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01 TRANSLOCATION OF TIGERS TO SAHYADRI TIGER RESERVE

The Ministry of Environment, Forest and Climate Change (MoEFCC) has given permission for translocation of eight tigers from Tadoba-Andhari Tiger Reserve (TATR) and Pench Tiger Reserve (PTR) to Sahyadri Tiger Reserve. It is aimed to revive the big cat's population in the northern Western Ghats.

TADOBA–ANDHARI TIGER RESERVE (TATR)

- **Location**
    - Situated in **Chandrapur district, Maharashtra**.
    - Lies in the **eastern Vidarbha region** of Maharashtra.
- **Formation**
    - **Tadoba National Park** was created in **1955** (one of the oldest in Maharashtra).
    - **Andhari Wildlife Sanctuary** was created in **1986**.
    - In **1995**, both were merged to form the **Tadoba–Andhari Tiger Reserve (TATR)**.
- **Area**
    - Total area: **~1,727 km^2** (core + buffer).
    - Core area (Tadoba NP + Andhari WLS): **625 km^2**.
    - Buffer area: ~**1,100 km^2**.
- **Tiger Population**
    - As per the **All-India Tiger Estimation (2022)**, Maharashtra has **444 tigers**, and **TATR is the state's largest source population**.
    - TATR alone hosts **over 170 individual tigers** (one of the highest densities in India).
- **Vegetation & Habitat**
    - Predominantly **Southern Tropical Dry Deciduous Forests**.
    - Dominated by **Teak (Tectona grandis)**, **bamboo**, **tendu**, **mahua**, and **ain (crocodile bark tree)**.
    - Rich grasslands and water bodies (Tadoba Lake, Erai Dam, Andhari River) provide critical prey base.
- **Fauna**

o **Flagship species**: Bengal Tiger.

o Other carnivores: Leopard, Dhole (Indian wild dog), Sloth bear, Jungle cat, Civet.

o **Herbivores:** Gaur (Indian bison), Sambar, Chital, Nilgai, Barking deer.

o **Important reptiles:** Marsh crocodile, Indian python, Cobra, Monitor lizard.

o Over **195 species of birds** (including Crested serpent eagle, Paradise flycatcher, Grey-headed fish eagle).

REVIVING POPULATION IN WESTERN GHATS

Nagpur

Pench Tiger Reserve

Tadoba-Andhari Tiger Reserve

MAHARASHTRA

Mumbai

Pune

Sahyadri Tiger Reserve, (STR) notified in 2010, is spread over 1,165 sq km

EXPLAINED **E.**

■ Despite STR's rich forest vegetation, its tiger population has been largely transient

■ Only in the recent past, three male tigers have

been frequently recorded on camera traps

■ By December, two tigresses will be translocated to STR from Tadoba Tiger Reserve

- **Rivers & Water Bodies**

  o **Andhari River** (tributary of Wainganga) meanders through the reserve.

  o **Tadoba Lake** (core zone) is a perennial water source.

  o Other: Erai Dam, Kolsa Lake, Telia Lake (famous for tiger sightings).

- **Tribes / Local Communities**
    - Named after **Taru/Tadoba**, a Gond tribal chief who was revered locally.
    - Several Gond tribal villages are present around the reserve.
- **Conservation Status**
    - Notified under **Project Tiger** in **1993–94**.
    - A **Critical Tiger Habitat (CTH)** with high protection priority.
    - Important site for **tiger dispersal corridors** towards Brahmapuri, Navegaon–Nagzira, and Pench landscapes.
- **Tourism**
    - Major gates: **Moharli, Kolara, Navegaon, Pangdi, Zari, Khutwanda**.
    - Known as one of the **best places for tiger sightings in India** due to high visibility.

PENCH TIGER RESERVE (PTR)

- **Location**
    - Spread across **Madhya Pradesh** and **Maharashtra**.
    - Named after the **Pench River**, which flows through it.
    - Maharashtra part: **Nagpur & Chandrapur districts**.
    - Madhya Pradesh part: **Seoni & Chhindwara districts**.
- **Formation & Area**
    - Declared a **tiger reserve in 1992** under Project Tiger.
    - Total area: **1,180 km^2** (Maharashtra + MP parts).
    - Maharashtra's PTR (Maharashtra Pench Tiger Reserve – MTR): **741 km^2**.
    - MP Pench (Satpuda–Maikal landscape): **~757 km^2**.
- **Ecology & Habitat**
    - **Tropical dry deciduous forests** (Teak dominant).
    - Rolling hills, open canopy, bamboo patches.
    - Pench River + Totladoh Dam = crucial water sources.
- **Flora**
    - Dominated by **Teak, Mahua, Tendu, Bija, Bamboo**.
    - Understory includes grasses providing prey base.

- **Fauna**

  - **Flagship species**: Bengal Tiger.

  - Other carnivores: Leopard, Dhole, Jungle cat, striped hyena.

  - Herbivores: Chital, Sambar, Nilgai, Gaur, Chousingha.

  - Birds: Over **325 species** (including Malabar pied hornbill, Indian pitta).

- **Cultural & Literary Importance**

  - Famous as the **setting of Rudyard Kipling's "The Jungle Book"**.

  - Often called the "Land of Mowgli".

- **Tiger Population**

  - As per **All India Tiger Estimation 2022**, Pench landscape has a **healthy and breeding population of tigers**.

  - Considered one of the **source populations** in central India.

ROLE IN TIGER TRANSLOCATION TO SAHYADRI TIGER RESERVE

- **Why Pench as a donor reserve?**

  - Has a **robust tiger population** with healthy prey density.

  - Functions as a **source reserve** in central India (tiger dispersal landscape).

  - Can spare a few individuals without ecological stress.

- **Number & Sex of Tigers for Translocation**

  - **Total eight tigers** (from Tadoba + Pench).

  - Composition: **3 males + 5 females**.

  - Exact split between Tadoba & Pench to be decided by NTCA and MoEFCC based on health, age, dispersal suitability.

- **Purpose**

  - To **revive and re-establish breeding population** of tigers in **Sahyadri Tiger Reserve (STR)**, northern Western Ghats.

  - STR has suitable habitat (forests of Koyna & Chandoli) but **low tiger numbers**.

  - Helps **reduce overcrowding** in Tadoba & Pench while improving **genetic diversity** in STR.

- **Process & Safeguards**

- **Soft release** through enclosures in STR before free roaming.

- **Veterinary health checks** to prevent disease transfer.

- **Quarterly monitoring reports** to MoEFCC.

- NTCA, Maharashtra Forest Department & local communities involved.

SAHYADRI TIGER RESERVE (STR) – DESTINATION

- Located in **northern Western Ghats (Maharashtra)**.

- Created in **2010** by merging **Koyna Wildlife Sanctuary + Chandoli National Park**.

- **Area: ~1,165 km^2**.

- Potential to support **20+ tigers**, but current population is negligible.

- Reviving STR ensures **ecological balance** and strengthens **Western Ghats biodiversity**.

KEY FACTS ABOUT TIGER:

- Tiger is an **umbrella species.** Its conservation automatically ensures the conversation of a large number of flora and fauna and entire ecosystems.

- India is home to 75% of the **global tiger population.**

- The National Tiger Conservation Authority (NTCA) conducts a tiger census across India every 4 years.

- **Latest Tiger Census Report (2022):** India has **3682** tigers. (2967 in 2018)

- **Madhya Pradesh** has the highest number of tigers (785) in India, followed by Karnataka and Uttarakhand.

- **Conservation status:**

  - **IUCN Red List:** Endangered

  - **Wildlife Protection Act:** Schedule 1

  - **CITES:** Appendix 1

02   JAMMU & KASHMIR PUBLIC SAFETY ACT

Context: Recently, a sitting legislator (MLA) in Jammu and Kashmir was detained under the Jammu & Kashmir Public Safety Act (PSA) for one year.
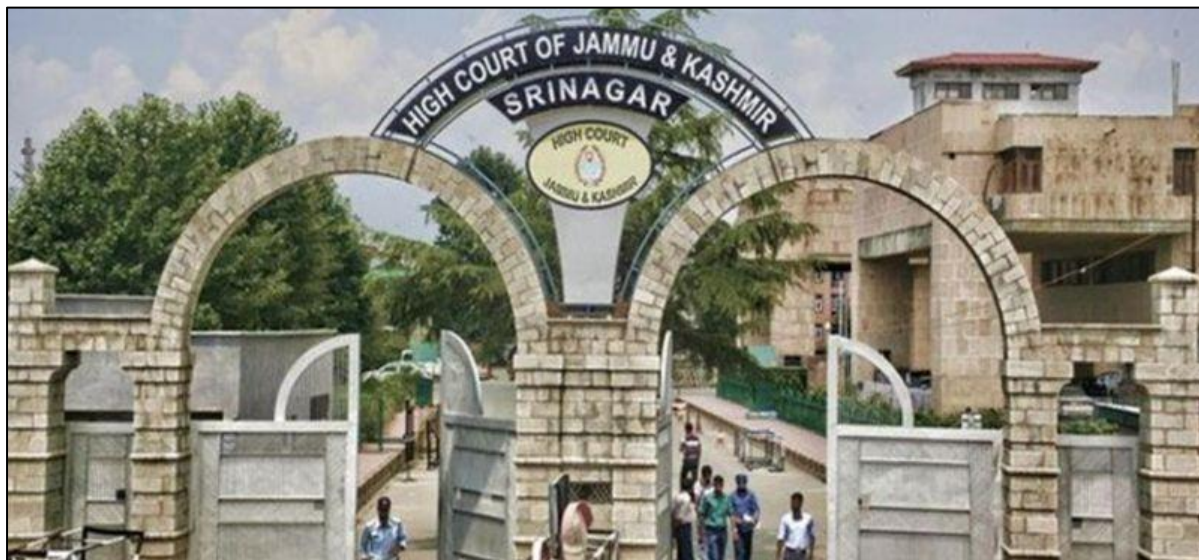
ABOUT JAMMU & KASHMIR PUBLIC SAFETY ACT:

- The Public Safety Act was enacted in 1978 by the J&K Legislative Assembly to curb timber smuggling in the state.

- Over time, the Act has become a **tool for preventive detention** of political opponents, dissenters, journalists, and protesters. E.g., On the eve of Article 370's abrogation, hundreds, including former Chief Ministers, were detained under PSA.

- After the abrogation of Article 370, the PSA is now deemed a law passed by the Indian Parliament.

KEY PROVISIONS OF THE PUBLIC SAFETY ACT:

- **Preventive Detention:** The Act authorizes **detention without trial for up to 2 years**, if individuals are considered a threat to the security of the state. Allows detention up to 1 year if they are deemed a threat to public order.

- **Grounds of Detention:** Individuals can be detained if the administration is satisfied that they might act in a manner prejudicial to security or public order. The power is based on "subjective satisfaction" of the executive authorities (District Magistrates/Divisional Commissioners).

- **Advisory Board Review:** Detention orders must be reviewed by an Advisory Board (of High Court judges).

- **Communication of Grounds:** Grounds of detention must be conveyed to the detainee. However, Section 13(2) allows the government to withhold grounds if disclosure is deemed against "public interest."

- **Restrictions on Legal Remedies:** Individuals cannot directly represent themselves before the Advisory Board. Courts often avoid probing into the merits of detention if the executive claims satisfaction.

CONCERNS ASSOCIATED WITH J&K PUBLIC SAFETY ACT:

The Act has been repeatedly flagged by UN Human Rights bodies as a "lawless law" because it:

- Permits prolonged preventive detention without trial

- Relies on vague definitions like public order

- Restricts legal remedies

- Undermines rights guaranteed under both the indian constitution and the **international covenant on civil and political rights (iccpr).**

03 | BILATERAL INVESTMENT AGREEMENT BETWEEN INDIA AND ISRAEL

Context: Recently, Israel's Finance Minister visited India and signed a Bilateral Investment Agreement (BIA) with India.

BILATERAL INVESTMENT AGREEMENT (BIA): MEANING

- **A treaty/agreement between two countries** to promote and protect investments made by investors of one country in the territory of the other.

- Aimed at **increasing investor confidence, reducing political risk**, and ensuring a stable investment climate.

KEY FEATURES OF BIA

- **Promotion of Investment**
  - Encourages **cross-border investment flows**.
  - Provides incentives for foreign investors and promotes mutual economic growth.

- **National Treatment & Most-Favoured Nation (MFN) Treatment**
  - **National Treatment (NT):** Foreign investors are treated at par with domestic investors.
  - **MFN Treatment:** Investors from one country get treatment no less favorable than that offered to investors from any third country.

- **Fair and Equitable Treatment (FET)**
  - Protects investors against arbitrary, discriminatory, or unfair government actions.

- o   Ensures a **stable and predictable legal framework**.

- **Protection against Expropriation**

    - o   Safeguards investors from **direct or indirect nationalization/expropriation** of assets without:

        - ▪   **Public purpose** justification,

        - ▪   **Due process of law**,

        - ▪   **Prompt, adequate, and effective compensation**.

- **Free Transfer of Funds**

    - o   Investors can **freely repatriate profits, dividends, capital, and other returns** in a freely convertible currency.

- **Investor–State Dispute Settlement (ISDS)**

    - o   Provides mechanism for investors to sue the host state in case of treaty violations.

    - o   Disputes usually resolved through **international arbitration** (e.g., ICSID, UNCITRAL).

- **Transparency and Regulatory Framework**

    - o   Both parties agree to maintain **transparent laws, regulations, and administrative practices**.

    - o   Helps investors assess risk and comply with rules.

- **Reciprocal Obligations**

    - o   Both countries **equally commit** to protect each other's investors.

- o Promotes **mutual trust and balanced investment growth**.
- **Duration & Termination**
    - o Usually valid for **10–15 years** with automatic renewal unless terminated.
    - o Even after termination, **"survival clauses"** ensure protections remain for existing investments for a fixed period (often 10–15 years).

SIGNIFICANCE OF BILATERAL INVESTMENT AGREEMENT:

- **Groundwork for FTA negotiations**: The agreement lays the groundwork for future Free Trade Agreement (FTA) negotiations between India and Israel.

- **Expected to increase bilateral investments** between the two countries, which presently stands at a total of $800 million. Includes provisions to safeguard investments against expropriation, ensure transparency, and enable smooth transfers and compensation for losses.

- **Protection for investors**: Incorporates provisions for independent dispute resolution through arbitration, ensuring that investors have recourse in case of disputes.

- **Labour mobility**: Israel has already hired a large number of Indian blue-collar workers. BIA may further increase avenues for Indian labour mobility.

- **Balances investor protection with the State's regulatory rights**, preserving sufficient policy space for sovereign governance.

04 NEW GST REFORMS IN THE HEALTHCARE SECTOR

India's recently rationalized the Goods and Services Tax (GST) structure. Among other sectors, GST reforms were announced in the Healthcare segment. The reforms mark a turning point in the journey towards achieving universal health coverage.

GST REFORMS IN THE HEALTHCARE SECTOR

Rationale: To make medical care more affordable and accessible for millions, especially for individuals struggling with high costs of treatment or health products.

KEY HIGHLIGHTS OF GST REFORMS IN THE HEALTHCARE SECTOR:

REMOVAL OF GST ON INSURANCE:

- Complete removal of GST on individual health and life insurance premiums. Earlier, an 18% GST rate was applied to the health insurance premiums.

- The reform covers all types of individual life insurance: Term, Unit Linked Insurance Plan (ULIP), Endowment, health insurance plans such as family floaters and senior citizen policies. Even reinsurance is included.

