



Sustainable Nitrogen Management: FAO

For Prelims: [Food and Agriculture Organization](#), [Nitrogen Pollution](#), [Nitrogen](#), [Livestock](#), [Haber-Bosch Process](#), [Ammonium](#), [Air Pollution](#), [Greenhouse Gas](#), [Eutrophication](#), [Ozone Layer](#), [Soil Health](#), [Dead Zones](#), [Algal Blooms](#), [Ground Level Ozone](#), [Green Revolution](#), [Planetary Boundaries](#), [Paris Agreement](#), [Bioeconomy](#), [Food Security](#), [Sustainable Development Goals](#).

For Mains: Status and ways to manage nitrogen pollution, nitrogen use efficiency.

[Source: DTE](#)

Why in News?

The [Food and Agriculture Organization](#) released a report titled **Sustainable nitrogen management in agrifood systems** highlighting the **state of nitrogen pollution**.

- This report gives a comprehensive overview of the **role of nitrogen use** and **consequent challenges** in agrifood systems.

What are the Key Highlights of the Report?

- **Current Nitrogen Emissions:** Humans add around **150 teragrams (Tg) (1 Tg = 1 million tonnes)** of reactive nitrogen to Earth's land surface annually through **agriculture and industry**, with climate change potentially increasing this to **600 Tg per year by 2100**.
 - This is **more than double the pre-industrial nitrogen rate**, contributing to environmental nitrogen pollution.
- **Major Sources of Nitrogen Loss:** **Livestock** is the **largest contributor** to nitrogen emissions, responsible for **about one-third** of total nitrogen emissions from human activities.
 - Other major contributors include **synthetic fertilizers**, **land-use change**, and **manure emissions**.
- **Exceedance Nitrogen Boundaries:** **Global nitrogen flows** have surpassed the **planetary boundaries** (nitrogen use has **exceeded the environmental limits** within which humanity can safely operate).
 - The degree of nitrogen exceedance has **dramatically increased** since **2015**.
- **Global Crop Yield Trends:** **Global crop yield** has risen steadily, from **19 kg of nitrogen per hectare per year** in 1961 to **65 kg N/ha/year** in 2022.
 - Despite the rise in crop yield, **NUE fluctuated**, dropping from **56% in 1961** to **40% in the 1980s** before improving back to **56% in 2022**.
- **Regional Differences:**
 - **Asia:** Fertilizer subsidies during the [Green Revolution](#) increased yields but caused significant nitrogen pollution.
 - **Southeast Asia** saw a significant drop in NUE, from **65% in 1961** to **45% in the 1990s**, before increasing again to **54% in 2022**.
 - **Africa:** Struggles with **low crop yields** and [nutrient depletion](#) due to inadequate policies and limited access to fertilizers.
 - **Europe & North America:** Higher NUE achieved through **nutrient**

management guidelines and regulations.

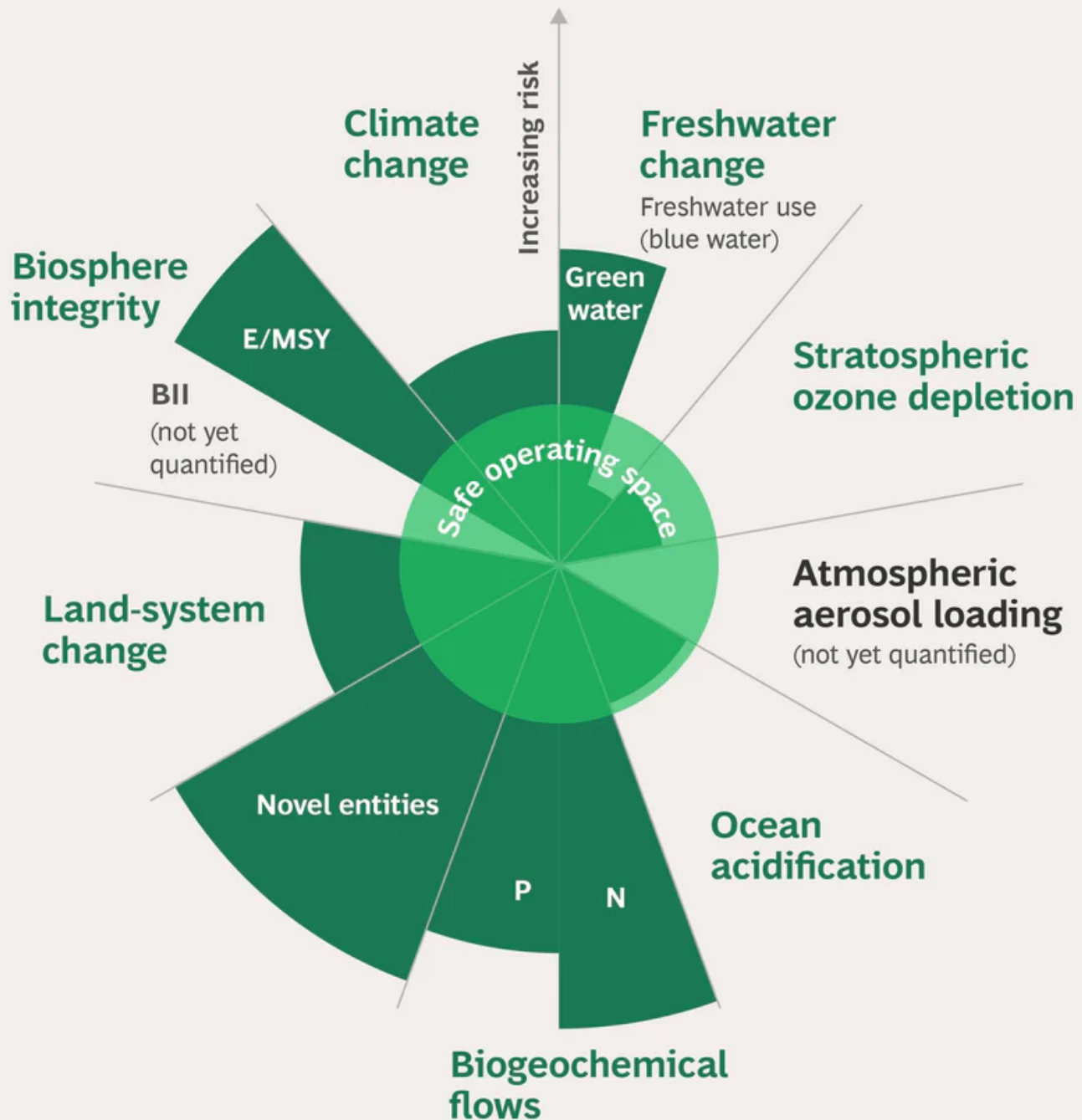
- **North America** experienced a drop in NUE from **65% in 1961 to below 50% in the 1980s**, then saw an increase to **69% in 2022**.
- **Latin America**: Faces challenges with reliance on **imported fertilizers** and disruptions in supply chains, affecting **nitrogen management**.
- **Variation in NUE at the Crop Level**: NUE varies significantly by crop type:
 - **Soybeans** had an NUE of **80% in 2010**, reflecting high nitrogen use efficiency.
 - **Fruits and vegetables** had **much lower NUE**, around **14% in 2010**, indicating substantial **nitrogen losses** during production.
- **Challenges in Developing Countries**: **Low- and Middle-Income countries** face challenges such as **limited access** to nitrogen fertilizers and soil health degradation.
 - Without addressing nitrogen losses, crop yields are low, and poor **manure management** increases nitrogen emissions.

Note:

- **Planetary Boundaries**: The [planetary boundaries](#) framework, introduced in **2009** by **Johan Rockstrom** and 28 scientists, defines **Earth's environmental limits** to maintain **stability and biodiversity** for humanity's safe existence.
 - Breaching planetary boundaries raises the risk of **irreversible environmental changes**, threatening Earth's habitability.



The Nine Planetary Boundaries



What is Nitrogen Use Efficiency (NUE)?

- **About:** It is used to describe the **efficiency** of a plant in **using applied or fixed nitrogen** for **biomass production**.

- It is the **ratio** of **crop yield** to the **nitrogen absorbed** from the soil or fixed by bacteria.
- **Poor NUE:** Poor NUE refers to the **inefficient use of nitrogen** in agriculture, where much of it is **lost to the environment**, causing **pollution and reducing productivity**.
- **Concerns with Poor NUE:** Poor NUE wastes nitrogen fertilizers worth **Rs 1 trillion a year in India** and over **USD 170 billion per year globally**.
 - India is the **2nd largest source of nitrous oxide (N₂O)**, a potent greenhouse gas that warms the atmosphere more than carbon dioxide.
 - In 2020, India accounted for nearly **11% of global anthropogenic N₂O emissions**, second only to **China at 16%**.

What is Nitrogen Pollution?

