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INDIA-EUROPEAN UNION FREE TRADE AGREEMENT

Recently, the India-European Union Free Trade Agreement (India-EU FTA) was concluded at the **16th India-EU Summit**. The conclusion of this FTA positions India and the European Union as trusted partners committed to ***open markets, predictability, and inclusive growth***.

Key Statistics

1. The European Union is India's one of the largest trading partners. In 2024-25, India's bilateral trade in goods with the EU stood at INR **11.5 Lakh Crore (USD 136.54 billion)** with exports worth **INR 6.4 Lakh Crore (USD 75.85 billion)** and imports amounting to INR **5.1 Lakh Crore (USD 60.68 billion)**.
2. India-EU trade in services reached **INR 7.2 Lakh Crore (USD 83.10 billion)** in 2024.
3. India and EU **are 4th and 2nd largest economies**, comprising 25% of Global GDP and account for one third of global trade.

What is the India-EU FTA?

1. The India-EU FTA is a comprehensive trade and investment pact designed to liberalize trade in goods and services, enhance market access, streamline customs, and deepen economic cooperation between India and the EU's 27 member states.
2. It is often described as the "***mother of all deals***" in recent Indian trade diplomacy due to its scale and ambition.

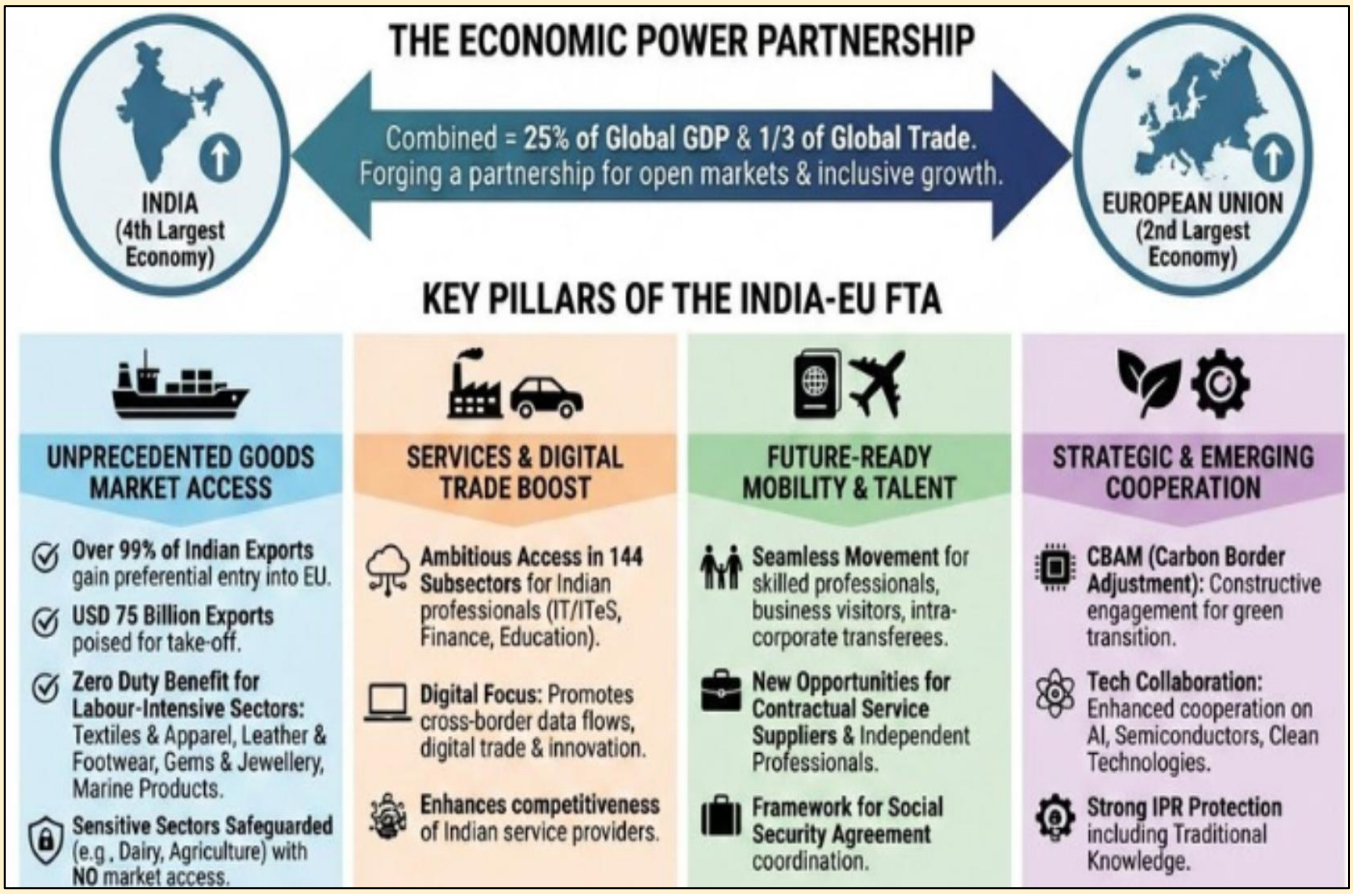
Why is this FTA historic?

1. **Two-decade effort completed:** Talks originally began in 2007, stalled in 2013, and were revived in 2022 before concluding in January 2026.
2. **Massive economic coverage:** Encompasses goods, services, investment, customs, rules of origin, digital trade, and SMEs.
3. **Covers about a quarter of global GDP** and opens trade between two large markets representing ~2 billion people.

Key provisions & benefits

1. **India Secures Strategic Access to European Markets:** India has gained preferential access to the European markets across 97% of tariff lines, covering 99.5% of trade value
    1. **EU gains**: Up to €4 billion per year in tariff savings on EU exports like **machinery, optical, medical equipment.**
    2. **India gains:** Preferential access for labour-intensive sectors such as textiles, leather, marine products, gems & jewellery, making ~99% of Indian exports duty-free.
2. **India's offer to the European Union:** Overall, India is offering 92.1% of its tariff lines which covers 97.5% of the EU exports, in particular:
    1. 49.6% of tariff lines will have immediate duty elimination
    2. 39.5% of tariffs lines are subject to phased elimination over 5, 7, and 10 years
    3. 3% of products are under phased tariff reductions and few products are subject to TRQs for Apples, Pears, Peaches, Kiwi Fruit.
3. **Services-the key growth driver of trade in future:** Under the FTA, broader and deeper commitments have been secured from the EU across 144 services subsectors, including IT/ITeS, professional services, education, and other business services.