GST CUT ON MEDICINES:

- GST on most medicines is lowered to 5%, and tax on life-saving drugs is cut to zero. This simplifies compliance and lowers prices in supply chains for health product manufacturers and service providers.

GST CUT ON MEDICAL DEVICES:

- Medical devices and diagnostic kits are now largely under a uniform 5% GST slab, from 12% GST or 18% GST earlier. E.g., CT scan machines are now taxed at only 5% compared to 18% earlier. This reduces the procurement costs of devices and would potentially lower patient charges over time.

- Common services such as blood tests, X-rays, and MRIs at laboratories may also become a little cheaper.

GST EXEMPT ON CRITICAL CARE UNITS (UNCHANGED):

- All critical care units i.e., Intensive Coronary Care Unit (ICU), Critical Care Unit (CCU), Intensive Coronary Care Unit (ICCU), and Neonatal Intensive Care Unit (NICU) are fully exempt from GST regardless of cost. This ensures that lifesaving care remains tax-free.

- Non-intensive care unit (ICU) rooms above ₹5,000 per day would attract 5% GST without input tax credit.

GST EXEMPT ON CORE MEDICAL SERVICES (UNCHANGED):

- Core medical services provided by hospitals, doctors, and paramedics remain GST-exempt, keeping treatment itself untaxed.

PUSH TOWARDS PREVENTIVE HEALTHCARE:

- GST on gymnasiums, fitness centres, yoga studios, salons, barbers and wellness services is down from 18% to 5%.
- Cigarettes remain heavily taxed at 28% GST plus compensation cess, which adds up to an effective tax of between 52% and 88%.
- A new 40% sin goods slab has been announced but will only apply once cess liabilities are cleared.
- Sugary drinks (whether aerated, sweetened, or flavored) have been moved to the new 40% slab, up from 28% plus cess, to discourage consumption.

SIGNIFICANCE:

- **Increase insurance coverage:** Insurance coverage in India is only ~3.7% of GDP at present, compared to a global average of 6.8%. However, clear monitoring is required to ensure insurance providers pass on the GST benefit to the consumers.
- **Reduce OOPE**: Share of Out-of-Pocket Expenditure (OOPE) in Total Health Expenditure was around 47% in FY20. Cutting costs for life-saving medicines, simplifying taxes on equipment, and lowering rates on preventive services supports the entire health-care chain and would reduce OOPE.

05 AEDES-BORNE VIRAL DISEASES AND THEIR CONTROL

Aedes-borne Viral Diseases (ABVD) that include Dengue, Zika, and Chikungunya hurt India's productivity. Aedes aegypti mosquitoes bite during the day time. Mosquito control methods like outdoor fumigation are not that effective, which necessitates revised strategies against Aedes Mosquitoes.

AEDES MOSQUITO: CARRIER OF VIRAL DISEASES

- **Genus:** Aedes
- **Main species:**
  - Aedes aegypti (primary vector in India)
  - Aedes albopictus (Asian tiger mosquito, expanding globally)
- **Breeding:** Stagnant clean water (containers, tyres, coolers, tanks, pots).
- **Biting habits:** Day-biter (peaks in early morning & late afternoon).

MAJOR AEDES-BORNE VIRAL DISEASES

- **Dengue**
  - **Virus:** Dengue virus (DENV – Flavivirus; 4 serotypes: DENV-1 to DENV-4).
  - **Symptoms:** Sudden fever, headache, retro-orbital pain, joint/muscle pain ("break-bone fever"), rash.
  - **Severe forms: Dengue Hemorrhagic Fever (DHF)** & **Dengue Shock Syndrome (DSS)**.
  - **India:** Endemic in >30 states; peak post-monsoon.

- **Chikungunya**
  - **Virus:** Chikungunya virus (CHIKV – Alphavirus, Togaviridae).
  - **Symptoms:** High fever, severe joint pain (can persist for months), rash, fatigue.
  - Not usually fatal but causes chronic morbidity.

- **Zika Virus Disease**
  - **Virus:** Zika virus (Flavivirus).
  - **Symptoms:** Mild fever, rash, conjunctivitis, joint pain.
  - **Severe impact: Microcephaly in newborns** if infection occurs during pregnancy; also linked to Guillain–Barré syndrome.
  - **India:** First major outbreak in Rajasthan (2018).

- **Yellow Fever** (not endemic in India, but risk due to travel)
  - **Virus:** Yellow Fever virus (Flavivirus).
  - **Symptoms:** Acute fever, jaundice, bleeding, multi-organ failure.
  - **Endemic:** Sub-Saharan Africa, South America.
  - India maintains **strict vaccination requirements** for travelers.

- **Other emerging infections**
  - Mayaro virus, Rift Valley Fever virus (in Africa, not yet in India).
  - Rising concern due to **climate change & global travel**.
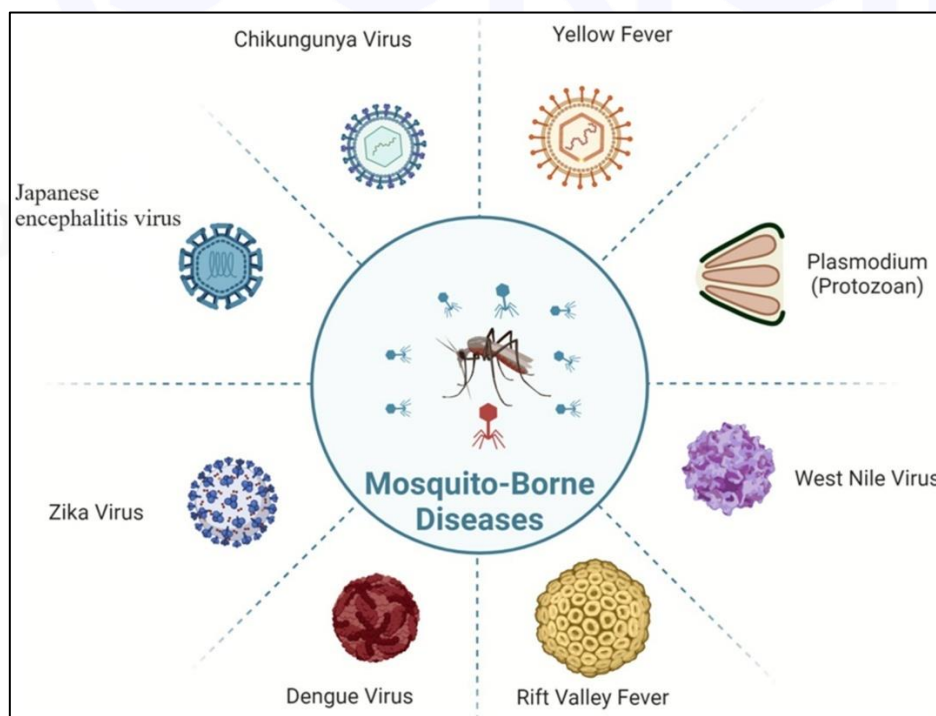
KEY CHARACTERISTICS OF AEDES–BORNE DISEASES

- **Transmission:** Human–mosquito–human cycle.

- **Incubation period:** 4–10 days.

- **Vector:** Female Aedes aegypti and A. albopictus.

- **Control challenge:** Multiple viruses transmitted by same mosquito.

- **No specific antiviral treatment** → management is supportive (fluids, rest, paracetamol).

- **Vaccines:**

  - **Dengue:** Limited vaccines (e.g., Dengvaxia – WHO approved, but restricted use).

  - **Yellow Fever:** Highly effective vaccine.

  - No licensed vaccine yet for Chikungunya & Zika.

PREVENTION & CONTROL

- **Vector control**

  - **Source reduction:** Eliminate stagnant water (weekly cleaning).

  - Larvicides (temephos, biological control with Gambusia fish).

  - Fogging during outbreaks.

- **Personal protection**

  - Mosquito repellents, nets (though less effective for day-biters), long-sleeved clothing.

- **Surveillance**

  - Integrated Disease Surveillance Programme (IDSP).

  - NVBDCP (National Vector Borne Disease Control Programme).

- **Community participation**

  - **IEC campaigns:** "Dry Day" to empty containers weekly.

  - Swachh Bharat Mission contributes indirectly.

WOLBACHIA METHOD FOR MOSQUITO CONTROL

- **Introduction of Wolbachia into Aedes aegypti**

  - Scientists infect Aedes mosquitoes with Wolbachia in labs.

  - Released into wild → they mate with local mosquitoes.

- **Mechanism**
  - **Biological interference:** Wolbachia competes with viruses like **Dengue, Zika, Chikungunya** inside the mosquito body, blocking viral replication.
  - **Reproductive modification:**
    - Infected male × Uninfected female → no viable offspring (population suppression).
    - Infected female × Any male → infected offspring (population replacement, with Wolbachia trait spreading).

- **Approaches**
  - **Population suppression:** Reduce mosquito numbers through reproductive failure.
  - **Population replacement:** Replace wild mosquito population with Wolbachia-carrying mosquitoes that can't effectively transmit viruses.

Wolbachia is injected into dengue vector (*Aedes aegypti*) eggs

Wolbachia infected × Wild Vector

Eggs do not hatch due to Cytoplasmic Incompatibility
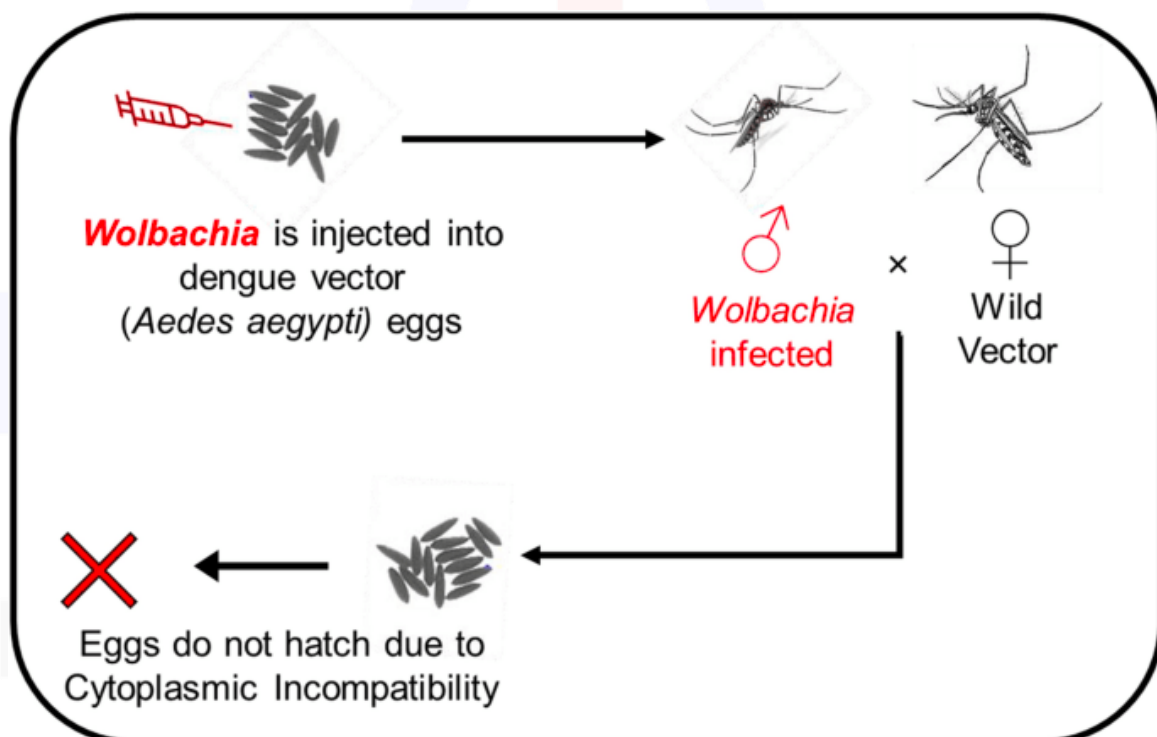
ADVANTAGES

- **Environmentally friendly:** Uses natural bacteria, not chemical insecticides.
- **Self-sustaining:** Once established, Wolbachia spreads naturally.
- **Targets multiple viruses simultaneously** (Dengue, Zika, Chikungunya, Yellow Fever).
- **Reduces insecticide resistance issues.**

- **Safe for humans and animals** (Wolbachia doesn't infect mammals).

CHALLENGES / CONCERNS

- **Initial establishment difficult** in some regions (competition with wild mosquito populations).

- Requires **mass rearing and release** of infected mosquitoes.

- **Long-term monitoring** needed to ensure stability of Wolbachia strains.

- Public perception: fear/misunderstanding about releasing modified mosquitoes.

- Not a standalone solution → must be integrated with **vector control programmes**.

GLOBAL & INDIAN CONTEXT

- **World Mosquito Program (WMP):** Successfully trialed Wolbachia releases in Australia, Brazil, Vietnam, Indonesia.

- Reported **up to 77% reduction in Dengue cases** in Wolbachia zones.

- **India:**

  - ICMR & other research bodies are studying Wolbachia-based strategies.

  - Still at pilot/trial stage, not yet widely deployed.

  - Integrated into discussions on **National Vector Borne Disease Control Programme (NVBDCP)**.

06   INDIA–CHINA BORDER RELATIONS

India and China have renewed diplomatic activity such as border patrol agreements, resumption of direct flights and efforts to expand trade and cultural exchanges.

India-China border is un-demarcated and is referred to as the Line of Actual Control (LAC). The border length is around 3,488 km as per India, while China claims it to be about 2,000 km. The different interpretations by the two countries leads to frequent disputes.

THE BORDER IS DIVIDED INTO THREE MAIN SECTORS

- **Western Sector** (Ladakh, ~1597 km): Aksai Chin (~38,000 sq. km) under Chinese occupation, and China also controls Shaksgam Valley ceded by Pakistan in 1963.

- **Middle Sector** (Himachal Pradesh and Uttarakhand, ~545 km) which is the least disputed, though differences exist near the Barahoti plains.