- **About Nitrogen:** Nitrogen (N) is a core **building block in amino acids and proteins**, essential for **plant growth and agrifood systems**.
 - Nitrogen is essential for **crop and livestock production**. While **legumes fix atmospheric nitrogen**, most **plants** depend on **soil nitrogen**.
 - The **Haber-Bosch process** converts **inert nitrogen into reactive nitrogen (such as ammonium)**, enabling the use of **synthetic fertilizers** that boost crop production.
- **About Nitrogen Pollution:** **Nitrogen pollution** refers to the excessive presence of nitrogen compounds, particularly in the form of **nitrogen oxides (NO_x)** and **nitrates (NO₃)**, in the environment.
 - **Nitrogen loss (emission) in the environment** harms **air and water quality**, human health, and biodiversity, impacting both **terrestrial and aquatic ecosystems**.
- **Forms of Nitrogen Loss:**
 - **Air Pollution:** Emissions of **ammonia (NH₃)** and **nitrogen oxides (NO_x)** contribute to **air pollution**.
 - **Greenhouse Gas Emissions:** **Nitrous oxide (N₂O)** is a potent **greenhouse gas (GHGs)** that contributes to climate change.
 - **Water Pollution:** **Nitrate leaching** causes **eutrophication** and **acidification** of water bodies, harming aquatic ecosystems and water quality.
- **Concerns with Nitrogen Pollution:** In the **past 150 years**, human-driven reactive nitrogen flows have **increased tenfold**.
 - Each year, **200 million tonnes of reactive nitrogen (80%)** are lost to the environment, contaminating **soil, rivers, lakes, and the air**.
- **Effects:**
 - **Global Warming and Ozone Layer:** Nitrous oxide is **300 times** more powerful than **methane and carbon dioxide** as a greenhouse gas and is the **largest human-made threat** to the **ozone layer**.
 - **Biodiversity:** Nitrogen pollution can **degrade soils** by making them **acidic** through excessive use of synthetic fertilizers, **harming soil health** and reducing productivity.
 - Nitrogen pollution can create **dead zones** in the ocean and cause **toxic algal blooms** to spread in **marine ecosystems**.
 - **Air:** Nitrogen oxides from coal plants, factories, and vehicle exhausts can cause **smog** and **ground-level ozone**.
 - **Agricultural ammonia** and vehicle **exhaust emissions** create harmful particulates that worsen respiratory diseases.

What are Key Proposals to Tackle Nitrogen Pollution as per the Report?

- **Fertilizer Industry Interventions:** Reduce **GHGs emissions** in nitrogen fertilizer **production** and **minimize** losses during **storage, transport, and application**.
 - Support the cultivation of **leguminous crops** such as **soybeans and alfalfa** to naturally fix atmospheric nitrogen.
 - Implement spatial planning to **redistribute livestock** and reduce the concentration of livestock in specific regions to **avoid nitrogen hotspots**.
- **Integration with Climate Goals:** Integrate **sustainable nitrogen management** into **nationally determined contributions (NDCs)**, setting targets to reduce nitrous oxide emissions from agrifood systems in line with the **Paris Agreement's 1.5°C goal**.
 - Establish **national commitments** to reduce nitrogen pollution, particularly **ammonia and**

nitrates, to meet global biodiversity goals.

- **Circular Bioeconomy Principles:** Circular [bioeconomy](#) can improve resource use efficiency and NUE by **reducing food losses, recycling waste**, and using livestock to convert biomass and waste streams into **usable resources**.
 - Promote the recycling and treatment of food waste unsuitable for human consumption as livestock feed.
- **Sustainable Nitrogen Management:** Encourage **public and private sector** investment in **high-efficiency, low-emission mineral fertilizers**.
 - Promote the **recycling of [organic residues](#)** to enhance system efficiency and reduce resource waste.
 - Techniques to improve NUE include **better fertilization strategies, manure management**, and integrating livestock into cropping systems.
- **Balancing Nitrogen's Dual Role:** Effective policies must reconcile **nitrogen's role as a nutrient and a pollutant** to mitigate its environmental impact while ensuring [food security](#).



UN SPECIALISED AGENCIES

UNSAAs are 15 autonomous international organizations working with the UN

Part I
FAO, UNIDO
and ICAO

FAO

- Estd. - 16th October 1945 (World Food Day)
- Headquarters - Rome, Italy
- Members - 194 countries (incl. India) + EU
- Sister Bodies - World Food Programme (WFP), IFAD
- FAO v/s WFP v/s IFAD:
 - » FAO is a knowledge org.; lead UN agency for technical expertise in food security, agriculture, forestry, fisheries etc.
 - » WFP is a humanitarian org.; provides food aid and logistical operations to save lives in crisis situations
 - » IFAD is a financial institution; funds rural development projects to improve nutritional level
- Flagship Publications:
 - » The State of World Fisheries and Aquaculture (SOFIA)
 - » The State of the World's Forests (SOFO)
 - » The State of Food Security and Nutrition in the World (SOFI)
 - » The State of Food and Agriculture (SOFA)
 - » The State of Agricultural Commodity Markets (SOCO)
- FAO's Globally Important Agricultural Heritage Systems (GIAHS) in India:
 - » Kuttanad Below Sea Level Farming System, Kerala
 - » Koraput Traditional Agriculture, Odisha
 - » Pampore Saffron Heritage, Kashmir

UN Industrial Development Organisation

- Estd. - 1966 (transformed into UNSA in 1985)
- Headquarters - Vienna, Austria
- Member States - 171 (India one of the founders)
- Functions - Tech-cooperation, advisory services and fostering partnerships
- Imp. Declarations - Lima Declaration (2013), Abu Dhabi Declaration (2019)

UNIDO
is a custodian
agency for 6
industry-related
indicators
under SDG 9

ICAO

- Estd. - 1944 (by Chicago Convention)
- Function - Set standards/procedures for peaceful global air navigation
- Headquarters - Montreal, Canada
- Members - 193 (incl. India)

ICAO is not an
international aviation
regulator; it can't
arbitrarily close/restrict a
country's airspace, shut
down routes or condemn
airports/airlines



Drishti IAS

Conclusion

Sustainable nitrogen management is crucial for achieving the **Sustainable Development Goals** by **2030**, particularly those related to **hunger, health, clean water, sustainable production and consumption, climate action, and preserving life on land and underwater**. Improving nitrogen use efficiency across the **agri-food chain** and **reducing nitrogen loss** can help increase food production in low- and middle-income countries by allowing more nitrogen resources to achieve their intended purpose, improve health by **reducing harmful emissions, and protect water bodies from pollution**.

Drishti Mains Question:

India is the second-largest contributor to nitrous oxide emissions globally. Examine the causes and suggest policy measures for sustainable nitrogen management in India.

UPSC Civil Services Examination, Previous Year Question:

Prelims

Q. Consider the following: (2019)

1. Carbon monoxide
2. Methane
3. Ozone
4. Sulphur dioxide

Which of the above are released into the atmosphere due to the burning of crop/biomass residue?

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

Ans: (d)

Q. Consider the following statements: (2019)

1. Agricultural soils release nitrogen oxides into the environment.
2. Cattle release ammonia into the environment.
3. Poultry industry releases reactive nitrogen compounds into the environment.

Which of the statements given above is/are correct?

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

Ans: (d)

Mains

Q. Describe the key points of the revised Global Air Quality Guidelines (AQGs) recently released by the World Health Organisation (WHO). How are these different from its last update in 2005? What changes in India's National Clean Air Programme are required to achieve revised standards? (2021)

Q. Sikkim is the first 'Organic State' in India. What are the ecological and economical benefits of Organic State? (2018)

Disputes Related to Indus Water Treaty

Prelims: [Indus Water Treaty \(IWT\)](#), [Indus and its tributaries](#), [Kishanganga](#) and [Ratle Hydro Electric Projects](#), [World Bank](#).

Mains: [Indus Waters Treaty and associated implementation issues](#)

[Source: IE](#)

Why in News?

The **Neutral Expert (NE)** appointed by the [World Bank](#) under the **Indus Waters Treaty (IWT)** declared that he is “**competent**” to **adjudicate disputes** concerning the [Kishenganga](#) and [Ratle hydroelectric projects](#) in Jammu and Kashmir(J&K).

- This supports India’s stance to exclude the [Permanent Court of Arbitration \(PCA\)](#), reinforcing its diplomatic and legal efforts to assert rights over the [Indus waters](#).

What are the Key Disputes Regarding Indus Water Treaty (IWT)?

- **Water Sharing Dispute:**
 - **Kishanganga Hydroelectric Project:** [Kishanganga Hydroelectric Project \(HEP\)](#) is located on the Kishanganga River (tributary of Jhelum) in J&K. Pakistan objected, claiming that water diversion for power generation violates the IWT.
 - **Ratle Hydroelectric Project:** [Ratle Hydroelectric Project](#) is a run-of-the-river project on the Chenab River in J&K, Pakistan raised concerns that the dam's design, including the spillway gates, gives India excessive control over river flow.
- **Dispute Over Resolution Procedure:**
 - Pakistan objected to the **Kishanganga and Ratle projects**, initially requesting a NE under the **IWT** in 2015 but later sought adjudication by the PCA.
 - India opposed this, emphasizing the IWT's dispute resolution hierarchy, which prioritizes NE over PCA. **In 2022**, the World Bank initiated both NE and PCA processes.
 - India boycotted the PCA while engaging with the NE, asserting that only the NE has the authority to resolve disputes under the IWT.

INDUS WATERS TREATY: POINTS OF DIFFERENCE

Here's what the Neutral Commissioner will now decide upon

■ Whether the pondage provided in the two dams' designs meet restrictions imposed by the IWT.

■ Whether the intakes for the turbines provided in the design are in accordance with the IWT.

■ Whether outlets below the dead storage level are in accordance with the IWT.

■ Whether the designs of the gated spillways of each plant are in accordance with the IWT.

What is the Indus Waters Treaty?