- **Product Specific Rules aligned with existing Supply Chains:** Balance **origin compliance** with global input flexibility, enable **self-certification**, **lower export compliance costs**, support MSMEs through quotas, and incentivise Make in India via phased sectoral transitions.
- **Driving Agricultural Growth and Farmer Livelihoods, with adequate Safeguards:** Preferential Market Access for agricultural products like ***tea, coffee, spices, grapes, gherkins and cucumbers, dried onion, fresh vegetables and fruits*** as well as for processed food products will make them more competitive in the EU.



Why is the EU's regulatory regime India's biggest challenge?

1. **Expanding standards:** EU sustainability, labour, environmental and due-diligence rules, including **EUDR** and **corporate sustainability norms**, significantly increase compliance costs for Indian exporters.
2. **Non-tariff barriers:** Regulations now operate as market-access barriers through traceability and disclosure requirements rather than product safety alone.
3. **MSME stress:** Smaller exporters face higher relative costs in documentation, certification and traceability, limiting gains from tariff liberalisation.

How does CBAM shape the India-EU trade equation?

1. **Carbon cost exposure**: CBAM imposes a carbon price on imports of steel, aluminium, cement, fertilisers, and electricity.
2. **Competitiveness risk**: Indian producers face higher compliance costs due to coal-based energy.
3. **FTA as a buffer**: The agreement offers India leverage to negotiate flexibility, transition timelines, and mutual recognition mechanisms.

What is the Most-Favoured-Nation (MFN)-Forward Clause on Climate-Linked Trade Measures?
MFN-forward clause: Under this any future relaxations, exemptions, transition periods, or flexibilities that the EU may grant to other trading partners on climate-linked trade measures, including instruments like CBAM, would automatically extend to India.

Why this matters

1. **No immediate CBAM relief**: The clause does not dilute or suspend CBAM for India.
2. **Future-proofing mechanism**: Ensures India is not placed at a relative disadvantage if the EU later moderates CBAM implementation for others.
3. **Indirect safeguard**: Functions as the only CBAM-related protection within the FTA by preserving competitive parity, not preferential treatment.
4. **Strategic value**: Provides negotiating leverage as EU climate policies evolve under global pressure and WTO scrutiny.
5. **Conditional, not guaranteed**: The clause activates only if the EU offers concessions to another partner; it does not create an independent exemption for India.

Why did India-EU negotiations gain urgency now?

1. **US tariff uncertainty**: Accelerating US tariff threats created trade diversion risks for both India and the EU, prompting faster convergence.
2. **Geo-economic shifts**: Fragmentation of global value chains after the Ukraine war forced the EU to diversify partners.
3. **Regulatory overreach concerns**: Expanding EU regulations raised fears of market exclusion for Indian exporters.

What makes the EU a critical trade partner for India?

1. **Trade volume dominance**: The EU accounts for India's largest share of goods trade among partners.
2. **Sectoral depth**: Strong Indian exports in **engineering goods, chemicals, pharmaceuticals, textiles, and refined petroleum**.
3. **Services linkage**: High potential in IT, professional services, and skilled mobility, though sensitive in negotiations.

Risks and Limitations of the India-EU FTA

1. **Regulatory asymmetry:** EU retains greater rule-setting power in sustainability, labour, and climate standards.
2. **CBAM cost shock:** Carbon-linked charges can offset tariff gains for steel, aluminium, cement, and fertilisers.
3. **MSME exclusion risk:** Compliance-heavy norms may restrict smaller exporters' effective market access.
4. **Limited mobility gains:** Skilled movement and mutual recognition remain politically sensitive and constrained.
5. **Implementation lag:** Phased tariff reductions delay short-term export gains for some sectors.
6. **Compliance substitution:** Shift from tariff barriers to regulatory barriers reduces predictability of trade benefits.

The India-EU FTA marks a significant expansion of market access and services engagement, but its economic outcomes will be shaped as much by regulatory and climate-linked constraints as by tariff liberalisation. The agreement underscores a structural shift in global trade from tariffs to standards, requiring India to complement external trade gains with domestic regulatory preparedness and export competitiveness.

AMMONIA SPIKES IN YAMUNA RIVER

Officials explained that ammonia spikes in the Yamuna are a chronic winter issue, generally occurring between 15 and 22 times a year.

About Ammonia:

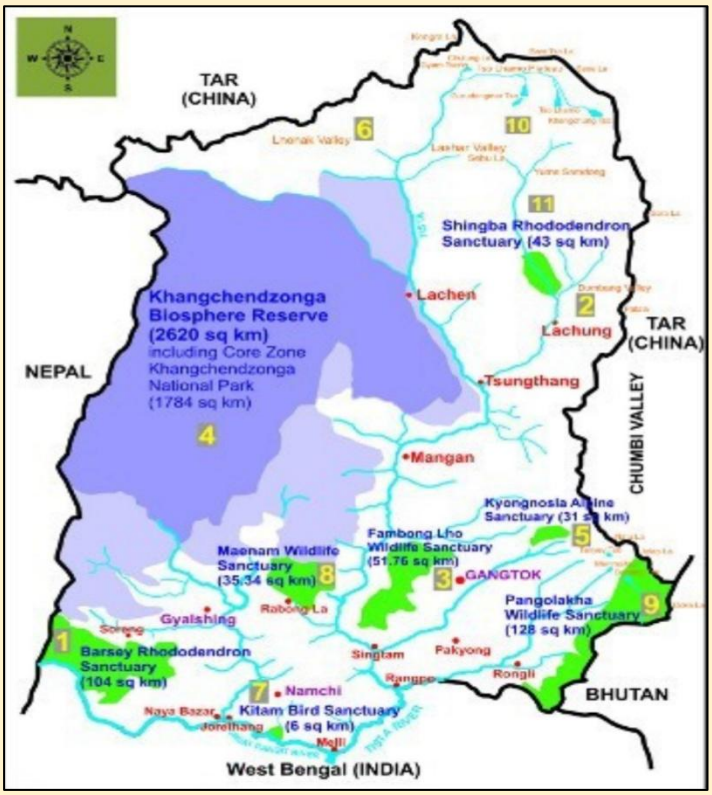
- **Composition:** It is a **colourless, pungent gas** composed of **nitrogen and hydrogen** with the formula NH3.
- **Nature:** It is the **simplest stable compound of these elements** and serves as a starting material for the production of many commercially important nitrogen compounds.
- **Solubility:** It is **highly soluble in water,** forming ammonium hydroxide, an alkaline solution.

