project RE-HAB (Reducing Elephant-Human Attacks using Bees), “Bee-fences” are created by setting up bee boxes in the passage ways of elephants to block their entrance to human territories.

**Assam Specific**

**1. Kaziranga elevated corridor proposed plan**

- To be built on National Highway (NH) 715, running for 38km

**2. Jumbo Kheti**

**3. ‘HaatiApp’**

- It will serve as an early warning system
- It will also assist the HEC-affected individuals to submit their ex gratia claims.
- It is supported by the SBI Foundation.

**4. Solar-powered fences**

- These fences use solar energy to power an non lethal electrical current that runs through the fence wires.

**‘HaatiApp’ and Solar-powered fences manual released by Aaranyak, an environment based NGO.**



Launch of ‘HaatiApp’



Representation of Solar-powered fences for reducing human-elephant conflict

**Q1120.** Consider the following statements about the initiatives to curb Human-Elephant Conflict (HEC) in India:

1. The Gaj Yatra initiative aims to make elephant corridors free from human interference in 12 elephant range states.
2. Under Project RE-HAB, “Bee-fences” are created to block elephants from entering human territories by using bee boxes.
3. The Kaziranga elevated corridor plan proposes to build a 38 km corridor on National Highway (NH) 715.
4. Solar-powered fences use solar energy to deliver a non-lethal electrical current to prevent elephant intrusion into human areas.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d

**Sol:**

- **Statement 1: True.** The Gaj Yatra initiative aims to make elephant corridors free from human interference in 12 elephant range states.
- **Statement 2: True.** Project RE-HAB creates “Bee-fences” using bee boxes to deter elephants from entering human areas.
- **Statement 3: True.** The Kaziranga elevated corridor is planned to run for 38 km on National Highway (NH) 715.
- **Statement 4: True.** Solar-powered fences use solar energy to deliver a non-lethal electrical current to keep elephants away.

All four statements are correct.



**Q1121.** Which of the following statements about Assam-specific initiatives to mitigate Human-Elephant Conflict are correct?

1. The Kaziranga elevated corridor is supported by the Aaranyak NGO.
2. The 'HaatiApp' serves as an early warning system and helps affected individuals to submit their ex-gratia claims.
3. Solar-powered fences, released by Aaranyak NGO, use a lethal electrical current to prevent elephant intrusions.
4. The 'Jumbo Kheti' program was launched to address crop damage caused by elephants.

Select the correct answer using the code below:

- (a) 1 and 2 only
- (b) 2 and 4 only
- (c) 1, 2, and 4 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: False.** The Kaziranga elevated corridor is a government-proposed plan and not directly supported by Aaranyak NGO.
- **Statement 2: True.** The 'HaatiApp' serves as an early warning system and assists in ex gratia claim submissions.
- **Statement 3: False.** Solar-powered fences deliver a non-lethal electrical current, not a lethal one, to deter elephants.
- **Statement 4: True.** The 'Jumbo Kheti' program addresses crop damage caused by elephants.

Thus, statements 2 and 4 are correct.

**Q1122.** Consider the following statements about technological and innovative approaches to mitigate Human-Elephant Conflict:

1. Aaranyak NGO supports both the 'HaatiApp' and solar-powered fences.
2. Radio-collaring elephants is used to monitor the movements of elephant herds.
3. 'HaatiApp' provides real-time data to track elephant movements and prevent conflicts.
4. Solar-powered fences require a continuous external power supply for their operation.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** Aaranyak NGO supports both the 'HaatiApp' and solar-powered fences.
- **Statement 2: True.** Radio-collaring is used to monitor elephant herd movements.
- **Statement 3: False.** While 'HaatiApp' serves as an early warning system, it does not directly provide real-time tracking of elephant movements.
- **Statement 4: False.** Solar-powered fences are powered by solar energy and do not require a continuous external power supply.

### Topic 375

#### 375. Jumbo Kheti

##### Jumbo Kheti

- **Elephant Restaurants** created by a **NGO Green Guard in Assam.**
- It is lead by conservationist **Binod Dulu Bora.**
- Elephants coming from **hill side of Karbi Anglong** caused a lot of **damage to the crops** of farmers of **plain areas of Nagaon district**
- To avoid **crop raid by elephants** and also avoid **man animal conflict**
- **Farmers of 12 villages** in Nagaon **Ronghang Hathikuli area of Central Assam** have started **Jumbo Kheti**

**A 203 hectare area devoted to feed wild Elephants**

- **Farmers grow-**
- Paddy
- Jack Fruit
- Banana
- Napier Grass
- Otaunga (Elephant Apple)







This unique initiative has found a way of keeping crop-raiding elephants off their crops by setting aside land to create a meal zone for them Credit: Representational image

**Q1123.** It is spread across five southern African countries. It is the second-largest nature and landscape conservation area in the world. It is home to a high concentration of wildlife species, including the largest elephant population. Identify the region.

- (a) Uvs Nuur Basin
- (b) Kavango-Zambezi (KAZA) Trans- Frontier Conservation Area (TFCA).
- (c) Congo Basin.
- (d) Okavango Delta.

Ans: b

**Sol:** KAZA Summit 2024: At the KAZA Summit 2024, leaders of the Kavango-Zambezi Trans-Frontier Conservation Area (KAZA-TFCA) decided to oppose the ivory trade ban at the CoP 20 of CITES.

**Q1124.** Consider the following statements about the Jumbo Kheti initiative in Assam:

1. Jumbo Kheti was launched by the NGO Green Guard, led by conservationist Binod Dulu Bora, to mitigate human-elephant conflict.
  2. The initiative involves farmers from 12 villages in the Nagaon district dedicating 203 hectares of farmland to grow crops exclusively for wild elephants.
  3. Crops grown under Jumbo Kheti include paddy, jackfruit, bananas, Napier grass, and elephant apples.
  4. Jumbo Kheti focuses on relocating elephants to the hill areas of Karbi Anglong to reduce crop raids.
- How many of the above statement(s) are correct?
- (a) Only one
  - (b) Only two
  - (c) Only three
  - (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** Jumbo Kheti was initiated by the NGO Green Guard, under the leadership of Binod Dulu Bora, to mitigate human-elephant conflict.
- **Statement 2: True.** Farmers from 12 villages in the Nagaon Ronghang Hathikuli area have dedicated 203 hectares to growing crops for wild elephants.
- **Statement 3: True.** Crops such as paddy, jackfruit, bananas, Napier grass, and elephant apples are cultivated for elephants under this initiative.
- **Statement 4: False.** Jumbo Kheti does not focus on relocating elephants but aims to avoid crop raids by providing alternative food sources in designated areas.

Thus, three statements are correct.

**Q1125.** Which of the following statements correctly describe the objectives and operations of the Jumbo Kheti initiative in Assam?

1. The initiative reduces human-elephant conflict by providing food for wild elephants in the plain areas near Nagaon district.
2. Farmers participating in Jumbo Kheti grow crops on farmland owned by the state government.
3. The project targets elephants migrating from the hill areas of Karbi Anglong to prevent crop damage.
4. Napier grass and elephant apples are specifically grown under Jumbo Kheti due to their nutritional value for elephants.

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 1, 3, and 4 only
- (c) 2, 3, and 4 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** Jumbo Kheti reduces human-elephant conflict by providing food sources for wild elephants in the plain areas of Nagaon district.
- **Statement 2: False.** Farmers use their own land, not state-owned land, to grow crops for elephants.



- **Statement 3: True.** The initiative targets elephants migrating from the Karbi Anglong hills to prevent crop raids in the plain areas.
- **Statement 4: True.** Napier grass and elephant apples are grown under Jumbo Kheti because of their nutritional benefits for elephants.

### Topic 376

#### 376. Permafrost region meltdown

- Permafrost is a layer of soil or rock that remains frozen for at least two consecutive years.

#### Concerns

- The collapse of permafrost is becoming more likely with global warming
- Also new study suggests the Arctic Ocean could experience its first ice-free day—defined as less than one million square kilometers of sea ice—by 2030.

#### What happens if the Arctic becomes ice-free or collapse of Permafrost region?

##### 1. Accelerate global warming

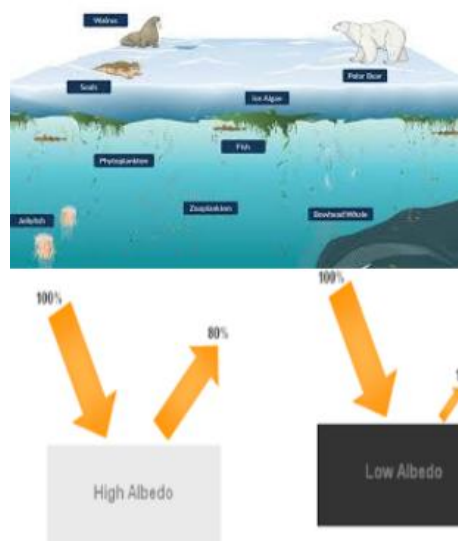
- The loss of Arctic Sea ice accelerates climate change due to the Albedo effect, where the reflective ice is replaced by darker ocean water that absorbs more solar energy.

##### 2. Rising Sea Levels

- If the Greenland ice sheet melts entirely, sea levels could rise by six meters, threatening coastal communities worldwide.

##### 3. Ecosystem Disruption

- Species like polar bears, walruses, Arctic foxes, snowy owls, and reindeer are at risk due to habitat loss and melting permafrost.



- **Albedo effect**
- **Albedo** is a measure of how much **light that hits a surface is reflected** without being absorbed.
- **Light color** has **high Albedo**.
- **Dark color** objects have **low Albedo**.

**Q1126.** Consider the following statements regarding the impacts of the collapse of permafrost regions and Arctic ice-free conditions:

1. The collapse of permafrost accelerates global warming due to the release of stored greenhouse gases.
2. The Arctic Ocean is expected to experience its first ice-free day, defined as less than one million square kilometers of sea ice, by 2050.
3. The melting of the Greenland ice sheet could raise sea levels by six meters, posing a threat to coastal communities.
4. Ecosystem disruption caused by permafrost melting threatens species like polar bears, Arctic foxes, and snowy owls.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** The collapse of permafrost releases greenhouse gases like methane and CO<sub>2</sub>, accelerating global warming.



- **Statement 2: False.** The Arctic Ocean is projected to experience its first ice-free day as early as 2030, not 2050.
- **Statement 3: True.** If the Greenland ice sheet melts entirely, global sea levels could rise by approximately six meters.
- **Statement 4: True.** Ecosystem disruption due to permafrost melting threatens Arctic species like polar bears, Arctic foxes, snowy owls, and others.

Thus, three statements are correct.

**Q1127.** Which of the following statements about the Albedo effect and its role in climate change are correct?

1. The Albedo effect refers to the phenomenon where light-coloured surfaces reflect more sunlight compared to dark-coloured surfaces.
2. The melting of Arctic Sea ice reduces the Earth's Albedo, as the reflective ice is replaced by dark ocean water.
3. Increased Albedo from sea ice loss accelerates the process of global warming.
4. Land surfaces with high Albedo, such as deserts and ice caps, contribute to a reduction in global temperatures.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2, and 4 only
- (c) 2 and 3 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** The Albedo effect refers to light-colored surfaces reflecting more sunlight compared to dark surfaces.
- **Statement 2: True.** Melting Arctic Sea ice reduces the Earth's Albedo, as dark ocean water absorbs more sunlight than reflective ice.
- **Statement 3: False.** Reduced Albedo from sea ice loss, not increased Albedo, accelerates global warming.
- **Statement 4: True.** High Albedo surfaces like deserts and ice caps reflect sunlight and help in reducing global temperatures.

Thus, statements 1, 2, and 4 are correct.

**Q1128.** Consider the following statements regarding the consequences of Arctic ice-free days and melting permafrost regions:

1. An ice-free Arctic Ocean will increase global warming due to the higher absorption of solar energy by ocean water.
2. The loss of Arctic Sea ice will directly result in a decrease in global sea levels.
3. Melting permafrost releases methane, a potent greenhouse gas, further accelerating climate change.
4. Species like polar bears and reindeer are primarily threatened by rising sea levels due to Arctic ice loss.

How many of the above statement(s) are incorrect?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** An ice-free Arctic Ocean increases global warming due to more solar energy being absorbed by dark ocean water.
- **Statement 2: False.** The loss of sea ice does not directly impact global sea levels as it is already floating on the ocean.
- **Statement 3: True.** Melting permafrost releases methane, a potent greenhouse gas, exacerbating climate change.
- **Statement 4: False.** Species like polar bears and reindeer are primarily threatened by habitat loss, not directly by rising sea levels.

### Topic 377

#### 377. Thwaites Glacier

- Located in **West Antarctica**.
- It is about **120 km wide** at its widest point.
- Thwaites melting already **contributes 4% to global sea level rise each year**.
- Because of its **fast pace melting** it is being called as **'Doomsday Glacier'**.

**Note**

- The **largest glacier in the world** is the **Lambert-Fisher Glacier** in **Antarctica**.





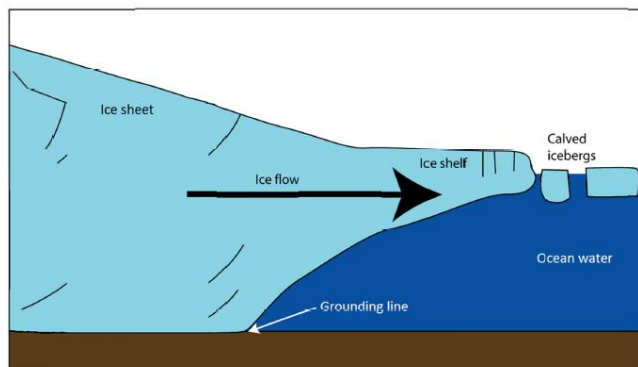
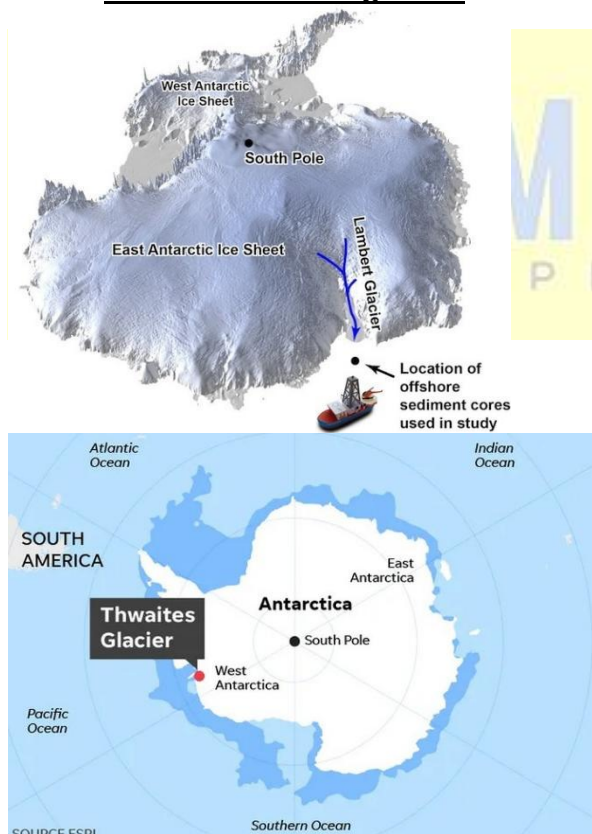


FIGURE S.3. The grounding line is the boundary between floating ice and grounded ice. SOURCE: Adapted from [www.AntarcticGlaciers.org](http://www.AntarcticGlaciers.org) by Bethan Davies. Used with permission.

### What is grounding line?

- The grounding line is the place below a glacier at which the ice transitions between resting fully on bedrock and floating on the ocean as an ice shelf.
- The location of the line is a pointer to the rate of retreat of a glacier.



**Q1129.** Consider the following statements about Thwaites Glacier:

1. Thwaites Glacier is the largest glacier in the world, located in West Antarctica.
2. Thwaites contributes about 4% to the global sea level rise annually.

3. The glacier is referred to as the 'Doomsday Glacier' due to its potential to drastically accelerate sea level rise.

4. The grounding line of Thwaites Glacier determines its rate of retreat and its impact on sea levels.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: False.** While Thwaites Glacier is significant, the largest glacier in the world is the Lambert-Fisher Glacier, also located in Antarctica.
- **Statement 2: True.** Thwaites Glacier contributes approximately 4% to the annual global sea level rise.
- **Statement 3: True.** It is referred to as the 'Doomsday Glacier' because its rapid melting could lead to a significant rise in sea levels.
- **Statement 4: True.** The grounding line is crucial in understanding the glacier's stability and rate of retreat.

Thus, three statements are correct.

**Q1130.** Which of the following statements about the grounding line and its significance for glaciers is/are correct?

1. The grounding line marks the point where a glacier transitions from being land-based to floating as an ice shelf.
  2. A retreating grounding line indicates that the glacier is advancing into the ocean.
  3. The location of the grounding line helps in predicting the potential contribution of glaciers to sea level rise.
  4. A stable grounding line signifies that the glacier's melting is balanced by snowfall accumulation.
- Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) All four

Ans: b



**Sol:**

- **Statement 1: True.** The grounding line is the point where the glacier transitions from resting on bedrock to floating as an ice shelf.
- **Statement 2: False.** A retreating grounding line indicates the glacier is losing stability and retreating inland, not advancing into the ocean.
- **Statement 3: True.** The location of the grounding line is a key indicator of how much ice may contribute to sea level rise.
- **Statement 4: True.** A stable grounding line suggests that the glacier's melting is offset by snowfall replenishment.

Thus, statements 1, 3, and 4 are correct.

**Q1131.** Consider the following statements about the global implications of Thwaites Glacier's melting:

1. If Thwaites Glacier melts completely, it could lead to a significant rise in global sea levels.
2. The melting of Thwaites Glacier is primarily driven by warm ocean currents eroding its underside.
3. Thwaites Glacier is entirely land-based, making it immune to the effects of sea level changes.
4. The collapse of Thwaites Glacier could destabilize neighbouring glaciers, amplifying the rise in sea levels.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** The complete melting of Thwaites Glacier could lead to a significant rise in global sea levels, potentially by several meters.
- **Statement 2: True.** Warm ocean currents eroding the underside of the glacier are a primary driver of its melting.
- **Statement 3: False.** Thwaites Glacier is partly grounded and partly floating, making it susceptible to sea-level changes and oceanic impacts.
- **Statement 4: True.** The collapse of Thwaites Glacier could destabilize neighboring glaciers, amplifying sea-level rise.

### 378. Sovereign Green Bond

- Green bonds are long term bonds issued by any sovereign entity-for projects classified as environmentally sustainable.
- Eg renewable energy, clean transportation and green buildings.
- Green Bonds were first issued in 2007 by the World Bank and European Investment Bank.

**Recent**

- RBI recently released Sovereign Green Bond of Rs 5000 cr.



**Q1132.** Consider the following statements about "Green Finance Working Committee" (GFWC).

1. The GFWC is chaired by the Hon'ble Finance Minister of India.
  2. The GFWC will meet at least twice a year to support Ministry of Finance with selection and evaluation of projects and other relevant work related to the Framework.
  3. The GFWC has been established with clear lines of authority to oversee and validate key decisions on Issuance of Sovereign green bonds.
- Which of the above statement(s) is/are correct?

- (a) 1 and 3 only.
- (b) 2 and 3 only.
- (c) 1 and 2 only.
- (d) 1, 2 and 3

Ans: b

**Sol:**

- **Statement 1: Incorrect.** The Green Finance Working Committee (GFWC) is not chaired by the Hon'ble Finance Minister of India. It is chaired under the Chairmanship of Chief Economic Adviser, Government of India and members from implementing departments, Ministry of Environment, Forests and Climate Change (MoEFCC), Niti Aayog (India's premier public policy think-tank), Budget Division of Department of Economic Affairs (DEA) and Infrastructure Finance Secretariat, DEA.
- **Statement 2: Correct.** The GFWC is mandated to meet at least twice a year to

### Topic 378



provide guidance and support to the Ministry of Finance for the selection and evaluation of projects and other tasks related to the Framework.

- **Statement 3: Correct.** The GFWC has been established to ensure clear lines of authority for overseeing and validating key decisions on the issuance of Sovereign Green Bonds and related processes.

**Q1133.** Consider the following statements regarding Green Bonds and Sovereign Green Bonds:

1. Green bonds are short-term bonds issued by sovereign entities exclusively for environmental conservation projects.
2. Green bonds were first issued in 2007 by the World Bank and the European Investment Bank.
3. Sovereign Green Bonds are issued for projects like renewable energy, clean transportation, and green buildings.
4. Recently, the Reserve Bank of India issued Sovereign Green Bonds worth Rs. 5,000 crore.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: False.** Green bonds are long-term bonds, not short-term bonds, issued by sovereign entities or other organizations for environmentally sustainable projects.
- **Statement 2: True.** The World Bank and the European Investment Bank first issued Green Bonds in 2007.
- **Statement 3: True.** Sovereign Green Bonds fund projects like renewable energy, clean transportation, and green buildings.
- **Statement 4: True.** Recently, the Reserve Bank of India issued Sovereign Green Bonds worth Rs. 5,000 crores.

Thus, three statements are correct.

**Q1134.** Which of the following statements regarding Sovereign Green Bonds are correct?

1. Sovereign Green Bonds are designed to fund projects classified as environmentally sustainable.

2. These bonds can only be issued by international institutions like the World Bank and not by national entities like the Reserve Bank of India.

3. Sovereign Green Bonds contribute to addressing climate change and promoting renewable energy sources.

4. The funds raised through Sovereign Green Bonds must exclusively be utilized for green infrastructure projects.

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** Sovereign Green Bonds are issued to fund projects classified as environmentally sustainable.
- **Statement 2: False.** National entities like the Reserve Bank of India can also issue Sovereign Green Bonds.
- **Statement 3: True.** These bonds aim to address climate change and promote renewable energy, clean transportation, and other green initiatives.
- **Statement 4: True.** The funds raised are exclusively utilized for green infrastructure projects and cannot be diverted to non-environmental initiatives.

### Topic 379

#### 379. Global Biofuel Alliance

- Biofuel, any fuel that is derived from biomass—that is, plant or algae material or animal waste.

#### Global Biofuel Alliance

- launched by the Indian PM on the sidelines of the G20 Summit
- **India-led Initiative**
- to **facilitate adoption of biofuels**
- This will **mitigate** the impact of **climate change and global warming**.

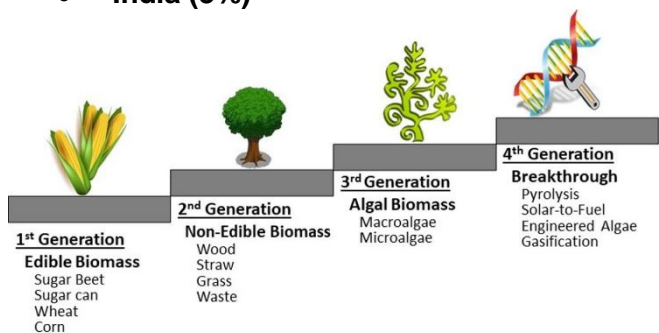
#### GBA Members constitute major producers and consumers of biofuels.

1. USA (52%)
2. Brazil (30%)





● **India (3%)**



**12 international organisations:**

- World Bank, Asian Development Bank, World Economic Forum, IEA, International Energy Forum etc are also members

**Q1135.** Consider the following statements about Global Biofuel Alliance (GBA):

1. The Global Biofuel Alliance was launched at G20 New Delhi Summit in 2023.
  2. India, Brazil, and USA are the founding members of this alliance.
  3. Only the members of Group of Twenty (G20) can be part of Global Biofuel Alliance (GBA).
- Which of the above statement/s is/are CORRECT?
- (a) 1 and 2 only.  
(b) 2 and 3 only.  
(c) 1, 2 and 3.  
(d) 1 and 3 only.

Ans: a

**Sol:**

- **Statement 1: Correct.** The Global Biofuel Alliance (GBA) was launched at the G20 New Delhi Summit in 2023 to promote the adoption and production of biofuels.
- **Statement 2: Correct.** India, Brazil, and the USA are the founding members of the Global Biofuel Alliance, reflecting their commitment to biofuel development and collaboration.
- **Statement 3: Incorrect.** Membership of the Global Biofuel Alliance is not limited to G20

**ENVIRONMENT – CURRENT AFFAIRS**

countries. Other interested nations and stakeholders can also join the alliance.

**Q1136.** International Energy Efficiency Hub' is a new platform for global collaboration on energy efficiency, functioning under which of the following?

- (a) International Solar Alliance (ISA).  
(b) Global Biofuels Alliance (GBA).  
(c) International Energy Agency (IEA).  
(d) International Renewable Energy Agency (IRENA).

Ans: c

**Sol:** The International Energy Efficiency Hub is a platform created to foster global collaboration on energy efficiency. It operates under the framework of the International Energy Agency (IEA). The hub focuses on facilitating knowledge exchange, sharing best practices, and supporting initiatives to enhance energy efficiency worldwide.

**Q1137.** Consider the following statements regarding the Global Biofuel Alliance (GBA):

1. The Global Biofuel Alliance is an India-led initiative launched during the G20 Summit to promote the adoption of biofuels.
2. The alliance focuses solely on enhancing the production of biofuels without addressing their consumption or climate impact.
3. The United States, Brazil, and India are the major contributors to global biofuel production, accounting for more than 80%.
4. India contributes the largest share to global biofuel production among GBA members.

How many of the above statement(s) are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: b

**Sol:**

- **Statement 1: True.** The GBA is an India-led initiative launched during the G20 Summit to promote biofuel adoption.
- **Statement 2: False.** The alliance also aims to mitigate climate change and global warming, going beyond just production.



- **Statement 3: True.** The USA (52%), Brazil (30%), and India (3%) collectively account for more than 80% of global biofuel production.
- **Statement 4: False.** India contributes only 3%, whereas the USA and Brazil contribute significantly more (52% and 30%, respectively).

## Topic 380

### 380. Greenwashing in ads

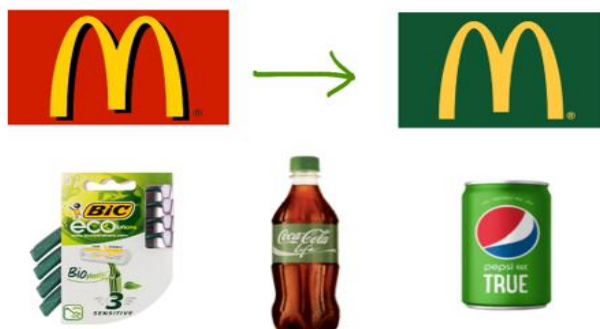
- **conveying a false impression** or misleading information about how a **company's products are environmentally sound.**
- The **Advertising Standards Council of India (ASCI)** recently proposed guidelines that **aim to check Greenwashing in ads.**

**Advertising Standards Council of India**

- It is a voluntary, self-regulatory organisation of the advertising industry in India.
- Non Profit company

## AI washing

- It involves businesses **falsely claiming** to have **integrated sophisticated AI** into their **products**.
- It is a **deceptive promotional practice** where companies exaggerate or falsely claim their products or services use AI.
- The term AI washing is **derived from “greenwashing.”** where **companies exaggerate** their environmental friendliness to attract customers.



## Volkswagen 'dieselgate' scandal

VW admitted to fitting 11 million diesel vehicles worldwide with software to cheat pollution tests

The software in the motor is designed to fool pollution tests

Under normal operation

### Effects of NO<sub>x</sub>



- Detects the moment when a car undergoes a pollution test

- Reduces harmful emissions of **nitrogen oxides (NOx)** but only during the test

- The car's emissions controls are turned down. It emits up to **40 times the legal limit** of NOx

Legal limit of  
NO<sub>x</sub> in the  
United States:  
31 mg/km



- ▶ Asthma attacks, breathing and heart problems

Excess NOx from improperly configured diesel vehicles had contributed to about **38,000 premature deaths globally in 2015**: study published in May 2017

Source: USEPA/AutoNews.com/ICCT/CarThrottle.com



**Q1138.** Which one of the following best describes the term "greenwashing"?

- (a) Conveying a false impression that a company's products are eco-friendly & environmentally sound.
- (b) Non-inclusion of ecological/ environmental costs in Annual Financial Statements of a country.
- (c) Ignoring the consequences disastrous ecological while infrastructure development undertaking.
- (d) Making mandatory provisions for environmental costs in a government project/programme.

Ans: a

**Sol:** Greenwashing refers to the practice of conveying a misleading or false impression about the environmental friendliness of a company's products, services, or practices. It is a form of deceptive advertising where businesses exaggerate their eco-friendly efforts to appeal to environmentally conscious consumers. The term was coined by Jay Westerveld.

**Q1139.** Consider the following statements:



1. Greenwashing refers to deceptive practices where companies convey false information about the environmental friendliness of their products.

2. AI washing is a term derived from greenwashing and involves exaggerating or falsely claiming the integration of AI in products or services.

3. Both greenwashing and AI washing are regulated by the Advertising Standards Council of India (ASCI), a government organization in India.

4. ASCI is a voluntary and self-regulatory organization of the advertising industry in India.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** Greenwashing involves deceptive practices that mislead consumers about a product's environmental benefits.
- **Statement 2: True.** AI washing exaggerates or falsely claims AI integration in products, a term inspired by greenwashing.
- **Statement 3: False.** ASCI is not a government organization but a self-regulatory, non-profit body.
- **Statement 4: True.** ASCI is voluntary and operates as a self-regulatory organization.

Thus, three statements are correct.

**Q1140.** Which of the following statements regarding the Advertising Standards Council of India (ASCI) and deceptive advertising are correct?

1. ASCI recently proposed guidelines to address greenwashing in advertisements.

2. ASCI guidelines are legally binding for all companies operating in India.

3. Greenwashing and AI washing both involve misleading claims made by companies to attract consumers.

4. ASCI operates as a non-profit organization to regulate the advertising industry in India.

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** ASCI has proposed guidelines to curb greenwashing in ads.
- **Statement 2: False.** ASCI guidelines are voluntary and not legally binding.
- **Statement 3: True.** Both greenwashing and AI washing involve deceptive claims to attract consumers.
- **Statement 4: True.** ASCI is a non-profit organization that self-regulates the advertising industry.

**Day 39**

**Topic 381**

**381. Climate and Weather**

**Climate**

- long-term average of weather, typically averaged over a period of 30 years.

**Weather**

- State of atmosphere (mainly moisture and temperature) at a particular point of time.

**Climate Change**

- Change in temperature and rainfall pattern of an area.
- Main reason behind **climate change** is global warming.
- Global warming is caused because of release of excessive Greenhouse gases.

**Emission of GHGs**

- Global warming is a natural phenomenon.
- It is necessary for our survival.
- But due to excessive release of CO<sub>2</sub> and other GHGs since 1950s has increased the rate of intensity of global warming.
- This is causing Climate change.
- And thus we have to face problems of extreme climatic conditions like heatwave, drought, flash flood etc.





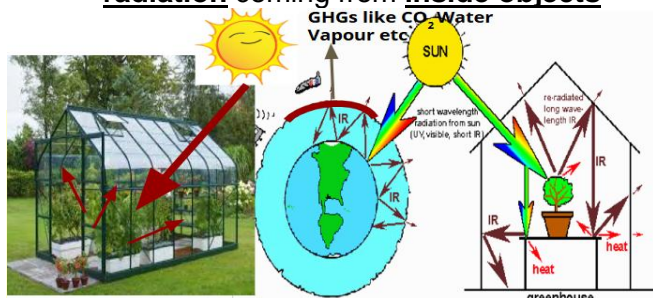
Till 1950s



Present 2020's



- **Greenhouse Effect**
- trapping of the low energy radiation
- Such surface don't capture the rays coming directly from the Sun.
- But they capture the low energy Infrared radiation coming from inside objects



**Q1141.** As compared to natural greenhouse effect, the enhanced greenhouse effect refers to increase in average surface temperature of the Earth due to:

- Volcanic activity.
- Warm Ocean currents.
- Sunspot activity.
- Anthropogenic activities.

Ans: d

**Sol:** The enhanced greenhouse effect refers to the additional warming of the Earth's surface caused by human activities, primarily the emission of greenhouse gases such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). These gases are released through activities like burning fossil fuels, deforestation, industrial processes, and agriculture.