- **About:** It is a **water-sharing agreement** between [India and Pakistan](#) signed in **1960** under the aegis of the [World Bank](#) to divide the waters of the [Indus River](#) and its 5 tributaries (**Sutlej, Beas, Ravi, Jhelum, and Chenab**) between the countries.
- **Key Provisions:**
 - **Water Sharing Arrangement:**
 - The Treaty grants **India unrestricted use of the 3 eastern rivers (Beas, Ravi, Sutlej)** and allocates the **3 western rivers (Chenab, Indus, Jhelum)** to **Pakistan**, with certain allowances for India to use these waters for **domestic, non-consumptive, agricultural, and hydroelectric purposes** under specific conditions.
 - As per this arrangement, **Pakistan is allocated roughly 80% of the water** from the Indus River system, while **India receives approximately 20% of the water share**.
 - **Permanent Indus Commission:** The treaty mandated the establishment of a [Permanent Indus Commission \(PIC\)](#) with **representatives from both countries**, which is required to **meet annually** to ensure the implementation of the treaty.
- **Dispute Resolution Mechanism: Article IX of the IWT** outlines a **3-tier dispute resolution process**:
 - **Resolution by PIC:** Initial disputes or questions regarding treaty interpretation or breaches are addressed by the PIC, a bilateral body of officials from India and Pakistan.
 - **Neutral Expert:** If the **PIC fails to resolve the issue**, it is referred to a Neutral Expert appointed by the World Bank, at the request of either Commissioner.
 - **Court of Arbitration:** If the matter is classified as a **dispute** or **outside the** Neutral Expert's mandate, and if **bilateral negotiations fail**, either party can invoke a **Court of Arbitration** set up by the [World Bank](#).

Note: PCA was established in **1899** and based in **The Hague, Netherlands**, resolves disputes between states, offering arbitration and other mechanisms. It also provides a **Financial Assistance Fund** to help developing countries cover arbitration costs.

The Indus Waters Treaty (IWT)

■ The distribution of waters of the Indus and its tributaries between India and Pakistan is governed by the Indus Water Treaty (IWT).

■ Was signed on Sept 19, 1960, between India, Pakistan and a representative of World Bank after eight years of negotiations.

■ Partition of India cut across the Indus river basin, which has the Indus river, plus five of its main tributaries.

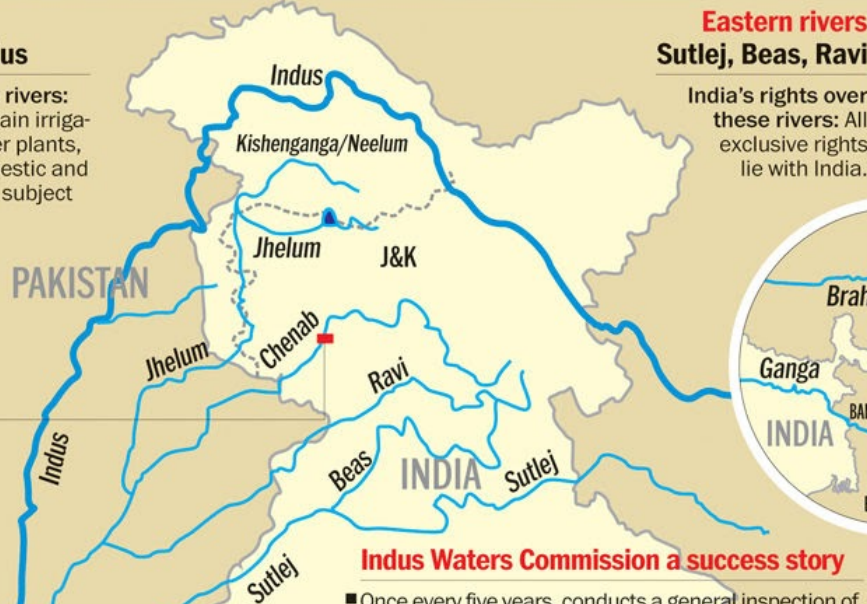
Western rivers

Chenab, Jhelum, Indus

India's rights over these rivers: Limited — can set up certain irrigation, run-of-the-river power plants, very limited storage, domestic and non-consumptive use, all subject to conditions



Baglihar dam on Chenab



Eastern rivers

Sutlej, Beas, Ravi

India's rights over these rivers: All exclusive rights lie with India.

Indus Waters Commission a success story

- Once every five years, conducts a general inspection of all rivers in parts. Total inspection tours so far: Over 100
- Regularly meets once a year. Total meetings thus far, including those for taking up Pak objections: Over 100

Why are the Challenges Associated with IWT?

- **Outdated Provisions:** The IWT does **not address modern challenges** like **climate change**, which has altered hydrological patterns in the Indus basin, affecting water availability.
 - Climate change has led to **accelerated glacial melt, erratic rainfall, and increased evaporation, reducing water availability**, which challenges the IWT which was based on **historical hydrological patterns**.
- **Lack of Flexibility:** The **rigid allocation of water resources** under the treaty **limits the** ability to implement adaptive water management strategies in response to changing circumstances.
- **Irregularities of PCA:** The ongoing parallel proceedings initiated by the World Bank highlight the **ambiguities in the treaty's dispute resolution framework**, signaling the need for reform and clarification.
- **Geopolitical Tensions:** The broader **mistrust and hostilities between India and Pakistan** hinder the **treaty's effectiveness, complicating cooperation** on water-sharing and management.

Way Forward

- **Renegotiation of the Treaty:** There is an urgent need to revisit the IWT to address its limitations and incorporate provisions for climate resilience and sustainable water management.
- **Enhanced Dialogue:** India and Pakistan must prioritize dialogue and trust-building measures to resolve disputes amicably. The revival of the **Permanent Indus Commission** could serve as a starting point.
- **Third-Party Mediation:** The World Bank and other neutral parties can play a constructive role in facilitating negotiations and ensuring compliance with the treaty.
- **Focus on Technical Solutions:** Both countries should adopt a technical and scientific approach

to resolve disputes over hydroelectric projects, emphasizing data sharing and joint studies.

Drishti Mains Question:

What is the Indus Water Treaty (IWT)? Discuss why India wants to renegotiate IWT.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. With reference to the Indus river system, of the following four rivers, three of them pour into one of them which joins the Indus directly. Among the following, which one is such a river that joins the Indus direct? (2021)

- (a) Chenab
- (b) Jhelum
- (c) Ravi
- (d) Sutle

Ans: (d)

Q. Consider the following pairs (2019)

Glacier	River
1. Bandarpunch	Yamuna
2. Bara Shigri	Chenab
3. Milam	Mandakini
4. Siachen	Nubra
5. Zemu	Manas

Which of the pairs given above are correctly matched?

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

Ans: (a)

Mains:

Q. The interlinking of rivers can provide viable solutions to the multi-dimensional inter-related problems of droughts, floods, and interrupted navigation. Critically examine. (2020)

Impact of US Policy Shifts on India

For Prelims: [Paris Agreement](#), [World Health Organization](#), [Global minimum tax](#), [H-1B visa](#), [Greenhouse gases](#), [Fossil fuels](#), [Global South](#), [Organization for Economic Cooperation and Development](#), [Tax havens](#), [Quad alliance](#), [BRICS](#)

For Mains: US Policy Changes and Implications for India, Birthright Citizenship, Global Climate Action Post-US Withdrawal, Taxation and Global Economy

[Source: TH](#)

Why in News?

US President Donald Trump has signed multiple executive orders, including **ending birthright citizenship**, withdrawing from the [Paris Agreement](#), exiting the [World Health Organization \(WHO\)](#), and rejecting the [global corporate minimum tax \(GCMT\) deal](#).

- These decisions carry significant implications on India, climate policy, and the lives of Indian professionals in the US.

What is the Impact of Revocation of Birthright Citizenship?

- **Birthright Citizenship in US:** In the US, there are two types of birthright citizenship **ancestry-based** and **birthplace-based (*jus soli*) (right of the soil)**, which grants citizenship to individuals born on US soil, **regardless of parental nationality**.
- **Executive Order:** The order asserts that children born to **noncitizen parents are not subject to US jurisdiction** and therefore **do not qualify for automatic citizenship**.
 - One of the main objectives of the executive order is to reduce **"birth tourism,"** where **women travel to the US to give birth for automatic citizenship** for their children.
 - This policy will particularly impact families from **countries like India and Mexico**, where birth tourism has been prevalent.
- **Impact:**
 - **Impact on H-1B Visa Holders:** Indian [H-1B visa holders](#) and [Green Card applicants](#) may see their **US born children lose automatic citizenship**, creating uncertainty for families.
 - Families with mixed citizenship statuses could **face separation** or be forced to reconsider their futures in the US.
 - This policy shift could discourage **long-term migration** and **family planning among skilled workers**.
 - Indian nationals may increasingly opt for migration to countries like **Canada, the UK, Australia, and New Zealand**, which have more favorable immigration policies.
 - **Rise in Deportations:** Approximately **7.25 lakh** undocumented Indians in the US face increased risk of [deportation](#).
 - **Legal Challenges:** Revocation of birthright citizenship contradicts the **14th Amendment to the US Constitution**, guaranteeing citizenship to all born on American soil. **Court challenges are likely**.
 - **Economic Impact on the US:** Skilled migrants contribute significantly to innovation, healthcare, and [Information Technology \(IT\)](#) sectors.
 - Such policies **may create talent shortages in the US** and disrupt businesses dependent on Indian professionals.

What are the Implications of US Withdrawal From the Paris Agreement?