- **Eastern Sector (**Arunachal Pradesh and Sikkim, ~1346 km) where China claims about 90,000 sq. km of Arunachal Pradesh as "South Tibet," while the Sikkim boundary is formally settled but still faces PLA activity.
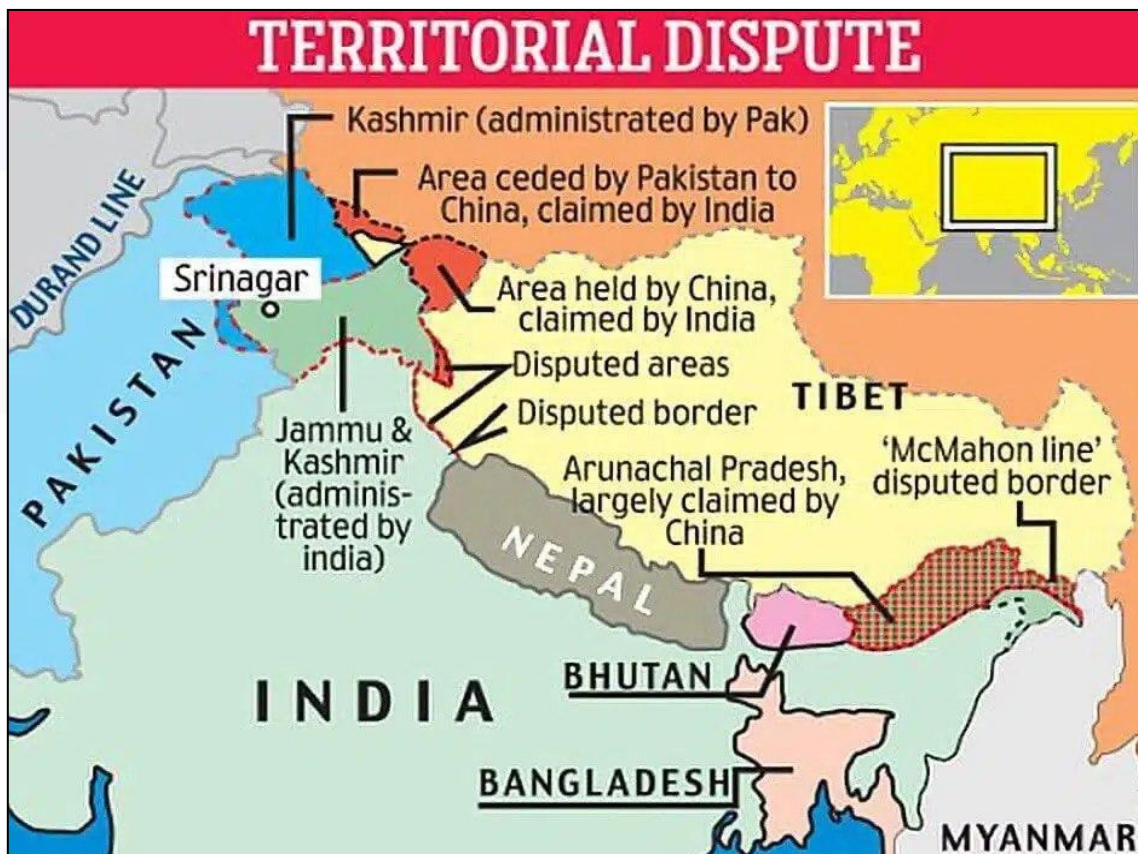

THE BORDER IS DIVIDED INTO THREE MAIN SECTORS:

- **Western Sector (Ladakh, ~1,597 km)** where India claims Aksai Chin (~38,000 sq. km) under Chinese occupation, and China also controls the Shaksgam Valley ceded by Pakistan in 1963.

- **Middle Sector (Himachal Pradesh and Uttarakhand, ~545 km)** which is the least disputed, though differences exist near the Barahoti plains.

- **Eastern Sector (Arunachal Pradesh and Sikkim, ~1,346 km)** where China claims about 90,000 sq. km of Arunachal Pradesh as "South Tibet," while the Sikkim boundary is formally settled but still faces China's People's Liberation Army (PLA) activity

INDIA–CHINA BORDER DISPUTE

- **Historically, the 1914 Simla Agreement** drew the McMahon Line between British India and Tibet, but China rejected it.

- **China occupied Tibet in 1950** and built a road in Aksai Chin in the 1950s.

- **The 1962 India-China war** resulted in India's defeat, with China retaining Aksai Chin and withdrawing from its advances in Arunachal Pradesh, leaving the boundary issue unresolved. India-China relations after the 1962 war remained tense, with little progress on the boundary dispute.

- **In 1988, Rajiv Gandhi's** visit to Beijing marked a turning point, as it re-opened dialogue after decades of mistrust.

- However, political instability in India (1989-1991) slowed progress until P.V. Narasimha Rao's government (1991-1996) was able to re-focus on China.

TERRITORIAL DISPUTE

- Kashmir (administrated by Pak)
- Area ceded by Pakistan to China, claimed by India
- Area held by China, claimed by India
- Disputed areas
- Disputed border
- Jammu & Kashmir (administrated by india)
- Arunachal Pradesh, largely claimed by China
- 'McMahon line' disputed border

DURAND LINE
Srinagar
PAKISTAN
NEPAL
TIBET
INDIA
BHUTAN
BANGLADESH
MYANMAR

INITIAL STEPS (1988–1992):

- Between 1988 and 1993, six rounds of talks of the Joint Working Group (JWG) were held.

- The dialogue included both diplomats and military commanders, with first meetings at Bum La (eastern sector) and Chushul/Moldo (western sector) in 1992.

- Border trade resumed in 1992 after a gap of over 30 years, and consulates were re-opened in Mumbai and Shanghai in December 1992.

BORDER PEACE AND TRANQUILLITY AGREEMENT (BPTA), 1993:

- Signed during Prime Minister Narasimha Rao's visit to Beijing in September 1993.

- **Core Principle:** The boundary dispute would be resolved peacefully, and neither side would use or threaten force.

- **The Agreement recognized the Line of Actual Control (LAC) for the first time in an official bilateral document. Both sides agreed:**

  - Not to cross the LAC; if intrusions occurred, forces would withdraw upon caution.

  - To jointly check and determine contested segments of the LAC.

  - To maintain minimal force levels along the LAC and reduce them on the principle of mutual and equal security.

  - To freeze the military situation, acknowledging India's geographic disadvantage compared to China's easy access through the Tibetan plateau.

  - The agreement emphasized setting aside the boundary dispute to build cooperation in other areas.

1996 AGREEMENT ON CONFIDENCE–BUILDING MEASURES:

- Signed during Chinese President Jiang Zemin's visit to India in 1996.

- Expanded upon the 1993 BPTA by specifying military confidence-building measures (CBMs).

- **Both sides agreed:**

  - Not to use force and to continue peaceful consultations.

  - To reduce or limit military forces and heavy weaponry (tanks, artillery, missiles) in border areas.

- o To avoid large-scale military exercises near the LAC; if held, exercises would be directed away from the other side.
- o **Article X:** Stressed the need for a common understanding of the LAC alignment. Both sides committed to exchange maps for clarification and confirmation.

CHALLENGE OF LAC CLARIFICATION

- In 2000, both sides exchanged maps of the relatively undisputed Central sector.

- In 2002, maps of the western sector were exchanged, but were rejected within minutes as they represented maximalist positions of both sides.

- By 2005, efforts to clarify the LAC were abandoned.

- Key contested areas included: Samar Langpa, Trig Heights, Depsang, Kong Ka La, Pangong Tso, Spanggur Gap, Mount Sajun, Dumchele, Demchok, and Chumar. These same areas became flashpoints in later standoffs, including in 2020.

- The 1993 and 1996 agreements marked important milestones in institutionalizing peace and stability along the border. However, the failure to define and clarify the LAC meant that the agreements could only postpone and not prevent future confrontations.

- The failure to achieve a mutually accepted definition of the Line of Actual Control left the core dispute unresolved making subsequent tensions and face-offs inevitable.

07 INS ARAVALI NAVAL BASE

The Indian Navy has commissioned its latest naval base- INS Aravali at Gurugram, Haryana designed to strengthen the Navy's information and communication infrastructure.

INS ARAVALI: OVERVIEW

- **Name**: INS Aravali
- **Commissioned**: 12 September 2025
- **Location**: Gurugram (Gurugram district), Haryana
- **Type**: Inland naval base / shore establishment (a "stone frigate") — not a seagoing ship but a land-based facility dedicated to maritime domain awareness, command & control, communication, data fusion etc.

KEY FUNCTIONS & ROLES

- **Maritime Domain Awareness (MDA) Support**
  - Enhances India's ability to monitor, track, and respond to maritime threats in the Indian Ocean Region (IOR).
  - Supports existing naval and security information centres: Information Management and Analysis Centre (IMAC), Information Fusion Centre – Indian Ocean Region (IFC-IOR).

- **Command, Control & Communication (C3) Enhancements**
  - Acts as a hub to integrate information, communication, surveillance, reconnaissance and data analytics.
  - Facilitates real-time sharing of information, enabling timely decision making.

- **Technology & Data Fusion**
  - Uses advanced technologies: AI, big data analytics, satellite inputs, coastal radar chain etc.
  - Helps fuse multiple intelligence and information sources into a coherent maritime picture.

- **Interagency & International Collaboration**
  - Aids coordination among different naval units, maritime surveillance agencies, allied stakeholders.
  - Strengthens India's role as a security partner in the IOR.

- **Administrative and Logistical Support**
    - Provides support for naval infrastructure, information operations and communications from inland location.

SYMBOLISM & IDENTITY

- **Name Origin**: Named after the Aravali Mountain range, symbolizing resilience and steadfastness.

- **Motto**: "सामुद्रिकसुरक्षायाः सहयोगं" (Maritime Security through Collaboration)

- **Crest**:

    - Central mountain imagery → strength of Aravali Range

    - Rising sun → vigilance, resilience, dawn of new technological capability in MDA & communications.

STRATEGIC & GEOPOLITICAL SIGNIFICANCE

- Being inland (in NCR), it ensures **strategic depth** from coastal threats while enabling better coordination with national decision-making centres (proximity to Delhi).

- Helps India enhance its **real-time surveillance capabilities** and strengthen overall maritime security posture.

- Aligns with India's vision of **MAHASAGAR** (Mutual and Holistic Advancement for Security and Growth Across Regions) – a collaborative security framework in the Indian Ocean.

08	KOLHAN'S MANKI–MUNDA SYSTEM

Adivasis from the Ho tribe staged a protest in Jharkhand's West Singhbhum district against the Deputy Commissioner (DC) accusing him of interfering with their traditional self-governance system known as Manki-Munda system.
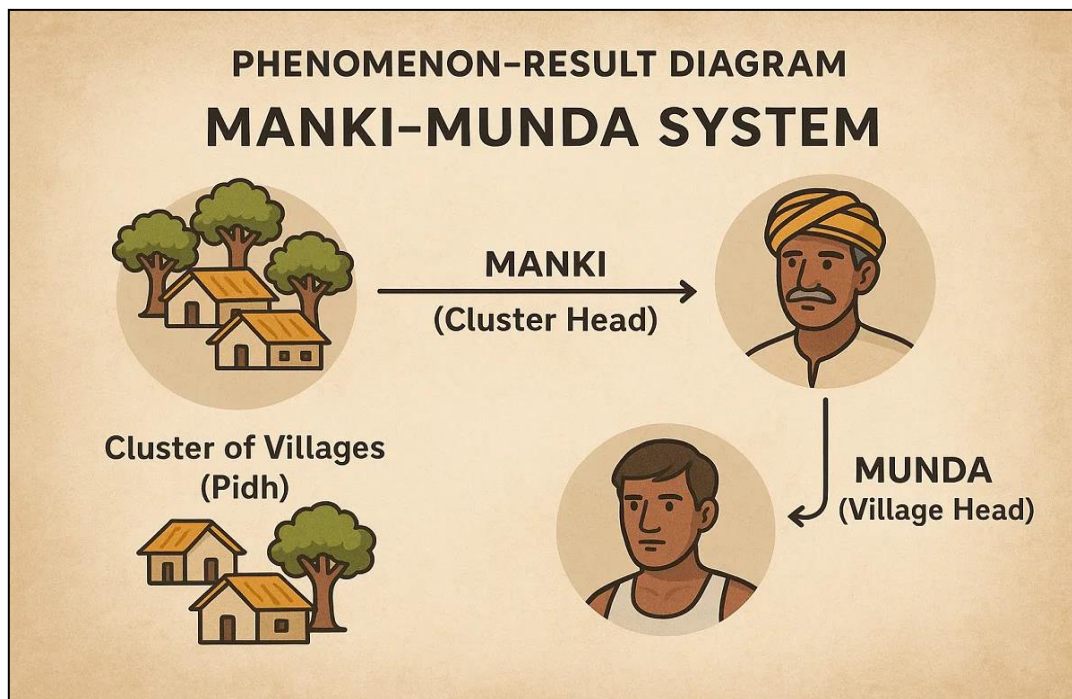
The **Manki-Munda system** is a **traditional tribal administrative system** of the **Kolhan region** in present-day **Jharkhand** (mainly West Singhbhum district). It is one of the oldest self-governing institutions among the **Ho tribe** and neighbouring tribal groups.

KEY FEATURES OF THE MANKI–MUNDA SYSTEM

- **Historical Background**
  - The system has existed since pre-colonial times as a **customary governance framework** among the Ho and other tribes of Kolhan.
  - The British recognized it in **1837** after the Kolhan Uprising, when the British established the Kolhan Government Estate and formalized the system for local administration.

- **Structure**
  - **Manki**: Head of a group of villages (usually 15–20).
  - **Munda**: Head of a single village, functioning under the Manki.
  - **Manjhi / Dakua**: Village messengers or assistants who help Mundas in implementing orders.

- **Functions**
    - **Judicial Role**: Settlement of disputes (land, marriage, inheritance, social issues) through customary laws.
    - **Administrative Role**: Collection of rent/revenue during British rule, maintaining order in villages.
    - **Cultural Role**: Preservation of tribal traditions, rituals, festivals, and customary practices.
    - **Community Welfare**: Regulation of common resources (land, forest, water).
- **British Recognition**
    - Instead of dismantling it, the British co-opted the system for indirect rule.
    - The **Kolhan Superintendent** acted as overall authority, but day-to-day governance was through the Manki-Munda hierarchy.
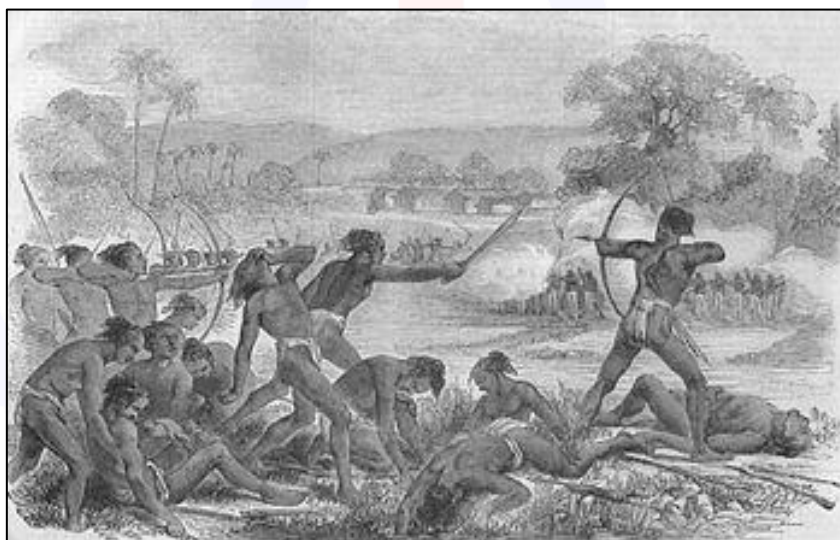
WILKINSON'S RULES (1833):

- The British appointed **Captain Thomas Wilkinson** as their Political Agent in the Kolhan Government Estate (KGE), an administrative unit created in 1837 to control the Ho-dominated region.

- Wilkinson codified the Manki-Munda system into 31 rules, which became known as Wilkinson's Rules. This was the **first formal codification** of any tribal self-governance system in India.

- The rules recognised Mundas and Mankis as community leaders but turned them into agents of colonial administration.This codification facilitated the **integration of Kolhan into British India** and **allowed the entry of non-tribal settlers (dikkus).**

- It also introduced private property, pattas, and the designation of Ho people as **raiyats** (tenants).

PRESENT STATUS

- The system still exists in **West Singhbhum and adjoining areas**.

- The **Chotanagpur Tenancy Act, 1908** and **Santhal Parganas Tenancy Act, 1949** legally protect tribal customary governance systems like Manki-Munda.

- Today, it functions parallel to the **Panchayati Raj Institutions (PRIs)**. In tribal villages, **Mundas and Mankis still hold strong social legitimacy**.

