H-1B Visa Program

Source: IE

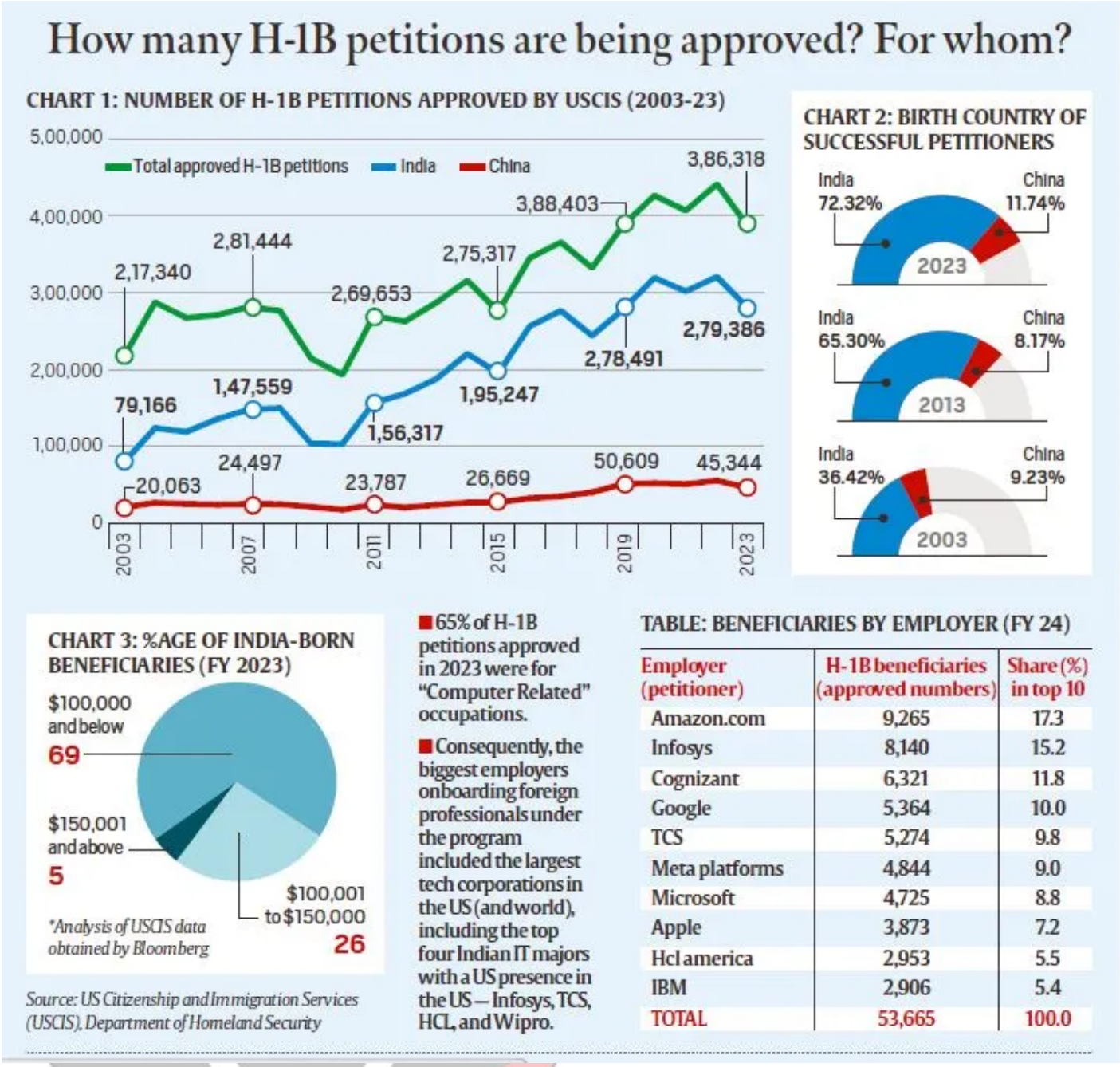
Why in News?