- **Paris Agreement:** Adopted in 2015 by 196 nations (including India) at [United Nations Climate Change Conference \(COP21\)](#) in Paris, is a legally binding global accord under the [United Nations Framework Convention on Climate Change \(UNFCCC\)](#).
 - It aims to [limit global warming to 1.5°C](#) above **pre-industrial levels**, with a fallback target of staying below **3.6°F (2°C)**.
 - Encourage nations to **set increasingly ambitious [emission reduction targets](#)**.
 - It requires developed nations, including the US, to commit to **funding [climate adaptation and mitigation efforts](#)** in developing countries.
- **Reasons For US Withdrawal:** Trump stated that the [Paris accord](#) does not reflect US values and redirects taxpayer dollars to countries that "**do not require or merit**" **financial assistance**.
- **Implications:** The US, as the **second-largest emitter of [greenhouse gases](#)**, holds a key role in global efforts to reduce emissions.
 - Its withdrawal from the Paris Agreement impacts **international climate finance, cutting funds for mitigation and adaptation efforts** in developing nations, including India.
 - The scaling back of **private [climate finance](#)**, heavily influenced by the US, could restrict resources for **[renewable energy](#) and [green projects](#)**.
 - Additionally, US focus on [fossil fuels](#) and rollback of energy regulations may lead to **4 billion tonnes of additional emissions over four years**, worsening global climate challenges.



CLIMATE FINANCE

Climate finance refers to local, national or transnational financing—drawn from public/ private/alternative sources of financing—to support mitigation and adaptation actions against climate change.

PRINCIPLES OF CLIMATE FINANCE

- ☐ Polluter Pays
- ☐ Common but Differentiated Responsibility and Respective Capability (CBDR–RC)

Multilateral Climate Funds Coordinated by UNFCCC

- ☐ **Global Environment Facility (GEF):** Operating entity of financial mechanism (1994)
- ☐ **Kyoto Protocol (2001):**
 - ☐ **Adaptation Fund (AF):** Gives developing countries full ownership of adaptation projects
 - ☐ **Clean Development Mechanism (CDM):** To carry out emission-reduction projects in developing nations
- ☐ **Green Climate Fund (GCF):** estd. – 2010 (COP 16)
 - ☐ Funds under it – **Least Developed Countries Fund (LDCF)** and **Special Climate Change Fund (SCCF)**
- ☐ **Long-Term Climate Finance:**
 - ☐ **Cancun Agreements (2010):** Mobilize and provide scaled-up funds in short and long term
 - ☐ **Paris Agreement (2015):** Developed nations agreed to establish new collective goal of at least \$100 billion/year by 2025
- ☐ **Loss and Damage Fund (2023) (COP27 & COP28):** Financial assistance to nations most vulnerable and impacted by effects of climate change

Climate Investment Funds (CIFs) under World Bank

- ☐ Clean Technology Fund
- ☐ Strategic Climate Fund

INDIA'S INITIATIVES REGARDING CLIMATE FINANCE

Fund	Objective
■ National Adaptation Fund for Climate Change (NAFCC) (2015)	■ For vulnerable Indian states
■ National Clean Energy Fund (2010–11)	■ Advancing clean energy (started with initial carbon tax on industrial coal use)
■ National Adaptation Fund (2014)	■ Bridging gap between required and available funds
■ Intended Nationally Determined Contributions (INDCs) (2015)	■ Nationally binding targets adopted under UNFCCC
■ Climate Change Finance Unit (2011)	■ Leads on global climate finance issues

Challenges to Climate Finance

- ☐ Gap between national needs and climate finance under NDCs
- ☐ Least Developed Countries receive much less approved funding in per-capita terms from the multilateral climate funds
- ☐ Slow rate of approvals
- ☐ Failure in securing viability-gap funding



What is the Impact of the US Withdrawal From the WHO?

- **Reasons For US Withdrawal:** Trump cited the WHO's mishandling of [Covid-19 pandemic](#), failure to implement urgent reforms, and susceptibility to political influence, especially from **China**, as reasons for the US withdrawal.
 - Expressed concern over the **US's disproportionate financial contributions compared to China**, despite China's larger population.
 - The **US contributed about 20% of the WHO's total funding**, both in assessed and voluntary contributions.
- **Impact:**
 - **Impact on the WHO:** US withdrawal creates a **funding vacuum** that could **disrupt global health programs**, including [polio eradication](#) and [pandemic preparedness](#).
 - The executive order mandated the recall of all US personnel and contractors, resulting in a **loss of expertise in key areas like vaccine research, disease control, and health policy**, weakening WHO's advisory role globally.

- **Domestic Implications for the US:** Withdrawing from the WHO could limit **Americans' access to global health intelligence** and diminish the US's influence on international health policies.
- **Impact on India:** The US exit from the WHO could **slow down India's health programs**, including efforts on diseases like [Human Immunodeficiency Virus \(HIV\)](#) and [tuberculosis](#).
 - With WHO's loss of funding and expertise, **India and other Global South** countries are expected to play a larger role in global health, with **India emerging as a leader in advocating for greater collaboration among developing nations**.

What is the Impact of the US Rejection of the Global Corporate Minimum Tax Deal?

- **GCMT Deal:** The deal, negotiated under the framework of the [Organization for Economic Cooperation and Development \(OECD\)](#), established a **global minimum tax (GMT) rate** under the [GloBE Model Rules](#) for multinational companies.
 - It ensures they pay a **minimum tax in each jurisdiction**, reducing profit shifting and **ending the "race to the bottom"** in corporate tax rates, aimed at preventing countries from **slashing tax rates to attract business**, which often results in minimal tax revenues.
 - The deal, with its two-pillar solution, aims to **curb tax avoidance, tax havens and stabilize global tax competition**.
 - **Pillar 1:** This component focuses on **reallocating the profits of large multinational corporations to the jurisdictions** where they generate revenue.
 - **Pillar 2:** It establishes a **15% GMT rate** aimed at ensuring that companies pay a **fair share of taxes, no matter where they operate**.
- **Reasons for US Rejection:** President Trump argued that the GMT rate of 15% **infringed on US sovereignty and competitiveness**, claiming it would harm American businesses with **higher taxes than the US system**.
 - Under the 2017 Tax Cuts and Jobs Act, the US had a **10% global minimum tax**.
- **Impact:**
 - **Impact on Global Consensus:** The US withdrawal from the agreement could set back international efforts to reach a consensus on global tax rules.
 - **Impact on India:** Experts suggest that **India's tax policies and collection practices** will not be significantly impacted by the **US's exit from the global tax deal**.
 - India has adopted a **"wait and watch" approach**, refraining from introducing significant domestic legislation related to the **GloBE rules**.
 - As a result, the country's **tax landscape remains unaffected for the time being**.

How Can India Navigate the Evolving US Policies?

- **Advocacy and Diplomacy:** India should actively use **diplomatic channels to safeguard** the rights of its **immigrant community**, ensuring that Indians families are protected under evolving US policies.
 - Strengthening bilateral ties with the US can help **advocate for policies that are more inclusive and supportive of Indian immigrants**, ensuring a fairer and more welcoming environment.
 - Strengthening the [Quad alliance](#) with the US, Japan, and Australia can **counterbalance China's influence while enhancing regional stability**.
- **Accelerating Climate Action:** India should accelerate its renewable energy targets under the [National Solar Mission](#) and [National Wind-Solar Hybrid Policy, 2018](#) to demonstrate climate leadership.
 - Collaborating with the [European Union](#), Japan, and other Paris Agreement signatories can help secure alternative funding for green projects to drive renewable energy growth.
- **Enhanced Role in Global Health:** India can leverage its **pharmaceutical and healthcare expertise**, as demonstrated during the [Covid-19 vaccine diplomacy](#), to fill gaps created by

reduced US participation in the WHO.

- By pushing for more **Indian professionals to fill key roles at the WHO**, India can enhance its **leadership in global health governance** and strengthen its position in **shaping international health policies**.
- **Navigating Multilateral Platforms:** Partnering with countries affected by US policy shifts, such as the **EU and BRICS members**, can build coalitions for collective action.

Read more: [India-US Relations](#)

Drishti Mains Question:

US policy shifts have significant implications for global governance and India's interests." Critically examine the impact and suggest how India can strategically respond.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Mains

Q. 'What introduces friction into the ties between India and the United States is that Washington is still unable to find for India a position in its global strategy, which would satisfy India's National self-esteem and ambitions'. Explain with suitable examples. **(2019)**

Strengthening Accessibility Measures in India

For Prelims: [Rights of Persons with Disabilities Act, of 2016](#), [Accessible India Campaign](#), [Supreme Court of India](#)

For Mains: Significance in promoting inclusivity and equal rights for PWDs, Government Policies & Interventions

Source: [TH](#)

Why in News?

The [Supreme Court of India](#) in ***Rajive Raturi v. Union of India Case, 2024***, held that **Rule 15** of the [Rights of Persons with Disabilities \(RPwD\) Rules, 2017](#), is **inconsistent/ violative** with the [Rights of Persons with Disabilities Act, 2016](#).

- The Court observed that while the Act mandates the government to ensure accessibility, **rule 15 adopts a discretionary approach**, creating a **conflict with the statutory provisions**.

Why SC Invalidated Rule 15 of RPwD Rules, 2017?