ISSUES WITH THE MANKI–MUNDA SYSTEM

- **Hereditary Succession:** The posts of Munda and Manki are hereditary, usually passed from father to son. This restricts opportunities for capable individuals.

- **Lack of Formal Education:** Many traditional leaders lack literacy and training needed to manage land records, documents, and modern governance tasks.

- **Absentee Leadership:** In several cases, Mundas stay away from villages for long periods, preventing villagers from accessing basic services.

- **Tensions with Non-Tribal Communities:** Non-tribal groups such as Scheduled Castes and OBCs residing in Ho-dominated villages have complained of discrimination and restrictions on their livelihoods.

- **Vacant Posts:** Out of around 1,850 sanctioned posts of Mankis and Mundas in West Singhbhum, nearly 200 are vacant, which hampers effective governance at the grassroots level.

- **Limited Understanding of Rules:** Most leaders do not fully understand Wilkinson's Rules or the 1837 Hukuknama, which complicates dispute resolution.

- **Dependence on state officials:** Villagers often bypass Mankis and Mundas and approach the Deputy Commissioner, reducing the authority of the system.

HO TRIBE

Ho tribe is one of the **major tribal communities of India**, primarily inhabiting the **Kolhan region of Jharkhand** (especially West Singhbhum), and also parts of **Odisha, Chhattisgarh, Bihar, and West Bengal**.

KEY FACTS ABOUT THE HO TRIBE

NAME & IDENTITY

- The word **"Ho"** means **"human being"** in their own language.

- Closely related to **Munda, Santhal, and Oraon tribes** in cultural and linguistic terms.

- They are classified as a **Scheduled Tribe (ST)** under the Indian Constitution.

POPULATION & DISTRIBUTION

- According to **Census 2011**, population is about **1.5 million (15 lakh)**.

- Concentrated mainly in **Singhbhum (Jharkhand)**, **Keonjhar & Mayurbhanj (Odisha)**, and smaller pockets in **Chhattisgarh, Bihar, West Bengal, and Assam**.

LANGUAGE

- Speak the **Ho language**, which belongs to the **Austroasiatic (Munda) language family**.

- Written in **Warang Citi script**, developed by **Pandit Raghunath Murmu** in 1940s.

- Also use Odia, Hindi, and Nagpuri in mixed regions.

SOCIETY & ADMINISTRATION

- Traditionally follow the **Manki-Munda system**:

  - **Munda** = village head.

  - **Manki** = head of a cluster of villages.

- Strong emphasis on **collective decision-making** through village councils (*panch*).

- Lineage is **patrilineal**, and clans (*kili*) regulate marriage alliances.

ECONOMY

- Primarily **agrarian** – practice subsistence farming (rice, maize, millet).

- Depend heavily on **forests** for firewood, fruits, mahua flowers, lac, tendu leaves.

- Also skilled in **iron smelting, woodwork, and handicrafts**.

RELIGION & BELIEFS

- Traditionally follow **Sarhul** (nature worship, reverence of Sal tree and spirits).

- Believe in a **supreme deity Singbonga (Sun God)**.

- Ancestor worship and spirit appeasement are integral.

- A significant section has also adopted **Christianity** due to missionary activity.

FESTIVALS

- **Mage Parab**: major festival, harvest-related, celebrated with dance and songs.

- **Baa Parab, Sohrai, Jomnamah**: agricultural and seasonal festivals.

- Rich tradition of **dance (Chhau, Domkach), music, and folk songs**.

CULTURE

- **Distinctive tribal attire:** men wear **loincloths (bhagwan)**; women wear **sarees with tribal jewelry**.

- Known for their **martial traditions** and **resistance to British colonial rule**.

  - Participated in **Kol Uprising (1831–32)**.

  - Fierce defenders of their land in Kolhan against outsiders.

09	ERRA MATTI DIBBALU

Erra Matti Dibbalu or red sand dunes in Visakhapatnam have been included in the UNESCO Tentative List of World Heritage Sites.

UNESCO TENTATIVE LIST OF WORLD HERITAGE SITES

India's **UNESCO Tentative List of World Heritage Sites** has expanded to include **69 properties**, comprising **49 cultural**, **17 natural**, and **3 mixed** heritage sites. This list serves as a preliminary inventory of sites that a country intends to nominate for inclusion on the World Heritage List, which recognizes sites of outstanding universal value.

UNESCO TENTATIVE LIST OF WORLD HERITAGE SITES

- The **Tentative List** is an **inventory of properties** that a country considers to nominate for inscription as a **World Heritage Site** under UNESCO's World Heritage Convention (1972).

- It is a **prerequisite step** before any site can be formally nominated for the World Heritage List.

- Only sites on a country's Tentative List can be nominated for full World Heritage status.

PURPOSE

- Helps UNESCO and the nominating country **plan and prepare documentation** for World Heritage nomination.

- Encourages countries to identify and preserve **cultural, natural, and mixed heritage sites** of outstanding universal value.

- Allows time for **evaluation, research, conservation measures, and stakeholder consultation**.

TYPES OF HERITAGE SITES

Tentative Lists include three categories:

- **Cultural Heritage Sites** – monuments, archaeological sites, historic towns.

- **Natural Heritage Sites** – landscapes, forests, geological formations, biodiversity hotspots.

- **Mixed Heritage Sites** – sites with both cultural and natural significance.

PROCESS FOR INCLUSION

- Country identifies and evaluates sites of heritage significance.

- Sites are placed on the **Tentative List** and submitted to UNESCO.

- The Tentative List must be updated regularly (at least every 10 years).

- Only after being on the Tentative List can a site be **nominated for World Heritage inscription**.
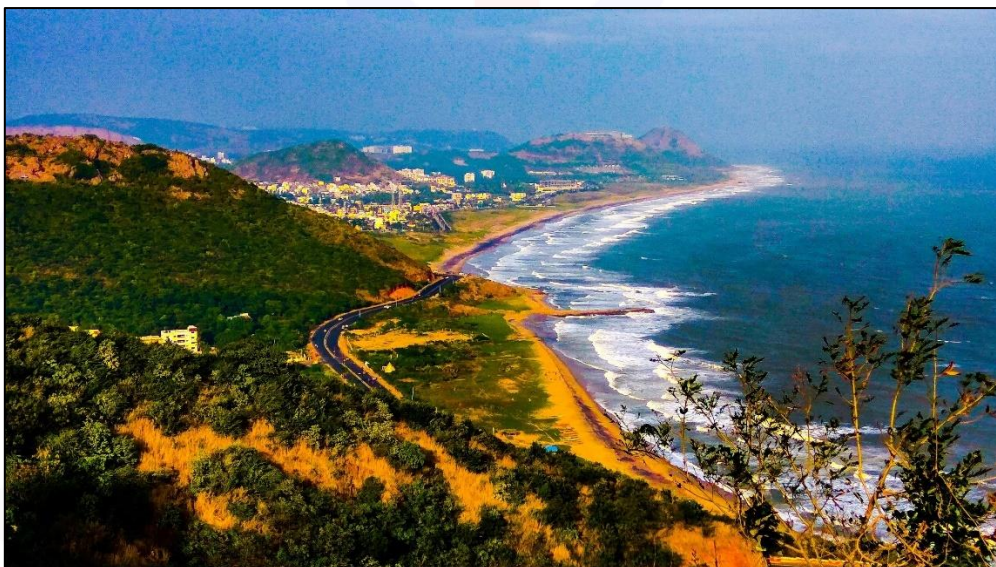
RECENT ADDITIONS (SEPTEMBER 2025)

In September 2025, India added **seven new natural heritage sites** to its Tentative List, increasing the total number of sites under consideration by UNESCO.

NOTABLE SITES ON THE TENTATIVE LIST

- **Deccan Traps (Panchgani and Mahabaleshwar, Maharashtra)**: These are some of the best-preserved and studied lava flows in the world, forming part of the massive Deccan Traps and located within the Koyna Wildlife Sanctuary.

- **Maratha Military Landscapes (Maharashtra and Tamil Nadu)**: A group of 12 forts that were occupied and developed by the Maratha rulers between the 17th and 19th centuries, showcasing the military prowess of Maratha rule.

- **Mudumal Megalithic Menhirs (Telangana)**: A site featuring ancient megalithic structures, reflecting the region's prehistoric cultural practices.

- **Kanger Valley National Park (Chhattisgarh)**: A biodiversity hotspot with rare limestone caves and dense forests, home to endemic species like the Bastar Hill Myna.

- **Ashokan Edicts (Madhya Pradesh)**: Ancient inscriptions by Emperor Ashoka, offering insights into his policies and the spread of Buddhism.

ERRA MATTI DIBBALU

- **Location**

  - Situated near **Bheemunipatnam (Bheemili)**, around **25 km from Visakhapatnam city**, Andhra Pradesh.

  - Stretch along the Bay of Bengal coast.

- **Geological Significance**

  - These are **natural red sand formations**, locally called *Erra Matti Dibbalu* (meaning "Red Sand Hills" in Telugu).

  - Estimated age: **12,000–18,000 years old** (Late Pleistocene epoch).

  - Composed of **reddish ferruginous sand**, shaped by **wind, water, and climatic conditions**.

  - Represent rare **paleoclimatic and paleoenvironmental records** of the Indian subcontinent.

- **Unique Features**

  - Among the **few natural sand dune formations in India**, comparable only with formations in **Tamil Nadu and Odisha**.

  - Declared a **Geo-Heritage Site by the Geological Survey of India (GSI)**.

  - Evidence of **prehistoric human settlement** found in the area (stone tools, artifacts).

| 10 | INTEGRITY OF DNA (DEOXYRIBONUCLEIC ACID) |

The Supreme Court has issued uniform guidelines to ensure the integrity of DNA (deoxyribonucleic acid) samples in criminal cases.

IMPORTANCE OF DNA EVIDENCE IN CRIMINAL CASES:

- DNA is a molecule that **encodes the genetic information** in all living organisms. It can be obtained from biological materials, such as bone, blood, semen, saliva, hair, or skin.

- Generally, when the DNA profile of a sample found at a crime scene matches the DNA profile of a suspect, it can be concluded that both samples have the same biological origin. However, it is **not substantive evidence in criminal cases.**
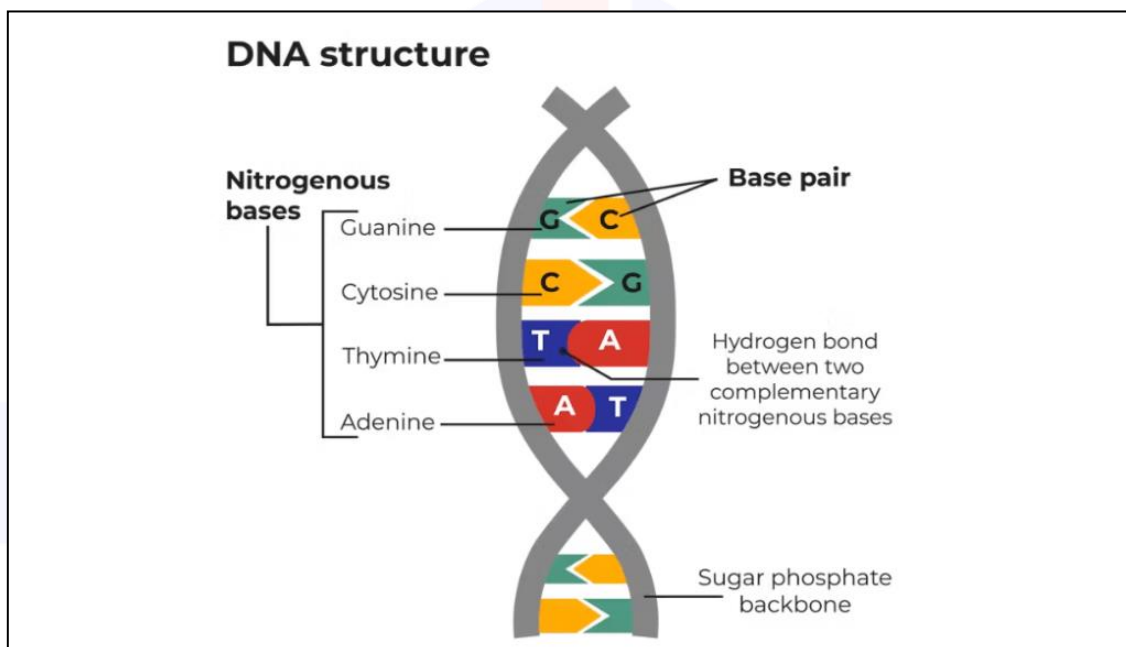
WHAT DO SC GUIDELINES SAY ON DNA?

The SC in Kattavellai @ Devakar v. State of Tamil Nadu has issued four guidelines for cases where DNA evidence is involved.

- **Collection and documentation**: DNA samples must be collected with due care, appropriately packed and labelled (FIR number and date, sections and statutes involved, details of the investigating officer, police station). The document must include the signatures and designations of the medical professional present, investigating officer, and independent witnesses.

- **Transportation**: The investigating officer must ensure that the samples reach the concerned Forensic Science Lab within 48 hours of collection. The reasons for delay (if any) must be recorded, and samples should be preserved.

- **Storage**: No package shall be opened, altered, or resealed without express authorization from the trial court.

- **Chain of Custody Register** (logbook that tracks DNA sample till the case ends) must be maintained. The investigating officer is responsible for explaining any lapses in compliance.

NEED TO ISSUE THE DIRECTIONS:

- Though some guidelines have been issued by various bodies, there is **neither uniformity nor a common procedure** to be followed by all investigating authorities.

- 'Police' and 'Public Order' are subjects mentioned in the State List of the Seventh Schedule of the Constitution, but the SC deemed it necessary to issue these guidelines to have **uniformity of procedure**.

- Past rulings show that lapses in handling have **led to DNA reports being rejected,** making both proper collection and quality control essential.

- Unexplained delays in sending DNA samples to the Forensic Laboratory (FSL) can **risk the possibility of sample contamination.**

ASSOCIATED COURT RULINGS:

- **In Anil v. State of Maharashtra (2014):** The SC observed that a DNA profile is valid and reliable, but this depends on quality control and procedure in the laboratory.

- **Manoj v. State of Madhya Pradesh (2022):** The SC rejected a DNA report on the ground that recovery was made from an open area and the likelihood of its contamination cannot be ruled out. The blood stains found on the articles were disintegrated, and the quantity was insufficient to run any classification test.

- **Rahul v. State of Delhi (2022):** The DNA evidence was rejected because it remained in the Police Malkhana for two months and during such time, the possibility of tampering could not be ruled out.

- **Kattavellai @ Devakar v. State of Tamil Nadu (2025)**: The SC stated that DNA evidence is in the nature of opinion evidence as envisaged under Section 45 of the Evidence Act. Like any other opinion evidence, its probative value varies from case to case. Therefore, DNA evidence must be proved scientifically and legally.
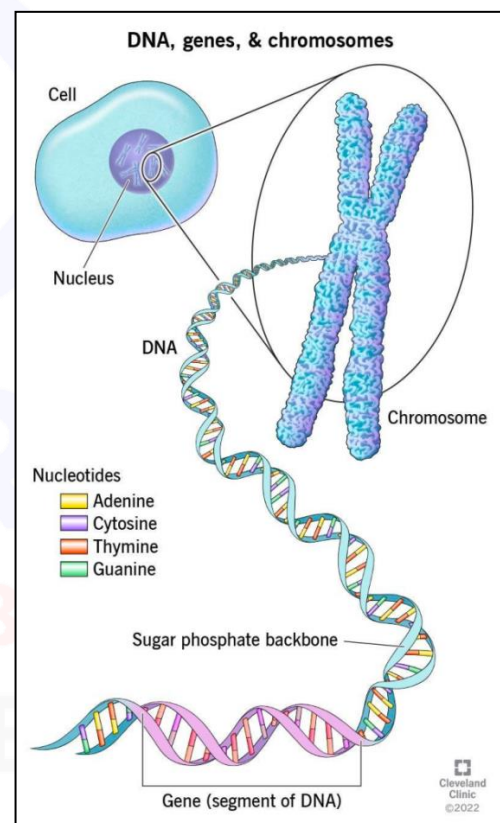
WHAT IS DNA PROFILING?