- **Density:** It is **lighter than air.**
  - **Existence:** It exists naturally **in humans and in the environment**. In the environment, ammonia is part of the nitrogen cycle and is produced in soil from bacterial processes.
  - **Natural production:** Ammonia is also produced naturally **from decomposition of organic matter,** including plants and animals.
  - **Industrial production:** It is manufactured mainly by the **Haber–Bosch process**(from nitrogen and hydrogen).

- **Liquid ammonia:** Ammonia gas can be dissolved in water. This kind of ammonia is called liquid ammonia or aqueous ammonia. Once **exposed to open air**, liquid ammonia **quickly turns into a gas.**
    - **Toxicity:** Exposure to high levels of ammonia in air may be **irritating to a person's skin, eyes, throat, and lungs** and cause coughing and burns. To prevent the release of toxic fumes, ammonia should **not be mixed with other chemicals** (like chlorine bleach).
- **Key applications:**
    - Ammonia is a basic building block for ammonium nitrate **fertilizer**, which releases nitrogen, an essential nutrient for growing plants. About 90 percent of ammonia produced worldwide is used in fertilizer.
    - Additional uses include as a **refrigerant, stabilizer, neutralizer, and purifier** — particularly in food transport and water treatment applications.
    - It can also be used in the manufacture of **plastics, explosives, fabrics, dyes**, and pharmaceuticals.
    - It has **9 times the energy density of Li-ion batteries** and 3 times that of compressed hydrogen, making it a promising carbon-free energy carrier.
- **Types:**
    - **Grey Ammonia:** Produced from natural gas (methane); highly carbon-intensive.
    - **Blue Ammonia:** Produced from fossil fuels but coupled with Carbon Capture and Storage (CCS) to reduce emissions.
    - **Green Ammonia:** Produced using renewable energy (solar/wind) to power water electrolysis for hydrogen; 100% carbon-free.

PANGOLAKHA WILDLIFE SANCTUARY

Recently, a forest fire continued to rage inside Sikkim's Pangolakha Wildlife Sanctuary along the Indo-China border at an altitude of 13,000 feet.



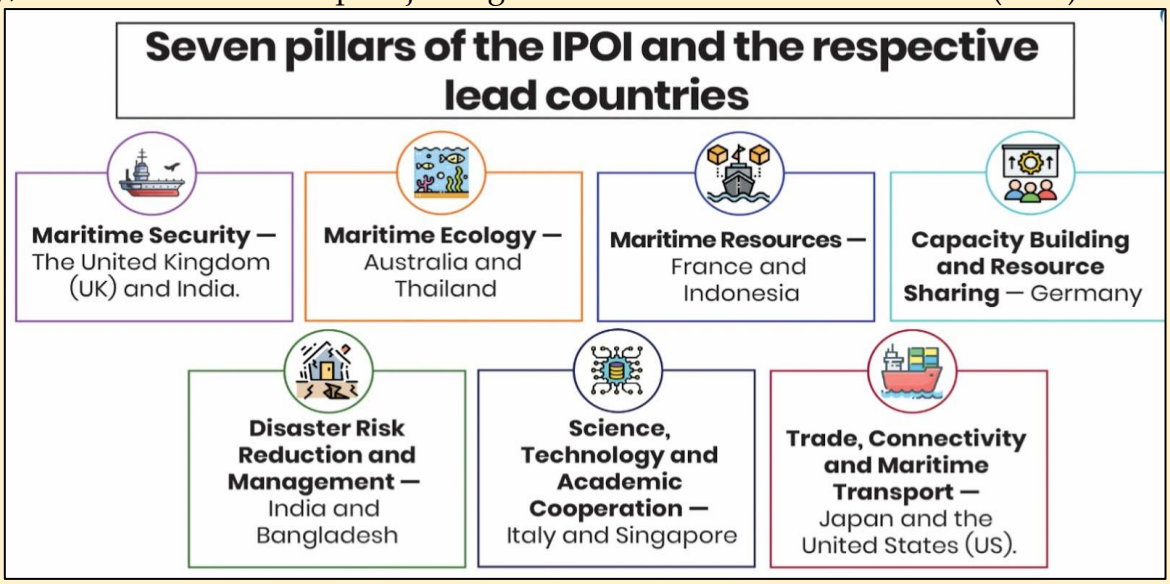
About Pangolakha Wildlife Sanctuary:

- **Location:** It is located in the state of **Sikkim.** It is the largest wildlife sanctuary in the state, with the Pangolakha range separating Sikkim from Bhutan to the east.
- **Connectivity:** It forms an important transboundary wildlife corridor, linked to the **Neora Valley National Park in West Bengal and the forests of Samtse and Haa districts in Bhutan.**
    - **Lakes:** High-altitude lakes, including **Lake Tsongmo (Changu Lake),** are located within the sanctuary and serve as biodiversity hotspots.
    - **Rivers:** The **Rangpo River and Jaldhaka River** originate from nearby lakes in the area.
    - **Significance:** It serves as a **natural water regulator** and a crucial habitat for **endangered Himalayan species.**

- **Altitude:** The sanctuary features a wide altitudinal variation from approximately **1,300m to over 4,000m.**
- **Biomes:** It supports diverse biomes including **subtropical, temperate, and alpine ecosystems.** It falls at the junction of the Palearctic and Indomalayan realms.
- **Flora:** Key vegetation here includes **Rhododendron, Silver Fir, Juniper, and moss-filled oak forests,** which provide an ideal habitat for the Red Panda.
- **Fauna:** It is home to diverse species, including the **Red Panda (Sikkim's state animal), Tiger, Leopard, Takin, Musk Deer, Goral, and Asiatic Black Bear.** It is also a designated Important Bird Area (IBA), known for migratory birds and species like the Himalayan Monal and the vulnerable Wood Snipe.