In contrast, the natural greenhouse effect is the Earth's natural process of trapping some of the Sun's heat to maintain a stable and life-supporting temperature. The enhanced greenhouse effect amplifies this process, leading to global warming and climate change.

**Q1142.** What does the Intergovernmental Panel on Climate Change (IPCC) emphasize regarding reductions in greenhouse gas (GHG) emission?

- Gradual and limited reductions are enough.
- Deep, rapid and sustained reductions are essential.

Select the correct answer from the codes given below:

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Ans: b

**Sol:** The Intergovernmental Panel on Climate Change (IPCC) emphasizes the need for deep, rapid, and sustained reductions in greenhouse gas (GHG) emissions to mitigate the adverse effects of climate change. These reductions are critical to limiting global warming to 1.5°C or 2°C above pre-industrial levels, as outlined in the Paris Agreement. Gradual and limited reductions are insufficient to address the scale and urgency of the climate crisis.

**Q1143.** Consider the following statements:

**Statement-I:** Carbon markets are likely to be one of the most widespread tools in the fight against climate change.

**Statement-II:** Carbon markets transfer resources from the private sector to the State.

Which one of the following is correct in respect of the above statements?

- Both Statement I and Statement II are correct and Statement II is the correct explanation for Statement I
- Both Statement I and Statement II are correct and Statement II is not the correct explanation for Statement I
- Statement I is correct but Statement II is incorrect
- Statement I is incorrect but Statement II is correct.

Ans: b

**Sol:**

- **Statement I is correct-** This statement states that carbon markets are likely to be one of the most widespread tools in the fight against



climate change. This statement is generally true. Carbon markets, also known as emissions trading systems or cap-and-trade systems, are mechanisms that put a price on carbon emissions. They create economic incentives for reducing emissions by allowing entities to buy and sell carbon credits. This helps to create a market-based approach to reducing greenhouse gas emissions and has been adopted by many countries and regions as a strategy to mitigate climate change.

- **Statement II is correct-** Carbon markets are a mechanism designed to reduce greenhouse gas emissions by putting a price on carbon. They create a market for buying and selling carbon credits, which represent the right to emit a certain amount of greenhouse gases. In carbon markets, companies or entities that emit fewer greenhouse gases than their allotted limit can sell their excess credits to those who exceed their limit. This allows for a more efficient allocation of emission reduction efforts. While carbon markets involve financial transactions and can transfer resources from the private sector to the state. Instead, they facilitate the exchange of emission allowances between entities, which can include both private and public entities.
- But **statement II is not the correct** explanation of Statement I: As it transfers resources from private sector to the State does not become the reason why they are likely to be one of the most widespread tools in the fight against climate change.

### Topic 382

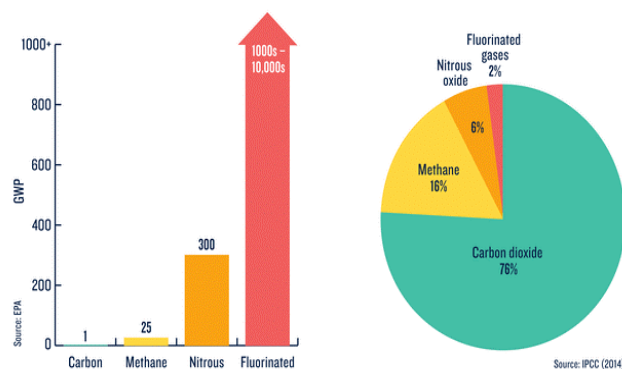
#### 382. Global Warming Potential

- It is a measure of the **total energy** that a gas **absorbs** over a particular period of time (**usually 100 years**), compared to **carbon dioxide**.

#### Then why we are more concerned about CO<sub>2</sub>?

1. High concentration in atmosphere of CO<sub>2</sub>.
2. Multiple sources of release
3. High residence time (100 years) in atmosphere as compared to other GHGs.

### HOW GREENHOUSE GASES WARM OUR PLANET



The global warming potential (GWP) of human-generated greenhouse gases is a measure of how much heat each gas traps in the atmosphere, relative to carbon dioxide.

How much each human-caused greenhouse gas contributes to total emissions around the globe.

GHG	Atmospheric Concentration	Atmospheric Lifetime	Global Warming Potential (Over a 100 year period)
Carbon Dioxide (CO <sub>2</sub> )	76%	1000's of years	1
Methane (CH <sub>4</sub> )	16%	10 years	25
Nitrous Oxide (N <sub>2</sub> O)	6%	> 100 years	298
Fluorinated Gases	2%	1,000 - 10,000 years	1,000-10,000

**Q1144.** In the context of mitigating the impending global warming due to anthropogenic emissions of carbon dioxide, which of the following can be the potential sites for carbon sequestration?

1. Abandoned and uneconomic coal seams
2. Depleted oil and gas reservoirs
3. Subterranean deep saline formations

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: d

**Sol:** Carbon sequestration involves capturing carbon dioxide (CO<sub>2</sub>) from the atmosphere or industrial processes and storing it in long-term reservoirs. This process helps to mitigate the impacts of anthropogenic CO<sub>2</sub> emissions, which contribute to global warming and climate change. The following are potential sites for carbon sequestration:

1. **Abandoned and uneconomic coal seams:**  
Coal seams are potential sites for carbon sequestration because they contain vast



amounts of coalbed methane (CBM) that can be extracted for use as a fuel source, while simultaneously storing CO<sub>2</sub> underground. CBM can be extracted by drilling into the coal seams and pumping out the methane. This process reduces the pressure in the coal seams, making it easier to store CO<sub>2</sub> in the pores of the coal. Abandoned and uneconomic coal seams are ideal for carbon sequestration because they are no longer used for mining, and thus can be repurposed for this purpose.

## 2. Depleted oil and gas reservoirs:

Depleted oil and gas reservoirs can also be used for carbon sequestration. These reservoirs have already been drilled and produced, making them ideal for storing CO<sub>2</sub>. When oil or gas is extracted from a reservoir, the pressure in the reservoir decreases, making it suitable for CO<sub>2</sub> storage. CO<sub>2</sub> can be injected into the reservoir through existing wells, and it will displace the remaining oil or gas, which can be extracted and used as a fuel source. This process is known as enhanced oil recovery (EOR) and can be used to extract additional oil or gas while also storing CO<sub>2</sub>.

## 3. Subterranean deep saline formations:

Deep saline formations are porous rock formations that contain salty water deep underground. These formations are ideal for carbon sequestration because they are vast, secure, and can store large amounts of CO<sub>2</sub>. CO<sub>2</sub> can be injected into the formations through wells drilled into the rock, and it will be stored in the pores of the rock, held in place by the salty water. Saline formations are considered a viable option for carbon sequestration because they are not suitable for other uses, such as agriculture or drinking water.

In conclusion, all three sites listed in the question - abandoned and uneconomic coal seams, depleted oil and gas reservoirs, and subterranean deep saline formations - can be used for carbon sequestration. However, it's important to note that carbon sequestration is not a silver bullet for mitigating climate change and should be used in combination with other solutions, such as reducing emissions and transitioning to renewable energy sources.

**Q1145.** Consider the following statements regarding Global Warming Potential (GWP):

1. GWP measures the total energy absorbed by a greenhouse gas (GHG) over a specific period, typically compared to carbon dioxide (CO<sub>2</sub>).
  2. Carbon dioxide is considered the most potent greenhouse gas because it has the highest GWP among all GHGs.
  3. The long atmospheric residence time of CO<sub>2</sub> is one of the reasons for its significant contribution to global warming.
  4. GWP is always calculated for a fixed period, such as 100 years, across all gases.
- How many of the above statement(s) is/are correct?
- (a) Only one
  - (b) Only two
  - (c) Only three
  - (d) All four

Ans: c

**Sol:**

- **Statement 1: True.** GWP quantifies the energy absorption of GHGs compared to CO<sub>2</sub> over a defined period.
- **Statement 2: False.** While CO<sub>2</sub> is a significant contributor to global warming, it does not have the highest GWP; gases like methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) have much higher GWP values but lower concentrations.
- **Statement 3: True.** CO<sub>2</sub>'s long atmospheric residence time (approximately 100 years) amplifies its impact.
- **Statement 4: True.** GWP is typically calculated for standard periods like 20, 50, or 100 years to ensure comparability.

Thus, three statements are correct.

**Q1146.** Which of the following statements about carbon dioxide (CO<sub>2</sub>) and its role in global warming are correct?

1. The high atmospheric concentration of CO<sub>2</sub> makes it a significant contributor to global warming.
  2. CO<sub>2</sub> has multiple natural and anthropogenic sources, making it the most ubiquitous greenhouse gas.
  3. Unlike other greenhouse gases, CO<sub>2</sub> does not remain in the atmosphere for more than 20 years.
  4. CO<sub>2</sub> is considered the baseline gas for calculating the GWP of other greenhouse gases.
- Select the correct answer using the code given below:





- (a) 1, 2, and 4 only  
(b) 1 and 3 only  
(c) 2 and 4 only  
(d) All four

Ans: a

**Sol:-**

- **Statement 1: True.** CO<sub>2</sub>'s high atmospheric concentration ensures its major role in global warming.
- **Statement 2: True.** CO<sub>2</sub> originates from both natural (e.g., respiration, volcanic activity) and anthropogenic (e.g., burning fossil fuels, deforestation) sources.
- **Statement 3: False.** CO<sub>2</sub> has a long residence time in the atmosphere, often exceeding 100 years, contributing to its cumulative impact.
- **Statement 4: True.** CO<sub>2</sub> is used as the baseline gas with a GWP of 1 to compare other gases.

## Topic 383

### 383. Methane Gas

## Methane Gas emission

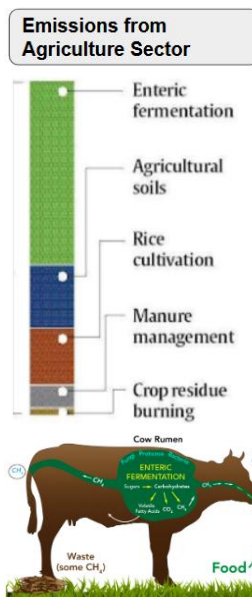
- **Anthropogenic sources -60 percent** of **global methane emissions.**
- It includes landfills, oil and natural gas systems, **agricultural activities.**
- **Methane** is produced by animals having **rumen** (digestion of food with help of microorganism in stomach compartment)
- **Current events related to Methane**

## 1. Carbon tax on Cows

- Denmark, a major pork and dairy exporter, will introduce a tax on livestock who emit GHG like Methane from 2030.
- Denmark will become first country to do so.

## 2. Methane Alert and Response System (MARS)

- Set up in CoP 27(UNFCCC)-Sharm El Sheikh, Egypt
- satellite-based system-detect Methane emission
- set up as part of the UN Environment Programme's (UNEP) International Methane Emissions Observatory (IMEO) strategy



**Bacteria** under the water produces **Methane** in anaerobic conditions



Livestock account for about 32% of human-caused methane emissions, says the UN Environment Program. AP

The livestock industry is responsible for about 20% of the world's **Methane gas**

## Methane Alert and Response System

**Q1147.** As per the recent study, which of the following toxic gas being trapped in Arctic's permafrost is now leaking into environment due to global warming?

- (a) Methane  
(b) Phosgene  
(c) Hydrogen sulphide  
(d) Mercury

Ans: d

**Sol:-**

- According to the study published in the journal Environment Research Letters, researchers conducted experiments in Alaska's Yukon River basin to determine how quickly the trapped mercury is being released from the Arctic's permafrost and how soon a 'mercury bomb' could possibly explode.
- A significant amount of total mercury (THg) is liberated from permafrost during glacial erosion, while a variable but generally lesser portion is subsequently redeposited by migrating rivers, stated the study led by American researcher Magdalene Isabel Smith.
- The mercury content was generally higher in sediment, with finer rather than coarser grains.



This suggested specific soil types could pose greater risks.

**Q1148.** Consider the following statements regarding methane gas and its emissions:

1. Livestock with rumens produce methane as part of their digestion process with the help of microorganisms.
  2. Anthropogenic sources contribute to around 40% of global methane emissions.
  3. Methane emissions can be tracked using satellite-based systems like the Methane Alert and Response System (MARS).
  4. Denmark is the first country to introduce a carbon tax on livestock emitting methane.
- How many of the above statement(s) is/are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Ans: b

**Sol:**

- **Statement 1: True.** Methane is a by-product of digestion in ruminant animals like cows, which have specialized stomach compartments.
- **Statement 2: False.** Anthropogenic sources contribute 60%, not 40%, of global methane emissions.
- **Statement 3: True.** MARS is a satellite-based system launched at CoP 27 to track methane emissions globally.
- **Statement 4: True.** Denmark will introduce a tax on livestock emitting methane, becoming the first country to do so.

Thus, three statements are correct.

**Q1149.** Which of the following statements about methane mitigation and monitoring efforts are correct?

1. The Methane Alert and Response System (MARS) was established during CoP 26 in Glasgow, UK.
2. MARS is part of the UNEP's International Methane Emissions Observatory (IMEO) strategy.
3. Methane emissions from landfills are one of the major anthropogenic sources.
4. Denmark's carbon tax on cows is set to be implemented by 2025.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 and 4 only
- (d) 1, 2, and 3 only

Ans: b

**Sol:**

- **Statement 1: False.** MARS was established during CoP 27 in Sharm El Sheikh, Egypt, not CoP 26.
- **Statement 2: True.** MARS is part of UNEP's IMEO strategy for tracking methane emissions.
- **Statement 3: True.** Landfills are a significant anthropogenic source of methane emissions.
- **Statement 4: False.** Denmark's carbon tax on livestock emitting methane is set to be implemented by 2030, not 2025.

### Topic 384

#### 384. International Climate Negotiations Timeline

##### 1972

- First **UN Environment Conference** in Stockholm.
- United Nations Environment Programme (**UNEP**) was **established** as an outcome.

##### 1988

- Establishment of the Intergovernmental Panel on Climate Change (**IPCC**).

##### 1992

- **Rio Earth Summit** in Brazil
- **3 Agreements** finalised and **3 documents adopted**
- **3 Agreements**
- **UNFCCC (not legally binding)**
- Agreements and protocols under UNFCCC like Kyoto Protocol and Paris agreement are legally binding.

##### b. **UNCBD**

- Legally binding treaty

##### c. **UNCCD**

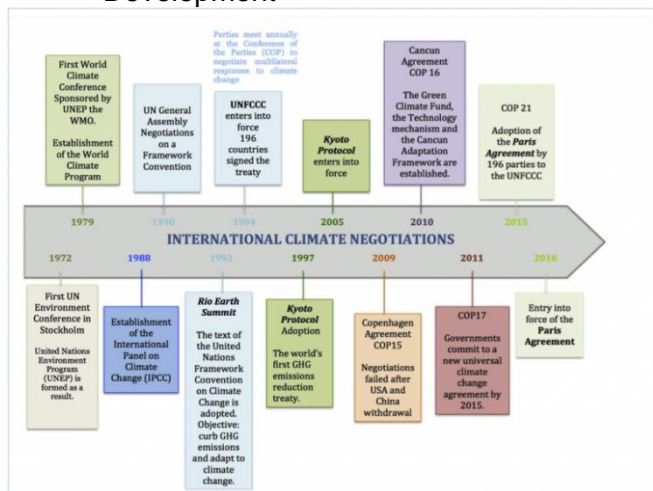
- Legally binding treaty-first and only **internationally legally binding** framework for desertification.

##### 3 documents

1. **Agenda 21:** plan for sustainable development in 21st century
2. **Forest Principles**



### 3. Rio Declaration on Environment and Development



**Q1150.** Consider the following statements regarding major international climate negotiations and agreements:

1. The United Nations Environment Programme (UNEP) was established as an outcome of the 1988 Intergovernmental Panel on Climate Change (IPCC) meeting.
  2. The United Nations Framework Convention on Climate Change (UNFCCC) is legally binding, but the agreements and protocols under it, like the Kyoto Protocol and Paris Agreement, are not legally binding.
  3. The Rio Earth Summit led to the adoption of Agenda 21, which is a comprehensive plan for sustainable development in the 21st century.
- How many of the above statement(s) is/are correct?
- (a) Only one  
(b) Only two  
(c) All three  
(d) None

Ans: a

**Sol:**

- **Statement 1: False.** UNEP was established in 1972 as an outcome of the UN Environment Conference in Stockholm, not in 1988.
- **Statement 2: False.** The UNFCCC itself is not legally binding, but agreements under it, like the Kyoto Protocol and Paris Agreement, are legally binding.
- **Statement 3: True.** The Rio Earth Summit in 1992 led to the adoption of Agenda 21 as a plan for sustainable development.

Thus, only one statement is correct.

**Q1151.** Which of the following statements about the Rio Earth Summit and its outcomes are correct?

1. The United Nations Convention to Combat Desertification (UNCCD) is the first and only internationally legally binding framework to address desertification.
2. The United Nations Convention on Biological Diversity (UNCBD) is legally binding, while the Forest Principles adopted at the summit are not.
3. The Kyoto Protocol, adopted under the UNFCCC, is an outcome of the Rio Earth Summit in 1992.

Select the correct answer using the code given below:

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 1 and 3 only  
(d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: True.** The UNCCD is the first and only legally binding treaty addressing desertification, adopted as an outcome of the Rio Earth Summit.
- **Statement 2: True.** The UNCBD is legally binding, but the Forest Principles are non-binding.
- **Statement 3: False.** The Kyoto Protocol was not an outcome of the Rio Earth Summit; it was adopted later under the UNFCCC framework in 1997.

**Q1152.** Which of the following were key outcomes of the Rio Earth Summit (1992)?

1. Adoption of the legally binding United Nations Framework Convention on Climate Change (UNFCCC).
  2. Adoption of Agenda 21, which serves as a comprehensive action plan for sustainable development.
  3. Establishment of the Intergovernmental Panel on Climate Change (IPCC) as a mechanism to assess climate change science.
  4. Adoption of the legally binding United Nations Convention on Biological Diversity (UNCBD).
- How many of the above statement(s) is/are correct?
- (a) Only one





- (b) Only two  
 (c) Only three  
 (d) All four

Ans: b

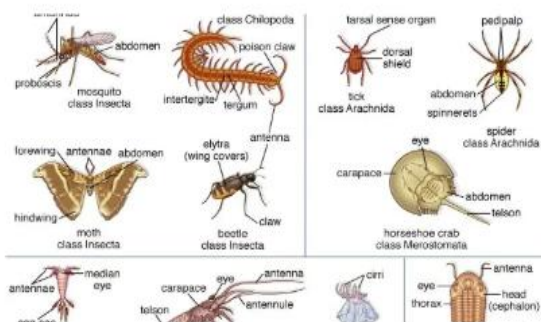
Sol:

- **Statement 1: False.** The UNFCCC was adopted at the Rio Earth Summit, but it is not legally binding.
- **Statement 2: True.** Agenda 21 was a key non-binding action plan for sustainable development adopted at the summit.
- **Statement 3: False.** The IPCC was established earlier in 1988, not as part of the Rio Earth Summit.
- **Statement 4: True.** The UNCBD was adopted at the Rio Earth Summit and is a legally binding treaty.

### Topic 385

#### 385. Intergovernmental Panel on Climate Change (IPCC)

- Created in 1988
- By **World Meteorological Organization (WMO)** United Nations Environment Programme (UNEP)
- **UNFCCC** works on report of IPCC
- IPCC **does not conduct its own research**-accumulates different research



**Vectors that actively transmit diseases**

#### Assessment reports by IPCC used by UNFCCC

1. **First Assessment Report (1990)**
2. **Second Assessment Report (1995)**
3. **Third Assessment Report (2001)**
4. **Fourth Assessment Report (2007)**
  - **GHG emissions** increased by **70 per cent** between **1970 and 2004**/Sea-levels could be 60 cm higher than 1990 levels by

2100/The report won the **2007 Nobel Peace Prize for IPCC**

#### 5. Fifth Assessment Report (2014)

- Recommended to keep global warming **below 1.5°C by 2100** with respect to pre industrial level-became basis for **Paris Climate deal.**

#### 6. Sixth Assessment Report (2023)

- For the **first time**, made an assessment of **regional and sectoral impact** (eg Mumbai is at high risk of sea-level rise and flooding).
- **Increasing vector-borne and water-borne disease** (like malaria, dengue, chikungunya, yellow fever) due to climate change.

**Q1153.** Consider the following statements about the Intergovernmental Panel on Climate Change (IPCC):

1. The IPCC was jointly created by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).
  2. The IPCC conducts its own independent scientific research on climate change.
  3. Reports by the IPCC serve as the basis for negotiations under the United Nations Framework Convention on Climate Change (UNFCCC).
  4. The IPCC's Fourth Assessment Report won the Nobel Peace Prize in 2007.
- How many of the above statement(s) is/are correct?

- (a) Only two  
 (b) Only three  
 (c) Only one  
 (d) All four

Ans: b

Sol:

- **Statement 1: True.** The IPCC was established in 1988 by WMO and UNEP.
  - **Statement 2: False.** The IPCC does not conduct its own research; it compiles findings from existing research.
  - **Statement 3: True.** The IPCC's assessment reports are used as key references in UNFCCC negotiations.
  - **Statement 4: True.** The Fourth Assessment Report (2007) won the Nobel Peace Prize for the IPCC.
- Thus, three statements are correct.

**Q1154.** Which of the following were significant findings or outcomes of IPCC reports?



1. The Fourth Assessment Report (2007) highlighted that greenhouse gas emissions increased by 70% between 1970 and 2004.
2. The Fifth Assessment Report (2014) emphasized limiting global warming to below 1.5°C above pre-industrial levels.
3. The Sixth Assessment Report (2023) assessed regional impacts, including identifying Mumbai as highly vulnerable to sea-level rise and flooding.
4. The Second Assessment Report (1995) introduced the concept of vector-borne diseases linked to climate change.

How many of the above statement(s) is/are correct?

- (a) Only two
- (b) Only three
- (c) Only one
- (d) All four

Ans: b

**Sol:**

- **Statement 1: True.** The Fourth Assessment Report (2007) stated that GHG emissions increased by 70% between 1970 and 2004.
- **Statement 2: True.** The Fifth Assessment Report (2014) became the basis for the Paris Climate Agreement and recommended limiting warming to below 1.5°C.
- **Statement 3: True.** The Sixth Assessment Report (2023) assessed regional impacts, including highlighting Mumbai's vulnerability.
- **Statement 4: False.** The Second Assessment Report (1995) did not specifically introduce the link between vector-borne diseases and climate change; this was emphasized later.

Thus, three statements are correct.

**Q1155.** Consider the following statements regarding the evolution of the IPCC's role:

1. The First Assessment Report (1990) laid the groundwork for the establishment of the UNFCCC.
2. The Third Assessment Report (2001) projected sea levels could rise by 60 cm by 2100 compared to 1990 levels.
3. The Sixth Assessment Report (2023) included sectoral impacts for the first time.
4. The Fifth Assessment Report (2014) introduced the concept of carbon neutrality as a mitigation strategy.

How many of the above statement(s) is/are correct?

- (a) Only two
- (b) Only three
- (c) Only one
- (d) All four

Ans: a

**Sol: Statement 1: True.** The First Assessment Report (1990) provided scientific evidence that led to the creation of the UNFCCC.

**Statement 2: False.** The Fourth Assessment Report (2007) projected a sea-level rise of up to 60 cm by 2100.

**Statement 3: True.** The Sixth Assessment Report (2023) was the first to include sectoral assessments.

**Statement 4: False.** The Fifth Assessment Report (2014) did not explicitly introduce carbon neutrality but emphasized the need for keeping warming below 1.5°C.

### Topic 386

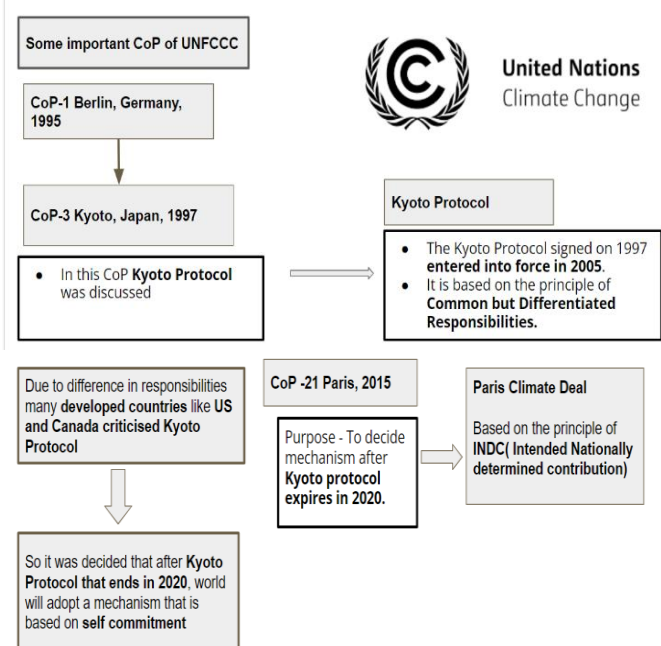
#### 386. UNFCCC

- an intergovernmental treaty signed by member countries of UN at Earth Summit, 1992
- The agreement entered into force in 1994.
- **Objective- stabilize greenhouse gases**
- For this all member countries will meet once in a year known as CoP (Conference of Parties)
- Headquarter-Bonn, Germany (meet for CoP in Bonn unless some party offers to host the session).
- One of the main accepted principles of UNFCCC is 'Polluters pay' or 'Common But Differentiated Responsibilities' according to which the developed countries have bigger responsibility regarding climate finance.

#### Copenhagen summit CoP-15, 2009

- developed countries had promised to mobilise at least \$100 billion every year from 2020
- \$100 billion every year -known as Green Climate Fund (managed by World Bank).
- This promise was reaffirmed during the Paris Agreement
- In reality target of \$100b has not been met.





**Q1156.** Consider the following statements:

1. The UNFCCC Conference of the Parties 29 (COP29) is being hosted by Azerbaijan.

2. Baku, the capital of Azerbaijan is located on the banks of Aral Sea.

Which of the above statement/s is/are incorrect?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: b

**Sol:**

- Statement 1: Correct.** The 29th Conference of the Parties (COP29) to the United Nations Framework Convention on Climate Change (UNFCCC) is scheduled to be held in Baku, Azerbaijan, from November 11 to 22, 2024.
- Statement 2: Incorrect.** Baku, the capital of Azerbaijan, is situated on the coast of the Caspian Sea, not the Aral Sea. The Aral Sea is located between Kazakhstan and Uzbekistan, which are to the northeast of Azerbaijan.

**Q1157.** Consider the following statements about Global Energy Efficiency Alliance:

1. It is an ambitious initiative launched by India at the UNFCCC COP29, hosted in Azerbaijan.

2. It aims at doubling of global energy efficiency growth rates by 2030.

Which of the above statement(s) is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: b

**Sol:**

- Statement 1: Incorrect.** The Global Energy Efficiency Alliance was launched by the United Arab Emirates (UAE) at COP29 in Baku, Azerbaijan, not by India.
- Statement 2: Correct.** The alliance aims to double global energy efficiency growth rates by 2030

**Q1158.** Mitigation Work Programme (MWP)', sometimes in news, is associated with which of the following?

- (a) International Labour Organisation (ILO)
- (b) World Bank
- (c) World Health Organization (WHO)
- (d) United Nations Framework Convention on Climate Change (UNFCCC)

Ans: d

**Sol:** The Mitigation Work Programme (MWP) is an initiative under the United Nations Framework Convention on Climate Change (UNFCCC). It was established to urgently scale up mitigation ambition and implementation in this critical decade, complementing the global stocktake.

**UNFCCC:**

- The MWP aims to:**
  - Urgently scale up mitigation ambition and implementation in this critical decade.
  - Complement the global stocktake by providing annual reports and facilitating dialogues.
- The programme includes:**
  - Global dialogues to share experiences and best practices.
  - Investment-focused events to mobilize financial resources for mitigation efforts.

The MWP is guided by co-chairs appointed by the UNFCCC subsidiary bodies and operates under the guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).





## Topic 387

### 387. INDC and Panchamrit

## UNFCCC-CoP 21 (Year 2015)

- The Paris Agreement does not assign emission reduction targets to any country.
- Instead, it asks all to do the best they can.
- But the targets known as INDC (Intended Nationally Determined Contribution) they set for themselves must be reported and verified.

### Objective of Paris agreement-

- To limit the global rise in temperatures to within 2°C from pre-industrial times (1870), preferably below 1.5°C.

### Pre-industrial time

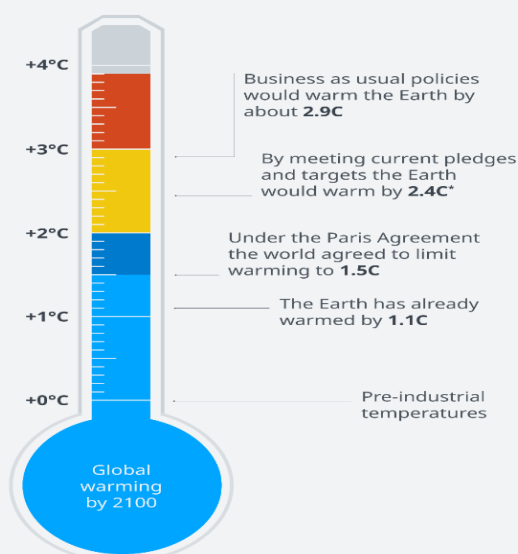
- The Paris Agreement doesn't explicitly define pre-industrial levels, but it does use the period from 1850–1900 as a reference

## Panchamrit Strategy of India

- Nearly **170 countries** have submitted their nationally determined contributions (**NDCs**) so far as part of the **2015 Paris Agreement**.
- **India** has adopted 5 set of strategies known as **Panchamrit strategy** as its INDG.

### Projected global warming by 2100

Rise in temperatures above pre-industrial



\*China's new climate goals have reduced this estimate from 2.7C

Source: Climate Action Tracker, September 2020



- **Global Stocktake**
- It was agreed **stocktake** takes place every **five years**, with the **first-ever stocktake concluded** at the **UN Climate Change Conference (COP28)** at the end of 2023 in Dubai.

**Q1159.** Which of these facts is not true about the Paris Agreement?

1. Curtailing global temperature rise this century below 2 degrees Celsius, above pre-industrial levels, and also pursue efforts to limit the increase to 1.5 degrees Celsius.
  2. Conceive nationally determined contributions
  3. It intends to replace the Nagoya Protocol fully by 2020.
  4. The countries who participated in the COP24 brought out a package of implementing rules for the Paris Agreement called the Katowice Rulebook.
- (a) 4 only  
(b) 1 and 3 only  
(c) 3 only  
(d) 2 only

Ans: c

**Sol:**

- **Statement 1:** "Curtailing global temperature rise this century below 2 degrees Celsius, above pre-industrial levels, and also pursue efforts to limit the increase to 1.5 degrees Celsius."

**Correct.** This is one of the key goals of the Paris Agreement. The agreement aims to limit the global temperature rise to well below 2°C and pursue efforts to limit it to 1.5°C.



- **Statement 2:** "Conceive nationally determined contributions"

**Correct.** The Paris Agreement emphasizes the importance of Nationally Determined Contributions (NDCs), which are the climate action plans submitted by each country, outlining how they plan to reduce emissions and adapt to climate change.

- **Statement 3:** "It intends to replace the Nagoya Protocol fully by 2020."

**Incorrect.** The Paris Agreement does not aim to replace the Nagoya Protocol. The Nagoya Protocol is part of the Convention on Biological Diversity and deals with access to genetic resources and the fair sharing of benefits. It is unrelated to the Paris Agreement, which focuses on climate change. Hence, this statement is incorrect.

- **Statement 4:** "The countries who participated in the COP24 brought out a package of implementing rules for the Paris Agreement called the Katowice Rulebook."

**Correct.** The Katowice Rulebook was indeed adopted at COP24 in 2018. It provided detailed guidelines for the implementation of the Paris Agreement.

**Q1160.** What is 'Climate Neutral Now' initiative?

1. It encourage organizations and other interested stakeholders to act now in order to achieve a carbon neutral world by 2030.

2. It derives its aims from the Paris Agreement.

Select the correct answer using the code given below.