- DNA profiling/DNA Fingerprinting is the technique used to **identify individuals** by analysing the **unique patterns** in their DNA.

- The process involves analysing the **Short Tandem Repeats** (STRs) which are highly specific to each individual (except identical twins).

THE BASICS OF CELL AND DNA:

- Each cell in the human body has **23 pairs of chromosomes** (46 total chromosomes).

- Chromosomes are thread-like structures made of **DNA** and proteins, found in the nucleus of cells.

- One chromosome of each pair is **inherited** via the mother's egg and the other via the father's sperm.

- **DNA** (deoxyribonucleic acid) is a molecule that carries **genetic information.** It is composed of **four chemical bases:** adenine (A), cytosine (C), guanine (G), and thymidine (T).

- **Base-pairing:** A pairs with T, and G pairs with C, to form a double-helical structure.

- **The human genome** consists of **3.2 billion base-pairs** across 23 pairs of chromosomes. At several locations in the genome, some short DNA sequences are repeated multiple times, called **short tandem repeats** (STRs).

- For example, one strand of an STR locus might have multiple repeats of GGCCA (GGCCAGGCCAGGCCA...).

- The **DNA profile** of a person is **simply the number of times these sequences are repeated.** The number or pattern of repetition is unique to each individual, which can be analyzed by DNA profiling.

DNA, genes, & chromosomes

Cell
Nucleus
DNA
Chromosome

Nucleotides
- Adenine
- Cytosine
- Thymine
- Guanine

Sugar phosphate backbone

Gene (segment of DNA)

Cleveland Clinic ©2022

HOW IS A DNA FINGERPRINT PRODUCED?

- **Isolation**: Extraction of DNA from a biological sample (**E.g.,** blood, hair, saliva, semen etc.)

- **Fragmentation**: Break the DNA into smaller pieces using enzymes.

- **Amplification:** Make multiple copies of the DNA fragments by Polymerase Chain Reaction (PCR).

- **Separation**: Arrange DNA fragments by size using techniques such as gel electrophoresis.

- **Comparison**: Match the DNA profile to reference samples of DNA for identification.

APPLICATIONS OF DNA PROFILLING:

- Paternity determination.

- Criminal forensics (help solve crimes using DNA present at crime scene).

- Identification of victims in mass disasters.

- Establishing donor-recipient compatibility in organ transplants.

- Identification of alleles associated with particular genetic disorders (E.g., cystic fibrosis)

- Compare different species for classification purposes.

CHALLENGES ASSOCIATED WITH DNA PROFILLING:

- Cannot be used to identify identical twins.

- Reliability of DNA profiling depends on quality of the sample, expertise in laboratory analysis. The **process is not infallible** and various factors (like sample contamination, degradation, or mishandling) can impact the results.

- Storage of DNA profiles can be an invasion of privacy, and risk of theft of DNA profiles from a database.

- Risk of Racial and Communal profiling.
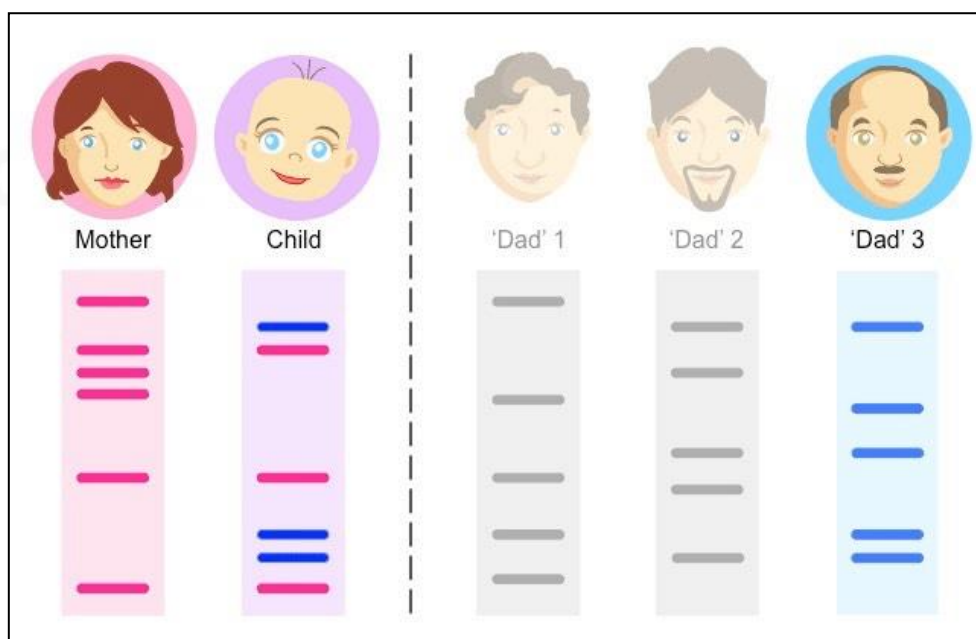
UPSC PYQ 2014

Question:	In addition to fingerprint scanning, which of the following can be used in the biometric identification of a person? **(2014)** 1. Iris scanning 2. Retinal scanning 3. Voice recognition Select the correct answer using the code given below:
Option A	1 only
Option B	2 and 3 only
Option C	1 and 3 only
Option D	1, 2 and 3
Answer:	**(d)** 1, 2 and 3

11 SCARBOROUGH SHOAL

China has approved the creation of a national reserve at Scarborough shoal - one of Asia's most contested maritime features and a diplomatic flashpoint between China and the Philippines.

RECENT DEVELOPMENTS:

- China has approved creation of a **national nature reserve at Scarborough Shoal** that it says is to preserve 3,524-hectare area of the coral reef ecosystem. It would cover the entire north-eastern side of the triangle-shaped atoll, with close proximity to the sole entrance for larger vessels.

- The Philippines has urged China to respect the sovereignty and jurisdiction of the Philippines over Scarborough Shoal, and any Chinese construction at Scarborough would be a red line.
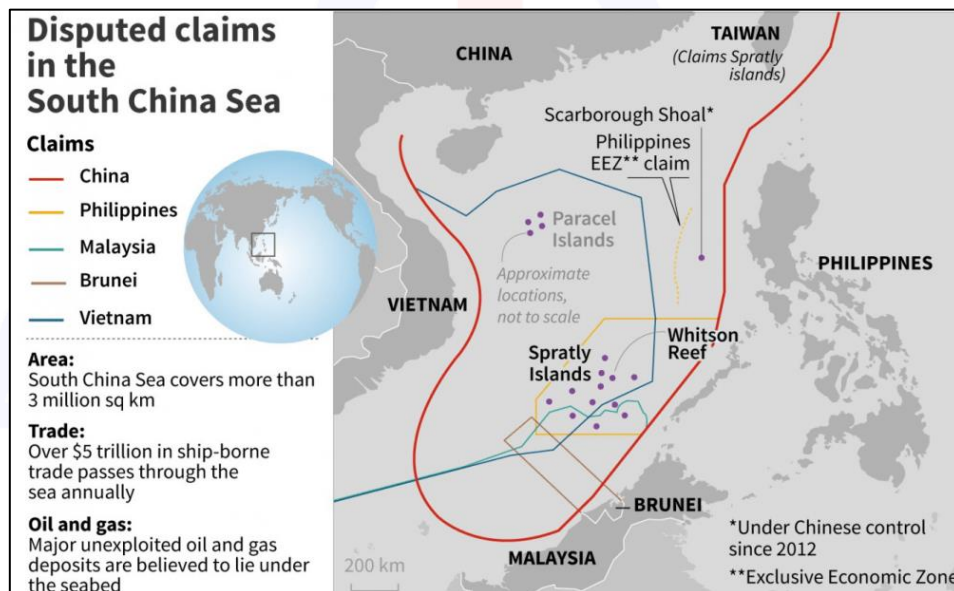
WHAT IS SCARBOROUGH SHOAL?

- **Scarborough Shoal** is a **small, submerged reef and group of rocks** located in the **South China Sea**, about **120 nautical miles (200 km) west of the Philippines**.

- Also known as:

  - **Bajo de Masinloc** — Philippines

  - **Huangyan Island** — China

- It lies within the **Philippines' Exclusive Economic Zone (EEZ)** under the United Nations Convention on the Law of the Sea (UNCLOS), but is **claimed and controlled by China** since 2012.

GEOGRAPHICAL FEATURES

- **Area:** Roughly **15 square km** at high tide, with a sheltered lagoon inside.
- **Significance:**
  - Rich fishing grounds (important for food security).
  - Coral reef ecosystem with biodiversity.
  - Strategic location controlling maritime routes in the South China Sea.

STRATEGIC IMPORTANCE

- Located in a **vital maritime trade corridor** connecting the Pacific and Indian Oceans.
- South China Sea is a hotspot for **energy transport, fisheries, and naval control** — controlling Scarborough Shoal gives a strategic advantage.
- Control over the shoal strengthens China's claim under its "Nine-Dash Line" assertion.

HISTORY OF DISPUTE

- Historically used by Filipino fishermen.
- Dispute between **China** and the **Philippines** intensified after the 1990s.
- In **2012**, a standoff between Chinese and Philippine vessels resulted in **effective Chinese control** of the shoal, despite the Philippines' legal claim.
- In **2016**, the Permanent Court of Arbitration (PCA) ruled in favor of the Philippines, stating China has no historic rights to Scarborough Shoal. China rejected this ruling.

CHINA'S PLANS

- In **September 2025**, China declared its intention to set up a **3,524-hectare National Nature Reserve** at Scarborough Shoal, with:

- o **Core zone** — covering the fringing reef.
  - o **Experimental zone** — extending 400–800 yards into surrounding waters.
- Official rationale: protection of marine biodiversity and coral reefs.
- Critics see this as a **strategic move to strengthen China's control** and limit access to Filipino fishermen and other navies.

REGIONAL & GLOBAL REACTIONS

- **Philippines:** Strong protest — calls China's plan "occupation by disguise." Philippines maintains sovereignty claim.
- **United States:** Criticised China's plan as "destabilizing" — reaffirms its commitment to Philippines under the **1951 Mutual Defense Treaty**.
- **ASEAN & International Community:** Concerned about stability and freedom of navigation in the South China Sea.

12 | INS ANDROTH: ANTI–SUBMARINE WARFARE SHALLOW WATERCRAFT

The Indian Navy has received an indigenously-built anti-submarine warfare ship that is expected to boost its maritime prowess against the backdrop of China's growing forays into the Indian Ocean.

INS ANDROTH: 2ND ANTI–SUBMARINE WARFARE SHALLOW WATERCRAFT

- INS Androth is the second of the 8 anti-submarine warfare-shallow watercraft (ASW-SWC).

- **INS Arnala** (named after the historic Arnala coastal fort in Vasai, Maharashtra), the first ASW-SWC was commissioned in June 2025.

- **Built by**: Garden Reach Shipbuilders and Engineers (GRSE) Kolkata.

- The name 'Androth' is derived from the **Androth Island** in the Lakshadweep archipelago.

KEY FEATURES OF INS ANDROTH:

- Measuring 77 meters in length, Arnala-class ship is the largest Indian Naval warship powered by a Diesel Engine-Waterjet combination.

- Advanced shallow water SONAR enables effective submarine detection and engagement in littoral zones.

- Equipped with state-of-the-art lightweight torpedoes and indigenous anti-submarine warfare rockets (ASW rockets).

ANTI-SUBMARINE WARFARE SHALLOW WATERCRAFT:

- The ASW SWCs are part of a **Rs 12,500 crore programme** to build **16 shallow water anti-submarine warfare vessels** under two contracts awarded in 2019.

- GRSE is building 8 vessels, while Cochin Shipyard Limited (CSL) will build the other eight.

- The vessels from GRSE will form the **Arnala-class**. The CSL-built ships will be classified as **Mahe-class**.

- The ASW-SWC ships are being inducted into the Navy to **strengthen its anti-submarine** and **coastal surveillance capabilities**.

SIGNIFICANCE

- **Strengthen India's maritime defence**: The vessels are designed to safeguard India's coastline and shallow waters against any threats. E.g., Guard against increasing presence of submarines in the Indian Ocean Region (IOR), including regular deployments by Chinese and Pakistani naval assets.

- **Self-reliance in defence manufacturing**: The ship has over 80% indigenous content and is a testament to growing domestic capabilities and reducing dependency on imports.

https://iasorigin.com/

13 — ANTICIPATORY BAIL UNDER THE SC/ST ACT 1989

The Supreme Court in Kiran vs Rajkumar Jivaraj Jain quashed the Bombay High Court order granting anticipatory bail to an accused of caste atrocities reaffirming the statutory bar under the Section 18 of the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act 1989.

WHAT IS ANTICIPATORY BAIL?

- Anticipatory bail is a **pre-arrest legal safeguard** provided under the Code of Criminal Procedure (now Section 482 of BNSS) allowing a person to seek bail in anticipation of arrest for a non-bailable offence.

- It is **preventive** in nature and distinct from regular bail, which is sought after arrest.

- It was recommended by the **Law Commission of India** to protect citizens against arbitrary or mala fide arrests.

- The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act 1989 explicitly excludes the application of Section 482 of BNSS which provides for anticipatory bail.

WHY IS ANTICIPATORY BAIL BARRED UNDER SC/ST ACT 1989?

- Parliament introduced this bar to protect victims from intimidation, harassment, and coercion by accused persons after registration of cases.

- The Supreme Court has upheld the constitutional validity of this bar in multiple judgments, holding that it does not violate **Article 14** (equality before law) or **Article 21** (right to life and liberty).

- Offences under the Act are **treated as a distinct class** because they are rooted in systemic untouchability, caste oppression, and social exclusion.

IN KIRAN VS RAJKUMAR JIVARAJ JAIN (2025):

- The Supreme Court quashed anticipatory bail granted by the Bombay High Court terming it a manifest error and jurisdictional illegality.
- It held that courts cannot conduct a mini-trial at the bail stage and must only check for a prima facie case.
- The ruling reinforced that the SC/ST Act is a substantive shield to protect dignity and security of vulnerable groups.

JUDICIAL PRECEDENTS:

- **State of M.P. vs Ram Krishna Balothia (1995),** the SC upheld the validity of Section 18 emphasising the need for strong deterrent measures.
- **Vilas Pandurang Pawar vs State of Maharashtra (2012),** the Court reiterated that anticipatory bail is statutorily barred when a prima facie case under the Act exists.
- **Prathvi Raj Chauhan vs Union of India (2020),** the Court clarified that anticipatory bail may be considered only if no prima facie offence under the Act is made out, but not otherwise.

SC/ST (PREVENTION OF ATROCITIES) ACT, 1989

The SC/ST Act was enacted in 1989 to prevent offences of atrocities against members of Scheduled Castes (SCs) and Scheduled Tribes (STs).