INDO-PACIFIC OCEANS INITIATIVE (IPOI)

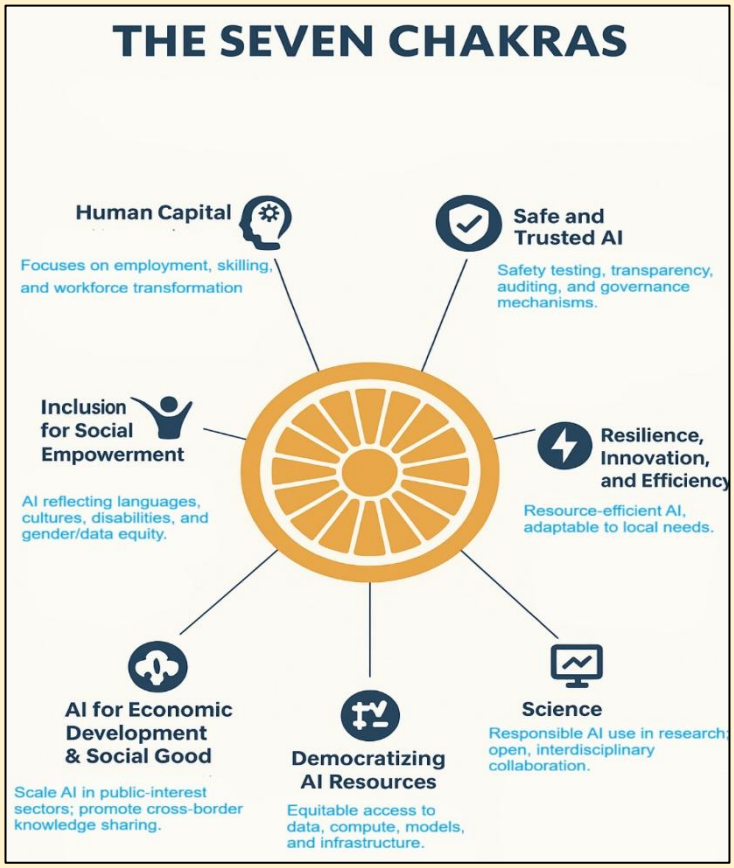
Recently, India has welcomed Spain joining the Indo-Pacific Oceans Initiative (IPOI).



About Indo Pacific Oceans Initiative:

- **Launch:** It was launched by India in **November 2019** at the ASEAN-led East Asia Summit (EAS) **in Bangkok.**
  - **Objective:** It aims to promote cooperation for a **free and open Indo-Pacific** and the rules-based regional order.
- **Nature:** It is a **non-treaty-based voluntary arrangement.**
- **Focus:** It **leans heavily on the EAS mechanism**, which includes ASEAN member states and its eight dialogue partners.
- **Philosophy:** It builds upon India's **SAGAR (Security and Growth for All in the Region)** vision (2015) and integrates with the "Act East" and "Act West" policies.
- **Pillars:** It has **outlined 7 pillars,** and it was indicated that one or two countries could take the lead for a pillar with others joining in voluntarily. These pillars are:
  - **Maritime Security:** The United Kingdom (UK) and India
  - **Maritime Ecology:** Australia and Thailand
  - **Maritime Resources:** France and Indonesia
  - **Capacity Building and Resource Sharing:** Germany
  - **Disaster Risk Reduction and Management:** India and Bangladesh
  - **Science, Technology, and Academic Cooperation:** Italy and Singapore
  - **Trade, Connectivity, and Maritime Transport:** Japan and the United States (US).

AI IMPACT SUMMIT (2026)



India is preparing to host the **AI Impact Summit (2026)** at a time when **Artificial Intelligence is rapidly entering public governance, welfare delivery, policing, healthcare, and finance**. However, **AI ethics in India risks remaining rhetorical unless translated into enforceable, context-sensitive, people-centred standards**.

Core Idea

AI Ethics refers to the application of **human rights–based principles**—*privacy, equality, non-discrimination, dignity, accountability, and transparency*—to the **design, deployment, and governance of AI systems**, especially when used by the State.

The **ethical AI must move beyond abstract principles to enforceable, auditable, and grievance-enabled frameworks**, grounded in **India's social realities**.

Key Ethical Concerns

1. **Abstract ethics vs enforceable ethics**

- AI ethics discussions are often **"blue-sky" ideas**, lacking **precision, accountability, and remedies**.
- International frameworks (UNESCO AI Ethics Principles, UNDP Human Development Report 2025) emphasise **rights-based AI**, but implementation remains weak.

2. **Intersectional harm and algorithmic bias**

- AI systems often replicate **existing social hierarchies**.
- Indian datasets invisibilise **intersectional identities** (caste × gender × class × disability).
- Result: **Disproportionate harms** to Dalit women, Adivasi communities, migrant workers, linguistic minorities.

3. **Opacity and lack of transparency**

- AI systems deployed in public systems often operate as **black boxes**.
- There is a need for:
  - **Publicly accessible model cards**
  - Disclosure of **training data, known biases, limitations, and appropriate use cases**

4. **Data extraction without consent or benefit**
   - AI development relies on **community data** that is often:
- **Extracted without consent**
  - **Monetised** without benefit-sharing

There is a need for **community data trusts**, akin to forest or mineral commons.

5. **Absence of accountability and remedies**

- When AI systems cause harm (e.g., denial of welfare, wrongful surveillance, facial recognition failures), responsibility is **diffused**.

- There is a need for:
    - **Clear liability rules**
    - **Primary liability on deploying government departments**
    - Secondary liability on vendors for flawed or misrepresented systems

6. **Need for human oversight in high-risk domains**

- In sectors like **policing, healthcare, welfare, education**, algorithmic outputs must not be final.
- **Mandated human oversight** is essential to override automated decisions.

Why This Matters

Governance and Technology

- AI is reshaping **state capacity**, service delivery and decision-making.
- Without ethical guardrails, AI can **amplify exclusion rather than efficiency**.

Ethics and Human Values

- Ethical governance demands:
    - **Justice over convenience**
    - **Dignity over efficiency**
    - **Accountability over opacity**

- Ethical AI is not about slowing innovation but **aligning technology with constitutional morality**.

Way Forward:

1. **Human rights–anchored AI governance**

- Anchor AI ethics in **constitutional values** (Articles 14, 15, 21).
- Treat AI harms as **rights violations**, not technical glitches.

2. **Mandatory intersectional audits**

- Regular **algorithmic audits** to identify overlapping harms across caste, gender, class.
- Move ethics from **Western abstractions to Indian social contexts**.

3. **Transparency by design**

- Mandatory **model cards and impact disclosures** for all public-sector AI systems.
- Citizen-readable explanations, not just technical documentation.

4. **Community data governance**

- Establish **community data trusts**.
- Ensure **benefit-sharing** where community data generates economic value.

5. **Clear liability and grievance redress**

- Fix **primary accountability on the State**.
- Create **independent grievance redress mechanisms** with time-bound remedies.

6. **Human oversight in high-risk applications**

- Statutory requirement for **human review** in welfare, policing, healthcare, education.
- Automated decisions must be **contestable**.