The **H-1B visa program has** recently garnered significant attention amidst political debates. with prominent figures, including **Elon Musk**, have voiced **support for its continuation,** emphasizing its role in addressing the **US's STEM talent shortages.**

What is the H-1B Visa Program?

- **About:** The H-1B is a **non-immigrant visa** which allows US-based companies to **hire and employ foreign workers** for specialty jobs like **science, technology, engineering, mathematics (STEM), and IT** (High skills and at least a bachelor's degree)
  - It was introduced in **1990** to help US employers address **skill shortages** when qualified US workers are unavailable.
  - A **nonimmigrant visa** allows **temporary entry to the US** for purposes like **tourism, business, work, study,** or medical treatment.
- **Visa Duration**: An H-1B visa can be issued for a maximum of **six years**. After this period, the visa holder must either **leave the US** for at least 12 months before reapplying for another H-1B visa or apply for **permanent residence (a Green Card).**
- **Annual Cap and Exemptions**: Currently, there is a regular annual cap of **65,000 new H-1B visas** each fiscal year.
  - An additional **20,000 visas** are available for applicants who hold a **master's degree or higher** from a US university.
  - Petitions for H-1B visa holders seeking **continued employment** and those seeking **employment at higher education institutions, affiliated nonprofits, or government research organizations** are eligible for cap exemption.
- **Dominance of Indians:** People born in India are the **largest beneficiaries** accounting for more than **70%** of all approved H-1B petitions annually **since 2015.**
  - People born in **China rank second,** consistently making up **12-13%** of petitions since 2018.

//



Other US Nonimmigrant Visa Categories

Visa Category	Purpose of Travel
O	Foreign national with extraordinary ability in **Sciences, Arts, Education, Business or Athletics**
H-2A	Temporary **agricultural** worker
H-2B	Temporary worker performing other services or **labor of a temporary or seasonal nature**
B-2	**Tourism**, vacation, pleasure visitor
V	Nonimmigrant Visa for **Spouse and Childre**n of a Lawful Permanent Resident

Note: China and India dominate the STEM fields worldwide.

- According to data presented by the **Centre for Security and Emerging Technology (CSET)**, a US based think tank, in 2020, **China (3.57 million) and India (2.55 million)** led the world in **STEM graduates,** far surpassing the **US (820,000**).

Shivaji Statue at Pangong Lake

Source: HT

Recently, a statue of **Chhatrapati Shivaji Maharaj** was inaugurated on the banks of **Pangong Tso** at an altitude of **14,300 feet.**

- It was unveiled shortly after India and China completed **disengagement** at **Demchok and Depsang**, ending a **4.5 year border standoff.**
- However, it has **sparked debate** among army **veterans and locals**, with a retired Colonel proposing a statue of **Dogra general Zorawar Singh**, whose **1834-1840 campaign** merged **Ladakh with the Dogra kingdom** under **Maharaja Ranjit Singh.**
- **Pangong Tso:** It is an **endorheic lake** in the Himalayas situated at a height of about **4,350 m (14,270 ft).**
    - It is one of the **world's highest brackish water lakes**, formed as a **tectonic lake** during the collision of the **Indian plate with the Eurasian plate**.
    - This event created the Himalayas and led to the lake occupying the space of the **Tethys Ocean**.

Read More: [Chinese Bridge on Pangong Lake]