It was introduced because existing provisions under the Indian Penal Code (IPC) and other laws were found inadequate to protect vulnerable communities from caste-based violence, humiliation, and exploitation.

KEY PROVISIONS OF THE SC/ST ACT, 1989

- **Section 3:** Defines offences of atrocities, including caste-based abuse, social/economic boycotts, sexual violence, destruction of property, and denial of rights.

- **Section 4:** Penalises public servants for neglect of duty in preventing or investigating offences under the Act.

- **Section 14:** Provides for Special Courts to ensure speedy trial of offences.

- **Section 15A:** Grants rights to victims and witnesses, including protection, information, and participation in proceedings.

- **Section 18:** Bars the application of anticipatory bail for offences under the Act.

- **Section 19-23:** Lay down procedural safeguards such as burden of proof on the accused in certain cases, protection of witnesses, and state responsibility for relief and rehabilitation.

2015 Amendment: Expanded the list of offences and strengthened victim/witness protection. Added new offences such as:

- Garlanding with footwear, parading naked, or similar degrading acts.

- Wrongful dispossession from land or interference with land rights.

- Compelling bonded labour or manual scavenging.

- Preventing use of public resources (roads, water bodies, cremation grounds).

- Forcing to vote or not to vote.

- Social and economic boycotts.

- Filing false cases to harass SC/ST members.

14 SAUDI ARABIA–PAKISTAN DEFENCE PACT

On September 17, 2025, Saudi Arabia and Pakistan signed a landmark **Strategic Mutual Defense Agreement**, significantly enhancing their military cooperation.

KEY HIGHLIGHTS OF THE AGREEMENT

- **Mutual Defense Clause**: The pact stipulates that any aggression against either nation will be treated as an attack on both, reinforcing their strategic partnership.

- **Nuclear Cooperation**: Pakistan's Defense Minister confirmed that the country's nuclear capabilities could be extended to Saudi Arabia under the terms of the agreement, placing the Kingdom under Pakistan's nuclear umbrella.

- **Comprehensive Military Support**: The agreement encompasses all military means, including conventional forces, missile defense, and nuclear deterrence, aiming to strengthen joint deterrence against any aggression.

- **Strategic Timing**: The pact was formalized amid heightened regional tensions, particularly following Israeli airstrikes on Qatar, signaling a shift in Gulf security dynamics.

IMPLICATIONS

FOR INDIA:

- **Strategic Watchfulness:** Pact theoretically allows Pakistan to seek diplomatic or material backing in a future India–Pakistan conflict.

- **Limited Immediate Threat:** Saudi–India relations have deepened (USD 42.9 bn trade, defence cooperation, investments) — Riyadh unlikely to tilt overtly anti-India.

- **Opportunity for Diplomacy:** New Delhi must maintain Saudi engagement to ensure continued Arab neutrality in South Asian crises.

GLOBAL LEVEL:

- **Regional Security Realignment:** Strengthens Saudi deterrence against Iran, Yemen's Houthis, and Israel's unilateral actions.

- **U.S. Angle:** Reflects declining faith in American security umbrella; increases multipolarity in Gulf security architecture.

- **Nuclear Sensitivity:** Raises questions about potential nuclear sharing, though actual transfer of Pakistani nukes to Saudi is highly improbable given Israeli red lines.

- **Geopolitical Signalling:** Symbolic show of Islamic solidarity; Pakistan positions itself as pan-Islamic security provider.

WAY AHEAD FOR INDIA

- **Strengthen Strategic Engagement:** Deepen defence cooperation through training offers, joint exercises, and intelligence-sharing.

- **Energy Diplomacy:** Secure long-term crude & green hydrogen deals to reinforce mutual interdependence.

- **Track Security Shifts:** Monitor SMDA implementation and its practical footprint, including Pakistani troop deployments.

- **Boost Arabian Sea Synergy:** Enhance naval presence & maritime security cooperation to safeguard India's energy lifelines.

- **Leverage Economic Heft:** Use India's market size & diaspora links as a stabilizing factor in Indo-Saudi ties.

15 SURAJPUR – MODEL FOR CHILD MARRIAGE ERADICATION

Surajpur district in Chhattisgarh has declared 75 village panchayats as "Child Marriage-Free", marking a major milestone in the fight against child marriage.

Surajpur district in Chhattisgarh has emerged as a national model for eradicating child marriage, with 75 village panchayats officially declared "Child Marriage-Free" on September 17, 2025. This achievement highlights the power of community engagement, sustained awareness campaigns, and strong administrative commitment.

KEY HIGHLIGHTS

- **Historic Milestone**: On September 17, 2025, Surajpur announced that 75 village panchayats had no reported cases of child marriage over the past two years.

- **Statewide Initiative**: The success is part of the "Child Marriage-Free Chhattisgarh Campaign" launched in March 2024 by Chief Minister Vishnu Deo Sai with UNICEF's support.

- **Integrated Approach**: The declaration coincided with the launch of the "Healthy Women, Empowered Families" campaign and National Nutrition Month, emphasizing the link between delaying marriage and improving health outcomes.

IMPLEMENTATION STRATEGIES

- **Community Mobilization**: Active participation from Anganwadi workers, panchayat representatives, and voluntary organizations played a crucial role in spreading awareness about the detrimental effects of child marriage.

- **Awareness Campaigns**: Educational dialogues emphasized the importance of child rights, education, and the necessity of delaying marriage to ensure better health and socio-economic outcomes for girls.

- **Monitoring and Enforcement**: Strict monitoring and prompt action against any reported cases of child marriage ensured that the panchayats maintained their child marriage-free status.

BROADER IMPLICATIONS

- **Health and Nutrition**: Preventing child marriage not only safeguards girls' education but also significantly improves maternal and child health outcomes. Early marriages are linked to higher risks of malnutrition, anemia, and maternal and infant mortality.

- **Social Reform**: The initiative has strengthened education, child rights, women's health, and gender equality, demonstrating that societal change is achievable through collective efforts.

16	TRUMP IMPOSES $100,000 FEE ON H-1B VISAS

US President Donald Trump signed a proclamation imposing a $100,000 (₹88 lakh) fee on H-1B visa sponsorships, dramatically raising the cost for US firms hiring foreign skilled workers.

WHAT IS H1B VISA?

- **H1B visa** is a **non-immigrant visa** issued by the United States.

- Allows **US companies to employ foreign workers in specialty occupations**.

- Typically issued for **jobs requiring specialised knowledge and a bachelor's degree or higher**.

ELIGIBILITY CRITERIA

- The applicant must have:
  - o A job offers from a US employer.
  - o A bachelor's or higher degree in the related field.
  - o The job must be a **specialty occupation** (e.g., IT, engineering, medicine, finance, etc.).

KEY FEATURES

- **Duration**: Initially granted for **three years**, extendable to **six years**.

- **Cap Limit**: US government caps the number of H1B visas issued annually (~85,000 per year, including 20,000 for advanced degree holders).

- **Employer-specific**: Visa holder can work only for the sponsoring employer unless transferred.

- **Portability**: Allows transferring to another employer under certain conditions.

WHAT ARE THE CHANGES DONE RECENTLY?

- **Policy Change:** Employers sponsoring H-1B visas must now pay $100,000 per applicant (up from a few thousand dollars earlier).

- **Objective:** Deter misuse, ensure only "highly skilled" professionals are hired, and protect American workers from wage displacement.

INDIA & H–1B:

- **Largest Beneficiary:** India accounts for **~71% of approved H-1B visas** annually.

- **Major Users:** Amazon (12,000+ approvals in 2025), Microsoft, Meta, Google rely on Indian talent.

- **Economic Impact:** Supports India's $150+ billion IT export industry and remittances inflow.

- **Concerns:** Long Green Card backlog for Indians (wait time often >10 years).

IMPLICATIONS FOR INDIA:

- **Cost Barrier:** Indian IT companies like Infosys, Wipro, TCS largest H-1B users will face steep rise in compliance costs, potentially reducing hiring.

- **Brain Drain Impact:** Indians make up **71% of all H-1B holders**; higher fees may limit opportunities for mid-level talent.

- **Business Impact:** Could shift outsourcing back to India or encourage nearshoring in Canada/Mexico to avoid US costs.

- **Long-Term Effect:** May accelerate investment in automation/AI to offset cost of expensive foreign talent.

17	AFLATOXIN

Indonesia has suspended groundnut imports from India over aflatoxin contamination concerns, with exporters objecting to the delayed notification and non-WTO-compliant testing procedures.

WHAT IS AFLATOXIN?

- Aflatoxins are **toxic secondary metabolites** produced by certain species of fungi, especially Aspergillus flavus and Aspergillus parasiticus.

- They are **potent carcinogens** and are classified as **Group 1 carcinogens** by the International Agency for Research on Cancer (IARC).

SOURCES

- Commonly found in **agricultural crops** such as:
  - Maize (corn)
  - Groundnuts (peanuts)
  - Tree nuts
  - Rice
  - Spices

- Fungal contamination generally occurs **during harvesting, storage, or transportation** under warm and humid conditions.

CATEGORY:
Mycotoxins: Belong to the class of **mycotoxins** toxic chemical products of fungi.

KEY TYPES:

- **B1** – Most common & most toxic; strong liver carcinogen, strictest global limit.

- **B2** – Co-occurs with B1, less toxic but adds to total aflatoxin load.

- **G1** – Green-blue fluorescent toxin, genotoxic, found in nuts/maize.

- **G2** – Mildest form, still harmful in chronic exposure (immune/growth impact).

- **M1** – Metabolite of B1 in milk; heat-stable, risk for infants even after pasteurization.

HEALTH IMPACTS

- **Acute aflatoxicosis**: sudden high exposure → liver damage, jaundice, vomiting, death.

- **Chronic exposure**:

  - Liver cancer (hepatocellular carcinoma)

  - Immunosuppression

  - Growth retardation in children

- High risk when combined with hepatitis B infection.

DETECTION AND REGULATION

- **Detection methods**: ELISA test, HPLC, mass spectrometry.

- Regulated by agencies like:

  - Food Safety and Standards Authority of India (FSSAI)

  - Codex Alimentarius Commission (International)

- Maximum permissible limits (India): For example, groundnuts → 15 ppb (parts per billion).

PREVENTION AND CONTROL

- Good agricultural practices (proper drying, storage).

- Use of resistant crop varieties.

- Biological control — Aspergillus flavus atoxigenic strains.

- Regulatory monitoring and testing of food and feed.

- Public awareness campaigns.

SIGNIFICANCE FOR INDIA

- India is **highly vulnerable to aflatoxin contamination** due to tropical climate and storage issues.

- Aflatoxin contamination affects **food safety, export quality, and public health**.

- Crop losses and trade barriers due to aflatoxin exceed millions of dollars annually.

- Government is taking steps under schemes like **Food Safety and Standards Act, 2006** and **National Food Security Mission**.

GROUNDNUT PRODUCTION

WORLD

- **World production (2023–24)**: ~46 million tonnes.
- **Major producers**:
  - **China** — ~18% of world production.
  - **India** — ~12–13%.
  - **Nigeria, USA, Sudan, Myanmar, Senegal**.
- **Global trade**: Groundnut oil and kernels are important commodities for both food and industrial use.

GROUNDNUT PRODUCTION IN INDIA

- **India's production (2023–24)**: ~7.8–8 million tonnes.
- **Area under cultivation**: ~5.4 million hectares.
- **Major groundnut producing states**:
  - **Gujarat** — largest producer (~35% of India's output).
  - **Andhra Pradesh**.
  - **Tamil Nadu**.
  - **Rajasthan**.
  - **Maharashtra**.
  - **Karnataka**.
- **Types of cultivation**:
  - **Rainfed cultivation** — dominant in India (~60–70% of production).

- - **Irrigated cultivation** — higher yields but less area coverage.
- **Uses**:
    - Edible oil (groundnut oil).
    - Food (snacks, confectionery).
    - Industrial use (cosmetics, pharmaceuticals).
    - Oil cake → animal feed.

CLIMATIC CONDITIONS REQUIRED FOR GROUNDNUT CULTIVATION

Climatic Factor	Requirement
Temperature	25°C to 35°C during growth. Optimum temperature for germination: 25°C.
Rainfall	500–1,250 mm annually. Requires **light, well-distributed rainfall** during growing season.
Soil	Sandy loam, well-drained soils with good organic content. Neutral to slightly acidic soil (pH 6–6.5) preferred.
Sunlight	Plenty of sunshine required for flowering and pod filling.
Growing period	90–130 days depending on variety.
Water requirement	Sensitive to both drought and waterlogging — requires well-drained conditions.

CHALLENGES IN GROUNDNUT PRODUCTION

- Erratic rainfall and drought → yield fluctuations.
- Pests and diseases → aflatoxin contamination (Aspergillus flavus).
- Declining soil fertility.
- Lack of modern farming practices in rainfed areas.
- Market price volatility.

GOVT. SCHEMES FOR GROUNDNUT & OILSEEDS

NATIONAL FOOD SECURITY MISSION – OILSEEDS (NFSM-OILSEEDS)

OBJECTIVE

- Increase production of oilseeds (including groundnut) to reduce import dependency and ensure nutritional security.
- Raise productivity in rainfed and irrigated areas.

FEATURES

- Launched in **2007–08** by the Ministry of Agriculture.

- **Covers major oilseeds crops:** groundnut, soybean, sunflower, safflower, etc.

- Aims to bridge yield gaps and expand area under oilseeds.

KEY COMPONENTS

- **Demonstrations** of improved varieties and technologies.

- **Seed distribution** subsidized quality seeds of high-yielding and drought-resistant varieties.

- **Plant protection measures:** Integrated Pest Management (IPM).

- **Soil health management**: Soil health cards, micro-nutrient application.

- **Extension services:** Farmer training and capacity building.

IMPACT

- Increased groundnut productivity in states like Gujarat, Andhra Pradesh, and Tamil Nadu.

- Enhanced awareness about improved cultivation practices.

- Boosted area coverage in rainfed regions.

## INTEGRATED NUTRIENT MANAGEMENT (INM) SCHEME

OBJECTIVE

- Maintain soil fertility and productivity in a sustainable way.

- Promote balanced use of chemical fertilizers and organic inputs.

FEATURES

- Encourages **soil testing and soil health card system**.

- Provides subsidies for organic manures and bio-fertilizers.

- Promotes use of crop rotation and intercropping for soil health.
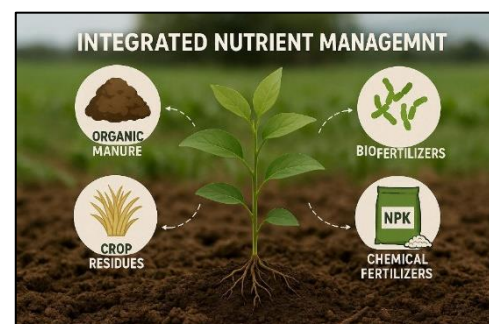
RELEVANCE TO GROUNDNUT

- Groundnut is a legume — enriches soil with nitrogen.

- Balanced nutrient application enhances yield and reduces pest infestation.

- Particularly important in rainfed agriculture areas where soil fertility is poor.

OILSEEDS TECHNOLOGY MISSION (EARLIER PHASES)

- Earlier called **Technology Mission on Oilseeds (TMO)**, launched in the 1980s.

- Focus: Increase production of oilseeds including groundnut.

- Provided **farmers with improved seeds, irrigation methods, plant protection measures**.

- Led to a significant increase in groundnut production, particularly in Gujarat and Andhra Pradesh.