As India positions itself as a global AI leader and hosts the AI Impact Summit, **ethical AI cannot remain aspirational**. The article underscores that **AI ethics must be enforceable, intersectional, and rooted in lived realities**.

By anchoring AI governance in **human rights, accountability, and community control**, India can demonstrate that **technological leadership and ethical leadership are not contradictory but complementary** and offer a globally relevant model of **people-centred AI governance**.

NATIONAL VOTERS' DAY

Recently, the Prime Minister of India extended greetings to citizens on the occasion of National Voters' Day.

About National Voters' Day (NVD):

- **Commemoration:** It is observed on **January 25th** across India every year **since 2011**to commemorate the **foundation day of the Election Commission of India.**
    - **Objective:** It is celebrated **to honour voters, strengthen democratic values,**encourage youth participation, and promote universal adult suffrage. It celebrates democracy and empowers every citizen to take part in the electoral process.
    - **Theme:** The theme for National Voters' Day 2026 is **"My India, My Vote"** with a tagline of "Citizen at the Heart of Indian Democracy.
    - **Celebrations:** It is celebrated at the **level of national, state, district, constituency, and polling booth** and NVD stands as one of the country's most widespread and significant celebrations.
    - **Focus on young voters:** It is dedicated to the voters of the nation, National Voters' Day also promotes the **enrolment of new voters, particularly young individuals** who have recently become eligible.
    - **Historical milestone:** In **2025,** the **ECI celebrated its 75th year of service** to the nation (it was established on Jan 25, 1950).
- **Significance of NVD:**
- **Electoral reforms:** NVD highlights initiatives like **SVEEP (Systematic Voters' Education and Electoral Participation)** and digital tools like the Voter Helpline App and **e-EPIC.**
    - **Democratic values:** It reinforces the concept that **voting is not just a right but a civic responsibility** essential for the accountability of representatives.
    - **Inclusivity:** Efforts are made to include **Persons with Disabilities (PwDs), senior citizens, and marginalised groups** through the principle of "No Voter to be Left Behind."

FOREVER CHEMICALS

New filtration technology developed by Rice University may absorb some Pfas "forever chemicals" at 100 times the rate previously possible.

About Forever Chemicals:

- **Nature:** Forever chemicals, are a large chemical family of thousands of **highly persistent, toxic, man-made, hazardous chemicals.**
    - **Nomenclature:** The name 'forever chemicals' comes from the fact that they **remain in the environment without breaking down for generations**.
- **Other names:** They are also known as **PFAS (per- and poly- fluoroalkyl substances).**
    - **Uniqueness:** PFAS molecules have a chain of linked carbon and fluorine atoms. Because the **carbon-fluorine bond is one of the strongest,** these chemicals do not degrade easily in the environment.
- **Durability:** In manufacturing, PFAS are favoured for their durability and useful properties such as **non-stick, water repellence, and anti-grease.**
- **Uses:** PFAS are used in the manufacture of many **domestic products, including- skin creams and cosmetics, car and floor polish, rinse aid for dishwashers,** textile and fabric treatments, food packaging and microwave popcorn bags, baking equipment, frying pans, outdoor clothing and shoes, firefighting foam, etc.
- **Concerns:** Over time, PFAS **may leak into the soil, water, and air.**
- **Exposure:** People are most likely **exposed to these chemicals by consuming PFAS-contaminated water or food, using products made with PFAS,** or breathing air containing PFAS. Because PFAS breaks down slowly, if at all, people and animals are repeatedly exposed to them, and blood levels of some PFAS can build up over time.
- **Impacts of PFAS on human health:** Forever chemicals have been linked to multiple health problems, including **compromised immune systems, liver damage, thyroid diseases, increased cholesterol levels, hypertension,** developmental delays in infants, and increased certain cancers such as kidney and testicular.
- **Regulation:** The **Stockholm Convention** has listed some PFAS, such as Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA), as persistent organic pollutants (POPs).

GANDAK RIVER

The Gandak River has emerged as the second major river after the Chambal with the highest number of gharials, also known as fish-eating crocodiles.

About Gandak River:

- **Location:** Gandak is one of the **major rivers in Nepal** and a **left-bank tributary of the Ganges in India.**
- **Other names:** The Gandak River is also known as the **Narayani and Gandaki.**
- **Mentioned in Epics:** It is mentioned in the ancient **Sanskrit epic Mahabharata.**
- **Length:** The total length of the river is 700 km. **In India,** it covers a course of **more than 300 km.**
    - **Boundaries:** It is bounded on the north by the **Himalayas**, south by the **River Ganga**, east by the **Burhi Gandak** Basin and on the west by the **Ghagra** Basin.
    - **Origin:** It originates at an altitude of 7620 m above msl to the **north of Dhaulagiri Mountain in Tibet near the Nepal border.** After flowing through Tibet, it crosses Nepal, where it is also known as Narayani, to enter the Indian Territory.
    - **Course in India:** The river **enters India from Valmikinagar in the West Champaran district of Bihar.** The entry point of the river is at the Indo–Nepal border and is known as Triveni. In India, it flows southeast, across the upper Gangetic plain in eastern Uttar Pradesh and northwestern Bihar.
- **Shifting of course:** Due to the steep slope and loose soil in the upper catchment, it **carries a lot of silt and other deposits** to the Indian side, resulting in a continuous shifting course of the river.
- **Formation of gorge:** While flowing through the Nepal Himalayas, it forms the **Kali Gandaki gorge,** one of the deepest river gorges in the world.
    - **Glaciers:** There are about **1,710 glaciers and over 300 lakes** in the upper catchment of Gandaki.
- **Major tributaries:** These include **Daraudi, Seti, Madi, Marsyandi, and Budhi Gandaki.**
- **Protected areas:** Two important protected areas, **Chitwan National Park in Nepal.**

CHATERGALA PASS

Recently, the Border Roads Organisation (BRO) successfully carried out a high-altitude rescue and road restoration operation under Project Sampark at Chatergala Pass.