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: b

**Sol:** The 'Climate Neutral Now' initiative encourages action to achieve a climate-neutral world by 2050, not 2030, and it derives its aims from the Paris Agreement, which seeks to limit global temperature rise and achieve net-zero emissions by 2050. Thus, only statement 2 is correct.

**Q1161.** Which of the following statements about the Paris Agreement on Climate Change is NOT correct?

- (a) The agreement has been signed by more than 190 countries [as of March 2017]
- (b) The agreement went into effect on 4 November 2016
- (c) The Intended Nationally Determined Contribution [INDC] pledged during the 2015 Climate Change Conference has been withdrawn in the Paris Agreement
- (d) Both USA and China joined the Paris Agreement

Ans: c

**Sol:** The correct answer is option 3.

- The statement that the Intended Nationally Determined Contribution (INDC) pledged during the 2015 Climate Change Conference has been withdrawn in the Paris Agreement is incorrect.
- The Paris Agreement on Climate Change is an international agreement that was signed by more than 190 countries as of March 2017 (option 1). It aims to combat climate change and limit global warming below 2 degrees Celsius. The agreement went into effect on 4 November 2016 (option 2).
- Option 3 indicates that the INDC pledged during the 2015 Climate Change Conference has been withdrawn in the Paris Agreement. However, this statement is incorrect. The INDCs (Intended Nationally Determined Contributions) are individualized targets that each country sets in order to reduce greenhouse gas emissions and adapt to the impacts of climate change. These INDCs are a key element of the Paris Agreement and continue to be a part of the agreement.
- Option 4 states that both USA and China joined the Paris Agreement, and this statement is true. The United States and China, two of the largest contributors to global greenhouse gas emissions, have both joined the agreement and have been instrumental in its implementation.

### Topic 388

#### 388. CoP 29 of UNFCCC

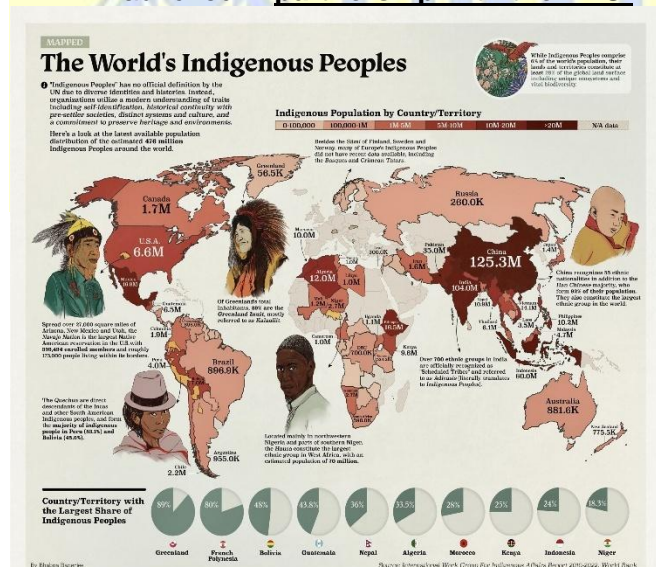
- The **CoP 29 of UNFCCC for 2024** was concluded in **Baku, Azerbaijan**.

#### Key Highlights of the COP29-

##### 1. New Climate Finance Goal



- The New Collective Quantified Goal (NCQG) was accepted according to which developed countries committed to mobilizing \$300 billion annually by 2035 to assist developing nations in addressing climate change.
2. Operationalization of Carbon Markets
  - Delegates finalized a framework under Article 6.4 of the Paris Agreement, establishing a UN-regulated system for international carbon credit trading.
3. Declaration on Reducing Methane
4. Baku Workplan
  - enhancing indigenous people participation in climate dialogues.
5. Lima Work Programme on Gender (LWPG) extended for another 10 years
  - The plan was adopted during Paris agreement and aims at promoting women participation in climate talks.
6. Baku Harmoniya Climate Initiative for Farmers
  - It is a platform to support farmers impacted due to climate change.
  - Launched in partnership with the FAO.



**Indigenous peoples** are **culturally distinct** groups of people who share a **common ancestry** with the **lands and natural resources** where **they** live.

**Q1162.** Consider the following statements about COP29 of UNFCCC held in 2024 in Baku, Azerbaijan:

1. The New Collective Quantified Goal (NCQG) agreed upon at COP29 involves developed

countries committing to mobilizing \$300 billion annually by 2035 to support developing nations in addressing climate change.

2. The framework for international carbon credit trading finalized at COP29 was based on Article 6.3 of the Paris Agreement.

3. The Baku Workplan, adopted at COP29, aims at enhancing the participation of indigenous people in climate dialogues.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only  
(b) 1 and 3 only  
(c) 2 and 3 only  
(d) 1, 2 and 3

Ans: b

**Sol:-**

- **Statement 1 is correct** as the NCQG accepted at COP29 involves developed countries committing \$300 billion annually by 2035.
- **Statement 2 is incorrect** because the framework for international carbon credit trading was based on Article 6.4 of the Paris Agreement, not Article 6.3.
- **Statement 3 is correct** as the Baku Workplan focuses on enhancing the participation of indigenous peoples in climate dialogues.

**Q1163.** Which of the following are true about COP29, held in Baku, Azerbaijan?

1. The Lima Work Programme on Gender (LWPG) was extended for another 10 years during COP29.
  2. The Baku Harmoniya Climate Initiative for Farmers aims to support farmers impacted by climate change and was launched in partnership with the United Nations Framework Convention on Climate Change (UNFCCC).
  3. A new climate finance goal, under the New Collective Quantified Goal (NCQG), was agreed upon by developed countries to provide \$300 billion annually to developing countries by 2035.
- Select the correct option:
- (a) 1 and 3 only
  - (b) 2 and 3 only
  - (c) 1, 2 and 3
  - (d) 1 only

Ans: a

**Sol:**





- **Statement 1 is correct** because the Lima Work Programme on Gender (LWPG) was extended for 10 years at COP29.
- **Statement 2 is incorrect** because the Baku Harmoniya Climate Initiative was launched in partnership with the FAO, not UNFCCC.
- **Statement 3 is correct**, as the new climate finance goal includes a commitment of \$300 billion annually to assist developing nations by 2035.

**Q1164.** Which of the following is/are true regarding the Baku Declaration at COP29?

1. The declaration focused on enhancing indigenous people's participation in climate dialogues and was encapsulated in the Baku Workplan.
2. The Baku Harmoniya Climate Initiative for Farmers is a platform to support farmers impacted by climate change, launched in partnership with the World Bank.
3. The New Collective Quantified Goal (NCQG) agreed at COP29 involves developed countries contributing \$500 billion annually by 2035 to help developing nations address climate change.

Select the correct option.

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1 only

Ans: d

**Sol:**

- **Statement 1 is correct** as the Baku Workplan focuses on enhancing indigenous people's participation in climate dialogues.
- **Statement 2 is incorrect** because the FAO, not the World Bank, partnered in launching the Baku Harmoniya Climate Initiative for Farmers.
- **Statement 3 is incorrect** because the commitment is \$300 billion annually, not \$500 billion.

### Topic 389

#### 389. Carbon Market

##### How Carbon market works?

- A company emitting GHG beyond its permitted level (eg Emitter A in the figure).

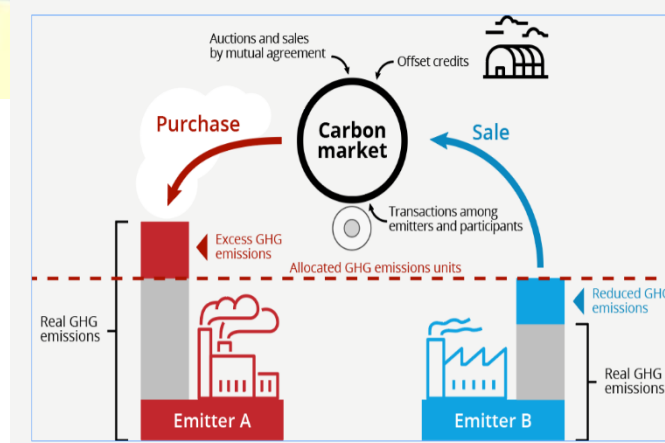
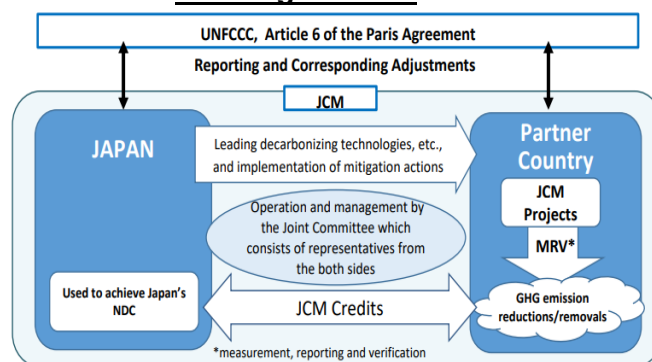
- The Emitter **A has to compensate** the excess emission by buying carbon credit from Carbon market.

##### Article 6 of the Paris Agreement

- The framework for this market is based on Article 6 of the Paris Agreement.
- Article 6.2 permits bilateral carbon trade between countries
- Article 6.4 enables global carbon trading participation.

##### Current news?

- India is looking to sign a Memorandum of Cooperation for setting up a Joint Crediting Mechanism (JCM) with Japan.
- The JCM will be formed under Article 6.2 of the Paris Agreement.



- **A carbon credit** is a kind of tradable permit that, per United Nations standards, equals one tonne of carbon dioxide removed, reduced, or sequestered from the atmosphere.

**Q1165.** Consider the following statements Carbon Credit and Trading Scheme (CCTS):

1. Carbon Credit and Trading Scheme (CCTS) was introduced by the Ministry of Environment, Forest, and Climate Change (MOEFCC).



2. Indian Council of Forestry Research and Education (ICFRE) is designated as the administrator for the carbon market.

3. It has been notified under the Environment (Protection) Act, 1986.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) None

Ans: d

**Sol:**

- **Statement 1:** CCTS is a strategic initiative by India's Power Ministry, in collaboration with the Bureau of Energy Efficiency (BEE).
- **Statement 2:** The Bureau of Energy Efficiency (BEE) is the administrator of the CCTS.
- **Statement 3:** It has been notified under the Energy Conservation (Amendment) Act, 2022.

**Q1166.** Consider the following statements regarding the Carbon Market:

1. The framework for the global carbon market is based on Article 6 of the Paris Agreement, allowing both bilateral and global carbon trading.

2. Article 6.2 of the Paris Agreement permits bilateral carbon trade between countries, while Article 6.4 enables global participation in carbon trading.

3. India has already signed a Memorandum of Cooperation with Japan for setting up a Joint Crediting Mechanism (JCM) under Article 6.4 of the Paris Agreement.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1 is correct:** The global carbon market is indeed based on Article 6 of the Paris Agreement, which permits bilateral and global trading of carbon credits.
- **Statement 2 is correct:** Article 6.2 allows bilateral carbon trade between countries, while Article 6.4 facilitates broader global participation.

- **Statement 3 is incorrect:** India is looking to sign the Memorandum of Cooperation with Japan for the Joint Crediting Mechanism (JCM) under Article 6.2, not Article 6.4.

Thus, A. 1 and 2 only is the correct answer.

**Q1167.** Consider the following statements about Carbon Credits and the Carbon Market:

1. A carbon credit represents one tonne of carbon dioxide that has been removed, reduced, or sequestered from the atmosphere.

2. Emitter A, exceeding its emission limits, can offset its emissions by purchasing carbon credits from the carbon market.

3. A carbon credit is a fixed value tradeable asset that is the same across all carbon markets worldwide.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1 is correct:** A carbon credit indeed represents one tonne of carbon dioxide removed, reduced, or sequestered.
- **Statement 2 is correct:** An emitter who exceeds its permitted level of emissions can buy carbon credits from the market to offset the excess emissions.
- **Statement 3 is incorrect:** While carbon credits are tradeable assets, their value may vary across different carbon markets and regions, so they are not always the same across all markets.

### Topic 390

#### 390. Loss and Damage Fund

- **Proposed at CoP 27** of UNFCCC in 2022 at **Sharm el-Shaikh**.
- **Created** at **COP 28-Dubai**
- **Aim-** to **help vulnerable countries** cope with the **impact of climate change**.
- **\$475 million** — host UAE pledged \$100 million, the European Union promised \$275 million, \$17.5 million from the US, and \$10 million from Japan.
- **World Bank will oversee** the loss and damage fund





**Q1168.** Transitional Committee (TC), sometimes in news, is associated with which of the following?

- (d) Loss and Damage Fund (LDF).

Ans: d

**Sol:** The Transitional Committee (TC) is associated with the Loss and Damage Fund (LDF), which was established to provide financial assistance to countries suffering from the adverse effects of climate change, particularly those most vulnerable to it. The committee is responsible for the operationalization and management of this fund.

**Q1169.** Consider the following statements about the Loss and Damage Fund:

1. The Loss and Damage Fund was proposed at COP 27 of UNFCCC in 2022 in Sharm el-Shaikh.
2. The fund was officially created at COP 28 held in Dubai.
3. The primary aim of the Loss and Damage Fund is to assist countries in mitigating the effects of climate change by reducing emissions.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 1 and 3 only  
(d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1 is correct** because the Loss and Damage Fund was indeed proposed during COP 27 held in Sharm el-Shaikh in 2022.
- **Statement 2 is correct** as the fund was officially created during COP 28 held in Dubai in 2023.
- **Statement 3 is incorrect** because the fund's aim is to help vulnerable countries cope with the impacts of climate change, not to mitigate emissions. Therefore, the correct answer is A. 1 and 2 only.

**Q1170.** Consider the following details about the Loss and Damage Fund:

1. The UAE pledged \$100 million towards the Loss and Damage Fund.
2. The European Union promised \$275 million as part of the fund.
3. The World Bank will oversee the management and distribution of the Loss and Damage Fund.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only  
(b) 1 and 3 only  
(c) 2 and 3 only  
(d) 1, 2, and 3

Ans: d

**Sol:**

- **Statement 1 is correct** as the UAE pledged \$100 million towards the Loss and Damage Fund.
- **Statement 2 is correct** because the European Union promised \$275 million for the fund.
- **Statement 3 is correct** since the World Bank is tasked with overseeing the Loss and Damage Fund.

## Day 40

## Topic 391

### 391. UN Convention on Biodiversity

- Adopted at the Earth Summit on 22nd May 1992.
- CBD is legally binding.
- Thus 22nd May is celebrated as International Day for Biological Diversity.
- Theme of 2024 is “Be part of the Plan”.

The Convention has **three main goals**:

1. **Conservation of biodiversity**





2. **Sustainable use of its components;**
3. **Fair and equitable sharing of benefits** arising from genetic resources-The benefits of biodiversity must be shared with the indigenous people.

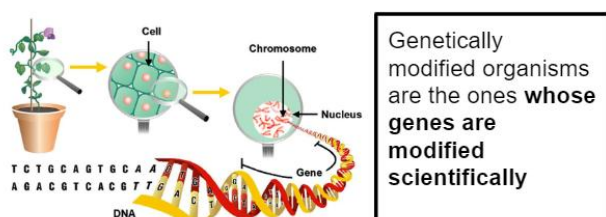
### **CBD- Protocol**

#### 1. **Cartagena protocol**

- regulate release of **GMO and LMO** (Living modified organisms)

#### 2. **Nagoya protocol**

- Access Benefit Sharing
- 20 Aichi Targets

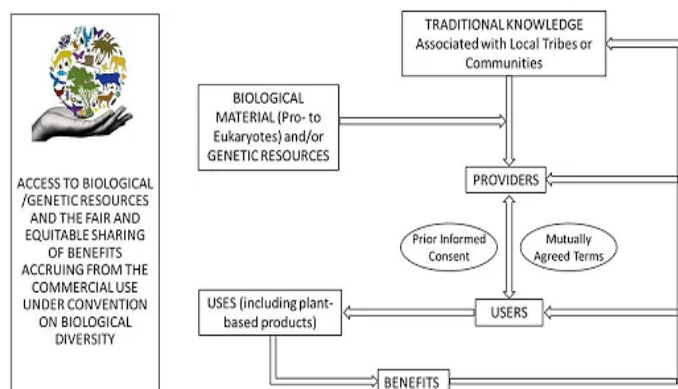


Cartagena protocol of CBD limits the movement of GMOs because they are threat to biodiversity.



Targets were established in 2010 and were to be achieved by 2020

### **Nagoya Protocol on Access and Benefit Sharing**



**Q1171.** Consider the following international agreements:

1. The International Treaty on Plant Genetic Resources for Food and Agriculture
2. The United Nations Convention to Combat Desertification
3. The World Heritage Convention

Which of the above has / have a bearing on the biodiversity?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: d

**Sol:** Biodiversity refers to the variety of life on Earth, including the diversity of species, genes, and ecosystems. It is essential for the functioning of ecosystems and provides many benefits to humans, such as food, medicine, and recreation. However, biodiversity is currently under threat due to human activities such as habitat destruction, pollution, and climate change.

To address these issues and promote the conservation and sustainable use of biodiversity, international agreements and conventions have been established. Three such agreements are mentioned in the given question:

1. **The International Treaty on Plant Genetic Resources for Food and Agriculture:** This treaty was established in 2001 by the Food and Agriculture Organization (FAO) of the United Nations. It recognizes the importance of conserving plant genetic resources for food and agriculture and encourages the sustainable use of these resources. The treaty aims to ensure that plant genetic resources are available for future generations and that their benefits are shared equitably. Plant genetic resources are a crucial component of biodiversity, and this treaty helps to promote their conservation and sustainable use.
2. **The United Nations Convention to Combat Desertification:** This convention was established in 1994 and aims to combat desertification and mitigate the effects of drought. Desertification can have a significant impact on biodiversity loss, as it leads to the destruction of ecosystems and the loss of species. The convention encourages international cooperation and partnership to address desertification and mitigate its impact on biodiversity.
3. **The World Heritage Convention:** This convention was established by UNESCO in 1972 and aims to protect and preserve cultural and natural heritage sites around the world. Many of the natural heritage sites that are



protected under this convention are also important for biodiversity conservation, such as national parks and wildlife reserves. By protecting these sites, the convention helps to promote the conservation of biodiversity.

**Q1172.** The supplementary agreement (2010) struck to the Convention on Biological Diversity, designed for countries to ensure the benefits of exploiting the genetic resources in a place are shared with the communities who help protect those resources.

- Aichi Biodiversity Targets.
- Nagoya Protocol.
- Cartagena Protocol.
- Rotterdam Convention

Ans: b

**Sol:** The Nagoya Protocol is a supplementary agreement to the Convention on Biological Diversity (CBD), adopted in 2010. It focuses on ensuring that benefits arising from the utilization of genetic resources are shared fairly and equitably with the local and indigenous communities that contribute to the conservation and sustainable use of those resources.

**Q1173.** Consider the following statements:

- In India, the Biodiversity Management Committees are key to the realization of the objectives of the Nagoya Protocol.
- The Biodiversity Management Committees have important functions in determining access and benefit sharing, including the power to levy collection fees on the access of biological resources within its jurisdiction.

Which of the statement(s) given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Ans: c

**Sol:**

- Statement 1 is correct:** Nagoya Protocol: An international agreement called the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilisation to the Convention

on Biological Diversity aims to equitably and fairly share the benefits resulting from the use of genetic resources. It entered into force on 12 October 2014.

- According to the Biological Diversity Act of 2002, every local body in the State shall establish a Biodiversity Management Committee (BMC) within its area of jurisdiction for the purpose of promoting biological diversity conservation, sustainable use, and documentation. In other words, it can be said that, in India, the BMCs functions as the agency for the implementation of the objectives of Nagoya Protocol.
- Statement 2 is correct:** The BD Act gives BMCs the independent authority to charge those who collect biological resources within their territorial jurisdiction by way of collection fees. The ability of BMCs to collect fees will allow them to develop their own financial resources that they can use to carry out the objectives of the Act.

### Topic 392

#### 392. Genetic Engineering Appraisal Committee

- Genetically Modified (GM) crops are plants whose DNA has been altered for desirable traits like Resistance to pests, Increased Yield, Improved nutritional content

#### Concerns of GM crops-

- Health Concerns
- Economic Issues-corporate control over seeds
- Environmental Impact-a reduction in biodiversity

#### Mechanism to allow cultivation of GM crops in India

- Genetic Engineering Appraisal Committee (GEAC)- body under Ministry of Environment, Forests and Climate Change- technical approval
- final approval for GMOs-Environment Minister
- GEAC constituted under Environment Protection Act (EPA) – 1986

#### GM Crops in India

##### 1. BT Cotton

- In 2002, Bt Cotton became the first and only transgenic crop approved by the GEAC.

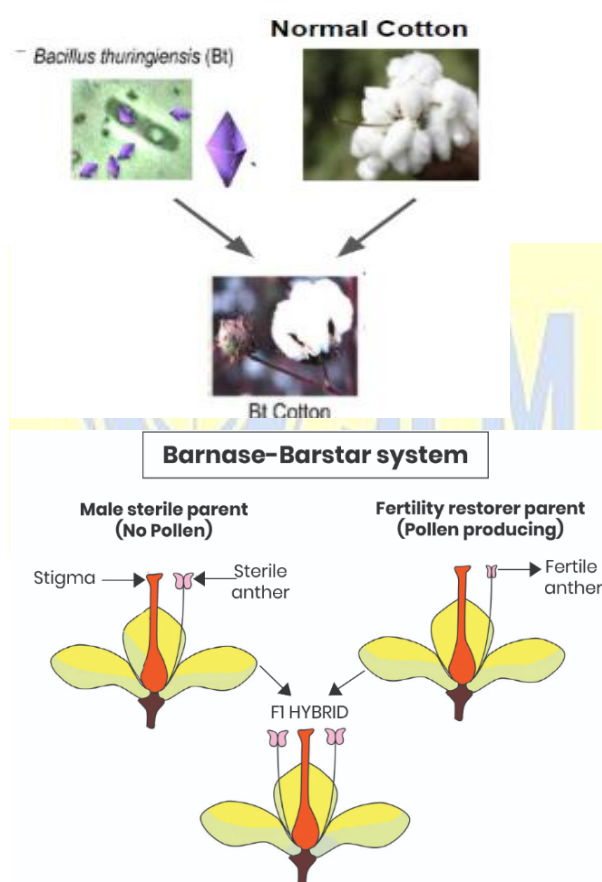


## 2. BT Brinjal

- The **GEAC in 2007**, recommended the commercial release of Bt Brinjal. The initiative was **blocked in 2010**.

## 3. HT Mustard:

- Dhara Mustard Hybrid (DMH-11)** is created by using **“barnase/barstar” technology** for genetic modification by adding genes from **soil bacterium** that makes mustard **self-pollinating plant**.
- The technology was developed by **Delhi university**.
- In 2017, GEAC recommended the commercial, **stayed by SC**.



**Q1174.** Consider the following statements:

- Genetic Engineering Appraisal Committee functions under Department of Biotechnology, Ministry of Science and Technology.
  - Animal Welfare Board of India is a statutory body under Ministry of Environment, Forest and Climate Change of India.
  - Central Water Commission (CWC) is statutory body under the Ministry of Jal Shakti.
- Which of the above statement(s) is/are incorrect?

- 2 and 3 only
- 1 and 2 only
- 1 and 3 only
- 1, 2 and 3

Ans: d

**Sol:**

- GEAC (MoEFCC); complet the sentence
- AWBI (Ministry of Fisheries, Animal Husbandry and Dairying)
- CWC functions under Ministry of Jal Shakti but not statutory body; attached body. Since estd during British rule.

**Q1175.** Which of the following statements regarding the regulatory framework of the GEAC in India is/are correct?

- GEAC was established under the Environment (Protection) Act, 1986.
  - The decisions of GEAC are binding and do not require further approval from the Ministry of Environment, Forest, and Climate Change (MoEFCC).
  - GEAC also evaluates proposals for field trials of GMOs and their environmental impact.
- 1 and 2 only
  - 1 and 3 only
  - 2 and 3 only
  - 1, 2, and 3

Ans: b

**Sol:**

- Statement 1 is correct** because the GEAC was established under the Environment (Protection) Act, 1986 to ensure environmental and biosafety while handling GMOs.
- Statement 2 is incorrect** as the decisions of GEAC require approval from the MoEFCC before implementation.
- Statement 3 is correct** as the GEAC evaluates proposals for field trials of GMOs to assess their potential environmental impacts before approval.

**Q1176.** Genetically modified (GM) crops contain modified genetic material due to:

- Introduction of new DNA
- Removal of existing DNA
- Introduction of RNA
- introduction of new traits





Select the correct answer using the code given below

- (a) 1 and 2 only
- (b) 1, 2 and 3
- (c) 3 and 4 only
- (d) 1, 2 and 4 only

Ans: d

**Sol:**

- Genetically modified (GM) crops are created by modifying their genetic material, which can involve various processes. **The correct answer is option d**, which states that GM crops occur due to the introduction of new DNA, removal of existing DNA, and the introduction of new traits.
- **Option 1 is correct Introduction of new DNA** – Foreign genes (from bacteria, viruses, or other plants) can be inserted into the plant's genome to introduce desirable traits like pest resistance (e.g., Bt cotton).
- **Option 2 is correct Removal of existing DNA** – Certain genes may be deleted or silenced to improve crop characteristics, such as removing genes responsible for susceptibility to diseases.
- **Option 3 is incorrect Introduction of RNA** – While RNA interference (RNAi) is used in genetic engineering, it primarily works by **silencing gene expression** rather than **permanently modifying genetic material**. GM crops are mainly characterized by DNA modifications, so RNA introduction alone does not define a GM crop.

### Topic 393

#### 393. Biological Diversity Act, 2002

- The Act provides for the **setting up of a**
  1. National Biodiversity Authority (NBA),
  2. State Biodiversity Boards (SBBs)
  3. Biodiversity Management Committees (BMCs) in local bodies.
- The **NBA** will enjoy the power of a **civil court**.

**The main intent of this legislation is to -**

1. To give effect to UN Convention on Biological Diversity in India (UNCBD)
2. Protect India's rich biodiversity
3. Prevent Biopiracy.



**Biopiracy:**

- It refers to the **appropriation of traditional knowledge** of biodiversity **by outsiders and companies**.
- It includes **fraudulent patenting** of **biological resources for profit**.

**Q1177.** Under which of the following article of Indian Constitution, the Government of India enacted the Biodiversity Act, 2002 to implement Convention on Biological Diversity (CBD)?

- (a) Article 21
- (b) Article 48A
- (c) Article 51A
- (d) Article 253

Ans: d

**Sol:** The Biodiversity Act, 2002 was enacted by the Government of India to give effect to the Convention on Biological Diversity (CBD), which India signed at the Rio Earth Summit in 1992.

Article 253 of the Indian Constitution empowers Parliament to make laws for implementing international agreements, treaties, or conventions. While Article 48A (Directive Principles of State Policy) and Article 51A (Fundamental Duties) emphasize environmental protection, the specific legal mandate for implementing international treaties like the CBD falls under Article 253.

**Q1178.** Consider the following statements regarding Biodiversity Heritage Sites (BHS) in Assam:

1. The declaration of BHS is carried out under Section 37 of the Biological Diversity Act, 2002.
2. Hajong Tortoise Lake and Borjuli Wild Rice were the first two BHS declared in Assam.
3. Majuli Island was the first Biodiversity Heritage Site (BHS) declared in Assam.

Which of the above statement(s) is/are correct?

- (a) 1 and 3 only
- (b) 1 only
- (c) 2 and 3 only



(d) 1, 2, and 3

Ans: a

**Sol:-**

- **Statement 1: Correct.** BHS are declared under Section 37 of the Biological Diversity Act, 2002.
- **Statement 2: Incorrect.** Hajong Tortoise Lake and Borjuli Wild Rice are the most recent additions, not the first ones.
- **Statement 3: Correct.** Majuli Island was the first BHS in Assam.

**Q1179.** Which of the following is NOT true about Biodiversity Heritage Sites in Assam?

- Hajong Tortoise Lake BHS is located in Dima Hasao district.
- Borjuli Wild Rice BHS is located in Majuli Island.
- Section 37 of the Biological Diversity Act, 2002 empowers states to notify BHS.
- Assam currently has three Biodiversity Heritage Sites.

Ans: b

**Sol:-**

- **Option a: True.** Hajong Tortoise Lake BHS is located in the Dima Hasao district.
- **Option b: False.** Borjuli Wild Rice BHS is located in Sonitpur district, not Majuli Island.
- **Option c: True.** States can declare BHS under Section 37 of the Biological Diversity Act, 2002.
- **Option d: True.** Assam now has three BHS: Majuli Island, Hajong Tortoise Lake, and Borjuli Wild Rice.

## Topic 394

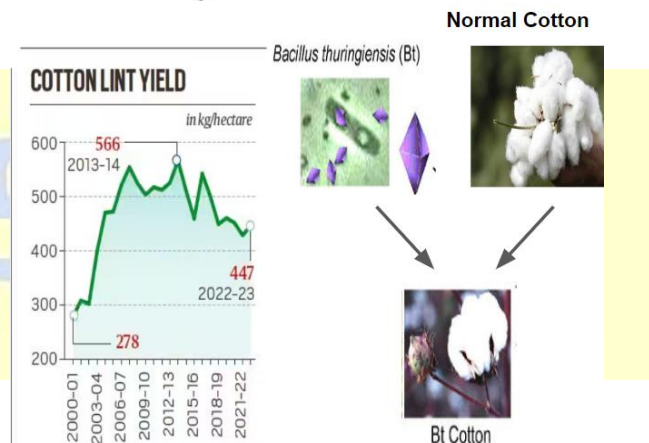
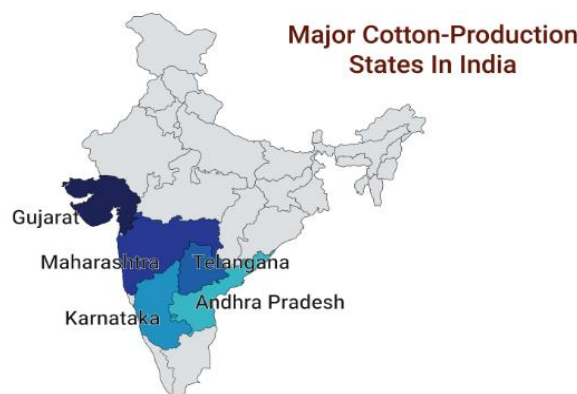
### 394. Cotton production

- Kharif Crop- Drought resistant crop
- Temperature: Between 21-30°C.
- Rainfall: Around 50-100 cm.
- Soil Type: Well-drained black cotton soil (Regur Soil)
- Top Cotton Producing Countries: China> India> USA
- Top Cotton Producing States in India: Gujarat > Maharashtra
- Cottonseed oil is the third-largest domestically produced vegetable oil in India, following mustard and soyabean

- cotton is also termed as **“White-Gold”**.

## Introduction to Bt Technology (2002)

- significant boost in Cotton production by curbing pest Pink Bollworm
- Pink Bollworm generating resistance against Bt Cotton- thus decline in cotton production (recently)



**Q1180.** Consider the following statements regarding cotton production in India:

1. Cotton is a Rabi crop that requires a temperature range of 21-30°C.
2. Black cotton soil, also known as Regur soil, is highly suitable for cotton cultivation.
3. Cotton is referred to as "White Gold" due to its economic value in India.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 1 and 3 only  
(d) 1, 2, and 3

Ans: b

**Sol:-**



- **Statement 1: Incorrect.** Cotton is a Kharif crop, not a Rabi crop.
- **Statement 2: Correct.** Black cotton soil (Regur soil) is well-suited for cotton cultivation.
- **Statement 3: Correct.** Cotton is referred to as "White Gold" due to its significant contribution to the economy.

**Q1181.** With reference to the cotton industry, consider the following statements:

1. Gujarat is the largest producer of cotton in India, followed by Maharashtra.
2. Cottonseed oil is the second-largest domestically produced vegetable oil in India.
3. The introduction of Bt Cotton in 2002 significantly curbed the impact of the Pink Bollworm pest.

Which of the above statement(s) is/are incorrect?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

Ans: b

**Sol:**

- **Statement 1: Correct.** Gujarat is the largest producer of cotton in India, followed by Maharashtra.
- **Statement 2: Incorrect.** Cottonseed oil is the third-largest domestically produced vegetable oil in India, after mustard and soybean oil.
- **Statement 3: Correct.** The introduction of Bt Cotton in 2002 effectively reduced the impact of the Pink Bollworm pest.