- Now subsumed under NFSM.

MINIMUM SUPPORT PRICE (MSP) AND PRICE SUPPORT SCHEME (PSS)

OBJECTIVE

- Ensure remunerative prices for oilseeds farmers.

- Protect farmers from price volatility.

FEATURES

- MSP fixed by the government every year for major crops including groundnut.

- PSS helps procure oilseeds from farmers at MSP.

- Encourages farmers to continue cultivation despite market fluctuations.

IMPACT

- Provides stability for groundnut farmers, especially in rainfed areas where yield uncertainty is high.

- Supports sustainability in oilseed cultivation.

RASHTRIYA KRISHI VIKAS YOJANA (RKVY)

OBJECTIVE

- Holistic agricultural development with state-specific interventions.

- Provide flexibility to states to implement schemes.

FEATURES

- Encourages states to take up projects for **oilseed productivity enhancement**.

- Supports irrigation, post-harvest processing, and infrastructure development.

RELEVANCE TO GROUNDNUT

- Enables state governments to fund **seed distribution, drip irrigation, pest management, and crop diversification projects** for groundnut cultivation.

NATIONAL MISSION ON OILSEEDS AND OIL PALM (NMOOP)

OBJECTIVE

- Ensure oilseeds self-sufficiency in India.

- Focus on both oilseeds and oil palm to reduce import dependency.

FEATURES

- Introduced to consolidate earlier oilseeds programmes.

- Includes **seed replacement programmes, technology dissemination, extension services**.

- Encourages cultivation in new areas (including oil palm intercropping with groundnut).

CLIMATE–RESILIENT GROUNDNUT PRODUCTION SCHEMES

- **State-specific initiatives** in Gujarat, Andhra Pradesh, and Maharashtra focus on:

    o Promoting **drought-tolerant and high-yield varieties**.

    o Adoption of **micro-irrigation** (drip irrigation systems).

    o Integrated pest and disease management (to control aflatoxin contamination).

EXAMPLE: GUJARAT MODEL FOR GROUNDNUT

- Gujarat produces over **35% of India's groundnut**.

- Uses **Cluster Demonstrations** under NFSM.

- Emphasizes use of hybrid seeds, mechanized sowing, drip irrigation.

- Integrated pest management to prevent aflatoxin contamination.

| 18 | UNIVERSAL POSTAL UNION (UPU) |

India has been re-elected to the Council of Administration (CA) and the Postal Operations Council (POC) of the Universal Postal Union (UPU) during the 28th UPU Congress held in Dubai.

WHAT IS THE UNIVERSAL POSTAL UNION (UPU)?

- **Universal Postal Union** is a specialized agency of the **United Nations**.

- It coordinates international postal policies and services to ensure a **universal network of up-to-date postal services**.

- Headquarters: **Bern, Switzerland**.

- Established: **1874** — one of the oldest international organizations.

OBJECTIVES

- Promote and coordinate **international postal services**.

- Facilitate exchange of mail between countries.

- Set rules for international mail exchanges.

- Ensure **affordable and accessible postal services globally**.

- Encourage development of postal networks in developing countries.

STRUCTURE

- **Congress**: Supreme decision-making body, meets every 4 years to set UPU policies.

- **Council of Administration (CA)**: Oversees policy implementation between congresses.

- **Postal Operations Council (POC)**: Develops technical regulations and operational strategies.

- **International Bureau**: Secretariat providing technical and administrative support.

FUNCTIONS

- Establishes **international postal regulations**.

- Sets **international postal rates**.

- Facilitates **tracking and security** of international mail.

- Promotes innovation in postal services (digital communication, e-commerce logistics).

- Provides technical assistance and capacity building to member states.

MEMBERSHIP

- **192 member countries** (almost all UN member states).

- India is a **founding member** (joined in 1876).

SIGNIFICANCE FOR INDIA

- India Post is governed by UPU regulations for international mail exchange.

- Facilitates **international e-commerce shipments**.

- Supports India's participation in global postal reforms and technology adoption.

- Helps in the expansion of India's global logistics network.

RECENT DEVELOPMENTS

- UPU is working on adapting to **digital transformation** of postal services.

- Focus on **e-commerce**, financial inclusion via postal networks, and sustainable postal operations.

- India actively participates in UPU's **Postal Payment Services** and **E-commerce logistics frameworks**.

19 | ONE–IN, ONE–OUT SCHEME

An Indian national became the first person deported from the UK to France under the newly implemented 'one-in, one-out' scheme of the UK–France returns treaty.

The **One-In, One-Out Scheme** is a **migration agreement between the United Kingdom and France**, introduced in August 2025. Its primary objective is to **curb illegal crossings of the English Channel** by small boats and to **regulate asylum procedures**.

KEY FEATURES OF THE SCHEME

- **Deportation and Admission Exchange**: For every individual **deported from the UK to France** for illegal entry, the UK agrees to **admit one asylum seeker from France**. The incoming individual must have **family ties to the UK** and have **not previously attempted illegal entry**.

- **Pilot Phase**: The scheme commenced as a pilot, with an initial target of **50 deportations per week**.

- **Transport Costs**: The UK government has committed to covering the **transportation expenses** for both deportations and admissions under this agreement.

LEGAL AND HUMAN RIGHTS CONSIDERATIONS

- **High Court Rulings**: A UK High Court decision temporarily blocked the deportation of an Eritrean man, citing concerns that he might be a victim of human trafficking.

- **Modern Slavery Act**: The UK government has adjusted the application of the **Modern Slavery Act** to limit its use as a basis for blocking deportations, a move that has faced criticism from anti-slavery advocates.

BROADER CONTEXT

- **Alternative to Rwanda Plan**: This agreement replaces the previous Conservative government's plan to relocate migrants to Rwanda, which was scrapped by the Labor government upon taking office.

- **Migration Statistics**: Over **30,000 individuals** have crossed the English Channel in small boats in 2025 alone, highlighting the urgency of addressing unauthorized migration.

ONE-IN, ONE-OUT SCHEME:

- A **bilateral migration and deportation arrangement** between the **United Kingdom and France**.

- Allows the UK to **return illegal migrants who arrived via the English Channel** back to France.

- **Nations Involved:** United Kingdom (UK) and France
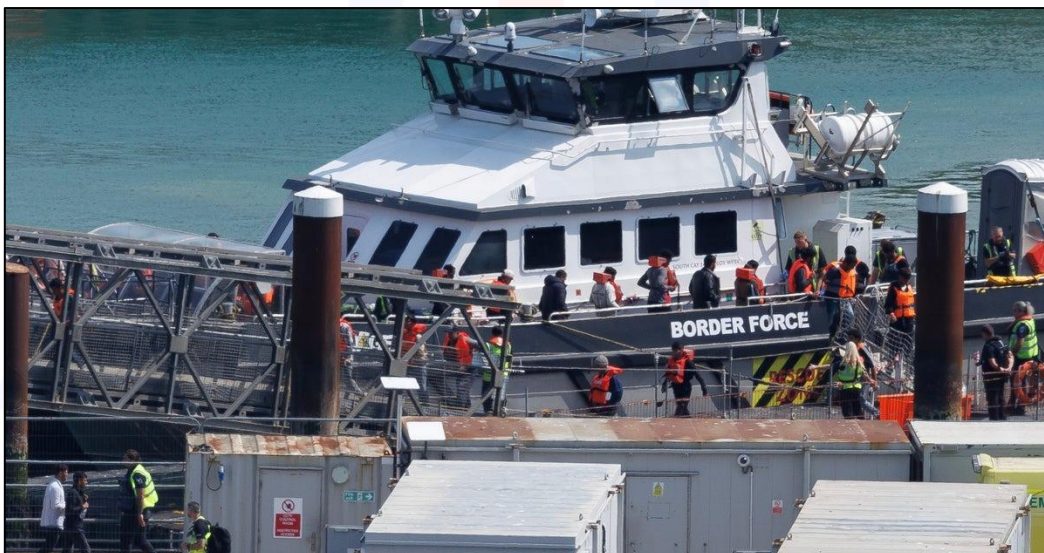
AIM:

- Deter illegal small-boat crossings across the English Channel.

- Break the network of human smugglers and trafficking gangs.

- Ensure safe, legal, and managed migration routes for genuine asylum seekers.

KEY FEATURES:

- **Reciprocal Mechanism:** For every migrant France takes back, UK agrees to accept a legal asylum seeker from France (hence "one-in, one-out").

- **Pilot Scheme:** Effective **August 2025 – June 2026**, subject to review.

- **Fast-Track Deportations:** Shortens legal process for removing illegal entrants.

- **Voluntary Return Option:** Deported migrants may accept **funded voluntary return** to home country.

- **Court Oversight:** UK courts can hear last-minute appeals but must act swiftly.

SIGNIFICANCE:

- **Border Security:** Strengthens UK's ability to deter illegal migration and secure its coastline.

- **International Cooperation:** Showcases cross-border collaboration on migration crisis management.

- **Political Messaging:** Sends strong deterrent signal to migrants and smuggling networks.

20 NEW CORAL SPECIES 'IRIDOGORGIA CHEWBACCA' IDENTIFIED

Scientists have discovered and named a new deep-sea coral species *Iridogorgia chewbacca* in the western Pacific Ocean.

WHAT IS IRIDOGORGIA CHEWBACCA

- A **new deep-sea coral species** belonging to the genus *Iridogorgia* (family: Chrysogorgiidae, phylum: Cnidaria).

- Discovered in **2025** in the tropical western Pacific Ocean.

- Named after **Chewbacca**, the Star Wars character, because of its **long, furry, hair-like appearance**.

DISCOVERY

- First spotted in **2006** off Molokaʻi, Hawaiʻi and later in **2016** near the Mariana Trench.

- Confirmed as a new species through **genetic and morphological analysis** (*Zootaxa*, 2025).

- Highlights the continuing discovery of biodiversity in **deep-ocean ecosystems**.

PHYSICAL CHARACTERISTICS

- **Branches:** Long, flexible, shiny, hair-like, up to **38 cm (15 inches)**.

- **Colour:** Golden to brownish shades.

- **Appearance:** Resembles Chewbacca's fur due to filamentous structures.

- **Structure:** Single-stem coral anchored to rocky ocean floors.

HABITAT

- Found in **deep-sea environments** in the tropical western Pacific.
- Grows on **rocky substrates**, often in isolated colonies.
- **Depth range:** Deep Ocean floors, far below sunlight penetration.

ECOLOGICAL SIGNIFICANCE

- **Filter feeder**: Feeds on "marine snow" organic particles descending from upper ocean layers.
- Provides habitat for **shrimp, lobsters, feather stars**, and other small marine species.
- Acts as an **environmental indicator** its skeleton stores information on oceanic conditions and climate change.

CONSERVATION IMPORTANCE

- Represents **unique biodiversity** in deep-sea ecosystems.
- Deep-sea coral ecosystems are vulnerable to:
    - Climate change (ocean warming, acidification)
    - Deep-sea mining
    - Pollution
    - Bottom trawling.
- Discovery reinforces the need for **deep ocean conservation strategies**.

CULTURAL SIGNIFICANCE

- Naming after Chewbacca makes marine biology engaging and bridges **science with popular culture**.
- Raises public awareness about deep-sea exploration and biodiversity conservation.

21   CHABAHAR PORT

The United States has withdrawn the sanctions waiver for India's development of Iran's Chabahar Port, ending the 2018 carve-out under the Iran Freedom and Counter-Proliferation Act (IFCA).
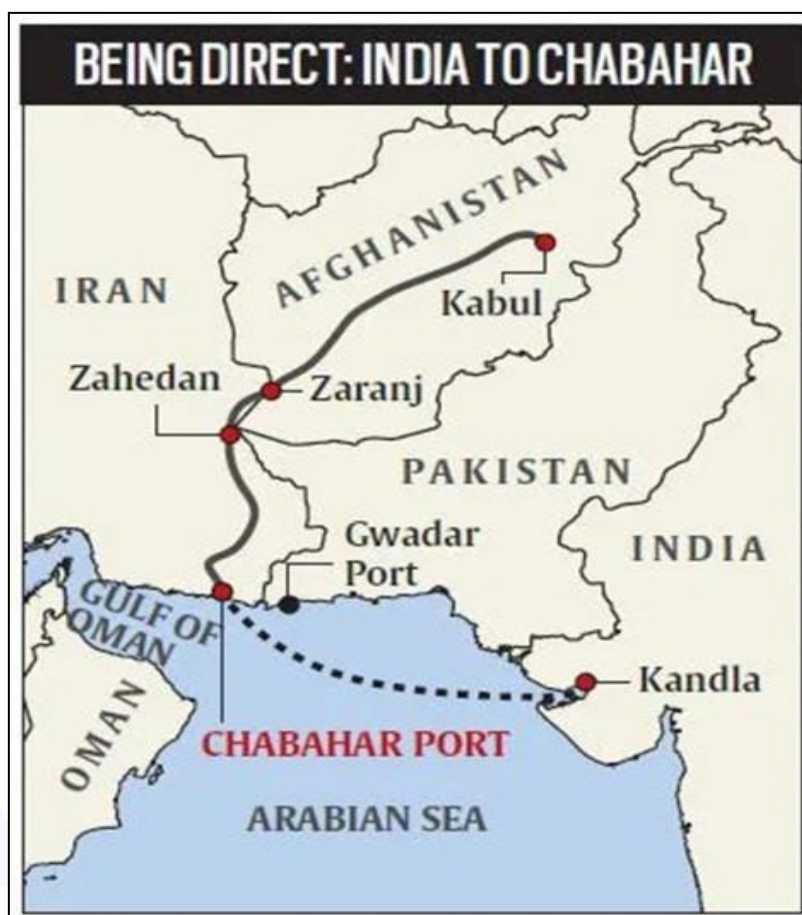
CHABAHAR PORT

- **Chabahar Port** is a strategic deep-sea port in southeastern Iran, located on the Gulf of Oman.

- It is being developed by India under a trilateral agreement with **Iran and Afghanistan**.

- The port provides India and Afghanistan a **direct trade route bypassing Pakistan**, and access to Central Asia and Afghanistan.

- The project is part of India's connectivity strategy for Afghanistan and Central Asia and aims to enhance India's geopolitical influence in the region.

- In **2018**, the United States granted India a **waiver from sanctions under the Iran Freedom and Counter-Proliferation Act (IFCA)** to allow India to continue development of Chabahar Port despite U.S. sanctions on Iran.

WHAT HAS CHANGED

- In **2025**, the United States **withdrew the sanctions waiver for India's development of Chabahar Port**.

- This effectively means that India's involvement in the Chabahar project could now attract sanctions under IFCA unless the U.S. grants a new exemption.

- The move ends a carve-out provided in **2018** for India's engagement in Chabahar, which was a significant exception in U.S. sanctions policy against Iran.

REASONS BEHIND THE CHANGE

- **U.S. Strategic Policy Shift**: Washington's increasing concerns about Iran's nuclear programme and regional influence.

- **Pressure from Allies**: U.S. relations with Israel, Gulf countries, and NATO partners influence sanction policies on Iran.

- **Geopolitical Competition**: Balancing India's interests in Iran against U.S. priorities in containing Iran and countering Chinese influence in the region.

- Possible linkage with **Indo-U.S. strategic cooperation** and demands for alignment on Iran policy.

HISTORY:

- **1973:** First proposed by the Shah of Iran.

- **1983:** First phase opened during Iran-Iraq War to reduce reliance on Persian Gulf ports.