About Chattergala Pass:

- **Location:** It falls on the boundary of the Doda and Kathua districts in Jammu region of **Union Territory of Jammu and Kashmir.**
- **Connectivity:** It **connects Bhaderwah** (Neeru river valley) in Doda district **with Basohli** (Shiwalik hills) in Kathua district.
- **Mountain range:** It is situated at an elevation of approximately **10,500 feet in the Middle Himalayas.** It is tucked in the Chamba-doda ranges of the greater Himalayas.
- **Terrain:** It is surrounded by **alpine meadows, snow-covered peaks,** and dense forest.
- **Fauna: Himalayan monals, ibex, and musk deer** are found here.
- **Strategic significance:** The pass is critical **for border security and regional connectivity,** often used by the Border Roads Organisation (BRO) to ensure the movement of troops and supplies.
- **Gateway:** It serves as a gateway between the Jammu and Kashmir divisions, specifically **bypassing the traditional NH-44 route.**
- **Chattergala Tunnel Project:** To overcome the challenges of heavy snowfall (which can reach up to 5-6 feet in winters), the government is constructing a **tunnel beneath the pass.** It is a **6.8 km long** road tunnel, which will be constructed at an estimated cost of Rs. 4,000 crore.

JEEVAN RAKSHA PADAK AWARDS

Recently, the President of India has conferred the Jeevan Raksha Padak Series of Awards-2025 to 30 persons.

About Jeevan Raksha Padak Awards:

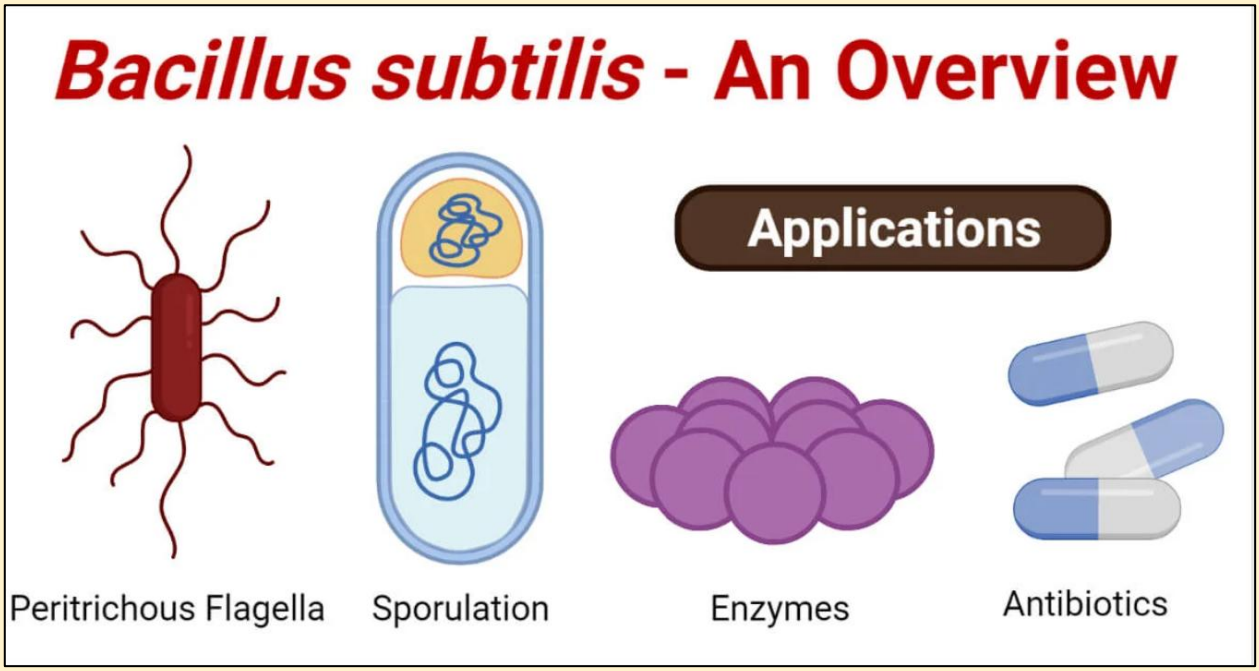
- **Nature:** The Jeevan Raksha Padak awards are a **series of civilian life-saving honours** presented by the Government of India for meritorious acts of courage in saving a person's life.
- **Establishment:** Originally **instituted in 1961 as an offshoot of the Ashoka Chakra series**, these awards are traditionally announced on Republic Day.
- **Categories:** The Jeevan Raksha Padak Award is given in **three categories,**namely,
  - **Sarvottam Jeevan Raksha Padak:** It is awarded for conspicuous courage in saving life under circumstances of very great danger to the life of the rescuer.
  - **Uttam Jeevan Raksha Padam:** It is awarded for courage and promptitude in saving life under circumstances of great danger to the life of the rescuer.
  - **Jeevan Raksha Padak:** It is awarded for courage and promptitude in saving life under circumstances of grave bodily injury to the rescuer.

- **Eligibility: Persons of all walks** of life are eligible for these awards. The award can **also be conferred posthumously.**
- **Presentation:** It is presented to the awardees **by the respective Union Ministries/Organizations/State Government** to which the awardee belongs.
- **Nomination and approval:** Its **nominations are invited annually from States/UTs**and Union Ministries. The recommendations of the award are considered by the Awards Committee within a period of two calendar years from the date of performance of the act. **Final approval is given by the Prime Minister and the President** of India.
- **Award:** The decoration of the award consists of a **Medal, Certificate, along with a one-time monetary allowance:** Sarvottam Jeevan Raksha Padak (₹2 lakh), Uttam Jeevan Raksha Padam (₹1.5 lakh) and Jeevan Raksha (₹1 lakh).

BACILLUS SUBTILIS

Recently, Kerala officially declared Bacillus subtilis as 'State microbe'.

About Bacillus Subtilis:



  - **Classification:** It is a rod-shaped, **Gram-positive bacterium.**
- **Metabolism:** It is a facultative anaerobe, meaning it **can grow in both oxygen-rich and oxygen-poor environments.**
  - **Nature:** Bacillus subtilis (B. subtilis) is a **type of probiotic** ("good" bacteria) found **naturally in the human gut.** It's also found in fermented foods.
  - **Habitat:** It is mostly found **in soil and vegetation** with an optimal growth temperature from 25-35 degrees Celsius.
- **Significance:** B. subtilis has the ability to **produce and secrete antibiotics**. The genomic structure of this microorganism contains five signal peptidase genes that are important for the secretion of these antibiotics. It has shown to be capable of secreting **polymyxin, difficidin, subtilin, and mycobacillin.**
  - **Resilience:** A major feature is its ability to form tough, protective endospores. These allow it **to survive extreme conditions like heat, UV radiation,** and drought for decades.
  - **Transmission and disease:** B.subtilis is **non-pathogenic but can contaminate food** and be considered an opportunistic pathogen among the immuno-compromised.