**Q1182.** Regarding the challenges in cotton production in recent times, consider the following statements:

1. Pink Bollworm has developed resistance against Bt Cotton, leading to a decline in production.
2. Cotton requires annual rainfall exceeding 150 cm, making it unsuitable for semi-arid regions.
3. India is the largest producer of cotton in the world, followed by the USA.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: a

**Sol:**

- **Statement 1: Correct.** The resistance of Pink Bollworm against Bt Cotton has indeed caused a decline in production.
- **Statement 2: Incorrect.** Cotton requires moderate rainfall, around 50-100 cm, making it suitable for semi-arid regions.
- **Statement 3: Incorrect.** China is the largest producer of cotton in the world, followed by India and the USA.

### Topic 395

#### 395. CoP 16 of UNCBD

- The **CoP of UNCBD** are held **biennially**.
- **signatory countries assemble to review the implementation** of the CBD, **adopt decisions to further its objectives**.

#### 16th Conference of Parties (COP)

- held in **Cali, Colombia**.
- One of the main objectives of COP16 is **to expedite progress on the 30 x 30 targets (decided in CoP15 of UNCBD)**.
- In order **to achieve 30 x 30 targets** each country is supposed to **prepare and submit action plans** to halt and reverse biodiversity loss within their jurisdiction.
- Such action plans by respective member countries will be known as **National Biodiversity Strategies and Action Plans (NBSAPs)**.
- These are **similar to the Nationally Determined Contributions, or NDCs** of UNFCCC.



#### EXTENT OF THE THREAT TO NATURAL ECOSYSTEMS

<b>1 million</b> The number of species that are at risk of extinction in the next few decades	hectares of forests are being lost every year currently
<b>75 %</b> of world's land is significantly altered	<b>1.44%</b> only of the high seas is demarcated as protected area. Almost all of this is near Antarctica.
<b>400 million</b> hectares of forests were lost between 1990 and 2020, and about 10 million	<b>75-199 mt*</b> Estimated volume of plastics in the world's oceans <small>*million tonnes</small>

EXTINCTION RATE OF SPECIES IS NOW **100 TO 1,000 TIMES FASTER THAN NORMAL**





**Q1183.** At the recently concluded 16th Conference of Parties (COP16) to the UN's Convention on Biological Diversity (CBD), a global fund 'Cali Fund' was created for:

- (a) sharing the benefits of digitally sequenced genetic information (DSI).
- (b) supporting developing countries in their efforts to mitigate and adapt to climate change.
- (c) providing finance for climate-related projects in developing countries.
- (d) protection of biosphere reserves across the world.

Ans: a

**Sol:** At the 16th Conference of Parties (COP16) to the UN's Convention on Biological Diversity (CBD), the 'Cali Fund' was established to address the equitable sharing of benefits arising from the use of digitally sequenced genetic information (DSI). This initiative is critical in promoting fair and just utilization of genetic resources in biodiversity conservation and sustainable use.

**Q1184.** Consider the following statements regarding the 16th Conference of Parties (COP16) to the UN Convention on Biological Diversity (UNCBD):

1. COP16 was held in Cali, Colombia, and aimed to expedite progress on the 30x30 biodiversity targets.
2. National Biodiversity Strategies and Action Plans (NBSAPs) serve the same function as Nationally Determined Contributions (NDCs) under the UNFCCC.
3. COP meetings for the UNCBD are held annually to monitor the progress of biodiversity conservation efforts.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** COP16 was indeed held in Cali, Colombia, with a focus on advancing the 30x30 biodiversity targets set during COP15.

- **Statement 2: Correct.** NBSAPs are analogous to NDCs under the UNFCCC as they outline national plans to achieve global biodiversity targets.
- **Statement 3: Incorrect.** COP meetings for the UNCBD are held biennially, not annually.

**Q1185.** Consider the following statements about the 30x30 biodiversity target discussed at COP16 of UNCBD:

1. The 30x30 target aims to protect 30% of the world's land and oceans by 2030.
2. Each member country must submit National Biodiversity Strategies and Action Plans (NBSAPs) to achieve these targets.
3. The 30x30 target is legally binding for all signatory countries of the UNCBD.

Which of the above statement(s) is/are incorrect?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2, and 3

Ans: c

**Sol:**

- **Statement 1: Correct.** The 30x30 target is a global commitment to protect 30% of terrestrial and marine ecosystems by 2030.
- **Statement 2: Correct.** Countries are required to submit NBSAPs to detail how they plan to halt and reverse biodiversity loss.
- **Statement 3: Incorrect.** The 30x30 target is not legally binding but serves as a global goal under the UNCBD framework.

### Topic 396

#### 396. 30 x 30 targets

- Adopted during **CoP15 of UNCBD, CoP15 of UNCBD- (Kunming-Montreal, 2021-2022)**
- Partly held in **Kunming (China)** and partly held in **Montreal (Canada).**
- Adoption of the **Kunming-Montreal Global Biodiversity Framework** to address **biodiversity loss** and promote sustainable development **post-2020.**

#### **Key provisions of Kunming-Montreal Global Biodiversity Framework**

##### **1. 30 by 30 Target**

- Protect **30% of the world's land and ocean** areas by **2030.**

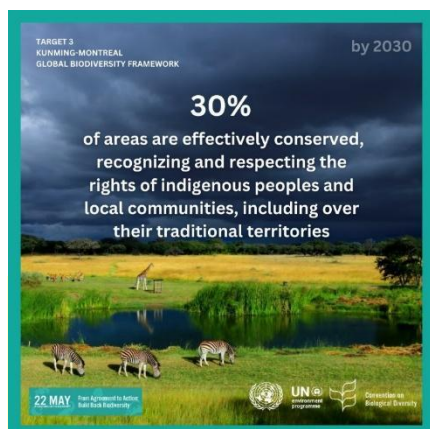


## 2. Financial Commitments

- **Developed nations** to pledge **\$200 billion** per year for biodiversity initiatives **by 2030**.

## 3. Commitment to **reduce pesticide use by 50% by 2030**.

Note- The framework is **not legally binding**.



**Q1186.** Consider the following statements about the 30x30 targets adopted during COP15 of the UN CBD:

1. The 30x30 targets aim to protect 30% of the world's land and ocean areas by 2030.
2. The Kunming-Montreal Global Biodiversity Framework adopted at COP15 is legally binding for all signatory nations.
3. COP15 was partly held in Kunming, China, and partly in Montreal, Canada.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: c

**Sol:**

- **Statement 1: Correct.** The 30x30 target focuses on protecting 30% of terrestrial and marine ecosystems globally by 2030.
- **Statement 2: Incorrect.** The Kunming-Montreal Global Biodiversity Framework is not

legally binding but serves as a global commitment.

- **Statement 3: Correct.** COP15 was conducted in two phases: Kunming (China) and Montreal (Canada).

**Q1187.** Consider the following provisions of the Kunming-Montreal Global Biodiversity Framework:

1. Reduction of pesticide use by 50% by 2030.
2. Developed nations committing \$200 billion annually for biodiversity initiatives by 2030.
3. Legal enforcement mechanisms to ensure compliance with the framework's objectives.

Which of the above statement(s) is/are incorrect?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2, and 3

Ans: c

**Sol:**

- **Statement 1: Correct.** The framework includes a commitment to reduce pesticide use by 50% by 2030.
- **Statement 2: Correct.** Developed nations pledged \$200 billion annually for biodiversity conservation.
- **Statement 3: Incorrect.** The framework is not legally enforceable; it relies on voluntary commitments by member nations.

**Q1188.** Consider the following statements regarding financial commitments under the Kunming-Montreal Global Biodiversity Framework:

1. The financial commitment of \$200 billion annually is to be mobilized by developing nations.
2. The funds are aimed at supporting biodiversity initiatives and sustainable development.
3. This financial commitment is an integral part of achieving the 30x30 targets.

How many of the above statement(s) is/are correct?

- (a) Only 1
- (b) Only 2
- (c) All 3
- (d) None

Ans: b

**Sol:**



- **Statement 1: Incorrect.** The \$200 billion annual financial commitment is to be mobilized primarily by developed nations to support biodiversity efforts.
- **Statement 2: Correct.** The funds are intended to support biodiversity initiatives and sustainable development.
- **Statement 3: Correct.** Financial support is essential for achieving the 30x30 targets, especially in developing nations.

### Topic 397

#### 397. CoP 16 of UNCCD

#### United Nations Convention to Combat Desertification

- It is an international agreement established in 1994 to address the global challenge of desertification, land degradation, and drought (DLDD).
- The UNCCD directly supports SDG 15 (Life on Land), particularly the target to achieve land degradation neutrality by 2030.
- UNCCD is legally binding in nature.
- It obligates the Parties (member countries) to take concrete actions to combat desertification.

#### India and UNCCD

- **Host of COP14 (2019):** India hosted the 14th Conference of the Parties (COP14) in New Delhi.
- **National Efforts:** Initiatives like the Green India Mission, afforestation programs, and soil health cards align with UNCCD goals.

#### A report by UNCCD

- UNCCD has released a comprehensive report titled 'Stepping Back from the Precipice: Transforming Land Management to Stay Within Planetary Boundaries.
- The report has been published in association with Germany's Potsdam institute of Climate research.
- The report highlights the level of land degradation witnessed worldwide.

Previous COPs



UNCCD 15th session of the Conference of the Parties



UNCCD 14th session of the Conference of the Parties

#### Current news?

- **COP16 of UNCCD** began in **Riyadh, Saudi Arabia**.

#### LAND DEGRADATION IN NUMBERS

<b>60%:</b> Remaining global forest cover — well below the safe boundary of 75%.	expansion and poorly planned afforestation.	since 2015 attributed to climate change
<b>15 MNSQ KM:</b> Degraded land area, more than the size of Antarctica, expanding by 1 mn sq km annually.	<b>46%:</b> Global land area classified as drylands, home to a third of humanity	<b>25%:</b> Share of biodiversity found in soil
<b>20%:</b> Earth's land surface covered by the savanna, now under threat from cropland	<b>90%:</b> Share of recent deforestation directly caused by agriculture.	<b>50%+:</b> World's major rivers disrupted by dam construction
	<b>20%:</b> Decline in trees' and soil's CO2 absorption capacity	<b>47%:</b> Aquifers being depleted faster than they are replenished

Source: UNCCD report

**Q1189.** Consider the following statements regarding the United Nations Convention to Combat Desertification (UNCCD):

1. The UNCCD is a legally binding international agreement established in 1994.
2. The convention directly supports Sustainable Development Goal (SDG) 15, particularly the target to achieve land degradation neutrality by 2030.
3. The 14th Conference of the Parties (COP14) to the UNCCD was hosted by India in New Delhi in 2020.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** The UNCCD is a legally binding treaty established in 1994 to combat desertification, land degradation, and drought (DLDD).





- **Statement 2: Correct.** UNCCD supports SDG 15, particularly the target of achieving land degradation neutrality by 2030.
- **Statement 3: Incorrect.** COP14 was hosted by India in 2019, not 2020.

**Q1190.** Consider the following statements about the upcoming COP16 of the UNCCD:

1. COP16 will be held in Riyadh, Saudi Arabia, under the theme “Our Land. Our Future.”
2. The Conference of the Parties (COP) includes 198 Parties, comprising 196 countries, the European Union, and the United Nations.
3. COP16 is scheduled to take place from 2–13 December 2024.

Which of the above statement(s) is/are incorrect?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

Ans: b

**Sol:**

- **Statement 1: Correct.** COP16 will take place in Riyadh, Saudi Arabia, with the theme “Our Land. Our Future.”
- **Statement 2: Incorrect.** The COP includes 197 Parties (196 countries and the European Union), not 198.
- **Statement 3: Correct.** COP16 is scheduled for 2–13 December 2024.

**Q1191.** Consider the following statements about the UNCCD and its recent report:

1. The report “Stepping Back from the Precipice” highlights global land degradation and its impact on planetary boundaries.
2. The report was published by the UNCCD in collaboration with the Potsdam Institute for Climate Impact Research in Germany.
3. The Green India Mission and afforestation programs in India are examples of initiatives aligned with the goals of the UNCCD.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: c

**Sol:**

- **Statement 1: Correct.** The report highlights the global challenge of land degradation and its impact on planetary boundaries.
- **Statement 2: Correct.** The UNCCD collaborated with the Potsdam Institute for Climate Impact Research to publish this report.
- **Statement 3: Correct.** India’s Green India Mission and afforestation programs align with the goals of the UNCCD to combat desertification and promote land restoration.

### Topic 398

#### 398. Mission LiFE and Green Credit Program

##### Mission LiFE

- **Mission LiFE-India-led global mass movement to nudge individual and community-climate friendly action.**
- **Mission Life-P3 model, i.e. Pro Planet People**
- launched by the **Indian Prime Minister at COP26** in Glasgow.

##### Green Credit Program

- Launched by **India under Mission LiFE**
- **Part of National Mission for a Green India**
- **Monetary Reward and incentivize individuals and industries for their positive environmental contributions.**
- To **earn Green Credits**, participants **need to register their environmental activities through a dedicated website.**
- **There will be a trading platform**, enabling the **trading of Green Credits on a domestic market.**

##### Note

- **Green Credit Program is different from Carbon Credit Prog.**

##### Carbon Credit Program

- The **Carbon Credit Trading Scheme** in India is for **motivating industries** to adopt eco-friendly practices.
- governed by the **Energy Conservation Act of 2001**
- Concept originates from **Kyoto Protocol of UNFCCC.**

**Green Credit Program will cover 8 activities**





**Q1192.** Which of the following statements are correct with reference to "Mission LIFE" (Lifestyle for Environment)?

1. It was announced during the UNFCCC conference of parties (COP-27) held in Sharm El-Sheikh, Egypt.
2. A pavilion was set up by India at the COP-27 on the theme of Mission LIFE.
3. National Museum of natural history and UNDP have jointly launched "in our LIFETIME" campaign for youth between 18-28 years of age to become manage bearers for sustainable lifestyle.
4. Mission LIFE covers three phases and seven themes.

Choose the correct answer from the options given below:

- (a) 1, 2, 3 and 4
- (b) 1 and 3 only
- (c) 2, 3 and 4 only
- (d) 1 and 4 only

Ans: c

**Sol:**

- **Statement 1: Incorrect.** Mission LiFE (Lifestyle for Environment) was announced during the UNFCCC COP-26, held in Glasgow, United Kingdom.
- **Statement 2: Correct.** At COP-27, India set up a pavilion on the theme of Mission LiFE, showcasing the country's initiatives toward promoting sustainable lifestyles.
- **Statement 3: Correct.** The National Museum of Natural History and UNDP jointly launched the "In Our LIFETIME" campaign to engage youth (18–28 years) as ambassadors for sustainable living.

- **Statement 4: Correct.** Mission LiFE has three phases and focuses on seven themes, including water conservation, waste reduction, and sustainable food systems.

**Q1193.** Which of the following statements regarding Mission LiFE and the Green Credit Program is/are correct?

1. Mission LiFE promotes the Pro Planet People (P3) model to encourage climate-friendly actions.
  2. The Green Credit Program is a global initiative launched under the Kyoto Protocol.
  3. The Green Credit Program provides monetary rewards for positive environmental contributions.
  4. Both Mission LIFE and the Green Credit Program were launched at COP26 in Glasgow.
- (a) Only 1 and 3 are correct.
  - (b) Only 2 and 4 are correct.
  - (c) Only 1, 3, and 4 are correct.
  - (d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Correct.** Mission LiFE emphasizes the Pro Planet People (P3) model for promoting climate-friendly actions.
- **Statement 2: Incorrect.** The Green Credit Program is an India-specific initiative, not a global program, and is unrelated to the Kyoto Protocol.
- **Statement 3: Correct.** The Green Credit Program provides monetary rewards to individuals and industries for their environmental contributions.
- **Statement 4: Incorrect.** Mission LiFE was launched at COP26, but the Green Credit Program was not launched there.

**Q1194.** Which of the following statements correctly differentiates the Green Credit Program and the Carbon Credit Program?

1. The Green Credit Program is part of India's National Mission for a Green India, while the Carbon Credit Program originates from the Kyoto Protocol.
2. The Carbon Credit Program focuses on motivating industries to adopt eco-friendly practices, whereas the Green Credit Program incentivizes individuals and communities for environmental actions.





3. Both programs involve a trading platform to enable credit transactions.

4. The Carbon Credit Program is governed by the Energy Conservation Act, 2001, while the Green Credit Program operates under the Wildlife Protection Act, 1972.

- (a) Only 1, 2, and 3 are correct.
- (b) Only 1 and 3 are correct.
- (c) Only 2 and 4 are correct.
- (d) All statements are correct.

Ans: a

**Sol:**

- **Statement 1: Correct.** The Green Credit Program is part of the National Mission for a Green India, while the Carbon Credit Program has roots in the Kyoto Protocol.
- **Statement 2: Correct.** The Carbon Credit Program focuses on industries, whereas the Green Credit Program involves individuals and communities.
- **Statement 3: Correct.** Both programs involve a trading platform for credit transactions.
- **Statement 4: Incorrect.** The Green Credit Program is not governed by the Wildlife Protection Act, 1972.

### Topic 399

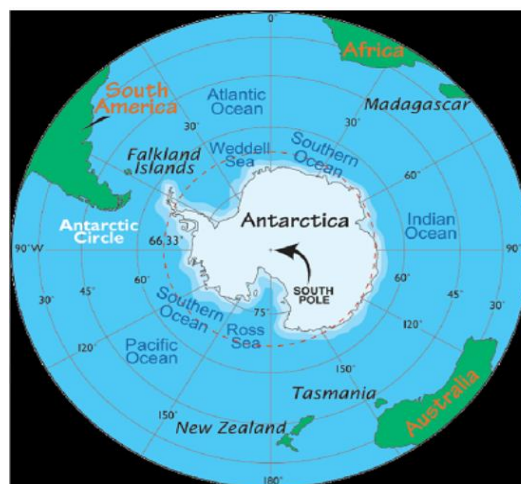
#### 399. Emperor Penguins

##### Emperor penguins

- **tallest and heaviest** of all living penguin species.
- endemic to **Antarctica**.
- Categorised as **Near threatened** in IUCN Red data book.

##### Recent developments

- Up to **10,000 emperor penguin chicks** in Antarctica **died as the sea ice underneath** their breeding grounds **melted and broke apart** due to global warming.



**Q1195.** Consider the following statements about Emperor Penguins:

1. They are found only in Antarctica.
2. It is the tallest and heaviest of all living penguin species.
3. It is listed as NEAR THREATENED in IUCN's Red List.

Which of the above statement(s) is/are correct?

- (a) 2 and 3 only.





- (b) 1 and 2 only.  
 (c) 1, 2 and 3.  
 (d) 2 only.

Ans: c

**Sol:**

- **Statement 1: Correct.** Emperor penguins are endemic to Antarctica and are not found naturally in any other region.
- **Statement 2: Correct.** Emperor penguins are the tallest and heaviest of all living penguin species, with adults standing up to 122 cm (48 inches) tall and weighing between 22–45 kg (49–99 lbs).
- **Statement 3: Correct.** Emperor penguins are currently listed as NEAR THREATENED on the IUCN Red List.

**Q1196.** Adelie, Emperor Penguin and Chinstrap are:

- (a) Fishes.  
 (b) Birds.  
 (c) Mammals.  
 (d) Amphibians

Ans: b

**Sol:** Adelie, Emperor, and Chinstrap are all species of penguins, which are flightless seabirds native to the Southern Hemisphere.

- **Adelie Penguin:** Found along the entire Antarctic coast, they are smaller penguins known for their distinctive white ring around the eye.
- **Emperor Penguin:** The largest penguin species, found exclusively in Antarctica, known for their remarkable breeding on sea ice.
- **Chinstrap Penguin:** Recognizable by the narrow black band under their head, giving the appearance of a "chinstrap."

**Q1197.** Consider the following statements:

Statement I: There is absence of physical relief features such Mountains, hills, deserts, volcanoes, etc.

Statement II: The continent of Antarctica is covered by thick ice sheets.

Codes:

- (a) Statement -1 is true, statement -2 is true; statement -2 is the correct explanation for statement-1.

- (b) Statement-1 is true, statement -2 is true; statement -2 is NOT the correct explanation for statement -1.  
 (c) Statement -1 is true, statement -2 is false.  
 (d) Statement -1 is false, Statement -2 is true.

Ans: d

**Sol: Statement -1 is false, Statement -2 is true.**

- **Statement I:** *There is absence of physical relief features such as Mountains, hills, deserts, volcanoes, etc.* This statement is false. Antarctica is not devoid of physical relief features. It has significant physical relief, including the Transantarctic Mountains, volcanoes like Mount Erebus, and dry valleys like the McMurdo Dry Valleys. Despite being covered in ice, these features are part of its topography.
- **Statement II:** *The continent of Antarctica is covered by thick ice sheets.* This statement is true. Antarctica is predominantly covered by massive ice sheets that account for nearly 70% of the world's freshwater. These ice sheets can be over 4 kilometres thick in some areas.

### Topic 400

#### 400. Anthropocene Epoch

- We generally subdivide time into useable units such as our year, months, weeks, and days.
- Similarly geologists also subdivide time for the purposes of geology.

#### Basis for Geologic Time Scale?

1. Occurrence of major geologic events
2. Appearance (and disappearance) of significant life-forms.

#### Current news?

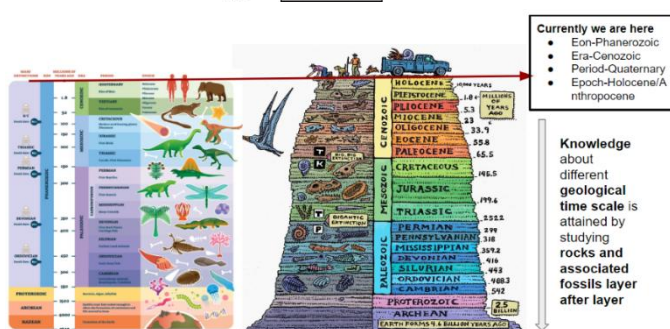
- Geologists believe -current time should be considered as beginning of Anthropocene Epoch.

#### Geologic Markers of Anthropocene epoch

- **Artificial radionuclides**
- **Global warming**
- **The decline in seawater PH**
- **The rapid extinction rate**



Eon	Era	Period	Epoch	MYA	Life Forms	North American Events
Phanerozoic	Cenozoic (CZ)	Quaternary (Q)	Holocene (H)	0.01	Extinction of large mammals and birds Modern humans	Ice age glaciations; glacial outburst floods
			Pleistocene (PE)	2.6		Cascade volcanoes (W) Linking of North and South America (Isthmus of Panama)
						Columbia River Basalt eruptions (NW) Basin and Range extension (W)
		Neogene (N)	Pliocene (PL)	5.3	Spread of grassy ecosystems	
			Miocene (MI)	23.0		
			Oligocene (OL)	33.9		
		Paleogene (PG)	Eocene (E)	56.0	Early primates	Laramide Orogeny ends (W)
			Paleocene (EP)	66.0	Mass extinction	Laramide Orogeny (W) Western Interior Seaway (W)
	Mesozoic (MZ)	Cretaceous (K)		145.0	Placental mammals	Sevier Orogeny (W)
					Early flowering plants	Nevadan Orogeny (W) Elko Orogeny (W)
					Dinosaurs diverse and abundant	
		Jurassic (J)		201.3	Mass extinction First dinosaurs; first mammals Flying reptiles	Breakup of Pangaea begins
						Sonoma Orogeny (W)
	Paleozoic (PZ)	Permian (P)		251.9	Mass extinction	
						Supercontinent Pangaea intact
						Ouachita Orogeny (S) Alleghany (Appalachian) Orogeny (E)
		Pennsylvanian (PN)		298.9	Coal-forming swamps Sharks abundant	Ancestral Rocky Mountains (W)
				323.2	First reptiles	
		Mississippian (M)		358.9	Mass extinction First amphibians First forests (evergreens)	Antler Orogeny (W) Acadian Orogeny (E-NE)
				419.2		
		Silurian (S)		443.8	First land plants Mass extinction Primitive fish	Taconic Orogeny (E-NE)
				485.4	Trilobite maximum Rise of corals	Extensive oceans cover most of proto-North America (Laurentia)
		Cambrian (C)		541.0	Early shelled organisms	
Proterozoic	Archean	Precambrian (PC, W, X, Y, Z)		2500	Complex multicelled organisms	Supercontinent rifted apart Formation of early supercontinent Grenville Orogeny (E)
					Simple multicelled organisms	First iron deposits Abundant carbonate rocks
	Hadean			4600	Early bacteria and algae (stromatolites) Origin of life	Oldest known Earth rocks Formation of Earth's crust



**Q1198.** Consider the following statements about the Geologic Time Scale and the Anthropocene Epoch:

1. The Geologic Time Scale is based solely on the appearance and disappearance of significant life forms.
2. Geologists propose the Anthropocene Epoch due to the human-induced changes to the Earth's systems.

3. Artificial radionuclides and rapid extinction rates are considered geologic markers of the Anthropocene Epoch.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2, and 3
- (d) 3 only

Ans: b

Sol:

- **Statement 1 is incorrect** because the Geologic Time Scale is based on *both* geologic events (e.g., volcanic eruptions, tectonic shifts) and the appearance/disappearance of significant life forms.
- **Statement 2 is correct** as the Anthropocene Epoch reflects human-induced changes such as global warming and pollution.
- **Statement 3 is correct** since artificial radionuclides, rapid extinction rates, and other human-induced changes are recognized as markers of the Anthropocene.

**Q1199.** Consider the following markers associated with the Anthropocene Epoch:

1. Global warming
2. The decline in seawater pH
3. Increased frequency of volcanic eruptions
4. Artificial radionuclides

How many of the above are considered geologic markers of the Anthropocene Epoch?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

Sol:

- Global warming, the decline in seawater pH, and artificial radionuclides are geologic markers of the Anthropocene.
- Increased frequency of volcanic eruptions is a natural phenomenon and not attributed to the Anthropocene.

Thus, three markers (1, 2, and 4) are relevant to the Anthropocene.

**Q1200.** Consider the following statements regarding the Anthropocene Epoch:



1. It represents a time dominated by natural geologic events.
  2. The Anthropocene is defined by evidence of human-induced environmental changes.
  3. Artificial radionuclides serve as one of the geologic markers of the Anthropocene Epoch.
- Which of the above statement(s) is/are incorrect?
- (a) 1 only
  - (b) 2 and 3 only
  - (c) 1 and 3 only
  - (d) 1 and 2 only

Ans: a

**Sol:**

- **Statement 1 is incorrect** as the Anthropocene Epoch represents a time dominated by human-induced changes rather than natural geologic events.
- **Statement 2 is correct** because human-induced environmental changes like global warming and pollution are defining features of the Anthropocene.
- **Statement 3 is correct** since artificial radionuclides are considered a key geologic marker of this epoch.

Day 41

Topic 401

#### 401. Convention on Conservation of Migratory Species

##### Convention on the conservation of migratory species

- It is an **intergovernmental treaty** under the **UNEP**- popularly known as **Bonn Convention**.
- **133 member countries**
- **India** has been a **Party** to the **CMS** since **1983**
- **Conference of parties**-conducted **every three years**

##### CoP 13 held at Gandhinagar, India in 2020

- adopted the **Gandhinagar declaration** where the **Asian elephant** was added to the **Global Wildlife Agreement for conservation**.

##### Animals are classified under 2 classifications-

1. **Appendix I**- Migratory species threatened with extinction

2. **Appendix II**- Migratory species whose conservation requires **international cooperation**.

- **14th CoP 2024 -Samarkand, Uzbekistan**-decided to take Special steps to conserve **Central Asian Flyway**

India has signed a non-legally binding Memorandum of Understanding (MoU) with CMS on conservation and management of-

- a. Siberian Cranes (1998)
- b. Marine Turtles (2007)
- c. Dugongs (2008)
- d. Raptors (2016).



CONVENTION ON MIGRATORY SPECIES

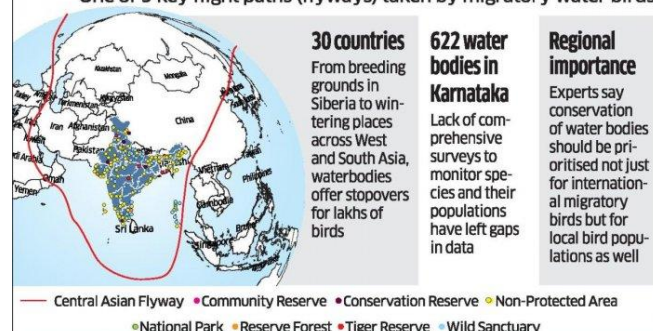
**COP 14**

**SAMARKAND**

UZBEKISTAN 12-17 FEBRUARY 2024

##### **Central Asian Flyway**

One of 9 key flight paths (flyways) taken by migratory water birds





Conference	Year	Dates	Location
COP 1	1985	21 – 26 October	Bonn, Germany
COP 2	1988	13 – 14 October	Geneva, Switzerland
COP 3	1991	09 – 13 September	Geneva, Switzerland
COP 4	1994	07 – 11 June	Nairobi, Kenya
COP 5	1997	10 – 16 April	Geneva, Switzerland
COP 6	1999	10 – 16 November	Cape Town, South Africa
COP 7	2002	18 – 24 September	Bonn, Germany
COP 8	2005	20 – 25 November	Nairobi, Kenya
COP 9	2008	01 – 05 December	Rome, Italy
COP 10	2011	20 – 25 November	Bergen, Norway
COP 11	2014	04 – 09 November	Quito, Ecuador
COP 12	2017	23 – 28 October	Manila, Philippines
Upcoming			
COP 13	2020	15 – 22 February	Gandhinagar, India

Normally CoP of Convention on Migratory Species is held every 3rd year. But CoP14 is being held after 4 years.

**Q1201.** Consider the following statements regarding the Convention on the Conservation of Migratory Species (CMS):

1. The CMS is legally binding for all countries that are signatories to the convention.
2. The Gandhinagar Declaration, adopted during COP 13, added the Asian elephant to the Global Wildlife Agreement.
3. The 14th COP of CMS will focus on the conservation of the Central Asian Flyway and will be held in Samarkand, Uzbekistan.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: b

**Sol:**

- **Statement 1: Incorrect.** The CMS is a legally binding treaty but does not impose legally binding obligations for all aspects; certain agreements under the CMS (e.g., MoUs) are non-binding.
- **Statement 2: Correct.** The Gandhinagar Declaration adopted during COP 13 added the Asian elephant to the Global Wildlife Agreement.

- **Statement 3: Correct.** The 14th COP will be held in Samarkand, Uzbekistan, and will take special steps to conserve the Central Asian Flyway.

**Q1202.** Which of the following animals are covered under India's Memorandum of Understanding (MoU) with CMS?

1. Siberian Cranes
2. Marine Turtles
3. Dugongs
4. Amur Leopards

Select the correct option using the codes given below:

- (a) 1, 2, and 3 only
- (b) 1 and 4 only
- (c) 2, 3, and 4 only
- (d) 1, 2, 3, and 4

Ans: a

**Sol:** India has signed MoUs with CMS for the conservation of the following species:

- Siberian Cranes (1998)
- Marine Turtles (2007)
- Dugongs (2008)
- Raptors (2016)
- Amur Leopards are not part of the MoUs signed by India under CMS.

**Q1203.** Consider the following classifications under the CMS Appendices:

1. Migratory species threatened with extinction are listed under Appendix I.
2. Migratory species requiring international cooperation for conservation are listed under Appendix II.
3. Dugongs are classified under Appendix I of the CMS.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** Appendix I of the CMS includes migratory species threatened with extinction.



- **Statement 2: Correct.** Appendix II includes species that require international cooperation for their conservation.
- **Statement 3: Incorrect.** Dugongs are listed under Appendix II of the CMS, not Appendix I.

## Topic 402

## 402. High Seas Treaty

- High Seas are **global common** (belong to everyone and no one at the same time)

As a result, many of these **areas suffer from-**

- a. overexploitation of resources
- b. biodiversity loss
- c. pollution, including dumping of plastics

## United Nations High Seas Treaty

- It is known as the '**Paris Agreement**' for the **Ocean** or agreement on **Biodiversity Beyond National Jurisdictions (BBNJ)**.