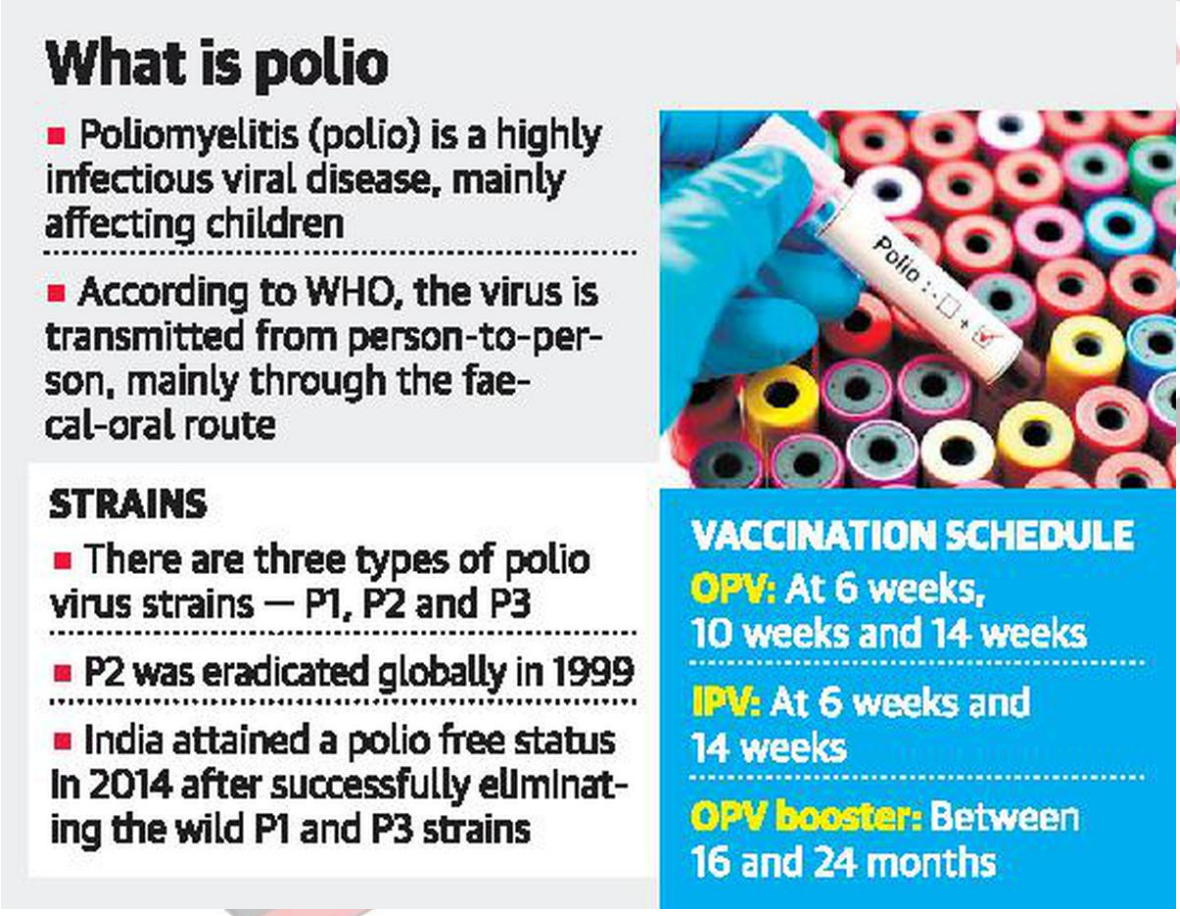
Global Polio Resurgence

[Source: TH]

Why in News?

Recently, the [World Health Organization (WHO)] has identified the presence of [poliovirus] in multiple countries, including **Pakistan, Cameroon, and several European nations**.

- The research suggests that **poliovirus may be primarily transmitted via the respiratory route** rather than the traditionally assumed faecal-oral route.



What are the Key Factors Contributing to Polio Resurgence?

- **Detection of Poliovirus:** The resurgence of polio is evidenced by recent detections of both **wild and vaccine-derived poliovirus** in various countries.
  - In 2024, Pakistan reported a total of 62 cases of wild poliovirus type 1 (WPV1).
  - Environmental samples containing poliovirus have also been found in cities such as **Barcelona, Warsaw, and Cologne (Germany)**, indicating potential **undetected or unvaccinated populations** at risk.
- **Immunisation Gaps:** In fragile and conflict-affected areas, **routine [immunization] coverage has dropped** significantly, making children more vulnerable to polio outbreaks.
  - **Eg:** In Sudan's active conflict zones, vaccination coverage has dropped sharply from 85%

to just 30%.

- **Shift in Vaccine Strategy:** The **Oral Polio Vaccine (OPV)** has been linked to outbreaks of **vaccine-derived poliovirus cases (cVDPV)**, which complicates eradication efforts.
    - Recent research emphasizes the **need for a transition to IPV,** which is **non-transmissible** and provides **effective protection against paralysis caused by poliovirus**.