- **Rule 15 of the RPwD Rules, 2017:** Rule 15 of the [RPwD Rules, 2017](#), established a **framework for accessibility guidelines** across **government departments**, granting **statutory authority** to **guidelines issued by ministries**.
- **SC's Observation:**

- **Discretionary Nature:** The [Supreme Court](#) held that **Rule 15 contradicted the mandatory provisions of the RPwD Act** (Sections 40, 44, 45, 46, and 89) as it allowed ministries to **create accessibility guidelines without a binding obligation**.
- **Compliance and Social Audits:** The RPwD Act requires **regular social audits** to ensure that government schemes do not adversely affect persons with disabilities.
 - However, due to a **lack of standardized guidelines under the RPwD Rules**, there has been inconsistency in how these audits are conducted.
- **Accessibility Vs Reasonable accommodation:** The SC ruling differentiated between **accessibility**, which ensures universal design, and **reasonable accommodation**, which addresses specific needs.
 - Both are crucial for achieving substantive equality under constitutional principles.
- **Need for New Guidelines:** The **SC directed the government** to create new mandatory accessibility guidelines within 3 months, focusing on **4 principles: universal design for all, comprehensive inclusion of various disabilities, integration of assistive technologies** like screen readers and accessible digital platforms, and **ongoing consultation with persons with disabilities**.

What is the Rights of Persons with Disabilities Act, 2016 (RPwD Act)?

- **About:**
 - The **Rights of Persons with Disabilities (RPwD) Act, 2016** is a law that protects people with disabilities from discrimination and promotes their equal rights and opportunities.
 - The **Act** was enacted to give effect to the [United Nations Convention on the Rights of Persons with Disabilities \(UNCRPD\)](#) ratified by India in 2007.
 - The **Rights of Persons with Disabilities Rules** were formulated to operationalize and provide procedural clarity for the implementation of the **RPwD Act, 2016**.
- **Differently-Abled in India:** As per the **Census 2011**, approximately **26.8 million** individuals (**2.21%** of India's population) live with disabilities.
- **Definition of Disability:** The Act **redefined disability** as an **evolving and dynamic concept** and **expanded the recognized categories** of disability from **7 to 21**, allowing the Central Government to add more.
- **Rights and Entitlements:**
 - **Government Responsibility:** Appropriate governments are obligated to take effective measures to ensure that persons with disabilities (PwDs) enjoy their rights on an equal basis with others.
 - **Special Benefits:** Provisions are made for individuals with benchmark disabilities and high support needs, including:
 - **Free Education:** Children aged 6 to 18 years with benchmark disabilities are entitled to **free education**.
 - **Reservation:** Persons with **benchmark disabilities** are entitled to **5% reservation in government and government-aided higher education** and **4% reservation in government jobs**.
 - Individuals with "**benchmark disabilities**" are identified as those who have been certified to possess **at least 40% of the specified disabilities**.
 - **Accessibility:** A strong emphasis is placed on ensuring accessibility in public buildings, including government and private establishments, within a prescribed timeframe.
 - **Regulatory and Grievance Redressal Mechanisms:** Strengthening the Offices of the **Chief Commissioner for Persons with Disabilities** and **State Commissioners for Disabilities** to function as regulatory authorities and grievance redressal agencies.
 - These bodies are tasked with monitoring the implementation of the Act.

Note:

- The **21 disabilities**, in RPWD Act, 2016, include Blindness, Low-vision, [Leprosy Cured Persons](#), Hearing Impairment (deaf and hard of hearing), Locomotor Disability, Dwarfism, Intellectual Disability, Mental Illness, Autism Spectrum Disorder, [Cerebral Palsy](#), Muscular Dystrophy, Chronic Neurological Conditions, Specific Learning Disabilities (Dyslexia), Multiple Sclerosis, Speech and

Language Disability, Thalassemia, Hemophilia, [Sickle Cell Disease](#), Multiple Disabilities including deaf-blindness, [Acid Attack victim](#), and [Parkinson's disease](#).

What are the Other Initiatives Related to the Empowerment of the Disabled?

- [Unique Disability Identification Portal](#).
- [DeenDayal Disabled Rehabilitation Scheme](#).
- [Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances](#).
- [National Fellowship for Students with Disabilities](#).
- [Divya Kala Mela 2023](#).
- [Accessible India Campaign](#)

What are the Challenges Faced by the Person with Disabilities?

- **Inaccessible Infrastructure:** Lack of infrastructure in accessing public establishments and services.
 - According to a 2018 report by the [Department of Empowerment of Persons with Disabilities](#), only **3%** of buildings in India were found to be fully accessible.
- **Educational Exclusion:** PwD faces a lack of inclusive schools, trained teachers, and assistive technologies that hinder quality education.
 - As per [Census 2011](#), the **literacy rate of the total PwD population is about 55%** (male- 62%, female-45%) and only about 5% of PwDs are graduates and above.
- **Employment Challenges:** PwDs face workplace discrimination, inadequate accommodations, and societal prejudices, creating a **"glass ceiling."**
 - Though **1.3 crore PwDs are employable**, only **34 lakh are employed**.
- **Inadequate Political Representation:** PwDs are **underrepresented** across all three tiers of legislature-**Lok Sabha, state legislatures, and local bodies**, limiting their political participation and representation.

Way Forward

- **Accessible Infrastructure:** Improve **disability-friendly public infrastructure**, including ramps, tactile paths, public transport, and adaptive technologies.
 - Implement accessibility standards for **schools, hospitals, and digital services**.
- **Enhancing Prosthetics R&D:** Increase funding for prosthetics research and establish national and regional centers to **innovate in artificial limbs**, improving the quality of life for PwDs.
- **Identification and Verification Systems:** Implement a **centralized digital database** with **biometric authentication and regular audits** to ensure accurate PwD identification and certification.
- **Gig Economy Inclusion:** Create **dedicated platforms within gig economy apps** to provide flexible, **skill-matched job opportunities** for PwDs.
 - Incorporate **sign language support and AI-assisted task** matching to enhance accessibility.
- **Political Reservation:** There should be a **provision for reservation system in the legislature like state legislatures, and local bodies** for PwDs.

Drishhti Mains Question:

Discuss the role of the Rights of Persons with Disabilities Act, of 2016 in ensuring accessibility and the challenges in its implementation.

Prelims

Q. India is home to lakhs of persons with disabilities. What are the benefits available to them under the law? (2011)

1. Free schooling till the age of 18 years in government run schools.
2. Preferential allotment of land for setting up business.
3. Ramps in public buildings.

Which of the statements given above is/are correct?

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

Ans: (d)

Mains

Q. Does the Rights of Persons with Disabilities Act, 2016 ensure effective mechanism for empowerment and inclusion of the intended beneficiaries in the society? Discuss. (2017)

Statehood Day for Manipur, Tripura, and Meghalaya

Source: [PIB](#)

Why in News?

The Prime Minister of India greeted [Manipur, Tripura, and Meghalaya](#) on their [Statehood Day \(21st January\)](#).

What is the Historical Context Behind the Statehood Day?

- **Merger of Manipur:** Before 1947, Manipur was an independent princely state. The **Maharaja, Bodhachandra Singh**, signed the '[Instrument of Accession](#)' with the Indian government, agreeing to [merge with India](#) while ensuring internal autonomy.
 - Manipur held its **first election based on universal adult franchise in 1948**, becoming a **constitutional monarchy**.
 - In 1949, under pressure from the Indian government, the **Maharaja signed the Merger Agreement** without consulting Manipur's elected assembly.
 - Following the merger, Manipur's State Assembly was dissolved, and it became a **Part C State, administered by the [President of India](#)** through a **Chief Commissioner or Lieutenant Governor**.
 - On 1st November 1, 1956, Manipur became a **Union Territory under the Union Territorial Council Act, 1956**. Later on 21st January 1972, Manipur was granted full statehood through the **North-Eastern Areas (Re-organization) Act, 1971 (NEA-(R) Act)**.
- **Merger of Tripura:** Tripura, a princely state, merged with India in 1949, facilitated by **Queen Kanchan Prabha Devi**, who assumed regency after **King Bir Bikram's** death.
 - After merging with India, **Tripura became a Part 'C' State**. In 1956, it became a **Union Territory**, and later on 21st January 1972, Tripura became a full-fledged State under

the **NEA-(R) Act, 1971**.

- **Meghalaya:** Meghalaya's statehood journey began with demands for **greater autonomy from Assam**, particularly from the **Khasi, Jaintia, and Garo Hills**, who sought a **separate state to preserve indigenous cultures**, especially after Assam's attempt to impose **Assamese as the medium of instruction**.
 - In **1969**, the **Assam Reorganization (Meghalaya) Act** established **Meghalaya an autonomous state within Assam**.
 - Following this, the **NEA (R) Act, 1971** granted **full statehood to Meghalaya**, making it the **21st state of India**, with **Shillong as its capital**.

North-Eastern Areas (Re-organization) Act, 1971

- **Manipur and Tripura:** Upgraded from Union Territories to full-fledged states.
- **Meghalaya:** Formed as a state from autonomous regions of Assam.
- **Mizoram and Arunachal Pradesh:** Established as Union Territories.
- **Representation in the Legislature:** Allocated seats for the new North-Eastern states in the **Council of States** (Rajya Sabha) and the **House of the People** (Lok Sabha).
 - Ensured proper representation of **Scheduled Castes** and **Scheduled Tribes** in the **legislative assemblies**.
- **Judicial Reorganization:** Established the **Gauhati High Court** as the common High Court for the States of Assam, Nagaland, Meghalaya, Manipur, and Tripura.