### Key provisions of the UN high seas treaty

- ### 1. Demarcation of marine protected areas (MPAs)

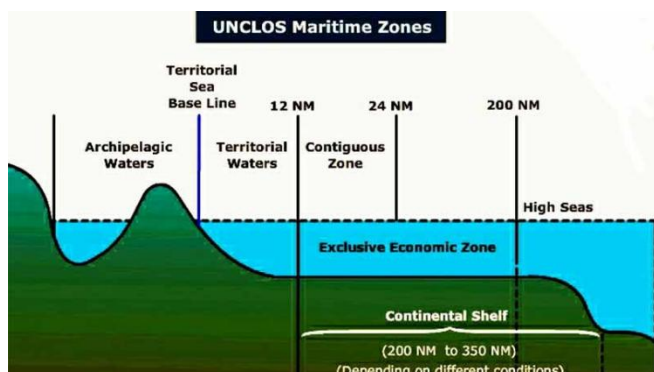
- MPAs are like national parks or wildlife reserves of the oceans.

2. Sustainable use of marine genetic resources and equitable sharing of benefits arising from them

- ### 3. Capacity building and technology transfer to poor countries

4. **Creation of New body** to take care of **marine biodiversity**

- The treaty will be **legally binding**.
- **India signed** the High Seas Treaty in **September 2024**.
- The treaty would become international law **120 days after** the **60 countries** have **signed and ratified the treaty**.



**Q1204.** Consider the following statements regarding the High Seas Treaty:

1. The High Seas Treaty is also known as the Paris Agreement for the Ocean or the Biodiversity Beyond National Jurisdictions (BBNJ).

2. It aims to create a legally binding framework for the conservation and sustainable use of marine genetic resources in areas beyond national jurisdictions.

3. The treaty will enter into force immediately after its adoption by the United Nations General Assembly.

Which of the above statement(s) is/are incorrect?

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 3 only  
(d) 1, 2, and 3

Ans: c

**Sol:**

- **Statement 1: Correct.** The High Seas Treaty is informally referred to as the Paris Agreement for the Ocean and the Biodiversity Beyond National Jurisdictions (BBNJ).
- **Statement 2: Correct.** A key provision of the treaty includes the sustainable use of marine genetic resources and equitable sharing of the benefits arising from them.
- **Statement 3: Incorrect.** The treaty will become international law 120 days after 60 countries have signed and ratified it.

**Q1205.** Which of the following is/are objectives of the United Nations High Seas Treaty?

1. Establishment of Marine Protected Areas (MPAs) similar to wildlife reserves for the oceans.
2. Capacity building and technology transfer to assist developing nations.
3. Prevention of plastic pollution in marine ecosystems.



Select the correct option using the codes given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** One of the treaty's key objectives is the demarcation of Marine Protected Areas (MPAs) for the conservation of biodiversity in international waters.
- **Statement 2: Correct.** The treaty includes provisions for capacity building and technology transfer to assist poorer nations.
- **Statement 3: Incorrect.** Although pollution, including plastic dumping, is an issue affecting the high seas, the treaty does not directly address plastic pollution.

**Q1206.** Consider the following statements regarding the High Seas Treaty and India's involvement:

1. India signed the High Seas Treaty in September 2024.
2. The treaty establishes a new international body to oversee marine biodiversity conservation in international waters.
3. India hosted the first conference on implementing the treaty in collaboration with the United Nations.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** India signed the High Seas Treaty in September 2024.
- **Statement 2: Correct.** The treaty includes the creation of a new international body to monitor and conserve marine biodiversity.
- **Statement 3: Incorrect.** There is no information about India hosting a conference related to the treaty.

#### Topic 403

#### 403. Vienna convention for Ozone depletion

- Earth's atmospheres **-5 major layers-** Troposphere(lowest)-Stratosphere-Mesosphere-Thermosphere -Exosphere
- **Ozone layer** is a region within the **Stratosphere (15 km to 50 km)**-absorbs **harmful ultraviolet rays** coming **from the Sun**.

#### Ozone hole

- **pronounced** over the **South pole-first noticed** in the **early 1980's**.
- **Chief cause**-industrial chemical **CFC(Chlorofluorocarbon)**-used in refrigeration,AC,paint and furniture industries

#### Vienna convention-1985

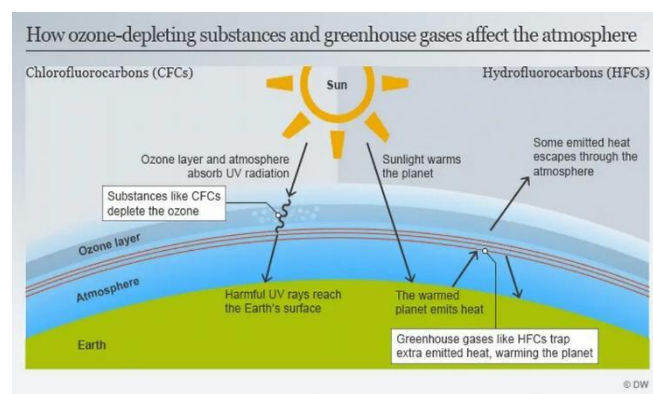
- for the Protection of the **Ozone Layer**
- **Montreal Protocol** (under Vienna Convention)-**adopted 1987**
- **stop** the production of **substances** causing **ozone-depletion-like CFC, HCFC**
- As per latest estimates **most of the Ozone layer** will be restored to its **1980's level by 2040**.

#### Issues

- World countries started to **shift to HFC (which is a GHG)**.

#### Kigali Amendment to the Protocol in 2016

- Parties to the **Montreal Protocol** agree to **phase down production** and consumption of **Hydrofluorocarbons**
- **Different countries-different timelines-India by 2047** (developed countries by 2036)







- **September 16 -International Day** for the Preservation of the **Ozone Layer**
  - **Ozone layer** measured in **Dobson unit**
- Theme (2024)- “Montreal Protocol: Advancing Climate Actions”**

**Q1207.** Consider the following statements regarding the Ozone Layer and its protection:

1. The ozone layer is located in the mesosphere and absorbs harmful ultraviolet rays from the Sun.
2. Chlorofluorocarbons (CFCs) are a major cause of ozone depletion and were first linked to the ozone hole in the 1980s.
3. The Kigali Amendment to the Montreal Protocol aims to phase down Hydrofluorocarbons (HFCs), which are greenhouse gases.

Which of the above statement(s) is/are incorrect?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Incorrect.** The ozone layer is located in the stratosphere, not the mesosphere.
- **Statement 2: Correct.** CFCs were identified as a major cause of ozone depletion, leading to the discovery of the ozone hole in the 1980s.
- **Statement 3: Correct.** The Kigali Amendment aims to phase down the use of HFCs, which contribute to global warming but do not deplete the ozone layer directly.

**Q1208.** Which of the following are true regarding the Vienna Convention and related agreements?

1. The Vienna Convention for the Protection of the Ozone Layer was adopted in 1985 to specifically ban the production of CFCs.

2. The Montreal Protocol was adopted under the Vienna Convention and focused on substances causing ozone depletion.

3. The Kigali Amendment to the Montreal Protocol requires India to phase down HFCs by 2047.

Select the correct option using the codes given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: b

**Sol:**

- **Statement 1: Incorrect.** The Vienna Convention established a framework for international cooperation to protect the ozone layer but did not specifically ban CFCs.
- **Statement 2: Correct.** The Montreal Protocol, adopted in 1987 under the Vienna Convention, focuses on phasing out ozone-depleting substances like CFCs and HCFCs.
- **Statement 3: Correct.** The Kigali Amendment mandates India to phase down HFCs by 2047, while developed countries have an earlier deadline of 2036.

**Q1209.** Consider the following statements regarding the impact of global efforts on ozone protection:

1. Most of the ozone layer is expected to return to its 1980 levels by 2040.
2. A shift to HFCs as alternatives to CFCs resulted in addressing both ozone depletion and global warming.
3. The International Day for the Preservation of the Ozone Layer is observed on September 16 each year.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** As per recent estimates, most of the ozone layer will recover to 1980 levels by 2040.



- **Statement 2: Incorrect.** While HFCs were used as alternatives to CFCs, they contribute to global warming, which created a new environmental challenge.
- **Statement 3: Correct.** September 16 is observed as the International Day for the Preservation of the Ozone Layer to commemorate the signing of the Montreal Protocol.

#### Topic 404

#### 404. Smog

Smog is of **2 types**

##### 1. Winter Smog or London Smog

- Smog= Smoke + Fog

**Reason behind high AQI in Delhi during winters-**

- Geographical factor-Temperature inversion** during winter
- Vehicular emission**
- Stubble burning-** In areas around **Delhi-NCR**
  - Such smog-also known as **Winter Smog or London Smog** as it is created mainly during winters.

##### 2. Summer Smog or Photochemical smog

- **Nitrogen oxides** and **volatile organic compounds (VOCs)** react to **sunlight**, creating **PAN (Peroxy Nitrate)** and **Ozone**.
- **PAN and Ozone** together are known as **Summer Smog or Photochemical smog**.
- They are very **harmful for lungs**.
- **Ozone** formed in this process is known as **Tropospheric or Ground level Ozone**.
- **Ground Ozone** is “secondary” pollutant - not directly emitted into the air

#### Gothenburg Protocol

- Gothenburg Protocol was established to **address pollutants** that cause acidification and **ground-level ozone**
- India has **not signed the protocol**.



#### Pollutant

1. **Primary pollutants** are pollutants that are **emitted directly from sources** like vehicles, factories, and forest fires.
2. **Secondary pollutants** are created as **result of reaction** between Primary pollutants.

**Q1210.** Consider the following statements regarding smog:

1. Winter smog is primarily caused by temperature inversion and stubble burning in areas around Delhi-NCR.
2. Summer smog or photochemical smog is formed when nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) react in the presence of sunlight.
3. Ozone formed during photochemical smog is a primary pollutant directly emitted from sources like vehicles and factories.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** Winter smog, or London Smog, is intensified by temperature inversion, vehicular emissions, and stubble burning during winters in regions like Delhi-NCR.
- **Statement 2: Correct.** Summer smog is a result of NO<sub>x</sub> and VOCs reacting under sunlight, producing harmful substances like PAN and ozone.
- **Statement 3: Incorrect.** Ozone in photochemical smog is a secondary pollutant,



formed due to reactions between primary pollutants like NO<sub>x</sub> and VOCs.

**Q1211.** With reference to pollutants and the Gothenburg Protocol, consider the following statements:

1. Primary pollutants include substances like nitrogen oxides (NO<sub>x</sub>), carbon monoxide, and particulate matter directly emitted from sources.
2. Secondary pollutants are formed by reactions between primary pollutants, an example being ground-level ozone.
3. India is a signatory to the Gothenburg Protocol, which addresses ground-level ozone and acidification.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** Primary pollutants are directly emitted from sources such as vehicles, factories, and natural events like forest fires.
- **Statement 2: Correct.** Secondary pollutants, like ground-level ozone, are formed by chemical reactions involving primary pollutants such as NO<sub>x</sub> and VOCs.
- **Statement 3: Incorrect.** India is not a signatory to the Gothenburg Protocol.

**Q1212.** Which of the following statements are correct about photochemical smog and ground-level ozone?

1. Photochemical smog forms primarily during summers due to intense sunlight triggering reactions between pollutants.
2. Tropospheric ozone, a component of photochemical smog, is harmful to human lungs and vegetation.
3. Ground-level ozone is a primary pollutant, directly emitted from vehicles and factories.
4. The Gothenburg Protocol was designed to reduce pollutants that contribute to ground-level ozone and acidification.

Choose the correct answer from the options below:

- (a) 1, 2, and 4 only
- (b) 2 and 3 only
- (c) 1, 3, and 4 only
- (d) 1, 2, 3, and 4

Ans: a

**Sol:**

- **Statement 1: Correct.** Photochemical smog is a summer phenomenon caused by sunlight reacting with NO<sub>x</sub> and VOCs.
- **Statement 2: Correct.** Tropospheric ozone, a secondary pollutant in photochemical smog, is harmful to health and ecosystems.
- **Statement 3: Incorrect.** Ground-level ozone is a secondary pollutant, not emitted directly but formed through chemical reactions.
- **Statement 4: Correct.** The Gothenburg Protocol addresses pollutants responsible for ground-level ozone and acidification.

### Topic 405

#### 405. Namibia plans to cull hundreds of wild animals

- **Namibia plans to cull hundreds of wild animals**, including **elephants** and **hippopotamuses**, to provide meat for its population **facing severe food shortages** due to drought.
- The culling aims to **provide meat** for its population facing **severe food shortages** due to drought.
- The culling is seen as a **necessary measure** to prevent further human suffering and **maintain a balance in the ecosystem** during the extreme drought conditions.



An elephant in Botswana, next door to Namibia. *The NYT*







**Q1213.** With reference to Namibia's plan to cull wild animals, consider the following statements:

1. Namibia's decision to cull wild animals is primarily aimed at addressing food shortages caused by severe drought conditions.
2. Elephants and hippopotamuses are among the species targeted for culling under this plan.
3. The culling is aimed solely at providing meat for the local population, without any consideration for ecosystem balance.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** Namibia plans to cull animals to address severe food shortages caused by drought.
- **Statement 2: Correct.** Elephants and hippopotamuses are specifically mentioned as targets for culling.
- **Statement 3: Incorrect.** While providing meat is a primary objective, the culling also aims to maintain ecosystem balance during extreme drought conditions.

**Q1214.** Which of the following statements regarding Namibia's wildlife management during drought are correct?

1. Namibia's decision to cull wild animals is part of a strategy to address both food security and ecological balance.
2. Severe drought conditions in Namibia have left the government with limited options to mitigate human suffering.

3. The culling includes only herbivorous animals to prevent competition for limited vegetation.

Select the correct answer using the codes below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** The culling addresses food shortages and aims to prevent ecological imbalances caused by drought.
- **Statement 2: Correct.** Extreme drought conditions have forced the government to take measures like culling to mitigate human suffering.
- **Statement 3: Incorrect.** The culling includes animals like elephants and hippopotamuses, which are not targeted solely due to vegetation competition.

**Q1215.** Consider the following statements about Namibia's culling policy:

1. The culling policy reflects the challenges faced by drought-prone countries in balancing human needs and wildlife conservation.
2. Namibia's culling plan has been criticized globally for prioritizing human survival over biodiversity preservation.
3. Culling of wild animals, such as elephants, is a routine practice in Namibia irrespective of climatic conditions.

Which of the statement(s) given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2, and 3

Ans: c

**Sol:**

- **Statement 1: Correct.** The policy highlights the difficulty of balancing human needs and conservation, especially in drought-prone regions.
- **Statement 2: Incorrect.** While culling may attract criticism, the plan specifically aims to mitigate the impacts of an extreme drought, not outright biodiversity neglect.



- **Statement 3: Incorrect.** Culling in Namibia is not a routine practice but a response to the exceptional circumstances caused by drought.

## Topic 406

## 406. Cheetah Action Plan

- Cheetah was **officially declared extinct-1952**
- Maharaja **Ramanuj Pratap Singh Deo** of Koriya, Chhattisgarh-killed last Cheetah in 1947.

### Cheetah reintroduction programme in India

- Cheetahs from **Namibia and South Africa** (having largest population of Cheetah) has been introduced in India.
- This was the **first time** in the world that a large carnivore will be relocated from **one continent to the other.**
- Cheetah released in **Kuno National Park, MP.**
- 8 Cheetah from Namibia/12 from South Africa

## Death of Cheetah

- Some cheetahs died of suspected sepsis -caused by radio collars (to track their movements) in Kuno National Park.
- Sepsis-blood poisoning by *Staphylococcus aureus* bacteria.
- In Africa -short span rainfall-drying of the collar/In India Monsoon-heavy rainfall-no drying-bacterial infection.

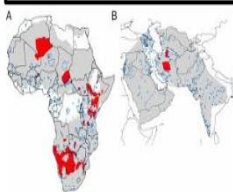
### Species of Cheetah

## African Cheetah

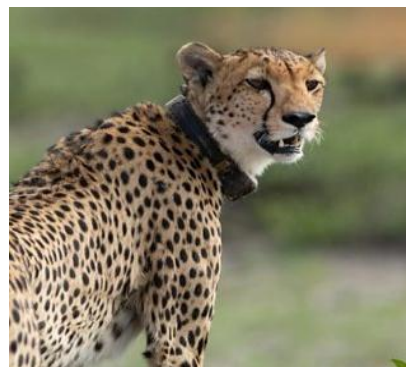
- IUCN STATUS- Vulnerable
- CITES Status- Appendix I
- Habitat- Around 6,500-7,000

## Asian Cheetah

- IUCN STATUS- critically endangered
- CITES status- Appendix I of the list
- Habitat- 40- 50 found only in Iran



**Asian Cheetah** is **Smaller and paler** than the **African cheetah**. Asian Cheetah is more **cat-like appearance**.



In future India will take Cheetah with thin skin only

**Q1216.** With reference to the Cheetah Action Plan in India, consider the following statements:

1. The cheetah was officially declared extinct in India in the year 1952.
2. The reintroduction of cheetahs in India marks the first instance globally of relocating a large carnivore from one continent to another.
3. Kuno National Park in Madhya Pradesh was chosen as the site for the cheetah reintroduction programme.
4. The reintroduced cheetahs in India were sourced exclusively from Namibia.

How many of the above statements are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: c

**Sol:**

- **Statement 1: Correct.** The cheetah was officially declared extinct in India in 1952.
- **Statement 2: Correct.** This is the first instance globally of relocating a large carnivore between continents.
- **Statement 3: Correct.** Kuno National Park in Madhya Pradesh was selected for the reintroduction programme.
- **Statement 4: Incorrect.** Cheetahs were sourced from both Namibia and South Africa.

**Q1217.** Which of the following statements regarding the challenges faced by the Cheetah Reintroduction Programme in India are correct?

1. Some cheetahs died due to suspected sepsis caused by radio collars used for tracking their movements.





2. Monsoonal heavy rainfall in India prevented the drying of radio collars, leading to bacterial infections.

3. Sepsis among cheetahs was caused by the bacterium *Staphylococcus aureus*.

Select the correct answer using the codes below:

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 1 and 3 only  
(d) 1, 2, and 3

Ans: d

**Sol:**

- **Statement 1: Correct.** Some cheetahs in Kuno National Park died of suspected sepsis linked to radio collars.
- **Statement 2: Correct.** Heavy rainfall during the monsoon season hindered the drying of collars, contributing to bacterial infections.
- **Statement 3: Correct.** The bacterium *Staphylococcus aureus* was identified as the cause of sepsis in the cheetahs.

**Q1218.** Consider the following statements about the Cheetah Reintroduction Programme in India:

1. The last cheetah in India was killed by Maharaja Ramanuj Pratap Singh Deo of Koriya in 1947.
2. Twelve cheetahs were sourced from Namibia and eight from South Africa for the programme.
3. The cheetah reintroduction programme in Kuno National Park aims to revive the cheetah population after its extinction in 1952.

Which of the above statement(s) is/are incorrect?

- (a) 1 only  
(b) 2 only  
(c) 1 and 2 only  
(d) None of the above

Ans: b

**Sol:**

- **Statement 1: Correct.** The last cheetah in India was killed in 1947 by Maharaja Ramanuj Pratap Singh Deo.
- **Statement 2: Incorrect.** Eight cheetahs were sourced from Namibia, and twelve were sourced from South Africa.
- **Statement 3: Correct.** The programme seeks to revive the cheetah population after its extinction in India in 1952.

## Topic 407

#### 407. Gandhi Sagar Wildlife Sanctuary for Cheetahs

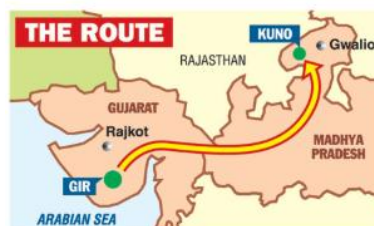
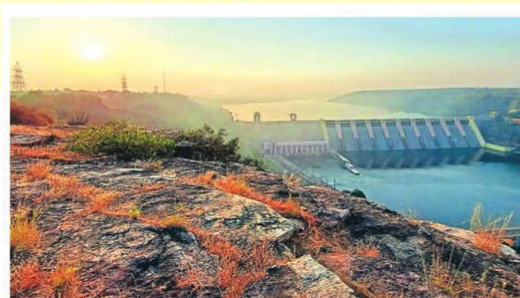
- The Gandhi Sagar Wildlife Sanctuary will be the second home for cheetahs in India, after the Kuno National Park.
- The Madhya Pradesh government has announced that it has completed its preparations for the ambitious project.
- It has been described as “perfect” cheetah habitat.

## Gandhi Sagar Wildlife Sanctuary

- Mandsaur and Neemuch district in western MP
- On the border with Rajasthan.
- The sanctuary has Savanna like ecosystem comprising open grasslands interspersed with dry deciduous trees and shrubs making it ideal for Cheetahs.

## Gandhi Sagar dam

- **Chambal river** cutting the sanctuary into two almost equal halves.
- The Gandhi Sagar dam, constructed on the river.



### Palpur Kuno Sanctuary

- It is in **Madhya Pradesh**.
- After **Gujarat's Gir forest**, it is India's **second home for the Asiatic lion**.
- Kuno Palpur Wildlife Sanctuary received the status of **national park** in 2018.







**The Gandhi Sagar Wildlife Sanctuary**  
(left). [Instagram/@gandhisagarwildlife](#) official

**Q1219.** With reference to the Gandhi Sagar Wildlife Sanctuary, consider the following statements:

1. It will serve as the second home for cheetahs in India after Kuno National Park.
2. The sanctuary is located in Madhya Pradesh's Mandsaur and Neemuch districts, sharing a border with Rajasthan.
3. The Chambal River flows through the sanctuary, dividing it into two nearly equal halves.
4. The sanctuary is predominantly a tropical rainforest ecosystem, making it an ideal habitat for cheetahs.

How many of the above statement(s) are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: c

**Sol:**

- **Statement 1: Correct.** The Gandhi Sagar Wildlife Sanctuary has been designated as the second home for cheetahs in India.
- **Statement 2: Correct.** It is located in Madhya Pradesh's Mandla and Neemuch districts and borders Rajasthan.
- **Statement 3: Correct.** The Chambal River cuts through the sanctuary, dividing it into two nearly equal halves.
- **Statement 4: Incorrect.** The sanctuary features a savanna-like ecosystem with open grasslands, not tropical rainforests.

**Q1220.** Which of the following factors make the Gandhi Sagar Wildlife Sanctuary suitable for cheetahs?

1. It has a savanna-like ecosystem with open grasslands.
2. The sanctuary features dry deciduous trees and shrubs.
3. The Gandhi Sagar dam ensures a constant supply of water for wildlife.
4. The region has no human settlements or agricultural activities.

Select the correct answer using the codes below:

- (a) 1 and 2 only  
(b) 1, 2, and 3 only  
(c) 1, 2, and 4 only  
(d) All four

Ans: b

**Sol:**

- **Statement 1: Correct.** The savanna-like ecosystem with open grasslands is ideal for cheetahs.
- **Statement 2: Correct.** Dry deciduous trees and shrubs provide a suitable habitat for cheetahs.
- **Statement 3: Correct.** The Gandhi Sagar dam, constructed on the Chambal River, ensures water availability.
- **Statement 4: Incorrect.** There are human settlements and activities around the region, which necessitate careful management.

**Q1221.** Consider the following statements about the Gandhi Sagar Wildlife Sanctuary and related aspects:

1. The Gandhi Sagar dam, located within the sanctuary, was built on the Chambal River.
2. The sanctuary is spread over Madhya Pradesh and Rajasthan.
3. Gandhi Sagar's savanna-like ecosystem is characterized by a mix of open grasslands and waterbodies, making it ideal for cheetahs.
4. The Madhya Pradesh government has declared the sanctuary a tiger reserve to expand the project's ecological focus.

Which of the above statement(s) is/are correct?

- (a) 1 and 3 only  
(b) 2 and 4 only  
(c) 1, 2, and 3 only  
(d) 1, 3, and 4 only

Ans: a



**Sol:**

- **Statement 1: Correct.** The Gandhi Sagar dam is constructed on the Chambal River and cuts through the sanctuary.
- **Statement 2: Incorrect.** The sanctuary is located entirely in Madhya Pradesh, though it borders Rajasthan.
- **Statement 3: Correct.** The savanna-like ecosystem is well-suited for cheetahs.
- **Statement 4: Incorrect.** The sanctuary has not been declared a tiger reserve; it is specifically focused on cheetah conservation.

## Topic 408

### 408. India's First Dark Sky Park

## Dark Sky Park

- **Pench Tiger Reserve** in **Maharashtra** has been designated as **India's first Dark Sky Park** and the fifth in Asia, **protecting the night sky** and **preventing light pollution.**
- The certification was given by the **International Dark-Sky Association,** a global dark-sky movement **to promote astronomy.**

## Dark Sky reserve

- **Ladakh** will be first **Dark Sky** reserve from India.

**LOCATION:**

Madhya Pradesh and Maharashtra. Named after Pench River. It flows through the middle of the park, dividing it into equal eastern and western parts. It is Joint pride of Madhya Pradesh and Maharashtra.

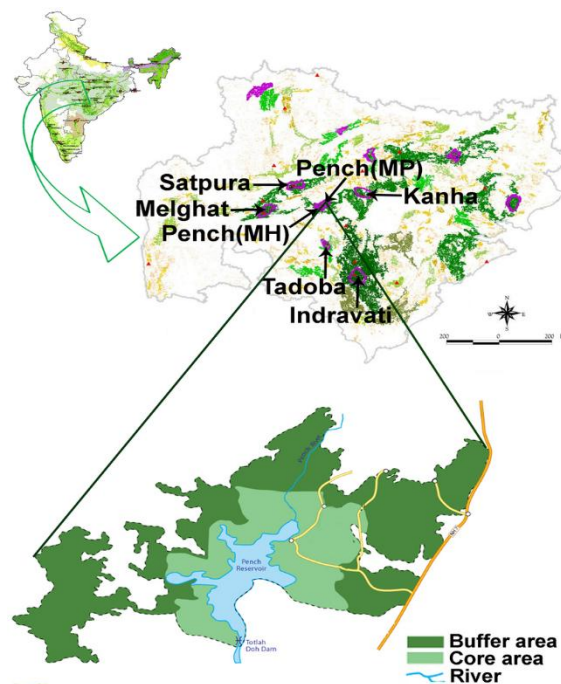
**Established as a National Park:**

Declared a National Park by the Government of Maharashtra in 1975.

### Established as a Tiger Reserve:

Designated as a tiger reserve in 1998-1999, PTR Madhya Pradesh also granted tiger reserve status in 1992-1993.

It is among the sites notified as Important Bird Areas (IBA) of India



**Q1222.** Which of the following statements regarding India's first Dark Sky Park is/are correct? It is located within the Pench Tiger Reserve in Maharashtra.

1. It is the fifth Dark Sky Park in Asia to be certified by the International Dark-Sky Association.
2. The primary goal of a Dark Sky Park is to promote sustainable tourism while addressing light pollution.
3. Ladakh hosts India's first Dark Sky Park.

How many of the above statement(s) are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: c

**Sol:-**

- **Statement 1: Correct.** The Pench Tiger Reserve in Maharashtra has been designated as India's first Dark Sky Park.
- **Statement 2: Correct.** It is the fifth Dark Sky Park in Asia, certified by the International Dark-Sky Association.
- **Statement 3: Correct.** Dark Sky Parks aim to protect the night sky, reduce light pollution, and promote astronomy-related tourism.
- **Statement 4: Incorrect.** While Ladakh is set to have India's first Dark Sky Reserve, the first Dark Sky Park is in Pench Tiger Reserve.





**Q1223.** Consider the following statements about Dark Sky Parks and Reserves:

1. A Dark Sky Park is certified by the International Dark-Sky Association to protect natural night skies from light pollution.
2. Pench Tiger Reserve is India's first Dark Sky Reserve.
3. Ladakh's designation as a Dark Sky Reserve highlights its pristine night skies and its focus on astronomy-based tourism.
4. A Dark Sky Reserve differs from a Dark Sky Park in that it covers a larger geographical area with stricter regulations.

Which of the statement(s) given above is/are correct?

- (a) 1 and 4 only
- (b) 1, 2, and 3 only
- (c) 1, 3, and 4 only
- (d) All four

Ans: c

**Sol:**

- **Statement 1: Correct.** The International Dark-Sky Association certifies parks to reduce light pollution and protect natural night skies.
- **Statement 2: Incorrect.** Pench Tiger Reserve is India's first Dark Sky Park, not a Reserve.
- **Statement 3: Correct.** Ladakh's unique conditions make it ideal for a Dark Sky Reserve, promoting astronomy-based tourism.
- **Statement 4: Correct.** Dark Sky Reserves cover larger areas than Parks and are governed by stricter rules to protect night skies.

**Q1224.** With reference to the International Dark-Sky Association (IDA) and India's efforts to protect the night sky, consider the following statements:

1. India's first Dark Sky Park was certified in 2024 by the IDA.
2. The IDA promotes global efforts to mitigate light pollution and encourage astronomy education.
3. Ladakh's Dark Sky Reserve is expected to be operational before the certification of Pench Tiger Reserve as a Dark Sky Park.
4. Dark Sky Parks and Reserves focus on reducing carbon emissions through the regulation of artificial lighting.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only
- (b) 1, 2, and 4 only
- (c) 2 and 3 only
- (d) All four

Ans: a

**Sol:**

- **Statement 1: Correct.** India's first Dark Sky Park, at Pench Tiger Reserve, was certified in 2024 by the IDA.
- **Statement 2: Correct.** The IDA is a global movement to combat light pollution and promote astronomy education.
- **Statement 3: Incorrect.** The Pench Tiger Reserve has already been certified, while Ladakh's reserve is in the planning stage.
- **Statement 4: Incorrect.** Dark Sky initiatives primarily aim to reduce light pollution, not directly lower carbon emissions.

### Topic 409

#### 409. Biogas

- **Biogas** is a mixture of **methane, CO<sub>2</sub>** and **small quantities** of other **gases produced by anaerobic digestion of organic matter** in an **oxygen-free environment**.

#### Recent initiatives

##### Blending Targets

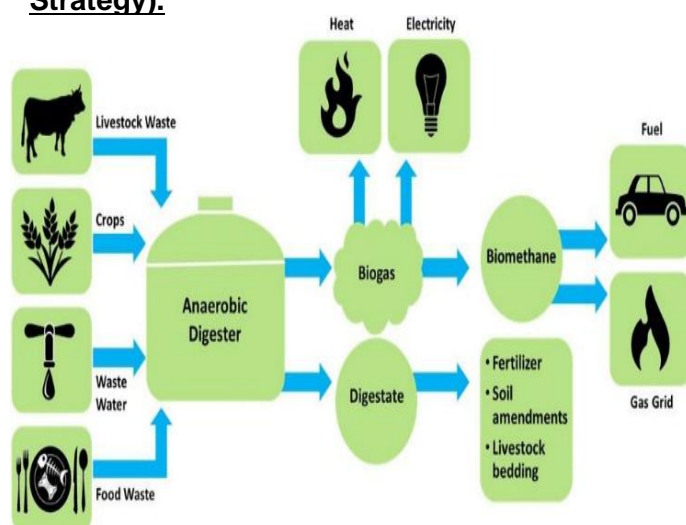
##### 1. Automobile and Household blending

- **1 percent of biogas** will be blended in gas used in **automobiles and household kitchens** for cooking from **April 2025**.
- The share will increase to **5% by 2028**.

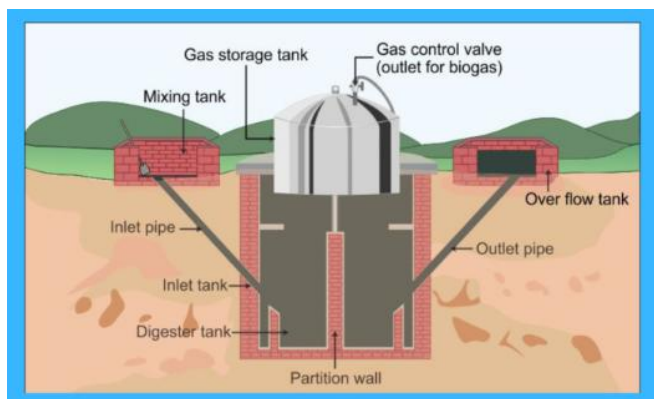
##### 2. Aircraft turbine fuel

- **1% by 2027**
- **2% by 2028**

This is in line with the aim of **achieving net zero emissions targets by 2070 (Panchamrit Strategy)**.