Difference Between Inactivated Polio Vaccine (IPV) and Oral Polio Vaccine (OPV)

- **Inactivated Polio Vaccine (IPV)**
    - **Advantages:**
        - **No risk of Vaccine-derived Polio**: IPV contains inactivated virus particles, which means there is no risk of the vaccine causing vaccine-induced polio.
        - **Safe for Immunocompromised Individuals**: Because IPV uses a dead virus, it is safe for people with weakened immune systems.
        - **Durable Immunity**: IPV requires multiple boosters to maintain **immunogenicity** against **polio virus infection**.
    - **Disadvantages:**
        - **Higher Cost**: IPV is more expensive to produce and administer compared to OPV.
        - **Requires Multiple Doses**: A complete IPV vaccination schedule typically involves a series **of 2-4 shots** to provide full immunity.
        - **Limited Mucosal Immunity**: IPV does not provide strong immunity in the mucous membranes (e.g., the gut), which means it may be less effective at preventing virus transmission compared to OPV.
- **Oral Polio Vaccine (OPV)**
    - **Advantages:**
        - **Lower Cost**: OPV is cheaper to produce and distribute, making it more accessible in resource-limited settings.
        - **Fewer Doses Required**: OPV typically requires only **one or a few doses** to achieve effective immunity.
        - **Better Mucosal Immunity**: OPV provides strong mucosal immunity, particularly in the intestines, which helps to reduce the transmission of the poliovirus.
    - **Disadvantages:**
        - **Risk of Vaccine-derived Polio**: OPV contains live, attenuated poliovirus, which in rare cases can revert to a form that causes outbreaks of **vaccine-derived poliovirus (VDPV)**.
        - **Not Safe for Immunocompromised Individuals**: Because it contains live virus, OPV can be dangerous for people with weakened immune systems.
        - **Shorter-lasting Immunity**: Immunity from OPV may not be as long-lasting as that from IPV, requiring additional doses or boosters over time.

What is Polio?

- **About:**
    - **Polio *(poliomyelitis)*** is a **highly contagious viral disease** affecting mainly children **under five, spreading via the fecal-oral route** or contaminated food/water, potentially **causing paralysis by invading the nervous system.**
    - There are three individual and immunologically distinct wild poliovirus strains:
        - Wild Poliovirus type 1 **(WPV1), WPV2** and **WPV3.**
- **Types of Vaccines:**
    - **Inactivated polio vaccine (IPV):** It protects against poliovirus **types 1, 2, and 3**
    - **Trivalent oral polio vaccine (tOPV)**: It protects against poliovirus types 1, 2, and 3 - following the "OPV Switch" in April 2016, **tOPV is no longer in use.**
        - The **OPV switch** was a global effort to replace the tOPV with the bOPV in April 2016.

    - **Bivalent oral polio vaccine (bOPV)**: It protects against poliovirus types 1, and 3
    - **Monovalent oral polio vaccines (mOPV1, mOPV2 and mOPV3)**: It protects against each individual type of poliovirus, respectively.
- **Initiatives Taken to Eradicate Polio:**
    - **India Specific:**
        - **Pulse Polio Programme**
        - **Intensified Mission Indradhanush 2.0**
    - **Global Initiatives:**
        - **Polio Eradication and Endgame Strategic Plan 2013-2018**
        - **World Polio Day (24th October)**
        - **Global Polio Eradication Initiative (GPEI)**

UPSC Civil Services Examination, Previous Year Question

Prelims

Q. 'Mission Indradhanush' launched by the Government of India pertains to (2016)

(a) immunisation of children and pregnant women

(b) construction of smart cities across the country

(c) India's own search for the Earth-like planets in outer space

(d) New Educational Policy

Ans: (a)

Q. Which of the following are the objectives of 'National Nutrition Mission'? (2017)

1. To create awareness relating to malnutrition among pregnant women and lactating mothers.
2. To reduce the incidence of anaemia among young children, adolescent girls and women.
3. To promote the consumption of millets, coarse cereals and unpolished rice.
4. To promote the consumption of poultry eggs.