REORGANISATION OF STATES IN INDIA

The States Reorganisation Commission set up in 1956 suggested the formation of 14 States and 6 UTs. At present, India comprises 28 states and 8 UTs.

1950

States classified into 4 categories

- Part A, B, C and D (1st Schedule)

- **Part A** - Ruled by **Governor** with **elected State Legislature**
 - ◇ **Andhra Pradesh** (first state on linguistic lines) - 1953
- **Part B** - Former **Princely States**
- **Part C** - Former **Chief Commissioners' Provinces**, some **Princely states**
- **Part D** - Andaman and Nicobar Islands

7th Constitutional Amendment (1956) -

- Distinction between Part-A and Part-B states done away
- Part-C states were abolished
- Made total no. of (erstwhile) states - 14 and UTs - 6

Reorganisation/Creation of States/UTs after 1956

States Carved Out of Other States

- ↳ **Gujarat and Maharashtra** from Bombay (Bombay Reorganisation Act, 1960)
- ↳ **Nagaland** from Assam (State of Nagaland Act, 1962)
- ↳ **Haryana** from Punjab (Punjab Reorganisation Act, 1966)
- ↳ **Meghalaya** from Assam (North-Eastern Areas (Reorganisation) Act, 1971)
- ↳ **Chhattisgarh** from MP (Madhya Pradesh Reorganisation Act, 2000)
- ↳ **Uttarakhand** from UP (Uttar Pradesh Reorganisation Act, 2000)
- ↳ **Jharkhand** from Bihar (Bihar Reorganisation Act, 2000)
- ↳ **Telangana** from Andhra Pradesh (Andhra Pradesh Reorganisation Act, 2014)

States Formed by Granting Statehood

- ↳ **Himachal Pradesh** (State of Himachal Pradesh Act, 1970)
- ↳ **Manipur and Tripura** (North-Eastern Areas (Reorganisation) Act, 1971)
- ↳ **Sikkim** (36th Constitutional Amendment (1975))
- ↳ **Mizoram** (State of Mizoram Act, 1986)
- ↳ **Arunachal Pradesh** (State of Arunachal Pradesh Act, 1986)
- ↳ **Goa** (Goa, Daman, and Diu Reorganisation Act, 1987)

Formation of UTs

- ↳ Andaman and Nicobar Islands, Delhi, Lakshadweep - 1956
- ↳ Puducherry - 1962
- ↳ Chandigarh - 1966
- ↳ J&K and Ladakh - 2019
- ↳ Dadra & Nagar Haveli and Daman & Diu - 2020



Drishhti IAS

Rare Melanistic Tiger and Lodha Tribe

[Source: TOI](#)

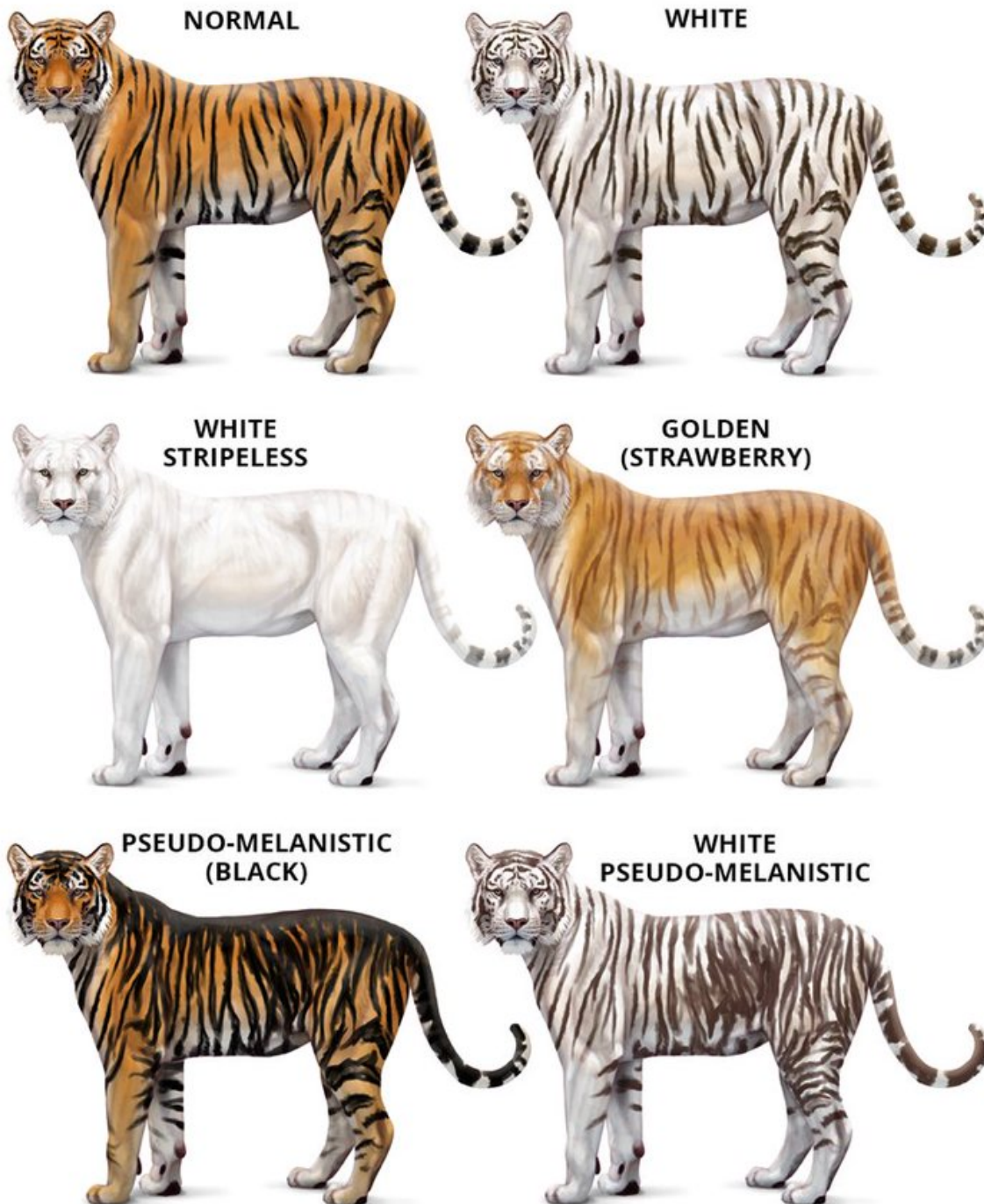
Why in News?

The **Odisha Forest Department** has arrested 4 poachers belonging to the **Lodha tribe** for the **illegal hunting** of a **rare melanistic tiger** in [Similipal Tiger Reserve \(STR\)](#), Odisha.

- The sub-adult melanistic tiger was part of a **rare group**, with only an estimated 20 such tigers remaining in the world.

What are the Key Facts Regarding Melanistic Tiger?

- **Melanism and Melanistic Tiger:** [Melanism](#) is a genetic condition where **animals produce more melanin**, leading to **darker or black skin, fur, or feathers**.
 - **Melanin** is a natural substance that gives color to the skin, hair, and eyes.
 - The [Royal Bengal Tigers](#) of **STR** have a unique genetic trait with **higher melanin levels**, resulting in a **pattern of black and yellow stripes**, making them **pseudo-melanistic**.
 - The **All Odisha Tiger Estimation (AOTE) 2023-24** report estimates that **STR hosts 27 tigers**, including **13 adult pseudo-melanistic tigers**, a unique trait **not found in any other wild habitat**.
- **Other Color Variations in Tigers:**
 - **Orange with Black or Brown Stripes:** This is the **most common and well-known coloration**, seen in tigers like the **Royal Bengal Tiger**.
 - Each tiger has a **unique stripe pattern** that helps with camouflage in their natural habitat.
 - **White Tigers:** White tigers are **not a separate subspecies**. Their **white fur is due to a genetic mutation** called **leucism**, which **reduces pigmentation**, resulting in pale-colored skin, fur, or scales.
 - **Golden Tigers:** They are also **not considered a distinct subspecies**. Their golden coloration is caused by a **recessive gene** called ["wideband,"](#) which **reduces melanin production** during hair growth.
 - This variation has been observed in [Kaziranga National Park](#).



Similipal Tiger Reserve

- **Location:** Similipal is situated in the **Deccan Peninsula Biogeographic Zone**.
- **Vegetation:** Predominantly **moist mixed deciduous forest with tropical semi-evergreen patches** and sporadic dry deciduous forests and grasslands.
- **Floral Richness:** Holds 7% of India's flowering plants and 8% of its orchid species.
- **Faunal Diversity:** Major species other than tigers include **sambar, chital, barking deer, gaur, and mouse deer, leopards, fishing cat** etc.
 - Management efforts have revived [mugger crocodile](#) populations along rivers **Khairi** and **Deo**.
- It has also been designated as a [Global Network of Biospheres](#) site since 2009.