- **Applications:**
  - **Agriculture (Bio-control):** It is widely used as a bio-fungicide (e.g., the product ENTAZIA) to protect crops from diseases like Bacterial Leaf Blight by colonising root systems and producing antibiotics.
  - **Probiotics:** It supports gut health and immunity in humans and animals. It is even used to enhance performance in poultry.
  - **Fermentation:** It is essential for traditional fermented foods like Natto (Japan), Kinema (Sikkim), and Akhuni (Nagaland).
  - **Biotechnology:** It is used on an industrial scale to produce enzymes like amylases and proteases, as well as vitamins.
  - **Environmental utility:** It plays a role in bioremediation by cleaning heavy metals and hydrocarbons from contaminated sites and can even be used to degrade certain plastics.

PYGMY HOG

India's pygmy hog is vanishing from its grasslands, just as it is needed the most.

About Pygmy Hog:

  - **Scientific Name:** Its scientific name is **Porcula salvania** (It is the sole member of its genus).
- **Uniqueness:** It is the **smallest and rarest species of wild pig in the world.** It is one of the very few mammals that **build its own home**, or nest, complete **with a 'roof'.**
  - **Endemic:** It is currently found **only in Assam,** India. Its primary strongholds are grasslands of **Manas National Park and Orang National Park.**
- **Reintroduction:** Captive-bred hogs have been successfully reintroduced into **Sonai-Rupai Wildlife Sanctuary and Barnadi Wildlife Sanctuary**
- **Significance:** It is an **indicator species** as its presence reflects the health of its primary habitat ,which is the **Terai-Duar ecosystem.**
  - **Habitat:** It prefers **undisturbed patches of grassland dominated by early succession riverine communities,** typically comprising dense tall grass intermixed with a wide variety of herbs, shrubs and young trees.
  - **Ecological role:** Using its snout, it **digs for roots, tubers, wild fruits, termites,**earthworms, eggs and other food sources found in the grasslands. This digging **aerates the soil and enhances its quality.** It also helps disperse seeds through its dietary and foraging habits.
- **Conservation Status:**
  - **IUCN:** Critically Endangered
  - **The Wildlife Protection Act, 1972:** Schedule I.

INDIAN OCEAN NAVAL SYMPOSIUM

Boosting maritime engagement with Indonesia and advancing the vision of MAHASAGAR, Indian Navy's First Training Squadron departed Belawan recently.

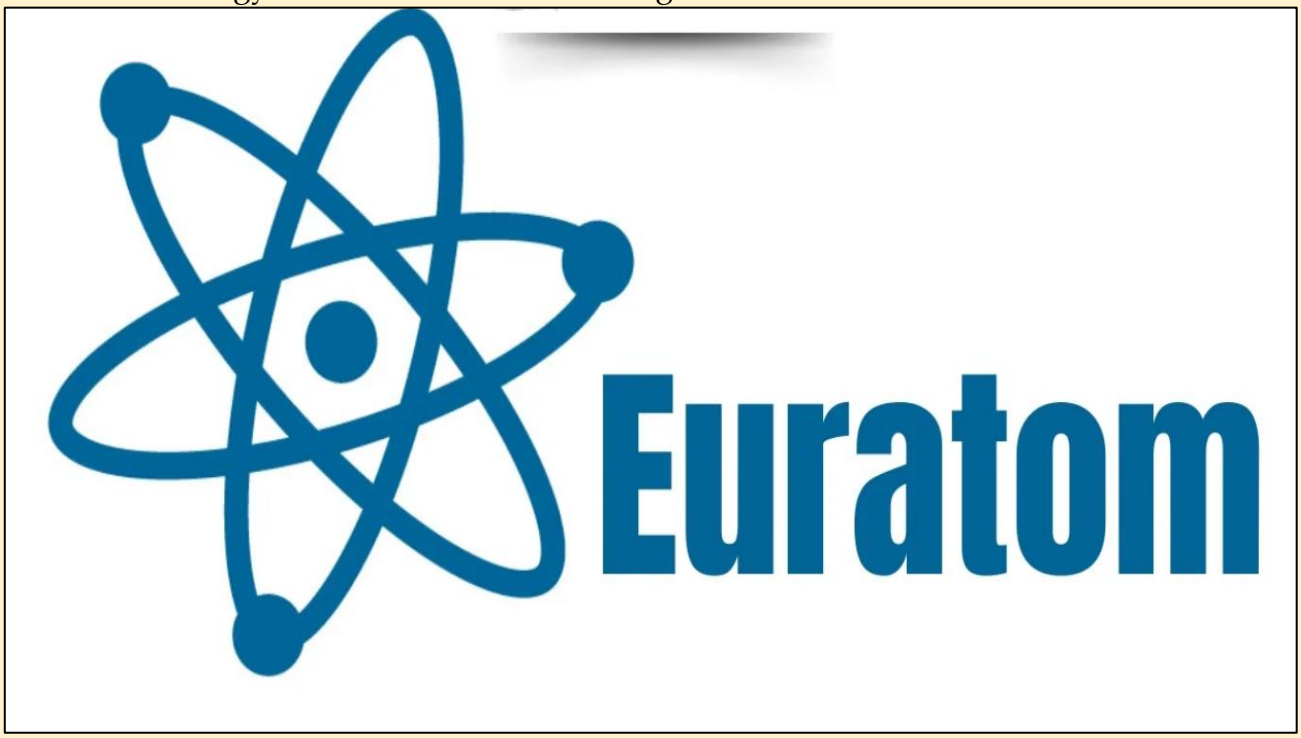
About Indian Ocean Naval Symposium (IONS):

- **Nature:** It is a **voluntary initiative** that seeks to increase maritime cooperation **among navies of the littoral states of the Indian Ocean Region** by providing an open and inclusive forum for discussion of regionally relevant maritime issues.
- **Origin:** It was **conceived by the Indian Navy in 2008.** The inaugural edition of IONS was held in Feb 2008 at New Delhi, with the Indian Navy as the Chair for two years (2008–2010).
- **Objective:** It endeavours to generate a **flow of information between naval professionals** that would lead to common understanding and possibly cooperative solutions on the way ahead.