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 1, 2 and 3 only

(c) 1, 2 and 4 only

(d) 3 and 4 only

Ans: (a)

Vembanad Lake

Source: TH

The Alappuzha district administration in Kerala will launch a **mega plastic cleaning drive** as part of the

Vembanad lake rejuvenation project. This initiative aims to restore the **health of the lake,** a **Ramsar site** and India's **second-largest wetland system.**

- Additional efforts include establishing a **bio-shield**, setting up a **Vembanad Lake Interpretation Centre**, a **yarn museum**, **bottle booths**, promoting **community tourism**, and stocking **fish seeds**.
    - **Awareness programmes** will be held for **fishers**, **houseboat employees**, and local residents to emphasize the importance of lake conservation.
- A 2023 study revealed the degraded state of Vembanad lake, impacting the livelihoods of around eight million people. The lake's water retention capacity has declined by **85.3% from 1990 to 2020.**
- **Vembanad Lake:** Vembanad is the **largest lake in Kerala and the longest lake in India.**
    - Vembanad-Kol is the **largest brackish, humid tropical wetland ecosystem** on the southwest coast of India. It is fed by 10 rivers and is typical of large estuarine systems on the western coast.
    - In 2002, Vembanad was designated as a **Ramsar Wetland of International Importance.**
    - It is also included in the **National Wetlands Conservation Programme** by the Government of India.
    - **Kumarakom Bird Sanctuary,** also known as the Vembanad Bird Sanctuary, is located on the lake's east coast.


1
Munambam
2
Midway to Munambam
Periyar River
3
Cherai Beach
4
Midway to Cherai
Kadakkara
5
Periyar River
Elemkunnapuzha
6
8
Bolgatty
Barmouth
7
Chitrapuzha River
9
Kochi Shipyard
Kerala
Vembanad wetland
10
Thevara
11
Arookutty
Pan Ar
Arabian Sea
Panapally
12
Murinpuzha
13
Muvattupuzha River
Attipuzha River
Vaikom
14
Kari Ar
TVpuram
15
16
Thaneermukkam
Kumarakaom
17

Read more: [Vembanad Lake: Kerala]

IPBES Transformative Change Assessment

For Prelims: IPBES, United Nations, United Nations Environment Programme, Carbon-neutrality, National Biodiversity Action Plan (NBAP), Swachh Bharat Abhiyan, National Action Plan on Climate Change.

For Mains: Biodiversity Conservation, Governance for Sustainability, Public Policies for Environmental Protection

Source: IPBES

Why in News?

A report released by the **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)** titled ***Transformative Change Assessment,*** stresses the critical role that governance plays in mitigating biodiversity loss.

- It highlights how effective governance, with its focus on inclusivity and sustainability, is essential for preserving **biodiversity and driving long-term**, systemic change.

What are the Key Highlights of the Transformative Change Report?

- **Prevent Ecological Damage:** The report highlights the urgent need for fundamental shifts in **how societies interact with nature to prevent biodiversity loss**, warning that inaction could lead to **irreversible ecological damage**, including the loss of coral reefs and rainforests.
- **Economic and Employment Opportunities:** Immediate action could generate **USD 10 trillion in business opportunities** and support **395 million jobs globally by 2030,** especially in industries that depend heavily on nature.
- **Causes of Biodiversity Loss:** The report identifies the root causes as the **disconnection between people and nature**, domination over nature and others.
    - Other causes include the **concentration of power and wealth,** and prioritizing **short-term material gains over long-term sustainability.**
- **Five Key Strategies for Transformation**:
    - **Conserve and Regenerate**: Focus on areas of **biocultural diversity** that combine **environmental restoration with cultural values,** such as **community-driven forest management** in Nepal.
    - **Systematic Change in Key Sectors:** Address sectors like **agriculture, fisheries, and infrastructure** that contribute to biodiversity loss through sustainable practices.
    - **Transform Economic Systems**: Shift toward **nature-positive economies** by reforming **harmful subsidies** and promoting **sustainable business models.**
    - **Adaptive Governance**: Build Adaptive governance systems that integrate diverse actors, including **Indigenous communities,** and make biodiversity a central concern in policies.
        - Adaptive governance enables **continuous adjustment of strategies** based on changing environmental conditions and new information.
        - This flexibility is crucial for addressing complex biodiversity challenges and remaining responsive to emerging threats.