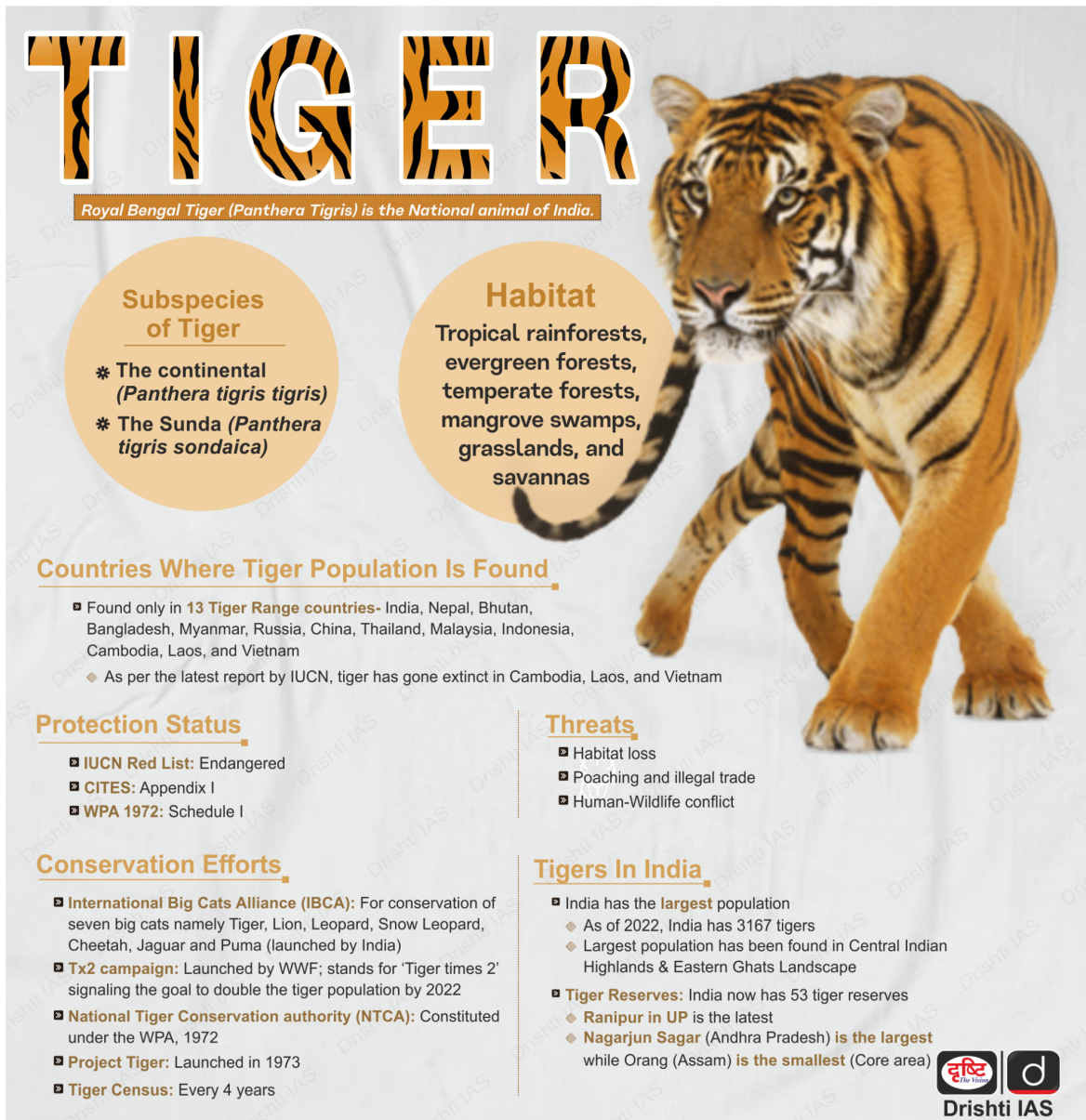
Lodha Tribe

- It is a [Particularly Vulnerable Tribal Group \(PVTG\)](#) living in **Mayurbhanj and Cuttack**,

Odisha with a population of **around 3000**.

- A **PVTG** is a sub-category within **Scheduled Tribes (ST)** identified as being **more vulnerable than the general ST population**.
- Classifying a ST group into PVTG list helps in **focus on improving their living conditions and providing targeted support**.
 - There are **75 PVTGs in India**, the **maximum 13 are in Odisha**, followed by 12 in Andhra Pradesh.

- **Language:** Kudumali, Odia.
- **Origin:** Classified under the **Criminal Tribes Act** by the British, derived their name from **Lubdhaka (trapper)**.
- **Occupation:** Traditionally **hunter-gatherers and tussar cocoon collectors**; now engaged in **agriculture, labor, rope making, and small businesses**.
- **Diet:** Fish and tortoise.



The infographic features a large tiger illustration on the right side. The word 'TIGER' is written in large, stylized letters with a tiger stripe pattern. Below it, a caption states: 'Royal Bengal Tiger (Panthera Tigris) is the National animal of India.'

Subspecies of Tiger

- * The continental (*Panthera tigris tigris*)
- * The Sunda (*Panthera tigris sondaica*)

Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas

Countries Where Tiger Population Is Found

- Found only in **13 Tiger Range countries**- India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
- As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

Protection Status

- IUCN Red List: Endangered
- CITES: Appendix I
- WPA 1972: Schedule I

Threats

- Habitat loss
- Poaching and illegal trade
- Human-Wildlife conflict

Conservation Efforts

- International Big Cats Alliance (IBCA)**: For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- Tx2 campaign**: Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- National Tiger Conservation authority (NTCA)**: Constituted under the WPA, 1972
- Project Tiger**: Launched in 1973
- Tiger Census**: Every 4 years

Tigers In India

- India has the **largest** population
 - As of 2022, India has 3167 tigers
 - Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- Tiger Reserves**: India now has 53 tiger reserves
 - Ranipur in UP** is the latest
 - Nagarjun Sagar (Andhra Pradesh)** is the **largest** while Orang (Assam) is the **smallest** (Core area)



UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. Consider the following pairs: (2013)

National Park - River flowing through Park

1. Corbett National Park : Ganga
2. Kaziranga National Park : Manas
3. Silent Valley National Park : Kaveri

Which of the above pairs is/are correctly matched?

- (a) 1 and 2
- (b) 3 only
- (c) 1 and 3
- (d) None

Ans: (d)

Q2. Among the following Tiger Reserves, which one has the largest area under “Critical Tiger Habitat”? (2020)

- (a) Corbett
- (b) Ranthambore
- (c) Nagarjunasagar-Srisaillam
- (d) Sundarbans

Ans: C

Indian Grey Wolf

Source: TH

Bankapur Wolf Sanctuary, Karnataka’s **first wolf sanctuary** witnessed the birth of eight pups of an **Indian grey wolf**.

- **About:** Indian grey wolf (*Canis lupus pallipes*) is a subspecies of grey wolf found across Southwest Asia and the Indian subcontinent.
 - It lives in **smaller packs and is less vocal** compared to other wolf subspecies.
 - It is **primarily nocturnal**, hunting from dusk to dawn.
- **Habitat:** It is an apex predator in India’s **scrublands, grasslands** and **semi-arid agro-ecosystems**. Thrives in regions with warmer temperatures.
- **Conservation Status:**
 - **IUCN:** Endangered (population in India: **2,000 - 3,000** individuals).
 - **CITES:** Appendix I.
 - **Wildlife Protection Act, 1972:** Schedule I.
- **Bankapur Wolf Sanctuary:** It spans **332 hectares** and features **scrub forests, hills, and natural caves** suitable for wolf habitation.
 - It is India’s **second protected area** dedicated solely to wolves, after the **Mahuadanr Wolf Sanctuary** (established in **1976**, now in Jharkhand).
 - Home to a variety of species, including **leopards, peacocks, blackbucks, foxes, and hares**.

WOLVES OF THE WORLD



ARCTIC WOLF
Canis lupus arctos



RED WOLF
Canis rufus

TIMBER WOLF
Canis lupus



ETHIOPIA WOLF
Canis simensis



INDIAN WOLF
Canis lupus pallipes



MEXICAN WOLF
Canis lupus baileyi



TUNDRA WOLF
Canis lupus albus

IBERIAN WOLF
Canis lupus signatus



Halal Certification Controversy in Non-Meat Products

[Source: LM](#)

The **Solicitor General**, in response to a petition in the Supreme Court, **opposed** the practice of **halal certification for non-meat products** like **cement, iron bars, wheat flour (atta), and gram flour (besan)**.

- The halal certification system is alleged to **harm businesses not adhering to halal standards**, with claims of fostering **unfair competition**.
 - Companies accused of issuing forged halal certificates **exploited religious sentiments** to boost sales, fostering **social animosity and violating public trust**.
- **About Halal:** Halal is an **Arabic word** that loosely translates to **permissible** in English.
 - The [FAO](#) defines Halal Food as that which is **permitted under Islamic Law**.
 - A halal certification is a guarantee that the **food is prepared, adhering to Islamic law, and is unadulterated**.
 - India **lacks a national halal certification system**, though efforts to streamline certification for meat products through the **i-CAS (Indian Conformity Assessment Scheme) scheme** are underway.
 - i-CAS streamlines **Halal certification** for meat and meat products.
 - **Meat and its products** can be **exported as 'halal certified'** only if produced, processed, and packaged in a facility with a **valid certificate** from an accredited body, as per [DGFT guidelines](#).
- **About Solicitor General:** SG is the **2nd senior most law officer** of the government after the [Attorney General](#).