- **Significance:** It promotes maritime cooperation, mutual understanding, and collaboration on issues such as **maritime security and humanitarian assistance and disaster relief (HADR).**
- **Governance:** IONS is structured around a **rotating chairmanship, biennial conclaves of chiefs, and working groups.**
  - **Membership:** It includes **34 members (25 full members and 9 observers)** from Indian Ocean littoral states. The full members are:
    - **South Asian Littorals:** Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka.
    - **West Asian Littorals:** Iran, Oman, Saudi Arabia, United Arab Emirates (UAE).
    - **East African Littorals:** Kenya, Mauritius, Mozambique, South Africa, Tanzania, Eritrea.
    - **Southeast Asian & Australian Littorals:** Australia, France (via Reunion), Indonesia, Malaysia, Myanmar, Singapore, Thailand, Timor-Leste.
    - **Other:** United Kingdom (British Indian Ocean Territory).
- **Focus areas:**
  - **Maritime cooperation:** Enhancing naval collaboration for regional security.
  - **Information sharing:** Exchanging best practices on maritime issues.
  - **Disaster response:** Developing effective mechanisms for Humanitarian Assistance & Disaster Relief (HADR).

EURATOM

The European Union (EU) and India recently committed to promoting collaboration on the peaceful uses of nuclear energy under the India-Euratom agreement.



About Euratom:

- **Full Form:** Euratom stands for **European Atomic Energy Community.**
- **Establishment:** Euratom is an international organization established **under the Treaty of Rome in 1957.**
- **Objective:** It aims to form a common market for the development of the **peaceful uses of atomic energy.**
    - **Association with nuclear materials:** A major incentive for the creation of Euratom was the desire to facilitate the establishment of a **nuclear-energy industry on a European rather than a national scale.** Euratom's control was not extended to nuclear materials intended for military use.

- **Membership:** The original members were Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands. It subsequently came to **include all members of the European Union (EU).**

- **Regulation:** Euratom regulates the **European civil nuclear industry, which produces almost 30% of energy in the EU.** Euratom's work safeguards nuclear materials and technology, facilitates investment, research, and development, and ensures equal access to nuclear supplies, as well as the correct disposal of nuclear waste.

- **Governance:** It is governed by the **Commission and Council, operating under the jurisdiction of the European Court of Justice.** Its main instruments are the Euratom Supply Agency and its research and nuclear safeguard activities.

- **Research:** The EU has its own **Joint Research Centre (JRC)** in the nuclear field. Euratom is involved in developing **atomic fusion technology,** which has the potential of delivering abundant sustainable energy in the future.

PANCHAM – PANCHAYAT ASSISTANCE AND MESSAGING

Recently, the Union Minister of State for Panchayati Raj launched the PANCHAM – Panchayat Assistance and Messaging Chatbot.

About PANCHAM:

- **Full form:** PANCHAM stands for **Panchayat Assistance and Messaging Chatbot.**
- **Development:** It is a digital tool developed in collaboration **with UNICEF.**
- **Objective:** It is a flagship digital initiative aimed at **empowering Panchayat Elected Representatives** and Functionaries.
- **Focus areas:** It is designed as a digital companion for Panchayats, providing **timely and contextual guidance, simplified workflows, and easy access to information** to support day-to-day governance and service delivery functions.
- **Direct connect:** It enables, for the first time, a direct digital-connect **between the Government of India and Elected Panchayat Functionaries** across the country.
- **Language support:** It is **integrated with BHASHINI** and will support 22 Indian languages, enabling Panchayat representatives to interact with the platform in their preferred local language.
- **Citizen access:** Citizens would be able to access PANCHAM **through a QR-code-based entry mechanism.** It will facilitate quicker decision-making, and stronger feedback loops between the grassroots and decision-making centres.
- **Two-way communications:** It facilitates two-way communication and officials can **send feedback, ask questions, and flag local problems** directly to the ministry.
- **Information dissemination:** The Ministry would be able to directly disseminate **circulars, advisories, key messages, and updates** to Panchayat Elected Representatives and Functionaries.

QUALITY COUNCIL OF INDIA (QCI)

Recently, Quality Council of India (QCI) announced a set of next-generation quality reforms on the eve of Sushasan Divas 2025.

About Quality Council of India (QCI):

- **Nature:** It is a non-profit autonomous organisation registered under Societies Registration Act XXI of 1860.
- **Establishment:** It was set up in 1997 jointly by the Government of India and the Indian Industry, represented by the three premier industry associations, i.e., Associated Chambers of Commerce and Industry of India (ASSOCHAM), Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI).
- **Nodal ministry:** It is under the administrative control of the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
- **Objective:** It has been established to create a mechanism for independent third-party assessment of products, services, and processes.
- **Significance:** It works as the national accreditation body. It also plays a pivotal role at the national level in propagating, adoption, and adherence to quality standards in all important spheres of activities.
- **Composition:** The council comprises 38 members, with equal representation from the government, industries, and other stakeholders.
- **Accreditation services:** It also promotes the adoption of quality standards relating to Quality Management Systems, Food Safety Management Systems, and Product Certification and Inspection Bodies through the accreditation services provided by the National Accreditation Board for Certification Bodies (NABCB).

Boards under QCI:

- National Accreditation Board for Testing & Calibration Laboratories (NABL)
- National Accreditation Board for Hospitals & Healthcare Providers (NABH)
- National Accreditation Board for Education & Training (NABET)
- National Accreditation Board for Certification Bodies (NABCB)
- National Board for Quality Promotion (NBQP).

VALMIKI TIGER RESERVE (VTR)

The tiger population in the Valmiki Tiger Reserve (VTR) has increased more than sevenfold, rising from eight in 2010 to 54 in the last census conducted in 2022.

About Valmiki Tiger Reserve:

- **Location:** It is located at the India-Nepal border in the northern part of the West Champaran District of Bihar.
- **Establishment:** It was established as the 18th Tiger Reserve of India under Project Tiger in 1994.
- **Uniqueness:** It is the only tiger reserve of Bihar and forms the easternmost limit of the Himalayan Terai forests in India.
- **Landscape:** Situated in the Gangetic Plains bio-geographic zone of the country, the forest has a combination of Bhabar and Terai tracts.
- **Bordered by:** It is surrounded by the Royal Chitwan National Park of Nepal in the north and the river Gandak on the western side, with the Himalayan mountains as a backdrop.
- **Tribal Presence:** The Tharu tribe is the dominant indigenous community in the region.
- **Rivers:** The rivers Gandak, Pandai, Manor, Harha, Masan, and Bhapsa flow through various parts of the reserve.
- **Vegetation:** The reserve boasts a variety of vegetation types, including tropical wet deciduous forests, grasslands, savannas, and riverine forests.
- **Flora:** Sal trees dominate the forests, but the region also features species like teak, bamboo, semal, and khair.
- **Fauna:** Tiger, leopard, fishing cat, leopard cat, sambar, hog deer, spotted deer, black buck, gaur, sloth bear, langur, rhesus monkey, etc.

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