- **Shift Views and Values**: Promote the recognition of **human-nature interconnectedness,** with an emphasis on education, experiential activities, and integrating diverse knowledge systems.

IPBES

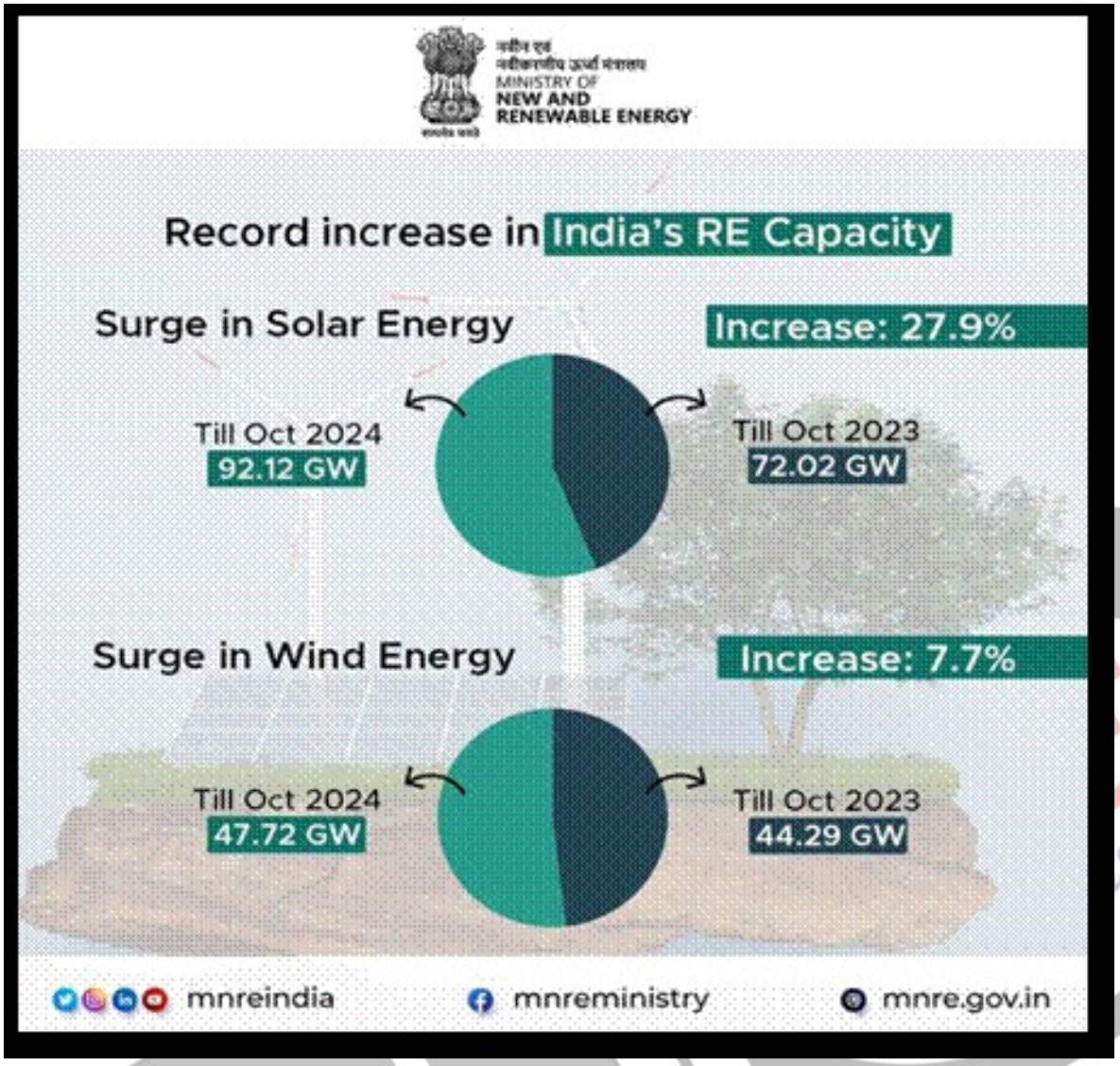
- IPBES, established in 2012, is an **independent intergovernmental body** with nearly 150 member governments including India.
  - It provides scientific assessments on biodiversity, ecosystems, and their contributions to people, along with tools and methods for their protection and sustainable use.
- It is not a **United Nations body**. However, the **United Nations Environment Programme (UNEP)** provides secretariat services to IPBES.
- **Secretariat:** Bonn, Germany.