**Q1225.** With reference to biogas and its applications, consider the following statements:

1. Biogas is produced by anaerobic digestion of organic matter in the presence of oxygen.
2. The blending target for biogas in automobile and household gas will reach 5% by 2028.
3. Biogas blending in aircraft turbine fuel is aimed to reach 2% by 2028.
4. The promotion of biogas blending aligns with India's Panchamrit Strategy to achieve net-zero emissions by 2050.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

- **Statement 1: Incorrect.** Biogas is produced in an oxygen-free environment (anaerobic digestion).
- **Statement 2: Correct.** Blending targets for biogas in automobile and household gas are set to reach 5% by 2028.
- **Statement 3: Correct.** Blending in aircraft turbine fuel aims to reach 2% by 2028.
- **Statement 4: Incorrect.** The net-zero target under the Panchamrit Strategy is set for 2070, not 2050.

**Q1226.** Consider the following statements about biogas and its recent initiatives in India:

1. Biogas consists primarily of methane and carbon dioxide.
2. The blending of biogas in household cooking gas will begin at 1% from April 2025.
3. Aircraft turbine fuel will have a biogas blending target of 1% by 2028.

4. Biogas production supports India's net-zero emissions target.

Which of the statement(s) given above is/are correct?

- (a) 1 and 2 only
- (b) 1, 2, and 4 only
- (c) 3 and 4 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: Correct.** Biogas is primarily composed of methane ( $\text{CH}_4$ ) and carbon dioxide ( $\text{CO}_2$ ).
- **Statement 2: Correct.** The blending of biogas in cooking gas will start at 1% in 2025.
- **Statement 3: Incorrect.** Aircraft turbine fuel will have a 1% blending target by 2027, not 2028.
- **Statement 4: Correct.** The promotion of biogas is part of India's strategy to achieve net-zero emissions by 2070.

**Q1227.** With respect to biogas usage in India, consider the following statements:

1. Biogas blending in aircraft turbine fuel is set to begin at 1% by 2027 and increase to 2% by 2028.
2. The biogas initiative supports India's commitment under the Panchamrit Strategy.
3. Biogas is a renewable source of energy derived from organic waste.
4. Blending of biogas in household cooking gas will exceed 5% by 2030.

Which of the above statement(s) is/are correct?

- (a) 1, 2, and 3 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) All four

Ans: a

**Sol:**

- **Statement 1: Correct.** Biogas blending in turbine fuel begins at 1% by 2027 and increases to 2% by 2028.
- **Statement 2: Correct.** Promoting biogas aligns with the Panchamrit Strategy for achieving net-zero by 2070.
- **Statement 3: Correct.** Biogas is a renewable energy source produced from organic waste.



- **Statement 4: Incorrect.** The current target for household biogas blending is 5% by 2028, with no stated plans for exceeding this target by 2030.

#### Topic 410

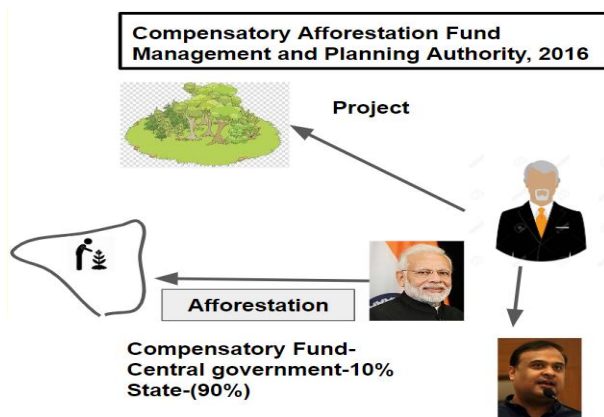
#### 410. Compensatory Afforestation Fund

##### Compensatory Afforestation Fund Act 2016

- every time forest land is diverted for non-forest purposes such as mining or industry, the user agency pays for planting forests over an equal area of non-forest land.

##### How the money is divided?

- **90% of the CAF money-States government**
- **10% is to be retained by the Centre.**
- The **funds** can be used for **treatment of catchment areas, assisted natural generation, forest management, wildlife protection and management.**



**Q1228.** With reference to the Compensatory Afforestation Fund (CAF), consider the following statements:

1. The Compensatory Afforestation Fund Act, 2016 mandates afforestation on an equal area of non-forest land for every instance of forest diversion for non-forest purposes.
2. The Centre retains 90% of the funds collected under CAF, while the remaining 10% is given to the states.
3. The funds under CAF can be utilized for wildlife protection and forest management.
4. The CAF is applicable to activities such as mining and industrial projects.

Which of the above statement(s) is/are correct?

- (a) 1 and 4 only
- (b) 1, 3, and 4 only

- (c) 2, 3, and 4 only
- (d) All four

Ans: b

**Sol:**

- **Statement 1: Correct.** The Act requires planting forests over an equal area of non-forest land whenever forest land is diverted for non-forest use.
- **Statement 2: Incorrect.** Under the Act, 90% of the funds go to the state governments, and 10% is retained by the Centre.
- **Statement 3: Correct.** The funds can be used for wildlife protection, forest management, and other related activities.
- **Statement 4: Correct.** The CAF is applicable to non-forest activities, such as mining and industrial projects.

**Q1229.** Consider the following statements regarding the utilization of the Compensatory Afforestation Fund (CAF):

1. The funds can be utilized for assisted natural regeneration and catchment area treatment.
2. The Centre retains the majority share of CAF funds for national-level forest conservation initiatives.
3. Wildlife protection is an eligible activity under CAF utilization.

How many of the above statement(s) are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

- **Statement 1: Correct.** Assisted natural regeneration and catchment area treatment are eligible uses of CAF funds.
- **Statement 2: Incorrect.** The Centre retains only 10% of the funds, while 90% is allocated to the states.
- **Statement 3: Correct.** Wildlife protection is one of the specified purposes for CAF utilization.

**Q1230.** Which of the following are correct about the Compensatory Afforestation Fund Act, 2016?



1. The funds under CAF can be used for forest management and treatment of catchment areas.
2. It applies only to forest diversion for industrial purposes, excluding other activities like mining.
3. The Centre is responsible for utilizing the majority of CAF funds for compensatory afforestation.

Choose the correct answer:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

Ans: a

**Sol:**

- **Statement 1: Correct.** The Act allows the use of CAF funds for forest management, catchment area treatment, and related activities.
- **Statement 2: Incorrect.** The Act covers all non-forest uses, including mining and industrial purposes.
- **Statement 3: Incorrect.** The majority (90%) of the funds are allocated to state governments, not the Centre.

**Day 42**

**Topic 411**

#### 411. Alien and Invasive species

##### Alien Species

- An alien species to a particular ecosystem is the one that is **not native to that ecosystem.**

##### Invasive alien species

- Alien species are **destructive in nature** and they can **destroy the entire ecosystem.**
- **Ballast water** is considered to be one main reason behind rise of **Invasive Alien species (IAS)**

##### News wrt Invasive Alien Species-

1. **Chital (Spotted Deer)** in **Ross Island** of Andaman and Nicobar proving to be IAS.
2. **Invasive mussels found at Kamarajar Port** in Ennore, Tamil Nadu.

##### Invasive mussels

- Mussels are a type of **mollusk.**

Mollusk are group of **invertebrate animals,** characterized by their **soft bodies,** which are often, but not always, protected by a **hard shell made of calcium carbonate.**



##### Chital

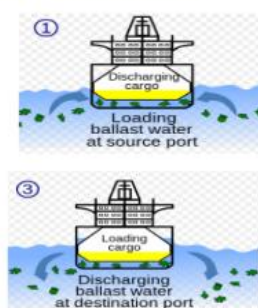
- The chital, also known as the spotted deer or axis deer.
- **Native** to the **grasslands** and forests of **India and Sri Lanka.**
- **IUCN Red list: Least Concern**
- **WLPA 1972: Schedule II.**
- Chitals are **native to mainland India.**

##### Why they are turning out to be harmful for ecosystem of Andaman?

- Having **no natural predators or competitors** their population is growing at fast pace threatening other species.



**Ballast tanks take in and expel water to maintain a ship's balance**



**Q1231.** Consider the following statements about *Senna spectabilis*:

1. It is a plant species native to Africa.
2. It is classified as an Invasive Alien Species in India.





3. It is the world's most widespread invasive alien species on the land and is known as "Terror of Bengal".

Which of the above statement/s is/are correct?

- (a) 1 and 2 only.
- (b) 2 and 3 only.
- (c) 1, 2, and 3.
- (d) 2 only

Ans: d

**Sol:**

- **Statement 1 is incorrect.** *Senna spectabilis* is native to South and Central America, not Africa.
- **Statement 2 is correct.** It is indeed classified as an Invasive Alien Species in India.
- **Statement 3 is incorrect.** While it is a problematic invasive species, it's not the world's most widespread. The title of "Terror of Bengal" is often associated with the invasive plant species *Mikania micrantha*.

**Q1232.** Which of the following organisation has recently released the report "Invasive Alien Species and their Control"?

- (a) Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).
- (b) International Union for Conservation of Nature (IUCN).
- (c) World Wide Fund for Nature (WWFN).
- (d) United Nations Environment Programme (UNEP).

Ans: a

**Sol:** The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) recently released the report "Invasive Alien Species and their Control".

**Q1233.** With reference to the 'Assessment Report on Invasive Alien Species and their Control', consider the following statements:

1. This Report is released by the International Union for Conservation of Nature (IUCN).
2. Lantana, a flowering shrub, ranks as the world's most widespread invasive alien species on land.
3. Invasive alien species have played a significant role in 60% of documented global plant and animal extinctions.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three statements
- (d) None of the statements

Ans: a

**Sol:**

- **Statement 1 is incorrect.** The report was released by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), not the IUCN.
- **Statement 2 is incorrect.** Water Hyacinth ranks as the world's most widespread invasive alien species on land.
- **Statement 3 is correct.** The report states that invasive alien species have played a significant role in 60% of documented plant and animal extinctions.

#### Topic 412

#### 412. Coral Reefs

##### What are corals?

- **Tiny animals**
- **Sessile-permanently attach** themselves to the **ocean floor**
- **tiny tentacle-like hands** to catch **food from the water**
- Each **individual coral animal** is known as a **polyp**
- lives in groups of **hundreds to thousands-known as 'colony'**

##### Coral reefs

- A landform created by Corals.

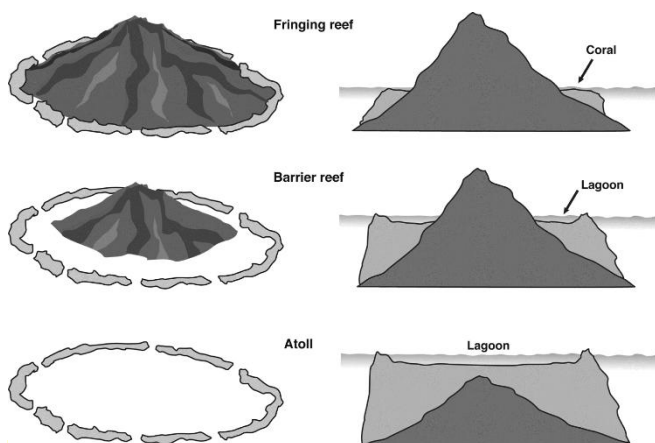
##### How Corals create Coral Reefs?

- **Some corals** have **stony exoskeletons** made out of **limestone**.
- When **polyps die**, their **skeletons are left behind**.
- Layer after layer deposition leads to **Coral reefs**.

##### Coral related landforms are of three types-

- a. **Fringing reef**
- b. **Barrier reef**
- c. **Atoll**





**Q1234.** Which one of the following types of coral reefs are developed along the edges of continental shelves and separated by lagoon?

- (a) Patch reefs.
- (b) Fringing reefs.
- (c) Barrier reefs.
- (d) Atoll reefs.

Ans: c

**Sol:** Barrier reefs are long, narrow, coral reefs that run parallel to the coastline but are separated from it by a deep lagoon or channel.

Here's a brief description of the other types of coral reefs:

- Fringing reefs: Grow directly from the shore.
- Patch reefs: Small, isolated reefs that grow up from the ocean floor.
- Atoll reefs: Ring-shaped reefs that encircle a lagoon.

**Q1235.** Consider the following statements:

1. Corals are colorful plant growing in the sea and oceans.
2. Corals and algae have a mutualistic relationship.
3. Only hard corals are known to build reefs.

How many of the above statement(s) is/are correct?

- (a) Only one

- (b) Only two  
(c) All three  
(d) None

Ans: b

**Sol:**

- **Statement 1 is incorrect.** Corals are not plants; they are animals related to jellyfish and anemones.
- **Statement 2 is correct.** Corals and algae have a symbiotic relationship, where the algae provide food for the coral, and the coral provides a protected environment for the algae.
- **Statement 3 is correct.** While there are soft corals, only hard corals build reefs by secreting a calcium carbonate skeleton.

**Q1236.** Coral Reef Watch Programme is a free online tool that provides a global analysis of sea surface temperature (SST) and outlooks to identify coral reefs that are at risk of bleaching. It has been developed by which of the following?

- (a) International Coral Reef Initiative (ICRI).  
(b) United Nations Environment Programme (UNEP).  
(c) World Bank.  
(d) National Oceanic and Atmospheric Administration (NOAA).

Ans: d

**Sol:** The Coral Reef Watch Programme has been developed by the National Oceanic and Atmospheric Administration (NOAA).

## Topic 413

### 413. Coral bleaching

- Corals are found in symbiotic relations with zooxanthellae (microscopic algae ie marine plant).

## Relation between Zooxanthellae and Corals

- Corals provide zooxanthellae a safe place to live,
- Zooxanthellae provide oxygen and organic products of photosynthesis that help corals to grow and thrive.
- Zooxanthellae also give bright and unique colours to corals.

### Impact of global warming on Coral reefs (as per 6th Assessment Report of IPCC)





1. Translocation from Tropical to Temperate
2. Coral Bleaching
  - Corals are very sensitive to light and temperature and even a small change in their living conditions can stress them.
  - When stressed due to global warming, they expel zooxanthellae and turn entirely white.

This is called coral bleaching.



#### HOW DOES CORAL BLEACHING TAKE PLACE?

##### 1. HEALTHY CORAL

Algae called zooxanthellae live in the tissues of a coral



##### 2. STRESSED CORAL

When a coral gets stressed, it expels zooxanthellae

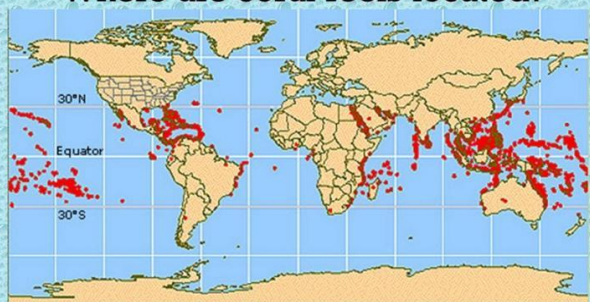


##### 3. BLEACHED CORAL

Coral turns white after zooxanthellae are expelled



#### Where are coral reefs located?



The majority of reef building corals are found within tropical and subtropical waters. These typically occur between 30° north and 30° south latitudes. The red dots on this map show the location of major stony coral reefs of the world.  
Credit: NOAA

**Q1237.** Consider the following statements about Sea anemone.

1. Sea anemone is an aquatic plant species which provides habitat to corals and other aquatic species.

2. Strawberry Anemones (*Actinia fragacea*) and Dahlia Anemones (*Urticina feline*) are some of famous sea anemones.

3. For the first time, Sea anemone bleaching has been observed in group of islands in the Lakshadweep.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only.
- (b) 1 and 3 only.
- (c) 2 and 3 only.
- (d) 1, 2 and 3

Ans: c

**Sol:**

- **Statement 1 is incorrect.** Sea anemones are not plants; they are animals related to jellyfish and corals. They are important for providing habitat and food for other marine organisms.
- **Statement 2 is correct.** Strawberry Anemones (*Actinia fragacea*) and Dahlia Anemones (*Urticina feline*) are indeed well-known species of sea anemones.
- **Statement 3 is correct.** A recent study has documented the first instance of mass sea anemone bleaching in the Lakshadweep islands. This bleaching event is concerning as it highlights the impact of climate change on marine ecosystems.

**Q1238.** Consider the following statements regarding coral bleaching:

1. Coral bleaching occurs when corals expel symbiotic algae due to stress from environmental changes like temperature, light, or nutrients, causing them to turn completely white.
  2. The pale white colour is of the translucent tissues of calcium carbonate which are visible due to the loss of pigment-producing zooxanthellae.
- Which of the statement(s) given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: c

**Sol:**

- **Statement 1 correct:** Coral bleaching occurs when corals expel the symbiotic algae living within their tissues, typically due to stress from environmental changes like increased water





temperature, changes in water chemistry, increased sunlight, or pollution. This expulsion of algae leaves the coral's white skeleton visible.

- **Statement 2 correct:** The pale white colour observed during bleaching is indeed the result of the loss of these pigment-producing algae (zooxanthellae), revealing the underlying calcium carbonate structure of the coral.

**Q1239.** Which of the following reasons caused catastrophic coral bleaching and mass coral deaths in the Andaman and Nicobar Islands?

- Increase of  $2^{\circ}\text{C}$  temperature in the Indian Ocean
- Increased industrial activities in the coastal regions
- Decrease of temperature by  $4^{\circ}\text{C}$  in the Indian Ocean
- Heavy marine pollution

Ans: a

**Sol:** The most likely reason for the catastrophic coral bleaching and mass coral deaths in the Andaman and Nicobar Islands is:

Coral bleaching is primarily caused by rising sea temperatures. When the water temperature increases, corals expel the symbiotic algae living within their tissues, causing them to lose their color and eventually die. A 2°C increase in the Indian Ocean would significantly stress the coral reefs in the region.

## Topic 414

#### 414. Important Coral Reefs of the world

## 1. Great Barrier Reefs

- The reef is located in the Coral Sea (North-East Coast), off the coast of Queensland, Australia.
- It was world heritage listed in 1981 by UNESCO.
- It is the largest living structure on the planet, it is so large that it is the only living thing on earth visible from space.

## Importance of Great Barrier Reefs

- **Huge biodiversity**-4,000 species of fish, 800 species of hard corals
- The Great Barrier Reef, which covers **roughly 10 percent** of the **world's coral reef ecosystem**.

## 2. Coral Triangle

- The Coral Triangle is a **marine area** located in the **western Pacific Ocean.**
- It includes the **waters of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor Leste and Solomon Islands.**
- The Coral Triangle hosts an **astonishing amount of marine life.**
- **Seventy-five percent** of the world's **coral species** are found here—**nearly 600 different species.**

Over **2000 different types of reef fish** find refuge.



**Q1240.** With reference to the Great Barrier Reef, consider the following statements:

1. It is the largest living structure on the planet and is visible from space.
  2. It hosts nearly 4,000 species of reef fish and 800 species of hard corals.
  3. The Great Barrier Reef is located off the west coast of Australia.
  4. It was designated a UNESCO World Heritage Site in 1981.
- Which of the above statement(s) is/are correct?
- (a) 1, 2, and 4 only
  - (b) 1 and 3 only
  - (c) 2 and 3 only



(d) All four

Ans: a

**Sol:**

- **Statement 1: Correct.** The Great Barrier Reef is the largest living structure on Earth and is visible from space.
- **Statement 2: Correct.** It supports 4,000 species of reef fish and 800 species of hard corals.
- **Statement 3: Incorrect.** The Great Barrier Reef is located off the northeast coast of Australia, not the west coast.
- **Statement 4: Correct.** It was designated a UNESCO World Heritage Site in 1981.

**Q1241.** Consider the following statements regarding the Coral Triangle:

1. The Coral Triangle encompasses the waters of six countries, including Indonesia and the Philippines.

2. It hosts nearly 75% of the world's coral species, amounting to over 1,200 species.

3. The Coral Triangle is recognized as a UNESCO World Heritage Site.

4. Over 2,000 species of reef fish are found in this region.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

- **Statement 1: Correct.** The Coral Triangle spans six countries: Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor-Leste, and the Solomon Islands.
- **Statement 2: Incorrect.** The Coral Triangle hosts 75% of the world's coral species, but this amounts to nearly 600 species, not 1,200.
- **Statement 3: Incorrect.** The Coral Triangle is not recognized as a UNESCO World Heritage Site.
- **Statement 4: Correct.** The Coral Triangle is home to over 2,000 species of reef fish.

**Q1242.** Which of the following statements correctly differentiate the Great Barrier Reef and the Coral Triangle?

1. The Great Barrier Reef covers approximately 10% of the world's coral reef ecosystem, while the Coral Triangle hosts 75% of the world's coral species.

2. The Great Barrier Reef is a UNESCO World Heritage Site, whereas the Coral Triangle is not.

3. The Coral Triangle spans six countries, while the Great Barrier Reef is confined to the waters of a single country.

4. Both the Great Barrier Reef and the Coral Triangle have identical marine biodiversity, including 800 species of hard corals.

Choose the correct answer:

- (a) 1, 2, and 3 only
- (b) 2 and 4 only
- (c) 1 and 3 only
- (d) All four

Ans: a

**Sol:**

- **Statement 1: Correct.** The Great Barrier Reef accounts for 10% of the global coral reef ecosystem, while the Coral Triangle hosts 75% of the world's coral species.
- **Statement 2: Correct.** The Great Barrier Reef is a UNESCO World Heritage Site, while the Coral Triangle is not.
- **Statement 3: Correct.** The Great Barrier Reef is located in Australian waters, while the Coral Triangle spans six countries.
- **Statement 4: Incorrect.** While both regions are biodiversity hotspots, their coral diversity differs, with the Coral Triangle hosting 600 species of hard corals compared to 800 species in the Great Barrier Reef.

#### Topic 415

#### 415. Great Indian Bustard

- GIB is critically threatened(140 birds left)
- heaviest of the flying birds
- Found in Rajasthan and Gujarat.
- Small populations occur in Maharashtra, Karnataka and Andhra Pradesh.
- The bird also happens to be the state bird of Rajasthan.
- favour flat open landscapes with minimal visual obstruction



- It Listed in Schedule I of the **Indian Wildlife** (Protection) Act, 1972
- named as **Godawan in Rajasthan**.
- These birds are opportunistic eaters- can and will eat almost anything
- Many **Great Indian Bustard Bird** collide with the **electricity wire** and die.
- A “firefly bird diverter” for overhead power lines in areas where Great Indian Bustard (GIB) populations are found in the wild.
- Firefly diverter in preventing bird strikes on power lines.

### Four-bustard species found in India-

- MacQueen's bustard(vulnerable),
  - Lesser florican
  - Bengal florican
  - Great Indian Bustard
- Lesser florican** is the **smallest** bird of the bustard family, while **GIB is the largest.**

The **lesser florican** also known as the **likh or kharmore**



**Q1243.** India is home to which of the following bustard species:

1. Great Indian Bustard.
  2. Lesser Florican.
  3. MacQueen's Bustard.
  4. Bengal florican.
- (a) 1 and 3 only  
(b) 1, 2, and 4 only  
(c) 1, 2, 3, and 4  
(d) 1 and 2 only

Ans: c

**Sol:** India is home to all four of these bustard species:

- Great Indian Bustard
- Lesser Florican
- MacQueen's Bustard
- Bengal Florican

**Q1244.** Consider the following statements about Great Indian Bustard (GIB):

1. GIB is found only in the Indian subcontinent.
2. Male GIBs have a gular pouch and play role in the incubation and care of the young.
3. GIB has also been identified as one of the species for the recovery programme under the Integrated Development of Wildlife Habitats (IDWS) of the MoEFCC.

Which of the above statement(s) is/are correct?

- (a) 1 and 2 only.  
(b) 2 and 3 only  
(c) 1 and 3 only  
(d) 1, 2 and 3

Ans: c





**Sol:**

- **Statement 1 is correct.** The Great Indian Bustard is endemic to the Indian subcontinent.
- **Statement 2 is incorrect.** Male GIBs do have a gular pouch, but it is used for display during courtship. Females are solely responsible for incubation and care of the young.
- **Statement 3 is correct.** The GIB has been included in the recovery program under the Integrated Development of Wildlife Habitats (IDWS) of the MoEFCC.

**Q1245.** Consider the following statements regarding Great Indian Bustards (GIBs):

**Statement-I** The alarming decrease in the numbers of Great Indian Bustards (GIBs) is attributed to frequent collisions with overhead power transmission lines.

**Statement-II** GIBs have lateral vision as their eyes are on the sides of their head and they find it difficult to change their course of flight when confronted with a live wire.

Which one of the following is correct in respect of the above statements?

- Both Statement I & Statement II are correct and Statement II is the correct explanation for Statement I
- Both Statement I & Statement II are correct and Statement II is not correct explanation for Statement I
- Statement I is correct but Statement II is incorrect
- Statement I is incorrect but Statement II is correct

Ans: a

**Sol:**

- **Statement I is correct:** Collisions with overhead power lines are a significant threat to the survival of Great Indian Bustards.
- **Statement II is correct:** GIBs have excellent lateral vision, but their forward vision is limited. This makes it difficult for them to detect and avoid obstacles like power lines, especially when flying low and focused on the ground for food.
- **Statement II explains Statement I:** The specific visual limitations of GIBs directly contribute to their high mortality rates due to power line collisions.

### Topic 416

#### 416. Bengal Florican

##### Two disjunct populations:

- Indian Subcontinent (UP, Assam, Arunachal Pradesh and terai region of Nepal).
- South-East Asian country Cambodia

##### Conservation Status:

- IUCN Status: **Critically Endangered**
- Wildlife Protection Act of India 1972: **Schedule 1**
- CITES: **Appendix I**

##### Why in news?

- BTC(Bodoland Territorial Council) and the Assam State Government-proposed to set up a full-fledged Agro-Forestry and Biodiversity College at Kokila Bari.
- The proposal criticised by IUCN

##### Kokila Bari

- Located at the fringes of Manas National Park
- One of the last few refuges of Bengal florican (critically endangered) in Assam.



**Q1246.** Regarding the Bura Chapori Wildlife Sanctuary, consider the following statements:

- Bura Chapori Wildlife Sanctuary is located on the bank of the Burhi Dihing River in Assam.
  - It is a part of the Laokhowa-Burachapori ecosystem.
  - The Bengal Florican, Near Threatened (NT) bird species are found in this sanctuary.
- How many of the statement(s) given above are correct?

- Only one
- Only two



- (c) All three statements  
 (d) None of the statements

Ans: a

**Sol:**

- **Statement 1: Incorrect.** Bura Chapori Wildlife Sanctuary is located on the bank of the Brahmaputra River, not the Burhi Dihing River, in Assam.
- **Statement 2: Correct.** Bura Chapori Wildlife Sanctuary is part of the Laokhowa-Burachapori ecosystem, known for its rich biodiversity.
- **Statement 3: Incorrect.** The Bengal Florican, which is classified as Critically Endangered and not Near Threatened (NT) on the IUCN Red List, is found in this sanctuary.

**Q1247.** Consider the following statements about the Bengal Florican:

1. The Bengal Florican is found in two disjunct populations: the Indian Subcontinent and South-East Asian countries such as Vietnam and Cambodia.
2. Its IUCN conservation status is "Endangered."
3. In India, the Bengal Florican is protected under Schedule I of the Wildlife Protection Act, 1972.
4. The species is listed in Appendix II of the CITES convention.

How many of the statement(s) given above is/are correct?

- (a) Only one  
 (b) Only two  
 (c) Only three  
 (d) All four statements

Ans: b

**Sol:**

1. **Statement 1: Correct.** The Bengal Florican has two disjunct populations: one in the Indian Subcontinent (Uttar Pradesh, Assam, Arunachal Pradesh, Terai region of Nepal) and another in Cambodia.
2. **Statement 2: Incorrect.** The IUCN conservation status of the Bengal Florican is *Critically Endangered* (not Endangered).
3. **Statement 3: Correct.** The Bengal Florican is listed under Schedule I of the Wildlife Protection Act, 1972, providing it the highest level of protection in India.

4. **Statement 4: Incorrect.** The Bengal Florican is listed in Appendix I of CITES, not Appendix II.

Thus, three statements are correct.

**Q1248.** Consider the following statements regarding the Bengal Florican and its conservation:

1. The Bodoland Territorial Council (BTC) and Assam State Government have proposed an Agro-Forestry and Biodiversity College at Kokila Bari.
2. Kokila Bari is located near Kaziranga National Park and is a refuge for the Bengal Florican.
3. The IUCN has supported the proposal for the college at Kokila Bari as a step toward biodiversity conservation.

How many of the statement(s) given above is/are correct?

- (a) Only one  
 (b) Only two  
 (c) All three statements  
 (d) None of the statements

Ans: a

**Sol:**

1. **Statement 1: Correct.** The Bodoland Territorial Council and Assam Government have indeed proposed an Agro-Forestry and Biodiversity College at Kokila Bari.
2. **Statement 2: Incorrect.** Kokila Bari is located near the fringes of Manas National Park, not Kaziranga National Park.
3. **Statement 3: Incorrect.** The IUCN has criticized the proposal for the college at Kokila Bari, as it is one of the last few refuges of the critically endangered Bengal Florican.

### Topic 417

#### 417. International Tiger Day 2024

- It is observed on **July 29** each year.
- **First established in 2010** during the **Saint Petersburg Tiger Summit** when **13 tiger range countries** came together to create **Tx2** – the global goal to **double the number of wild tigers** by the year **2022**.
- The 29th of July was chosen as International Tiger Day because it represents the **halfway point between the first and last days** of the **Saint Petersburg Tiger Summit**.

#### Project Tiger

- **Centrally Sponsored Scheme**



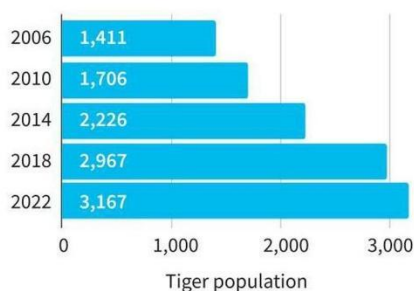
- launched in **1973** to provide **central assistance to the tiger States for tiger conservation** in designated **tiger reserves in India.**
- Implemented by **National Tiger Conservation Authority (NTCA)**

## NTCA

- Statutory body under Wildlife (Protection) Act, 1972(as amended in 2006).
- NTCA implements
  1. Project Tiger
  2. Tiger Census
  3. Declaration of Tiger Reserves

## Big cat count

According to the data released by the PM, the number of tigers in India increased by 200 in the past four years. A look at the tiger population



**Steady rise:** A tiger at Van Vihar National Park in Bhopal on Sunday. PTI

- The **tiger survey** is usually held once in **four years** and elephants are counted once in **five years**.
- According to the most recent **2022 Tiger survey**, there were **3,167 tigers in India**.
- Once Tiger population were reduced to **268 in 1973**.
- **Project Tiger** was started **1973** to revive **Tigers population**.

**Q1249.** Consider the following statements about International Tiger Day:

1. International Tiger Day is observed on July 29 each year to commemorate the launch of Project Tiger in India.
2. The Saint Petersburg Tiger Summit, held in 2010, marked the creation of the Tx2 goal to double the global tiger population by 2022.
3. The date July 29 was chosen as it marks the halfway point of the Saint Petersburg Tiger Summit.

4. India had only 268 tigers in 1973 when Project Tiger was initiated.

How many of the statement(s) given above are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four statements

Ans: c

**Sol:**

- Statement 1: Incorrect.** International Tiger Day commemorates the 2010 Saint Petersburg Tiger Summit, not the launch of Project Tiger in India.
- Statement 2: Correct.** The Tx2 goal to double the global tiger population by 2022 was indeed created during the 2010 Summit.
- Statement 3: Correct.** July 29 represents the halfway point of the Saint Petersburg Tiger Summit.
- Statement 4: Correct.** India's tiger population had reduced to 268 in 1973 when Project Tiger was launched.