Read More: [CLEA - Commonwealth Attorneys and Solicitors General Conference 2024](#)

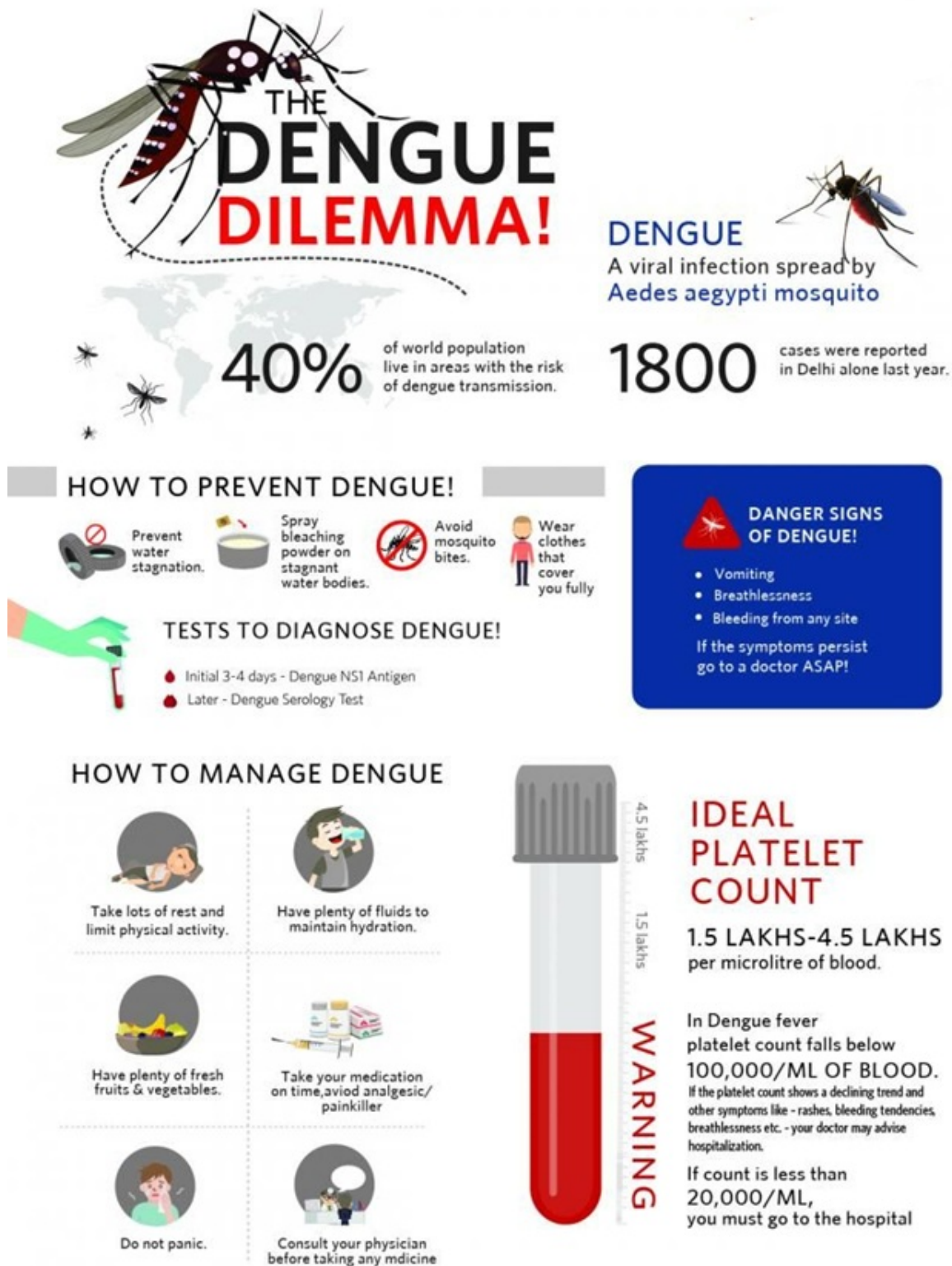
Dengue Early Warning System

[Source: IE](#)

A study led by **Indian Institute of Tropical Meteorology (IITM), Pune** explores how [climate change](#) influences [dengue outbreaks](#), and proposes an **early warning system** to predict potential outbreaks.

- **Climate Impact on Dengue:** The study reveals that **fluctuating rainfall, and humidity levels between 60-78%** during monsoons increase **dengue cases**, with heavy rainfall above **150 mm** (flushing out mosquito eggs and larvae) **reducing mosquito prevalence**.
 - **Rising temperatures** could increase **dengue-related deaths in India by up to 40% by 2050**.
- **Dengue Early Warning System:** The system predicts dengue outbreaks over two months in advance by analyzing climate factors like temperature, rainfall, and humidity.
 - [Machine Learning and Artificial Intelligence](#) models enhance prediction accuracy, giving authorities critical time for proactive measures.
- **Dengue:** It is a mosquito-borne disease caused by the **dengue virus (Genus Flavivirus)**, primarily transmitted by **Aedes aegypti mosquitoes**.
 - It has four serotypes (DEN-1, DEN-2, DEN-3, DEN-4). **Symptoms include** high fever, severe headaches, pain behind the eyes, and intense joint and muscle pain.

- **Diagnosis is through blood tests**, but there is no specific treatment for dengue.



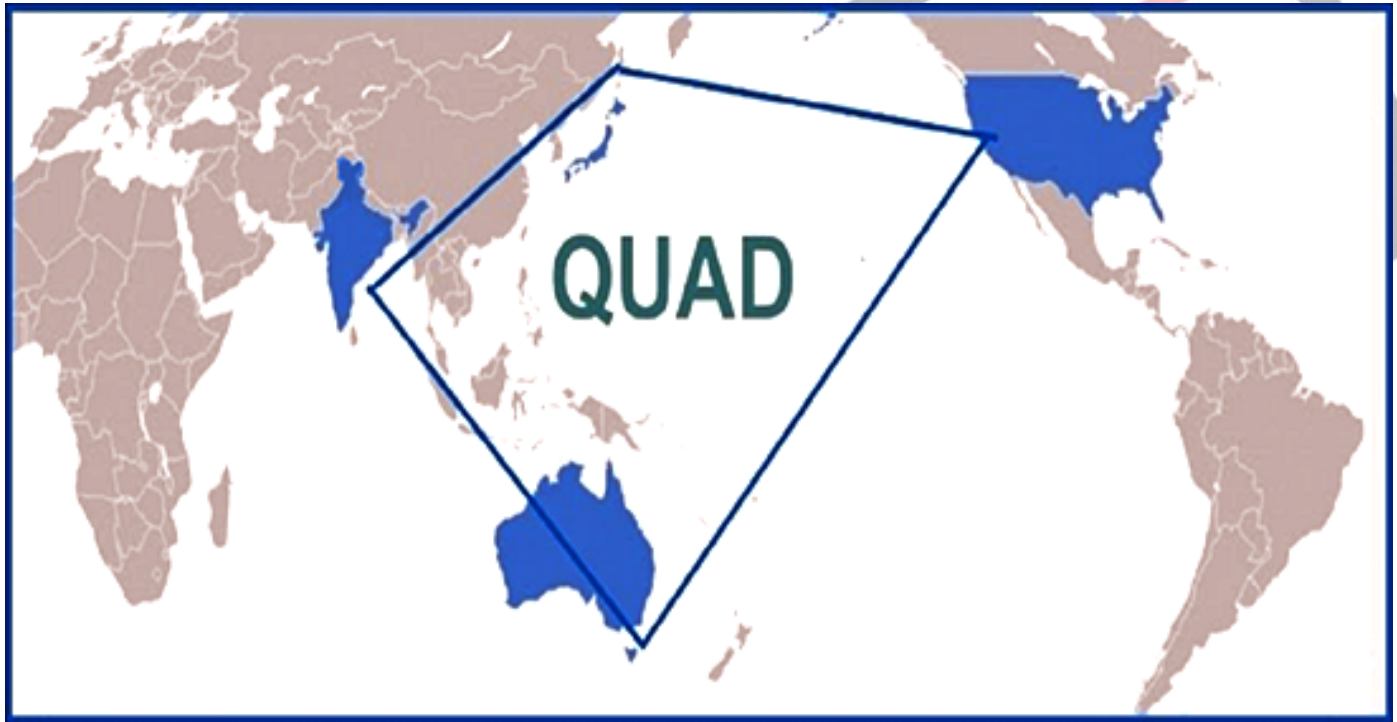
Read more: [Dengue](#)

Quad's Commitment to an Open Indo-Pacific

[Source: TOI](#)

After **Donald Trump's swearing-in**, [Quad](#) foreign ministers reaffirmed their commitment to an **open and free Indo-Pacific**, opposing **unilateral actions** to alter the status quo through **force or coercion**.

- The ministers reaffirmed their commitment to **international law, democratic values, and territorial integrity** in the Indo-Pacific and **opposed China's territorial claims** in the [South China Sea](#) and [East China Sea](#).
- India will host the **7th Quad Leaders Summit 2025**, further cementing its leadership role in the **strategic grouping**.
- **About Quad:** Quad is a diplomatic partnership between **Australia, India, Japan, and the US**, focused on **stability, prosperity, and openness** in the Indo-Pacific region.
 - The Quad originated after the [2004 Indian Ocean tsunami](#), when the four nations provided **humanitarian aid**.
 - After an **officer-level meeting in 2007**, official-level meetings resumed in **2017**, leading to the first **Quad meeting at the Foreign Minister's level in 2019**.
 - **Quad-plus** meetings have involved countries like **South Korea, New Zealand, and Vietnam**, suggesting further acceptance of Quad.



Read More: [6th Quad Summit 2024](#)