What is Transformative Change and How Can it be Achieved?

- **Transformative Change:** It is a **fundamental, system-wide reorganization** across technological, economic, and social factors, including paradigms, goals, and values, necessary for the **conservation and sustainable use of biodiversity,** and achieving a **good quality of life and sustainable development.**
- **Steps to Achieve Transformative Change:**
  - **Carbon-Neutral Actions**: Strive for **carbon-neutrality,** making it a norm for individuals, businesses, and governments, while supporting legitimate climate-friendly offsets.
  - **Earth-Positive Choices**: Make it easy, enjoyable, and affordable for people to contribute **positively to the environment** by shifting supply chains and influencing policies.
  - **Reforming Subsidies**: Redirect **subsidies and incentives to support environmental stewardship** and facilitate transitions away from resource-extractive industries to sustainable practices.
  - **Precautionary Decision-Making**: Implement precautionary, adaptive, inclusive, and cross-sector decision-making, addressing environmental threats proactively, **even without definitive proof.**
  - **Strengthening Environmental Laws**: Advocate for **stronger environmental laws,** ensuring consistent enforcement, and supporting global initiatives that protect nature and promote sustainable economic activities.

What are India's Initiatives for Transformative Change?

- **National Biodiversity Action Plan (NBAP).**
- **Swachh Bharat Abhiyan.**
- **National Action Plan on Climate Change.**
- **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME).**
- **Pradhan Mantri Ujjwala Yojana (PMUY).**
- **Mission LiFE (Lifestyle for Environment).**
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT).**
- **SDGs for Transformative Change:** The **Sustainable Development Goals (SDGs)** for transformative change focus on sustainable development through inclusive growth, addressing **Life Below Water**, **Climate Action, Clean Energy, Clean Water, Responsible Consumption,** and **Life on Land.**
  - India's initiatives like the **Smart Cities Mission**, **Green India Mission,** Swachh Bharat Abhiyan, **Pradhan Mantri Ujjwala Yojana**, and **National Clean Energy Fund** align with various SDGs.
  - India has made **substantial investments** in **renewable energy**, aiming to **generate 500 GW from non-fossil sources by 2030**, under the leadership of the **International Solar Alliance.**



Drishti Mains Question:

Discuss the concept of transformative change. How can this be implemented to address biodiversity loss and achieve sustainable development?

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q1. Which of the following can be threats to the biodiversity of a geographical area? (2012)

1. Global warming
2. Fragmentation of habitat
3. Invasion of alien species
4. Promotion of vegetarianism

Select the correct answer using the codes given below:

(a) 1, 2 and 3 only

(b) 2 and 3 only

(c) 1 and 4 only

(d) 1, 2, 3 and 4

Ans: (a)

Q2. Biodiversity forms the basis for human existence in the following ways: (2011)

1. Soil formation
2. Prevention of soil erosion
3. Recycling of waste
4. Pollination of crops

Select the correct answer using the codes given below:

(a) 1, 2 and 3 only

(b) 2, 3 and 4 only

(c) 1 and 4 only

(d) 1, 2, 3 and 4

Ans: (d)

Mains

Q. How does biodiversity vary in India? How is the Biological Diversity Act,2002 helpful in the conservation of flora and fauna? **(2018)**