**Q1250.** Consider the following statements regarding Project Tiger and NTCA:

1. Project Tiger is a centrally sponsored scheme launched in 1973 to provide central assistance for tiger conservation.
2. NTCA, which implements Project Tiger, is a statutory body established under the Wildlife (Protection) Act, 1972.
3. NTCA is responsible for conducting the tiger survey, which is held every five years in India.
4. As per the most recent tiger survey conducted in 2022, India has 3,167 tigers.

How many of the statement(s) given above is/are correct?

- (a) Only two  
(b) Only three  
(c) All four statements  
(d) Only one

Ans: b

**Sol:**

1. **Statement 1: Correct.** Project Tiger is a centrally sponsored scheme launched in 1973 for tiger conservation.





2. **Statement 2: Correct.** NTCA is a statutory body established under the Wildlife (Protection) Act, 1972 (amended in 2006).
3. **Statement 3: Incorrect.** The tiger survey in India is held once in four years, not five.
4. **Statement 4: Correct.** The most recent tiger survey (2022) reported 3,167 tigers in India.

**Q1251.** Consider the following statements:

1. Project Tiger was launched in 1973 to revive the tiger population in India when their numbers were as low as 268.
2. NTCA is responsible for both implementing Project Tiger and declaring tiger reserves.
3. India currently accounts for over 70% of the global tiger population.
4. Elephants are counted every four years alongside tigers in the tiger survey.

How many of the statement(s) given above are correct?

- (a) Only two  
(b) Only three  
(c) All four statements  
(d) Only one

Ans: b

**Sol:-**

1. **Statement 1: Correct.** Project Tiger was launched in 1973 to revive the tiger population, which was reduced to 268 at that time.
2. **Statement 2: Correct.** NTCA is indeed responsible for implementing Project Tiger and declaring tiger reserves.
3. **Statement 3: Correct.** India accounts for over 70% of the global tiger population.
4. **Statement 4: Incorrect.** Elephants are counted every five years, not every four years.

## Topic 418

#### 418. Tiger Reserves in India

- established under the Project Tiger initiative
- The state government, in consultation with forest officials and conservation experts, proposes an area for declaring it a tiger reserve.
- The NTCA evaluates the proposal and ensures that it meets the requirements of the Wildlife (Protection) Act, 1972.
- Once the NTCA approves the proposal, the respective state government issues a

notification under the Wildlife (Protection) Act, 1972 to officially declares the area as a tiger reserve.

### Zoning of the Tiger Reserve:

- The tiger reserve is **divided into:**
  - a. **Core Area:** Strictly protected area where **no human activity is allowed**. It is part of a **national park** or **Wildlife sanctuary**.
  - b. **Buffer Area:** A surrounding area where **limited human activity** (e.g., grazing, sustainable resource use) is allowed.

There are total **57 Tiger reserves in India (Dec 2024)**

- 56th Tiger Reserve-Guru Ghasidas(Chhattisgarh)
- 57th Tiger Reserve-Ratapani Tiger Reserve in MP

### Tiger Reserves of Assam

Name of Tiger Reserve (Year of creation)	State	Area of the core / critical tiger habitat (In Sq. Kms.)	Area of the buffer / peripheral (In Sq. Kms.)	Total area (In Sq.Kms.)
Manas (1973-74)	Assam	526.22	2310.88	2837.10
Nameri (1999-2000)	Assam	320.00	144.00	464.00
Kaziranga (2008-09)	Assam	625.58	548.00	1173.58
Orang (2016)	Assam	79.28	413.18	492.46

## Newest-Orang

**Largest- Kaziranga (Core area)/ Manas (Total Area)**

### Largest Tiger Reserves (India)

- **Nagarjunsagar-Srisaillam Tiger Reserve** (3,728 sq km)-**Andhra Pradesh** and Telangana- is largest tiger reserve.

**Q1252.** Consider the following statements regarding the process of declaring a tiger reserve in India:

1. The NTCA directly notifies an area as a tiger reserve after evaluating the proposal submitted by the state government.
2. The Wildlife (Protection) Act, 1972 provides the legal framework for declaring tiger reserves.
3. State governments can propose areas for tiger reserves without consulting forest officials and conservation experts.

How many of the above statement(s) is/are correct?

- (a) Only one  
(b) Only two  
(c) All three statements  
(d) None of the statements



Ans: b

**Sol:**

- Statement 1: Incorrect.** The NTCA evaluates the proposal but does not directly notify the area as a tiger reserve; the respective state government does so under the Wildlife (Protection) Act, 1972.
- Statement 2: Correct.** The Wildlife (Protection) Act, 1972 provides the legal basis for the declaration of tiger reserves.
- Statement 3: Correct.** The state government must consult forest officials and conservation experts before proposing areas for tiger reserves.

Thus, two statements are correct.

**Q1253.** Consider the following statements about the zoning of tiger reserves:

- The core area of a tiger reserve is strictly protected and does not permit any human activity.
- The buffer area of a tiger reserve is primarily part of a national park or wildlife sanctuary.
- Sustainable resource use and limited human activity are permitted in the buffer zone of a tiger reserve.
- The zoning system in tiger reserves is mandated under the Wildlife (Protection) Act, 1972.

How many of the statement(s) given above is/are correct?

- Only two
- Only three
- All four statements
- Only one

Ans: b

**Sol:**

- Statement 1: Correct.** The core area is strictly protected, and no human activity is allowed.
- Statement 2: Incorrect.** The core area, not the buffer zone, is part of a national park or wildlife sanctuary.
- Statement 3: Correct.** Limited human activity and sustainable resource use are allowed in the buffer zone.
- Statement 4: Correct.** The zoning system is indeed mandated under the Wildlife (Protection) Act, 1972.

Thus, three statements are correct.

**Q1254.** Consider the following statements about tiger reserves in India:

- Ratapani Tiger Reserve in Madhya Pradesh is the 57th tiger reserve in India.
- Guru Ghasidas Tiger Reserve in Chhattisgarh is the 56th tiger reserve in India.
- Nagarjunsagar-Srisailem Tiger Reserve is the largest tiger reserve in India, spanning Andhra Pradesh and Telangana.
- Madhya Pradesh has the highest number of tiger reserves among Indian states.

How many of the statement(s) given above is/are correct?

- Only two
- Only three
- All four statements
- Only one

Ans: c

**Sol:**

- Statement 1: Correct.** Ratapani Tiger Reserve is the 57th tiger reserve, declared in Madhya Pradesh.
- Statement 2: Correct.** Guru Ghasidas Tiger Reserve in Chhattisgarh is the 56th tiger reserve in India.
- Statement 3: Correct.** Nagarjunsagar-Srisailem Tiger Reserve, spanning Andhra Pradesh and Telangana, is the largest tiger reserve in India.
- Statement 4: Correct.** Madhya Pradesh has the highest number of tiger reserves in India, earning it the title of the "Tiger State."

#### Topic 419

#### 419. Tiger density

**Regions with highest tiger density per 100 sq km (as per India State of Forest Report 2021) -**

- Corbett Tiger Reserve:** 14 tigers.
- Kaziranga National Park:** 13.06 tigers

**Tiger Reserve with highest number of tiger-**

- Corbett (Uttarakhand):** 231

**States with highest number of Tiger Reserve:**

- Madhya Pradesh-8**

#### Assam Specific

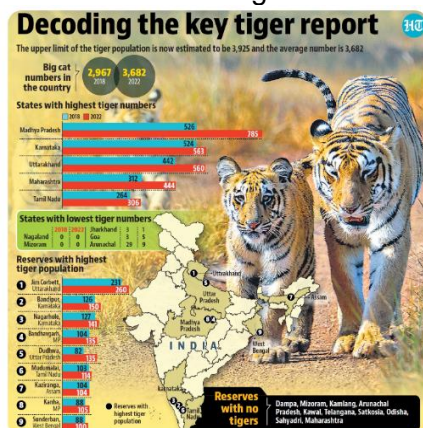
**Tiger Density in Assam:** (per 100 sq km)

- Kaziranga Tiger Reserve:** 13.06 tigers
- Orang Tiger Reserve:** 10.62 tigers
- Manas Tiger Reserve:** 3.30 tigers



### Tiger Population in Assam:

1. **Kaziranga:** 104 tigers
2. **Manas:** 31 tigers
3. **Orang:** 21 tigers
4. **Nameri:** 3 tigers



According to the 5th Tiger Census in 2022, India is now home to 3,682 Tigers (a minimum 3,167 Tigers), (Ranging from 3,167 – 3,925 Tigers).

**Q1255.** Consider the following statements:

1. Corbett Tiger Reserve has the highest tiger density per 100 sq. km in India.
2. Madhya Pradesh has the highest number of tiger reserves among Indian states.
3. Kaziranga National Park in Assam has a tiger density of 13.06 tigers per 100 sq. km, second only to Corbett Tiger Reserve.
4. Orang Tiger Reserve in Assam has a tiger density higher than Manas Tiger Reserve.

How many of the above statement(s) are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: d

**Sol:**

1. **Statement 1: Correct.** Corbett Tiger Reserve has the highest tiger density in India, with 14 tigers per 100 sq. km.
2. **Statement 2: Correct.** Madhya Pradesh has eight tiger reserves, the highest among Indian states.
3. **Statement 3: Correct.** Kaziranga National Park has the second-highest tiger density (13.06 tigers per 100 sq. km) after Corbett.

- 4. Statement 4: Correct.** Orang Tiger Reserve (10.62 tigers per 100 sq. km) has a higher tiger density than Manas Tiger Reserve (3.30 tigers per 100 sq. km).

Thus, all four statements are correct.

**Q1256.** Consider the following statements regarding tiger reserves in Assam:

1. Kaziranga Tiger Reserve has the highest number of tigers among all tiger reserves in Assam.
2. Nameri Tiger Reserve has the lowest tiger population in Assam.
3. The combined tiger population in Manas and Orang Tiger Reserves exceeds 50.
4. Manas Tiger Reserve has a tiger density lower than Orang Tiger Reserve.

How many of the statement(s) given above is/are correct?

- (a) Only two  
(b) Only three  
(c) All four  
(d) Only one

Ans: b

**Sol:**

1. **Statement 1: Correct.** Kaziranga Tiger Reserve has 104 tigers, the highest in Assam.
2. **Statement 2: Correct.** Nameri Tiger Reserve has only three tigers, the lowest in Assam.
3. **Statement 3: Incorrect.** The combined tiger population in Manas (31) and Orang (21) is 52, which does not exceed 50.
4. **Statement 4: Correct.** Manas Tiger Reserve (3.30 tigers per 100 sq. km) has a lower tiger density than Orang Tiger Reserve (10.62 tigers per 100 sq. km).

Thus, three statements are correct.

**Q1257.** Consider the following statements:

1. India's tiger population as per the 5th Tiger Census ranges between 3,167 and 3,925.
2. Corbett Tiger Reserve in Uttarakhand has the highest number of tigers among all tiger reserves in India.
3. The combined tiger population of Kaziranga and Manas Tiger Reserves in Assam is more than 130.
4. Madhya Pradesh has a total of eight tiger reserves.

How many of the above statement(s) are correct?

- (a) Only one  
(b) Only two





- (c) Only three  
(d) All four

Ans: c

**Sol:**

- Statement 1: Correct.** The 5th Tiger Census reports India's tiger population as ranging from 3,167 to 3,925.
  - Statement 2: Correct.** Corbett Tiger Reserve has 231 tigers, the highest among all tiger reserves in India.
  - Statement 3: Incorrect.** The combined tiger population of Kaziranga (104) and Manas (31) is 135, which is not more than 130.
  - Statement 4: Correct.** Madhya Pradesh has eight tiger reserves, the highest in India.
- Thus, three statements are correct.

**Topic 420**

**420. Other initiatives regarding Tiger**

- Management Effectiveness Evaluation (MEE)**
    - Tiger Reserves undergo **MEE** every four years by **NTCA** following the **IUCN** framework.
  - Conservation Assured Tiger Standards (CATS)**
    - a criteria set ensuring that tiger **sites meet international standards**
    - a total of **23 tiger reserves** of India have received **CA|TS accreditation**.
    - All 4 tiger reserves** of Assam Kaziranga, Manas, Nameri and Orang tiger reserves are **CATS accredited**
  - M-STripES**
    - M-STripES is android based monitoring software, developed by NTCA to track Tigers
- IUCN Status** of Tiger: **Endangered**



**Q1258.** Consider the following statements regarding tiger conservation initiatives in India:

- Management Effectiveness Evaluation (MEE) for tiger reserves in India is conducted by NTCA every four years using the IUCN framework.
- Conservation Assured Tiger Standards (CA|TS) accreditation ensures that tiger reserves meet international conservation standards.
- All four tiger reserves in Assam—Kaziranga, Manas, Nameri, and Orang—are CA|TS accredited.
- M-STripES is a software developed by NTCA for tracking tiger movements and monitoring habitats.

How many of the above statement(s) are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: d

**Sol:**

- Statement 1: Correct.** MEE is conducted every four years by NTCA using the IUCN framework to assess the effectiveness of tiger reserve management.
- Statement 2: Correct.** CA|TS accreditation is an international standard for tiger conservation sites, ensuring best practices are implemented.
- Statement 3: Correct.** All four tiger reserves in Assam—Kaziranga, Manas, Nameri, and Orang—have received CA|TS accreditation.
- Statement 4: Correct.** M-STripES is an android-based monitoring software developed by NTCA for tracking tigers and monitoring their habitats.

All statements are correct.

**Q1259.** Consider the following statements:

- MEE for tiger reserves follows criteria set by CA|TS.



2. CA|TS accreditation has been awarded to 23 tiger reserves in India.

3. The M-STrIPES software is based on the IUCN Red List framework.

4. The IUCN Red List status of the tiger is "Endangered."

How many of the statement(s) given above is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

1. **Statement 1: Incorrect.** MEE follows the IUCN framework but does not follow criteria set by CA|TS.

2. **Statement 2: Correct.** A total of 23 tiger reserves in India have received CA|TS accreditation.

3. **Statement 3: Incorrect.** M-STrIPES is not based on the IUCN Red List framework but is an android-based monitoring software developed by NTCA.

4. **Statement 4: Correct.** The IUCN Red List status of the tiger is "Endangered."

Thus, only two statements are correct.

**Q1260.** Consider the following statements:

1. All four tiger reserves in Assam have received both MEE and CA|TS certifications.

2. M-STrIPES is an android-based monitoring system developed to ensure real-time habitat monitoring.

3. Tigers are listed under Schedule I of the Wildlife (Protection) Act, 1972, providing them the highest level of protection.

How many of the statement(s) given above is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: c

**Sol:**

1. **Statement 1: Correct.** All four tiger reserves in Assam (Kaziranga, Manas, Nameri, and

Orang) have both MEE evaluations and CA|TS accreditation.

2. **Statement 2: Correct.** M-STrIPES is a real-time monitoring system developed by NTCA to track tigers and their habitats.

3. **Statement 3: Correct.** Tigers are listed under Schedule I of the Wildlife (Protection) Act, 1972, ensuring the highest level of legal protection.

**Day 43**

**Topic 421**

**421. Warm blooded vs Cold blooded animals**

**Endotherms or Warm blooded animals**

- **Endotherms** use internally generated heat to maintain body temperature.
- Their body temperature tends to stay steady regardless of environment.

**Examples of endotherms**

- **Mammals:** Humans, polar bears, penguins, prairie dogs, lions, servals, pygmy goats, sheep, pigs, cows, and cats
- **Birds:** Hummingbirds, vultures, and other birds
- **Some fish:** Some fish are also endothermic

**Ectotherms or Cold blooded animals**

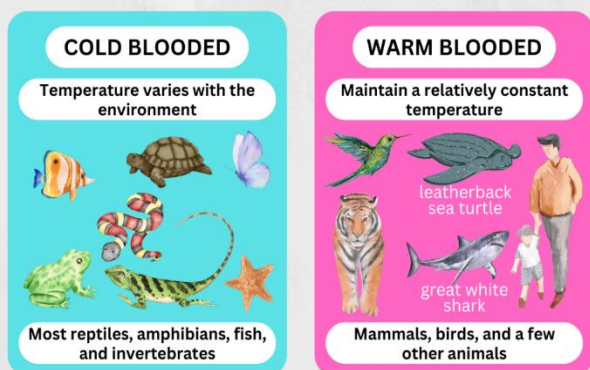
- **Ectotherms** depend mainly on external heat sources, and their body temperature changes with the temperature of the environment.

**Examples of ectotherms**

- **Fish:** Most fish species are ectotherms
- **Reptiles:** Snakes, lizards, alligators, and turtles are all ectotherms
- **Amphibians:** Frogs and salamanders are ectotherms
- **Insects:** Many insects are ectotherms
- **Invertebrate animals**

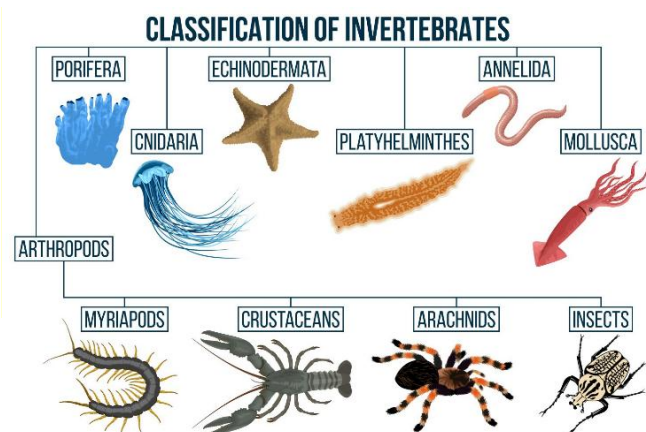


## Cold Blooded vs Warm Blooded Animals



## Invertebrate animals

- **Segmented body-** **75%** of all animals on Earth
- **Ectotherms (cold blooded)-**any change in outside temperature will bring **physiological change** in their body due to Global warming.



**Q1261.** During a hot sunny day people feel cool in the shadow under a big tree

1. Because the tree blocks direct sunlight.
  2. Because heat from the air is used in evaporation of water by tree leaves reducing the temperature.
  3. Because photosynthesis by tree leaves absorbs energy from sunlight.
  4. Because tree leaves absorb water vapour from which is an endothermic process.
- (a) 1 only  
(b) 1 and 2 only  
(c) 1, 2 and 3 only  
(d) 1, 2, 3 and 4

Ans: c

**Sol:** During a hot sunny day, the cooling effect experienced in the shadow under a big tree can be attributed to several factors:

1. because the tree blocks direct sunlight.  
This is true. The primary reason people feel cooler in the shade is that the tree blocks direct sunlight, reducing the heat from solar radiation reaching them.
2. because heat from the air is used in the evaporation of water by tree leaves reducing the temperature.  
This is also true. Trees lose water through transpiration, which absorbs heat from the surrounding air, thereby cooling the environment.
3. because photosynthesis by tree leaves absorbs energy from sunlight.  
This is partially true. Photosynthesis does absorb sunlight, but its direct role in cooling the surrounding area is less significant compared to the effects of shading and transpiration. While the primary cooling effect of being in the shade is due to blocking sunlight and the evaporative cooling from transpiration, the photosynthesis process does contribute by absorbing some solar energy.
4. because tree leaves absorb water vapour from the air, which is an endothermic process.  
This is not accurate. While transpiration is an endothermic process, tree leaves primarily release water vapor rather than absorbing it from the air.

**Q1262.** Consider the following statements regarding warm-blooded (endotherms) and cold-blooded (ectotherms) animals:

1. Endotherms rely on external heat sources to regulate their body temperature.
2. Birds and some fish species are examples of endothermic animals.
3. Ectotherms experience physiological changes in their body due to external temperature variations.
4. Amphibians, such as frogs and salamanders, are ectothermic animals.

How many of the above statement(s) is/are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: c





**Sol:**

- Statement 1: Incorrect.** Endotherms use internally generated heat to maintain their body temperature, not external heat sources.
  - Statement 2: Correct.** Birds and some fish are endothermic animals.
  - Statement 3: Correct.** Ectotherms depend on external heat sources, and their body physiology changes with environmental temperature.
  - Statement 4: Correct.** Amphibians like frogs and salamanders are ectothermic animals.
- Thus, three statements are correct.

**Q1263.** Consider the following statements:

- Most fish species are ectothermic, but some fish are endothermic.
  - Invertebrate animals, being ectothermic, are significantly affected by global warming.
  - Warm-blooded animals maintain a steady body temperature irrespective of environmental changes.
  - Mammals such as lions, goats, and cows are ectothermic animals.
- How many of the above statement(s) is/are correct?
- Only one
  - Only two
  - Only three
  - All four

Ans: b

**Sol:**

- Statement 1: Correct.** While most fish are ectothermic, some fish exhibit endothermy.
- Statement 2: Correct.** Invertebrate animals, being ectothermic, are directly impacted by changes in environmental temperature due to global warming.
- Statement 3: Incorrect.** Warm-blooded animals maintain a steady body temperature but rely on internally generated heat, not external environmental changes.
- Statement 4: Incorrect.** Mammals such as lions, goats, and cows are endothermic animals.

## Topic 422

### 422. Landslide in Kerala

- Landslide is when soil or rock is displaced along the slope by gravitational forces.
- Kerala is located in proximity of Western Ghats, making the region vulnerable to Landslides.

#### Conditions that make a region vulnerable to landslide-

- Gradient
  - 40 degree slope (minimum)
- High-intensity rainfall
  - saturates the soil on the slopes (generally associated with cloudburst)
- Clay content
  - Soil with higher clay content has high water retention capacity leading to high water pressure in the slope material.

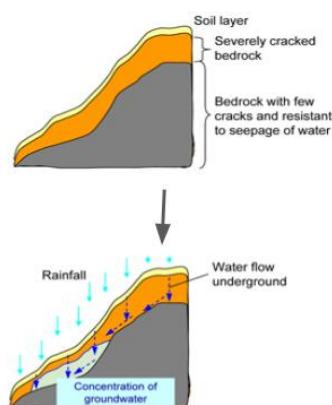
#### Western Ghats

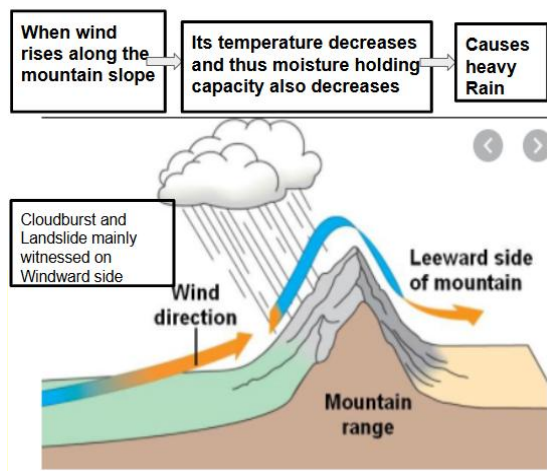
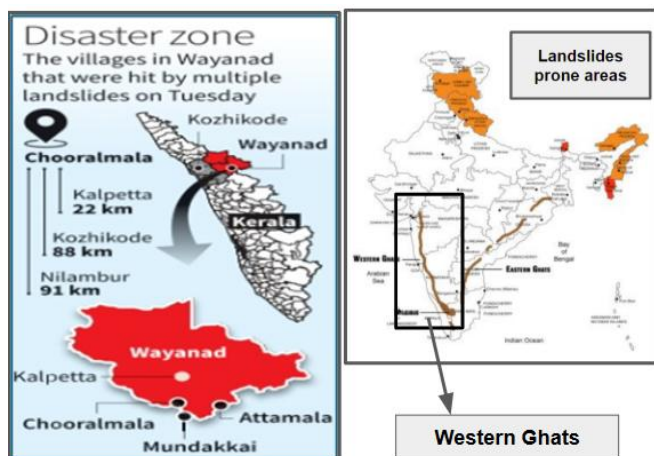
- known as 'Sahyadri'
- 1600 km long mountain chain along the west coast of India
- Tapi in the north to Kanyakumari in the south.
- The western side of the Ghat receives more rainfall than the eastern side.
- Western Ghats was declared as a World Heritage site in 2012 by UNESCO.

**Current-** Wayanad district of Kerala witnessed massive landslide in 2024.

Kerala saw the largest number of landslides in last 4 years.

#### Mechanism involved in Landslides





**Q1264.** Which of the following statements in respect of Landslides are correct?

1. These occur only on gentle slopes during rain
  2. They generally occur in clay rich soil
  3. Earthquakes trigger landslides
- Select the correct answer using the code given below-
- (a) 1 and 2 only
  - (b) 1 and 3 only
  - (c) 2 and 3 only
  - (d) 1, 2 and 3

Ans: c

**Sol:**

- **Statement 1:** "These occur only on gentle slopes during rain."  
This statement is incorrect. Landslides can occur on both gentle and steep slopes, and they can be triggered by various factors, not just rain.
- **Statement 2:** "They generally occur in clay-rich soil."

This statement is correct. Landslides are more likely to occur in clay-rich soil because clay has a low permeability, which means it holds water and can become saturated, leading to instability and landslides.

- **Statement 3:** "Earthquakes trigger landslides." This statement is also correct. Earthquakes can generate strong ground shaking, which can cause slopes to fail and result in landslides. The shaking can loosen the soil and rock, making them more prone to sliding.

Based on our dissection, statement 1 is incorrect, and statement 2 and 3 are correct.

Therefore, the correct answer is option 2 and 3 only.

**Q1265.** Consider the following statements:

**Statement-I:** A landslide is defined as the movement of a mass of rock, debris, or earth down a slope.

**Statement-II:** Slope movement happens when the forces pulling materials down a slope are stronger than the strength of the earth materials holding the slope together.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement I & Statement II are correct and Statement II is the correct explanation for Statement I
- (b) Both Statement I & Statement II are correct and Statement II is not correct explanation for Statement I
- (c) Statement I is correct but Statement II is incorrect
- (d) Statement I is incorrect but Statement II is correct

Ans: a

**Sol:-**

- **Statement I:** This is a correct definition of a landslide. Landslides encompass various types of mass movements, including rockfalls, debris flows, and mudslides.
- **Statement II:** This statement accurately explains the underlying principle of slope movement and landslides. Forces pulling materials down: Gravity is the primary force driving landslides.
  - Strength of earth materials: Factors like soil type, vegetation, water content, and slope angle influence the stability of a slope.



When the forces of gravity and other factors exceed the strength of the materials holding the slope together, the slope fails, resulting in a landslide.

Therefore, Statement II provides the correct explanation for why landslides occur.

**Q1266.** Which of the following statements are correct about Eastern and Western Ghats?

1. Anaimudi is the highest peak in the Eastern ghats.
  2. Western Ghats are comparatively lower in elevation and less continuous than Eastern Ghats.
  3. Most of the Peninsular rivers have their origin in the Western ghats.
  4. The Eastern and the Western ghats meet each other at the Nilgiri hills.
- (a) 1 and 2 only  
(b) 3 and 4 only  
(c) 1, 2 and 3 only  
(d) 2, 3 and 4 only

Ans: b

**Sol:**

- **Incorrect.** Anaimudi is the highest peak in the Western Ghats.
- **Incorrect.** The Western Ghats are higher and more continuous than the Eastern Ghats.
- **Correct.** Many significant peninsular rivers, including the Godavari, Krishna, and Kaveri, originate from the Western Ghats.
- **Correct.** The Eastern and Western Ghats meet at the Nilgiri hills.

## Topic 423

### 423. Western Ghats Ecology Expert Panel

## Two expert panels for conservation of Western Ghats-

- 1. Madhav Gadgil commission**
  - formally known as **Western Ghats Ecology Expert Panel (WGEEP).**
  - submitted the **report in 2011.**

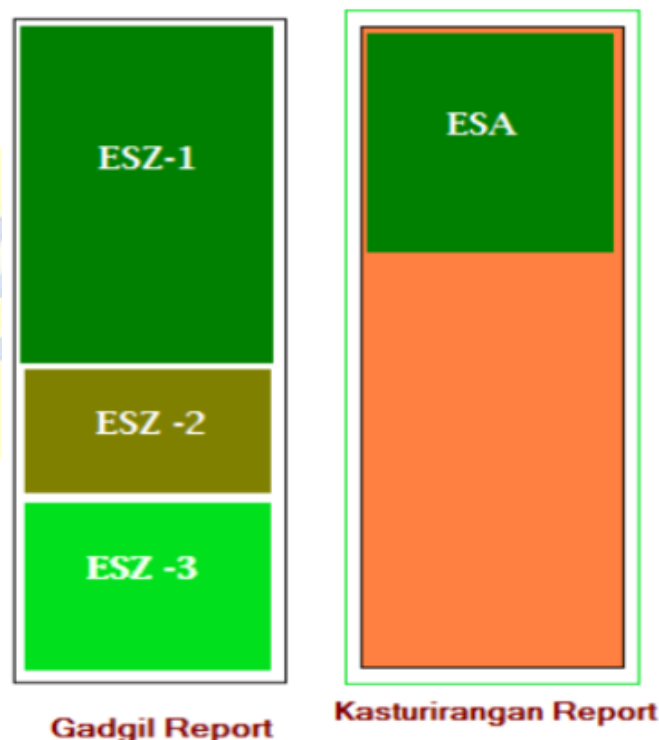
## Major recommendations

- a. entire hill range as an Ecologically Sensitive Area (ESA).

- b. to be classified in **Ecologically Sensitive Zones (ESZ) 1, 2 and 3.**
- c. **ESZ-1** being of **high priority**, almost **all developmental activities** (mining, thermal power plants etc) were **restricted** in it.
  - Recommendation was **very strict thus criticised.**
  - Hence **K. Kasturirangan committee** was constituted to evaluate.
0. **K. Kasturirangan committee** (known as **HLWG –high-level working group**).

## Major recommendations

- a. **Instead** of the total area of Western Ghats, **only 37% (i.e. 60,000 sq. km.)** of the total area be declared ESAA
- b. **complete ban** on mining, quarrying and sand mining in ESA.





# Western Ghats

One of the four biodiversity hotspots of India: recognised as a UNESCO WHS (2012)



**Q1267.** Which of the following statement/s is/are incorrect about the Kasturirangan Committee?

1. The Committee was set up in 2010 to come up with the Karnataka Wildlife Action Plan.
  2. The Committee recommended the importance of involving local communities in environmental management, seeking a balance between development and conservation.
  3. The Karnataka Government has supported the recommendations of the report.
  4. After the committee's report, a Gadgil Committee on Western Ghats was prepared.
- (a) 1, 2 and 3  
(b) 2, 3 and 4  
(c) 1, 3 and 4  
(d) 1, 2 and 4

Ans: c

**Sol:** The incorrect statements about the Kasturirangan Committee are:

- **1.** The Committee was set up in 2010 to come up with the Karnataka Wildlife Action Plan.
  - The Kasturirangan Committee was actually set up in 2012 to review the recommendations of the earlier Gadgil Committee on the Western Ghats.
- **3.** The Karnataka Government has supported the recommendations of the report.
  - While the Kasturirangan report aimed to balance conservation and development, some states, including Karnataka, have expressed opposition to certain recommendations.
- **4.** After the committee's report, a Gadgil Committee on Western Ghats was prepared.
  - The Gadgil Committee report was prepared *before* the Kasturirangan Committee. The Kasturirangan Committee was formed to review and revise the Gadgil report.

**Q1268.** Which personality was the driving force behind India's first citizens report on the environment?

- (a) Jairam Ramesh  
(b) Prakash Javadekar  
(c) Anil Aggarwal  
(d) Madhav Gadgil

Ans: c

**Sol:** The driving force behind India's first citizens report on the environment was Anil Agarwal.

He was a prominent Indian environmentalist and journalist who founded the Centre for Science and Environment (CSE), a leading research and advocacy organization in India.

Agarwal played a crucial role in raising awareness about environmental issues in India and advocating for sustainable development.

**Q1269.** Consider the following statements regarding expert panels and their recommendations for the conservation of the Western Ghats:

1. The Madhav Gadgil Commission proposed classifying the entire Western Ghats as an Ecologically Sensitive Area (ESA) and dividing it into three zones: ESZ-1, ESZ-2, and ESZ-3.
2. The K. Kasturirangan Committee recommended declaring 60,000 sq. km (37% of the Western Ghats) as ESA and imposed a complete ban on mining in these areas.



3. Both expert panels recommended a total ban on developmental activities across the entire Western Ghats.

4. The recommendations of the Madhav Gadgil Commission were stricter and received criticism, leading to the formation of the K. Kasturirangan Committee.

How many of the above statement(s) is/are correct?

- (a) Only one  
(b) Only two  
(c) Only three  
(d) All four

Ans: c

**Sol:-**

1. **Statement 1: Correct.** The Madhav Gadgil Commission classified the Western Ghats into three zones (ESZ-1, ESZ-2, ESZ-3) based on ecological sensitivity, with ESZ-1 being of the highest priority.
2. **Statement 2: Correct.** The K. Kasturirangan Committee recommended declaring 60,000 sq. km (37% of the Western Ghats) as ESA and suggested a complete ban on mining in these areas.
3. **Statement 3: Incorrect.** The Madhav Gadgil Commission proposed strict restrictions, but not a total ban on developmental activities across the entire Western Ghats.
4. **Statement 4: Correct.** The stricter recommendations of the Madhav Gadgil Commission led to the formation of the K. Kasturirangan Committee for revaluation.

## Topic 424

#### 424. Ramsar Sites

## Wetlands

- Ecosystems that are characterized by the presence of water, either permanently or seasonally.
- Act as natural filters, trapping pollutants, sediments- often referred to as "Earth's kidneys".
- Ocean coasts are also known as wetlands but with a condition their depth should not exceed six meters at low tide.

## Ramsar Convention on Wetlands

- international convention for protecting wetlands.

- It was signed on 2nd February 1971 thus this day is celebrated as World's Wetland day.
- This treaty is not a legal binding treaty and is not a part of UN & UNESCO conventions
- But UNESCO serves as Depositary for the. Convention
- To become a member of this international agreement a country has to get its at least one site registered as Wetland list.
- India became a signatory to the Ramsar Convention in 1982.

### **Benefit of joining the agreement**

- Best practices and know how
- not necessarily invite extra international funds.

**Note-Ramsar is located in Iran.**

- **UK** has **highest number** of **Ramsar sites-175**
- **Bolivia** has the **largest area** under Ramsar site.
- **India- total 85 Ramsar sites** (as of December 2024)
- **Tamil Nadu has the highest** number of Ramsar sites in India (18)
- **Assam has 1** Ramsar site ie Deepor Beel.

### Ramsar Sites of Northeast India



## Wetlands of Northeast India

1. Mizoram-Pala Wetland
2. Manipur-Loktak Lake
3. Assam-Deepor Beel
4. Tripura -Rudrasagar Lake

**Q1270.** Consider the following statements about the Ramsar Convention:

1. It is an international legal treaty for the protection of wetlands.



2. UNESCO serves as the Depositary for the Ramsar Convention.

3. The convention mandates member countries to invite international funding for wetland conservation projects.

4. A country must have at least one site listed as a Wetland of International Importance to join the convention.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

1. **Statement 1: Incorrect.** The Ramsar Convention is not a legally binding treaty.

2. **Statement 2: Correct.** UNESCO acts as the Depositary for the Ramsar Convention.

3. **Statement 3: Incorrect.** The convention does not mandate inviting international funding; it emphasizes best practices and knowledge sharing.

4. **Statement 4: Correct.** A country must have at least one site listed to become a member of the convention.

Thus, two statements are correct.

**Q1271.** Consider the following statements regarding wetlands and Ramsar sites:

1. Wetlands are referred to as "Earth's kidneys" because they trap pollutants and sediments.

2. Ocean coasts qualify as wetlands if their depth does not exceed six meters at high tide.

3. India is home to 85 Ramsar sites as of December 2024, with Tamil Nadu hosting the highest number.

4. Bolivia has the highest number of Ramsar sites globally, while the UK has the largest area under Ramsar sites.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

1. **Statement 1: Correct.** Wetlands filter pollutants, earning them the nickname "Earth's kidneys."

2. **Statement 2: Correct.** Ocean coasts qualify as wetlands if their depth does not exceed six meters at low tide.

3. **Statement 3: Correct.** India has 85 Ramsar sites, with Tamil Nadu having the highest number (18).

4. **Statement 4: Incorrect.** The UK has the highest number of Ramsar sites, while Bolivia has the largest area under Ramsar sites.

Thus, three statements are correct.

**Q1272.** Consider the following statements about wetlands in Northeast India:

1. Loktak Lake in Manipur is the only wetland from the Northeast India listed as a Ramsar site.

2. Assam's Deepor Beel is the only Ramsar site in the state.

3. Pala Wetland in Mizoram and Rudrasagar Lake in Tripura are listed as Ramsar sites.

4. Tamil Nadu has more Ramsar sites than any other state in India.

How many of the above statement(s) is/are incorrect?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

1. **Statement 1: Incorrect.** Loktak Lake is a Ramsar site, but it is not the only wetland from Northeast India listed; Assam's Deepor Beel is also a Ramsar site.

2. **Statement 2: Correct.** Deepor Beel is Assam's only Ramsar site.

3. **Statement 3: Incorrect.** Pala Wetland and Rudrasagar Lake are wetlands in the Northeast but are not listed as Ramsar sites.

4. **Statement 4: Correct.** Tamil Nadu has the highest number of Ramsar sites in India (18).

### Topic 425

#### 425. Loktak Lake and Sangai Deer

##### Loktak lake

- Located in Manipur.





- It is the **largest freshwater lake** in **Northeast India**
- Famous for the **phumdis-mass of vegetation, soil and organic matter**
- **Keibul Lamjao National Park(only floating national park in world)** is also **one of Phumdis**
- a **wetland of international importance** under the **Ramsar Convention in 1990**.
- Later it was also listed under the **Montreux Record in 1993**.

#### **Montreux record**

- Part of the Ramsar List- facing **changes in ecological character**.

Two wetlands from India feature in the **Montreux record**.

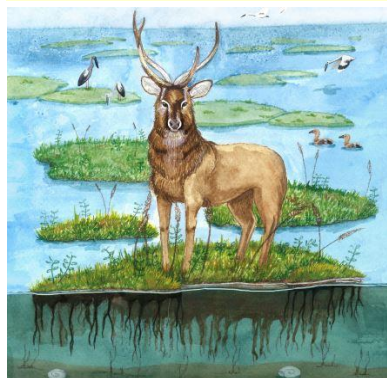
1. **Keoladeo National Park (Rajasthan)**
2. **Loktak Lake (Manipur)**

#### **Sangai Deer**

- It is an **endemic species** found **only** in **Keibul Lamjao National Park of Manipur**.
- It is the **state animal of Manipur**.
- **IUCN status: Endangered**.
- It is also known as **dancing deer of Manipur**.

#### **Why it is known as dancing deer of Manipur?**

- While walking on the **floating biomass**, **Sangai** often **balances** itself which **looks as if it is dancing** on the green grassland and therefore popularly called as 'dancing deer' of Manipur.



**Q1273.** Which is NOT a correct match? [ Lake Location State]

- (a) Pulicat - Tamil Nadu.
- (b) Bhim Tal - Uttarakhand.
- (c) Roopkund - Himachal Pradesh.
- (d) Loktak - Manipur.

Ans: c

**Sol:** Roopkund is a high-altitude glacial lake in the Uttarakhand state of India.

**Q1274.** Consider the following statements about Loktak Lake:

1. Loktak Lake is the largest freshwater lake in Northeast India and was designated as a Ramsar site in 1990.
2. It is listed under the Montreux Record due to significant ecological changes and is one of only two wetlands from India on this list.
3. Keibul Lamjao National Park, the world's only floating national park, is formed on phumdis in Loktak Lake.
4. The Montreux Record is part of the UNESCO World Heritage Sites list.

How many of the above statement(s) is/are correct?

- (a) Only two
- (b) Only three
- (c) All four
- (d) Only one

Ans: b

**Sol:**

1. **Statement 1: Correct.** Loktak Lake is the largest freshwater lake in Northeast India and was designated a Ramsar site in 1990.
2. **Statement 2: Correct.** Loktak Lake is listed under the Montreux Record, along with Keoladeo National Park in Rajasthan.
3. **Statement 3: Correct.** Keibul Lamjao National Park is indeed formed on phumdis in Loktak Lake.
4. **Statement 4: Incorrect.** The Montreux Record is part of the Ramsar List of Wetlands, not the UNESCO World Heritage Sites list.

Thus, three statements are correct.

**Q1275.** Consider the following statements regarding the Sangai Deer and Loktak Lake:

1. Sangai Deer, an endemic species of Manipur, is listed as Endangered on the IUCN Red List.
2. The deer is popularly called the "dancing deer" of Manipur due to its unique gait on the floating phumdis.
3. Keibul Lamjao National Park, home to the Sangai, is located on the phumdis of Loktak Lake, a Ramsar site.
4. Sangai Deer is also found in other regions of Northeast India, including Assam and Mizoram.



How many of the above statement(s) is/are correct?

- Only two
- Only three
- All four
- Only one

Ans: b

**Sol:**

- Statement 1: Correct.** The Sangai Deer is endemic to Manipur and is listed as Endangered on the IUCN Red List.
- Statement 2: Correct.** Its unique balancing movement on the floating phumdis makes it appear as if it is dancing, earning the title "dancing deer."
- Statement 3: Correct.** Keibul Lamjao National Park, the habitat of the Sangai Deer, is located on phumdis in Loktak Lake, which is a Ramsar site.
- Statement 4: Incorrect.** The Sangai Deer is exclusively found in Keibul Lamjao National Park and is not found in other regions of Northeast India.

### Topic 426

#### 426. Biosphere Reserves

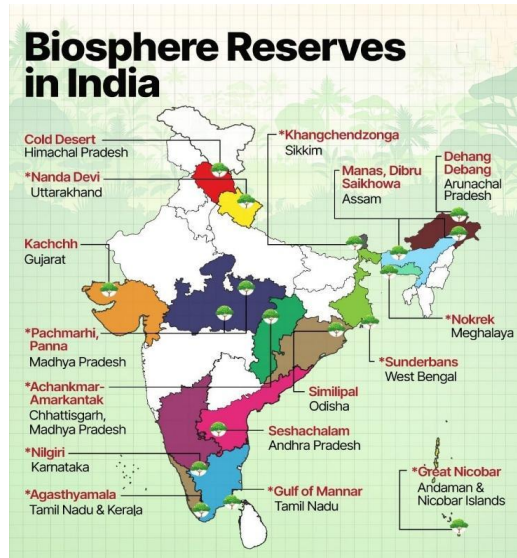
- The concept of **Biosphere Reserves** developed under **UNESCO's 'Man and Biosphere Programme'-1971**

#### Biosphere Reserves in India

- There are **18** biosphere reserves in **India**.
- Out of these **12** are identified a part of the **UNESCO List of Man & Biosphere Reserves Programme**.

The **November 3, 2022** is the **first International Day for Biosphere Reserves**.

- Three Main Zones** of Biosphere Reserve
- Core Area**-most protected area- like a **National Park** or **Sanctuary**/protected/regulated mostly under the **Wildlife (Protection) Act, 1972**. It is kept **free** from **human interference**.
  - Buffer Zone**-Research and educational activities
  - Transition Zone**-zone of cooperation where **human ventures** and **conservation** are done in harmony.



#### List of Biosphere Reserves in India

- Simlipal Biosphere Reserve
- Nilgiris Elephant Corridor and Nilgiri Biosphere Reserve
- Panna Biosphere Reserve
- Nokrek Biosphere Reserve
- Great Nicobar biosphere reserve
- Gulf of Mannar
- Manas biosphere reserve
- Sunderbans biosphere reserve
- Dibru-Saikhowa biosphere reserve
- Dehang-Dibang biosphere reserve
- Panchmarhi biosphere reserve
- Khangchendzonga
- Agasthyamalai
- Achanakmar-Amarkantak
- Kachchh
- Cold Desert
- Seshachalam Hills
- Panna

#### First Biosphere Reserve

- 1986
- Kerala/Karnataka/TN



The three zones that characterise a Biosphere Reserve are



- Core area
- Buffer zone
- Transition area
- Human settlements
- Research station
- Monitoring
- Education / training
- Tourism / recreation

#### A typical Biosphere Reserve

**Q1276.** Recently, Julian Alps Transboundary Biosphere Reserve was added to the UNESCO Biosphere Reserve List. It is located in which of the following countries?

- Belgium and Kingdom of the Netherlands
- Spain and Portugal
- Philippines
- Italy and Slovenia



Ans: d

**Sol:** The Julian Alps Transboundary Biosphere Reserve is located in Italy and Slovenia.

**Q1277.** Consider the following statements:

1. The concept of Biosphere Reserves was developed under UNESCO's 'Man and Biosphere Programme' in 1971.
2. India has 18 biosphere reserves, and all of them are part of the UNESCO List of Man & Biosphere Reserves Programme.
3. The first International Day for Biosphere Reserves was celebrated on November 3, 2022.
4. Biosphere reserves aim to integrate biodiversity conservation with sustainable human activities.

Which of the above statement(s) is/are correct?

- (a) 1 and 3 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) 1, 2, 3, and 4

Ans: b

**Sol:**

- **Statement 1: Correct.** The concept of Biosphere Reserves was indeed developed under UNESCO's 'Man and Biosphere Programme' in 1971.
- **Statement 2: Incorrect.** India has 18 biosphere reserves, but only 12 of them are part of the UNESCO List of Man & Biosphere Reserves Programme.
- **Statement 3: Correct.** November 3, 2022, was the first International Day for Biosphere Reserves.
- **Statement 4: Correct.** Biosphere reserves aim to balance biodiversity conservation with sustainable human activities.

**Q1278.** Consider the following statements:

1. The core area of a biosphere reserve is the most protected zone and is kept free from human interference.
2. The buffer zone allows for limited human activity, including research and educational activities.
3. The transition zone promotes activities in harmony with conservation, such as ecotourism and sustainable agriculture.
4. The Wildlife (Protection) Act, 1972, applies to the transition zone of biosphere reserves.

Which of the above statement(s) is/are correct?

- (a) 1, 2, and 3 only
- (b) 1 and 2 only
- (c) 3 and 4 only
- (d) 1, 2, 3, and 4

Ans: a

**Sol:**

- **Statement 1: Correct.** The core area is the most protected and is kept free from human interference, often protected under the Wildlife (Protection) Act, 1972.
- **Statement 2: Correct.** The buffer zone supports research and educational activities while maintaining conservation goals.
- **Statement 3: Correct.** The transition zone promotes cooperation between human activities and conservation, including ecotourism and sustainable development.
- **Statement 4: Incorrect.** The Wildlife (Protection) Act, 1972, typically applies to the core area, not the transition zone.

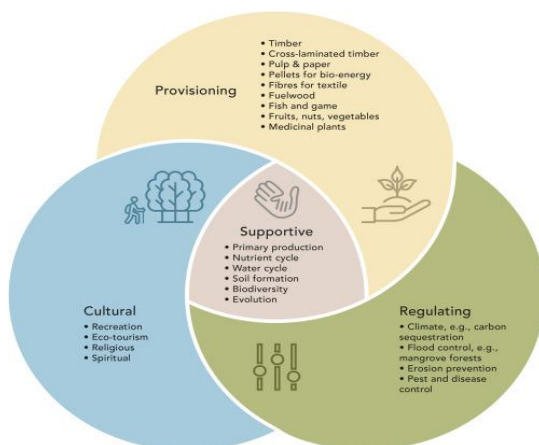
#### Topic 427

#### 427. Gross Environment Product Index

- **Uttarakhand** has become the first Indian state to launch a **Gross Environment Product Index in 2021.**
- Gross Environment Product Index**
- It was introduced to measure the economic value of the **state's natural resources** and **ecosystem services.**
  - The concept was introduced to **complement traditional economic indicators like Gross Domestic Product (GDP),** by including the **economic value** of natural resources and **ecological services.**
  - It also considers the **value of resources like forests, water bodies, and other natural assets** that contribute to the livelihood and well-being of the people in the state.







## What is ecosystem services?

- Ecosystem services are the benefits that humans derive from **natural ecosystems**.
- It is of **4 types**
  1. **Provisioning Services**
  2. **Regulating Services**
  3. **Cultural Services**
  4. **Supporting Services**

**Q1279.** Consider the following statements:

1. Uttarakhand is the first Indian state to launch a Gross Environment Product (GEP) Index in 2021.
  2. The GEP Index measures the economic value of both the state's natural resources and the ecosystem services it provides.
  3. The concept of GEP Index replaces traditional economic indicators like Gross Domestic Product (GDP) entirely.
  4. The GEP Index includes the value of resources such as forests, water bodies, and other natural assets that support livelihoods.
- Which of the above statement(s) is/are correct?

- (a) 1, 2, and 4 only  
(b) 1 and 2 only  
(c) 2, 3, and 4 only  
(d) 1, 2, 3, and 4

Ans: a

**Sol:**

- **Statement 1: Correct.** Uttarakhand became the first Indian state to launch a Gross Environment Product Index in 2021.
- **Statement 2: Correct.** The GEP Index measures the economic value of natural resources and ecosystem services.
- **Statement 3: Incorrect.** The GEP Index complements traditional economic indicators like GDP but does not replace them.

- **Statement 4: Correct.** The GEP Index considers resources like forests, water bodies, and other natural assets contributing to people's livelihoods and well-being.

**Q1280.** Consider the following statements:

1. Ecosystem services are the benefits that humans derive from natural ecosystems.
  2. Regulating services include natural processes like water purification, carbon sequestration, and climate regulation.
  3. Provisioning services include spiritual and recreational benefits derived from nature.
  4. Supporting services form the foundation for other ecosystem services by maintaining processes like nutrient cycling and soil formation.
- Which of the above statements is/are correct?
- (a) 1 and 2 only
  - (b) 1, 2, and 4 only
  - (c) 2, 3, and 4 only
  - (d) 1, 2, 3, and 4

Ans: b

**Sol:-**

- **Statement 1: Correct.** Ecosystem services are indeed the benefits that humans derive from ecosystems.
- **Statement 2: Correct.** Regulating services include natural processes like water purification, climate regulation, and carbon sequestration.
- **Statement 3: Incorrect.** Provisioning services include tangible products like food, water, and raw materials, whereas cultural services provide spiritual and recreational benefits.
- **Statement 4: Correct.** Supporting services include fundamental processes like nutrient cycling and soil formation that underpin other ecosystem services.

**Q1281.** Consider the following statements:

1. The GEP Index helps in quantifying the contribution of natural resources to the state's economy.
2. It is a legal requirement for all Indian states to adopt the GEP Index as part of their economic assessments.
3. The GEP Index aims to create a balance between economic development and environmental sustainability.



4. The inclusion of the GEP Index ensures that natural resources like forests and water bodies are considered when evaluating overall development. Which of the above statement(s) is/are correct?

- (a) 1 and 3 only
- (b) 1, 3, and 4 only
- (c) 2 and 4 only
- (d) 1, 2, 3, and 4

Ans: b

Sol:

- **Statement 1: Correct.** The GEP Index quantifies the economic contribution of natural resources and ecosystem services.
- **Statement 2: Incorrect.** There is no legal mandate for Indian states to adopt the GEP Index; it is a voluntary measure.
- **Statement 3: Correct.** The GEP Index promotes the idea of balancing economic development with environmental conservation.
- **Statement 4: Correct.** The inclusion of the GEP Index ensures that natural resources are considered when assessing development, thereby recognizing their value in decision-making.

#### Topic 428

#### 428. Environmental challenges of Lithium extraction

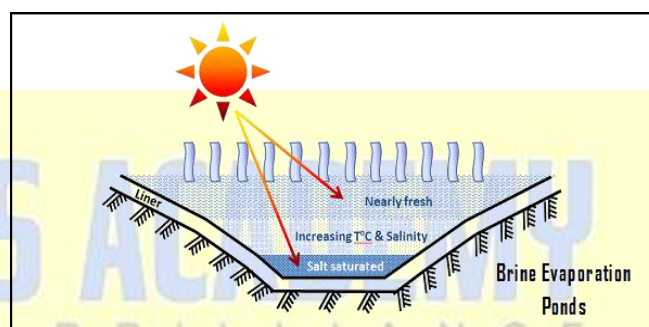
- A lithium-ion battery a type of **rechargeable battery**.
- used in **laptop mobile, phones and electric vehicles**.
- **South American countries** (Chile, Argentina and Bolivia) are **rich in Lithium**.
- Methods used - **Brine Evaporation Process**

#### Areas where Brine Evaporation Process applied?

- Typically employed in regions with large, **high-altitude salt flats**, known as **salars**.
- Such salars are found in **Chile** named **Salar de Atacama**, Bolivia named **Salar de Uyuni** etc
- **Lithium-rich brine** is **pumped out** from **underground aquifers** beneath the **salars**.
- This brine is a **salty solution** that contains various minerals, including **lithium**.

#### ENVIRONMENT – CURRENT AFFAIRS

- Over time, the **water in the brine evaporates**, brine becomes **more concentrated**.
- Once the lithium **concentration** reaches the **desired level**, a **chemical reagent (such as sodium carbonate)** is added to precipitate **lithium carbonate**, mineral form in which Lithium is found normally.
- Lithium carbonate is **further purified**.



A brine pool at a lithium mine in the Atacama salt flat, Chile. Reuters

#### Environmental Impact

1. **Water depletion** in arid regions and the **alteration of local ecosystems** (as brine water can do damage to ecosystem).
2. **Subsidence of salt flat land**
  - Recently witnessed in Chile.



**Q1282.** Consider the following statements regarding lithium extraction:

1. The Brine Evaporation Process for lithium extraction is typically employed in low-altitude regions with saline soils.
2. Lithium carbonate is the mineral form of lithium obtained through chemical precipitation in the Brine Evaporation Process.
3. Salar de Uyuni in Bolivia and Salar de Atacama in Chile are prominent salt flats where lithium extraction takes place.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

1. **Statement 1: Incorrect.** The Brine Evaporation Process is typically employed in high-altitude salt flats, not low-altitude regions.
2. **Statement 2: Correct.** Lithium carbonate is the mineral form of lithium obtained after chemical precipitation in the Brine Evaporation Process.
3. **Statement 3: Correct.** Salar de Uyuni in Bolivia and Salar de Atacama in Chile are notable salt flats for lithium extraction.

Thus, two statements are correct.

**Q1283.** Which of the following statements about the environmental impacts of lithium extraction are correct?

1. The process of lithium extraction through brine evaporation can lead to water depletion in arid regions.
2. Local ecosystems are typically unaffected by brine water discharge during lithium extraction.
3. Subsidence of salt flat land has been recently observed in lithium extraction sites in Chile.
4. The Brine Evaporation Process does not use any chemical reagents during the extraction of lithium carbonate.

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b

**Sol:**

1. **Statement 1: Correct.** Lithium extraction through brine evaporation can deplete water resources in arid regions.
2. **Statement 2: Incorrect.** Brine water discharge can harm local ecosystems by altering the soil and water balance.
3. **Statement 3: Correct.** Subsidence of salt flat land has been observed in regions like Chile due to lithium extraction.
4. **Statement 4: Incorrect.** The process uses chemical reagents like sodium carbonate to precipitate lithium carbonate.

Thus, two statements are correct.

**Q1284.** Consider the following statements about lithium-rich regions and resources:

1. South American countries like Chile, Argentina, and Bolivia are collectively referred to as the "Lithium Triangle."
2. Salar de Atacama in Chile is a prominent site for lithium extraction due to its high lithium concentration in brine.
3. Bolivia's Salar de Uyuni contains the world's largest reserves of lithium but faces challenges in extraction due to a lower lithium concentration compared to Chile's salt flats.
4. Lithium extraction through the Brine Evaporation Process is primarily conducted in countries with tropical climates.

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c

**Sol:**

1. **Statement 1: Correct.** Chile, Argentina, and Bolivia are indeed referred to as the "Lithium Triangle" due to their rich lithium resources.
2. **Statement 2: Correct.** Salar de Atacama is a significant site for lithium extraction with high lithium concentration in brine.
3. **Statement 3: Correct.** Bolivia's Salar de Uyuni holds the largest reserves but faces challenges due to lower lithium concentration compared to Chile's salt flats.





4. **Statement 4: Incorrect.** The Brine Evaporation Process is primarily conducted in arid, high-altitude regions, not tropical climates.

### Topic 429

#### 429. World Rhino Day

- As per IUCN- **4018 Indian rhinos** in the wild
- Kaziranga National Park (KNP)** alone has **2,613** (growth of 200 rhinos in the last four years)

#### The current population (as per Census 2022)

- Kaziranga National Park: 2613
- Orang National Park: 125
- Pobitora Wildlife Sanctuary: 107(notified area of 38.81 sq km/highest density of rhino population)**
- Manas National Park: 40(Heritage list in 1985 along with Kaziranga-lost all Rhinos due to insurgency-Declared World Heritage in Danger in 1992-2011- Again-World Heritage tag-Because of translocation of Rhinos prog at Manas**

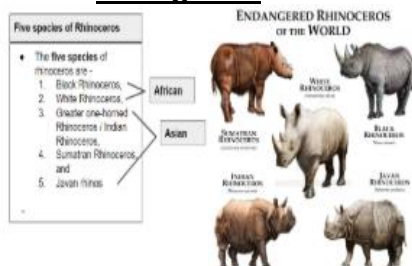
#### Indian Rhino Vision 2020

- Launched in **2005/Target 3000-One Horned Rhinos by 2020**
- Successful- Population of Rhinos 3700**
- Collaborative effort -World Wide Fund - India, International Rhino Foundation, Assam's Forest Department, Bodoland Territorial Council, and the US Fish and Wildlife Service**

#### September 22, World Rhino Day (Theme-“Keep the Five Alive”)

#### Recent-

- Northern White Rhino- developed through IVF**



Javan rhino- has one horn apart from Indian Rhino

#### African Rhino

- Black Rhino → Critically Endangered
- White Rhino → Near Threatened

#### Asian Rhino

- Sumatran Rhino → Critically Endangered
- Javan Rhino → Critically Endangered

- Indian/One-Horned Rhino → Vulnerable
- Northern White Rhino(a subspecies of White Rhino):**

- Most endangered animal on Earth
- Found in South Sudan/Uganda
- Last male died in 2018
- 2 females survive in Kenya (2020)

#### Current Development:

- Scientists **maintained semen in 2015** → Has been used to **regenerate embryos** and plant in surrogate (future hope)

**Q1285.** Consider the following statements regarding Indian rhino conservation efforts:

- Indian Rhino Vision 2020 aimed to achieve a target population of 3,000 one-horned rhinos by 2020.
  - Kaziranga National Park has the highest rhino population density among wildlife reserves in Assam.
  - Pobitora Wildlife Sanctuary, despite its smaller size, has the highest density of rhino population per square kilometer in the world.
- How many of the above statement(s) is/are correct?

- Only one
- Only two
- All three
- None

Ans: b

#### Sol:

- Statement 1: Correct.** Indian Rhino Vision 2020 successfully met its target of 3,000 one-horned rhinos.
- Statement 2: Incorrect.** Pobitora Wildlife Sanctuary, not Kaziranga National Park, has the highest density of rhino population per square kilometer.
- Statement 3: Correct.** Pobitora Wildlife Sanctuary is known for its extremely high rhino density despite its small size.

**Q1286.** Which of the following correctly matches rhino species with their IUCN Red List status?

- Black Rhino: Critically Endangered
  - Javan Rhino: Endangered
  - Indian Rhino: Vulnerable
  - White Rhino: Near Threatened
- 1 and 3 only
  - 1, 3, and 4 only
  - 2, 3, and 4 only



(d) 1, 2, and 4 only

Ans: b

**Sol:**

1. **Black Rhino:** Correct. Black rhinos are critically endangered.
2. **Javan Rhino:** Incorrect. Javan rhinos are critically endangered, not endangered.
3. **Indian Rhino:** Correct. The Indian one-horned rhino is listed as vulnerable.
4. **White Rhino:** Correct. White rhinos are classified as near threatened.

Thus, statements 1, 3, and 4 are correct.

**Q1287.** Consider the following statements about rhino conservation efforts in Assam and globally:

1. Manas National Park regained its UNESCO World Heritage Site tag in 2011 due to successful rhino translocation efforts.
2. Northern White Rhinos are currently extinct in the wild, with only two females surviving under protection in Kenya.
3. The theme for World Rhino Day 2024 is "Protect the Giants of the Wild."

How many of the above statement(s) is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Ans: b

**Sol:**

1. **Statement 1: Correct.** Manas National Park regained its World Heritage Site status in 2011 due to rhino translocation.
2. **Statement 2: Correct.** Northern White Rhinos are critically endangered, with two females surviving under protection.
3. **Statement 3: Incorrect.** The theme for World Rhino Day 2024 was not "Protect the Giants of the Wild" but "Keep the Five Alive."

### Topic 430

#### 430. Important conventions in environment

1. **Stockholm Convention**
  - Persistent Organic Pollutants
  - They are known as Persistent Organic Pollutants or '**Forever Chemicals**'
2. **Bonn Convention**

- Conservation of Migratory Species of Wild Animals.
- 3. **Basel Convention**
  - Convention on the **Control of Transboundary Movements of Hazardous Wastes** and their Disposal.
- 4. **UN-REDD**
  - United Nations Programme on Reducing Emissions from **Deforestation and Forest Degradation**.
- 5. **Minamata Convention**
  - Environmental treaty adverse effects of mercury.
- 6. **Rotterdam Convention**
  - Environmental convention on Prior Informed Consent (PIC) Procedure for movement of **Certain Hazardous Chemicals and Pesticides** in International Trade.



- Forever chemicals refer to a group of **man-made chemicals** known as **per- and polyfluoroalkyl substances (PFAS)**.
- They are called "**forever chemicals**" because they are **extremely persistent** in the **environment** and the human body.
- It means they **do not break down easily** over time.

#### **Common Uses of 'Forever Chemicals':**

1. Non-stick cookware (Teflon coatings)
2. Waterproof fabrics and stain-resistant carpets
3. Cosmetics like foundations and mascaras

**Q1288.** Basel Convention, 'Rotterdam Convention', and 'Stockholm Convention' relate to which of the following?

- (a) Human Rights of Prisoners
- (b) Management of Pollutants
- (c) Conservation of Wetlands
- (d) Conservation of Rivers

Ans: b



**Sol:** The Basel Convention, Rotterdam Convention, and Stockholm Convention all relate to Management of Pollutants.

**Q1289.** Match the following conventions with their primary objectives:

Convention	Objective
A. Stockholm	1. Control of hazardous waste movement across international borders.
B. Basel	2. Pertains to Persistent Organic Pollutants (POPs) and is aimed at their elimination.
C. Minamata	3. Mitigating the adverse effects of mercury on health and the environment.
D. Rotterdam	4. Prior Informed Consent (PIC) procedure for hazardous chemicals and pesticides in trade.

- (a) A-3, B-4, C-1, D-2  
 (b) A-3, B-1, C-4, D-2  
 (c) A-3, B-1, C-2, D-4  
 (d) A-2, B-1, C-3, D-4

Ans: d

**Sol: Stockholm Convention:** Pertains to Persistent Organic Pollutants (POPs) and is aimed at their elimination. Matches with 3.

• **Basel Convention:** Deals with the transboundary movement of hazardous waste. Matches with 1.

• **Minamata Convention:** Aimed at addressing the adverse effects of mercury. Matches with 3.

• **Rotterdam Convention:** Focuses on the PIC procedure for the trade of certain hazardous chemicals. Matches with 4.

Thus, the correct match is A-2, B-1, C-3, D-4

**Q1290.** Consider the following statements:

1. Forever chemicals are primarily associated with Persistent Organic Pollutants and are addressed under the Stockholm Convention.
2. Forever chemicals such as PFAS are used in non-stick cookware, waterproof fabrics, and stain-resistant carpets.

3. The Minamata Convention addresses forever chemicals due to their mercury-related environmental impacts.

How many of the above statement(s) is/are correct?

- (a) Only one  
 (b) Only two  
 (c) All three  
 (d) None

Ans: b

**Sol:**

**1. Statement 1: Correct.** Forever chemicals, including PFAS, are Persistent Organic Pollutants and are addressed under the Stockholm Convention.

**2. Statement 2: Correct.** Forever chemicals are widely used in non-stick cookware, waterproof fabrics, and cosmetics.

**3. Statement 3: Incorrect.** The Minamata Convention specifically addresses mercury-related environmental and health concerns, not PFAS.