- **2003:** India–Iran agreement to develop the port signed during President Khatami's visit.

- **2016:** India, Iran, Afghanistan signed **Trilateral Agreement** to operationalize the port.

- **2017:** Phase-I of Shahid Beheshti inaugurated; India sent its first wheat consignment to Afghanistan.

- **2018:** India Ports Global Limited (IPGL) took partial charge of operations.

IMPLICATIONS FOR INDIA

STRATEGIC AND CONNECTIVITY IMPLICATIONS

- Could weaken India's regional connectivity strategy, particularly in Afghanistan's reconstruction and trade integration.

- Loss of waiver could **delay or jeopardise development of Chabahar**.

- Chabahar Port is critical for India's access to Afghanistan and Central Asia bypassing Pakistan — especially important given strained India–Pakistan relations.

GEOPOLITICAL IMPLICATIONS

- India must balance its **strategic ties with the U.S.** and its **long-term connectivity goals in West Asia**.

- This move may push India to **reassess its Iran policy**, and could increase India's dependence on alternative routes like **International North–South Transport Corridor (INSTC)**.

ECONOMIC IMPLICATIONS

- Delay in Chabahar's development impacts:

    o Trade with Afghanistan and Central Asia.

    o India's strategic oil supply routes.

    o Afghan reconstruction projects dependent on Chabahar.

STRATEGIC COMPETITION WITH GWADAR PORT

- China's development of Gwadar Port in Pakistan competes with Chabahar.

- Withdrawal of waiver gives China a **strategic edge** in the region via Gwadar.

INDIA'S POSSIBLE RESPONSES

- **Diplomatic engagement with the U.S.** to reinstate or renegotiate the waiver.

- **Diversifying connectivity routes**: Accelerating INSTC and strengthening ties with Central Asian states.

- **Economic and defence cooperation with Iran** outside areas affected by sanctions.

- **Multilateral engagement**: Working with Russia, Afghanistan, and Central Asian partners to secure trade and connectivity.

| 22 | WORLD TRADE REPORT 2025 |

The World Trade Organization (WTO) released its World Trade Report 2025, highlighting that Artificial Intelligence (AI) could raise global trade by 34–37% and GDP by 12–13% by 2040 if digital divides are bridged and inclusive policies are adopted.

Figure B.3: AI is projected to expand global trade substantially by 2040, with larger increases in digitally deliverable services (2025-40)
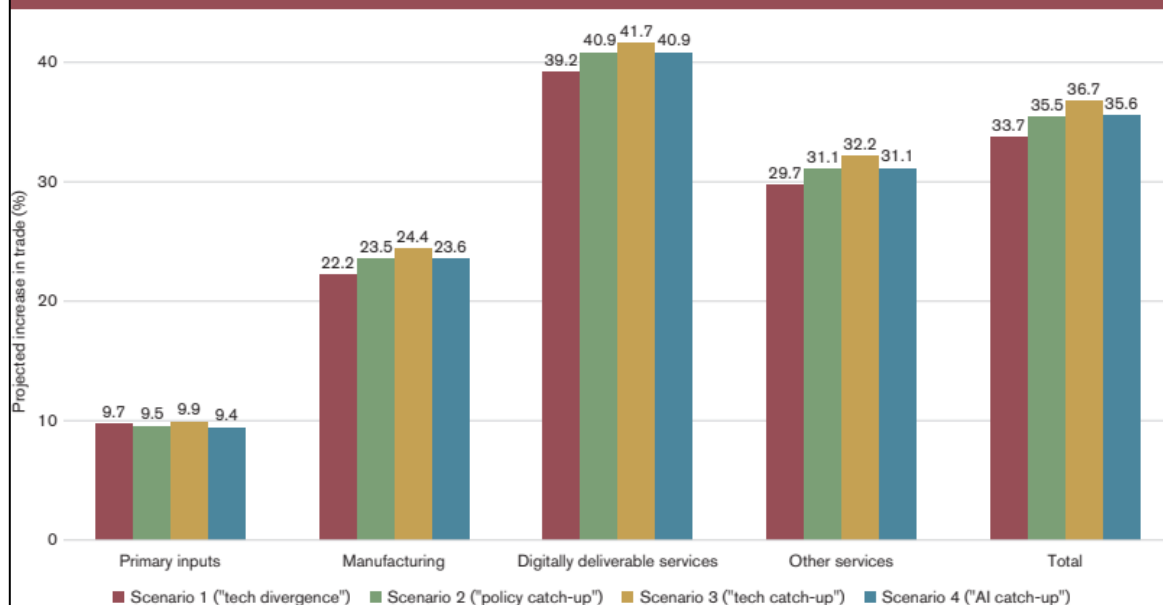
WHAT IS WORLD TRADE ORGANIZATION (WTO) REPORT?

- **Annual Flagship Publication:** Published by the **World Trade Organization (WTO)** to analyze trade trends, policies, and the multilateral trading system's future.

- **2025 Theme:** "Making Trade and AI Work Together to the Benefit of All" – explores AI's impact on global trade and inclusive growth.

KEY HIGHLIGHTS OF THE REPORT:

- **AI as a Trade Multiplier:** AI adoption could boost global trade in goods and services by **nearly 40% by 2040**, driven by lower trade costs and productivity gains.

- **Global GDP Gains:** The report projects **12–13% rise in global GDP** under scenarios where digital gaps narrow and AI adoption spreads across income groups.

- **AI-Enabled Goods Trade:** Trade in AI-enabling goods (chips, semiconductors, servers) already totals **USD 2.3 trillion (2023)** and will expand further with open trade regimes.

- **Digital Divide Challenge:** Without policy intervention, low- and middle-income economies risk exclusion from AI-led trade benefits due to poor connectivity and compute capacity.

- **Labour Market Impact:** AI could displace routine cognitive jobs (translation, transcription) but raise demand for data annotation, engineering, and AI oversight roles.

- **Regulatory Fragmentation:** Quantitative restrictions on AI-related goods rose from **130 (2012) to 500 (2024)** — a trend the WTO warns could stifle innovation and raise costs.

- **AI-Trade Synergy:** AI reduces logistics costs, enables predictive supply chain management, automates customs clearance — improving trade efficiency for SMEs.

- **Inclusivity Imperative:** The report stresses reskilling, social protection, and open data access to prevent widening inequality and ensure equitable distribution of AI gains.

- **WTO's Role:** Calls for expanding participation in **Information Technology Agreement (ITA)** and updating **GATS** commitments to include AI-driven digital services.

OPPORTUNITIES:

- **Lower Trade Costs:** AI-enabled supply chain optimization, predictive logistics, automated customs.

- **New Trade in Services:** AI-powered digital services (telemedicine, analytics) expand export potential.

- **Knowledge Diffusion:** Openness boosts cross-border AI innovation — 10% rise in digital trade → 2.6% more AI patent citations.

- **Inclusive Growth Potential:** AI can reduce skill wage gaps slightly, benefiting low- and middle-income economies if adopted widely.

- **Development Entry Points:** Data annotation, cloud services, and local adaptation of AI models create jobs for developing nations.

CHALLENGES:

- **Digital Infrastructure Gap:** Low-income countries lack computing power, connectivity, and skilled workforce.

- **Regulatory Fragmentation:** Data localization, export controls, and divergent AI standards raise trade barriers.

- **Concentration of AI Capabilities:** Dominance of a few countries/firms risks monopolistic control over AI inputs.

- **Labour Market Disruption:** Job displacement in translation, transcription, and support functions may widen inequality.

- **Energy & Sustainability Concerns:** Data centers already consume 1.5% of global electricity — green transition needed.

WTO RECOMMENDATIONS:

- **Bridge Digital Infrastructure Gaps:** Invest in broadband, cloud, and computing capacity for low- and middle-income economies to enable equal AI participation.

- **Inclusive Workforce Reskilling:** Launch global AI skilling initiatives to prepare workers for new AI-enabled roles, avoiding job polarisation.

- **Open & Predictable Trade Policy:** Reduce tariffs and non-tariff barriers on AI-enabling goods, promote interoperability of AI standards, and prevent protectionist measures.

- **Global AI Governance:** Develop multilateral frameworks for data flows, algorithmic transparency, and ethical AI to build trust and ensure responsible deployment.

- **Sustainability Alignment:** Encourage green AI — energy-efficient data centers, carbon-neutral cloud services — so AI growth aligns with climate goals.

IAS ORIGIN
HERE IT BEGINS
Powered by Ecoholics

23 PLASTICDWEEP

A massive fire at Minicoy Island's dump yard exposed Lakshadweep's 4,000-tonne waste crisis, threatening coral reefs, marine life, and fisherfolk livelihoods.

WHAT IS PLASTICDWEEP?

- **Origin of the Term**: The term "Plasticdweep" combines "plastic" and "dweep" (meaning island in Hindi), highlighting the islands' struggle with plastic waste.

- **Waste Composition**: The accumulated waste includes plastics, electronic waste, fishing nets, and household appliances.

- **Environmental Impact**: The accumulation of waste has led to the release of toxic smoke and leachate, damaging coral reefs and polluting marine habitats, thereby threatening biodiversity and livelihoods.

CAUSES OF THE CRISIS

- **Governance Challenges**: The disbanding of local panchayats in 2021 disrupted waste management systems, leading to unregulated dumping and burning of waste.

- **Logistical Constraints**: Waste removal is feasible only during the 4–5 months when sea transport is operational; during monsoons, barges prioritize essential supplies, and private operators charge high fees.

- **Limited Infrastructure**: The islands lack adequate facilities for waste segregation, recycling, and disposal.

ENVIRONMENTAL AND SOCIAL IMPACTS

- **Marine Ecosystem Damage**: Plastic debris entangles marine life and smothers coral reefs, leading to bleaching and loss of biodiversity.

- **Health Hazards**: Open burning of waste releases toxic fumes, posing respiratory risks to residents.

- **Tourism Threat**: The degradation of natural beauty threatens the tourism industry, a vital source of income for the islands.

PROPOSED SOLUTIONS

- **Infrastructure Development**: Establishing waste segregation sheds and recycling units at the panchayat level.

- **Community Engagement**: Conducting cleanliness drives and awareness campaigns to involve residents in waste management.

- **Policy Implementation**: Reinstating effective governance structures and enforcing environmental protection laws.

- **Technological Interventions**: Implementing solutions like trash booms to collect waste from water bodies.

24   EPFO PASSBOOK LITE

The Employees' Provident Fund Organization (EPFO) has launched "Passbook Lite", a simplified PF balance view on its member portal.

WHAT IS EPFO PASSBOOK LITE?

- A **new facility within EPFO's Member Portal** providing a quick, summarized snapshot of PF contributions, withdrawals, and balance without logging in to the separate passbook portal.

- **Launched by Union Labor & Employment Minister, on behalf of EPFO.**

AIM:

To simplify access to PF information, reduce login delays, enhance transparency, and improve member satisfaction.

KEY FEATURES:

- **Single Login:** No need to log in to a separate passbook portal.

- **Quick Snapshot:** Shows contributions, withdrawals, and current balance at a glance.

- **Faster Access:** Reduces load on main portal, leading to quicker response times.

- **Detailed View Option:** Full passbook still available for those needing comprehensive data.

- **Integrated with Transfer Tracking:** Members can check PF transfer status and download Annexure K.

SIGNIFICANCE:

- **Improves Transparency:** Members can instantly verify employer contributions and transfers.

- **Reduces Grievances:** Eliminates delays and password sync issues from dual login.

- **Boosts Digital Inclusion:** Over 2.7 crore users gain seamless access to PF data.

25 YELLOW-CRESTED COCKATOOS

Critically endangered yellow-crested cockatoos in Hong Kong are losing natural nesting sites due to tree loss and urban trimming, prompting conservationists to install artificial nest boxes to support their survival.

YELLOW-CRESTED COCKATOOS

SCIENTIFIC CLASSIFICATION

- **Scientific Name**: *Cacatua sulphurea*

- **Family**: Cacatuidae

- **Order**: Psittaciformes

CONSERVATION STATUS

- **IUCN Red List**: Critically Endangered.

- **CITES**: Appendix I (trade prohibited except under exceptional circumstances).

DISTRIBUTION

- Native to **Indonesia** (Sulawesi, Sumba, Timor) and **East Timor**.

- Small populations introduced or surviving in other regions such as **Hong Kong**.

PHYSICAL CHARACTERISTICS

- Bright white plumage with a **prominent yellow crest**.

- Large beak adapted to crack nuts and seeds.

- Lifespan: Up to 50–60 years in captivity.

ECOLOGICAL ROLE

- **Seed dispersers**: Help maintain forest ecosystems.

- Indicator species for forest health.

THREATS

- **Habitat loss**: Urbanization, deforestation, and tree trimming.

- **Illegal pet trade**: High demand due to appearance and ability to mimic human speech.

- **Climate change**: Alters habitat and food availability.

- **Predation**: By introduced species such as cats and rats.

CASE STUDY — HONG KONG

- In Hong Kong, habitat loss due to urban development and **tree trimming** has reduced natural nesting sites.

- Conservationists have installed **artificial nest boxes** to encourage breeding and population recovery.

- This initiative addresses both ecological and biodiversity preservation goals.

CONSERVATION MEASURES

- Habitat protection and restoration.

- Installation of artificial nest boxes in urban and forested areas.

- Enforcement of wildlife protection laws.

- International cooperation under **CITES** to curb illegal trade.

- Awareness and community engagement.

INTERNATIONAL SIGNIFICANCE

- Listed under **CITES Appendix I** — international trade is highly restricted.

- Requires **global cooperation** for conservation across range states.

26	INDIA-AI IMPACT SUMMIT 2026

The Ministry of Electronics & IT (MeitY) has unveiled the logo and flagship initiatives for the India-AI Impact Summit 2026, scheduled for February 19–20, 2026 at Bharat Mandapam, New Delhi.

INDIA-AI IMPACT SUMMIT 2026

The **India-AI Impact Summit 2026** is a pivotal event scheduled for **February 19–20, 2026**, at **Bharat Mandapam, New Delhi**.

Organized by the **Ministry of Electronics and Information Technology (MeitY)**, this summit aims to position India as a global leader in **inclusive, sustainable, and equitable artificial intelligence (AI)** development.

SUMMIT OVERVIEW

- **Dates**: February 19–20, 2026
- **Venue**: Bharat Mandapam, New Delhi
- **Organized by**: MeitY, Government of India
- **Inaugural Address**: Prime Minister Narendra Modi
- **Key Participants**: Heads of state, policymakers, researchers, industry leaders, and innovators from around the world
- **Website**: impact.indiaai.gov.in

SUMMIT SUTRAS (GUIDING PRINCIPLES)

The summit is anchored on three core principles:

- **People**: Ensuring AI serves humanity inclusively, respecting cultural identities, and preserving dignity.

- **Planet**: Developing AI that is resource-efficient, eco-friendly, and aligned with sustainability goals.

- **Progress**: Promoting equitable access to AI benefits, with open access to data, compute, and applications in key sectors.

FLAGSHIP INITIATIVES

The summit will feature several key initiatives:

- **UDAAN – Global AI Pitch Fest**: A platform for AI startups to showcase innovative solutions.

- **YuvaAI Innovation Challenge**: Encouraging youth-led AI solutions for societal challenges.

- **AI by HER**: Promoting women-led AI initiatives.

- **Global Innovation Challenge for All**: Fostering global collaboration in AI innovation.

- **Research Symposium on AI and its Impact**: A one-day event to discuss the transformative role of AI in various sectors.

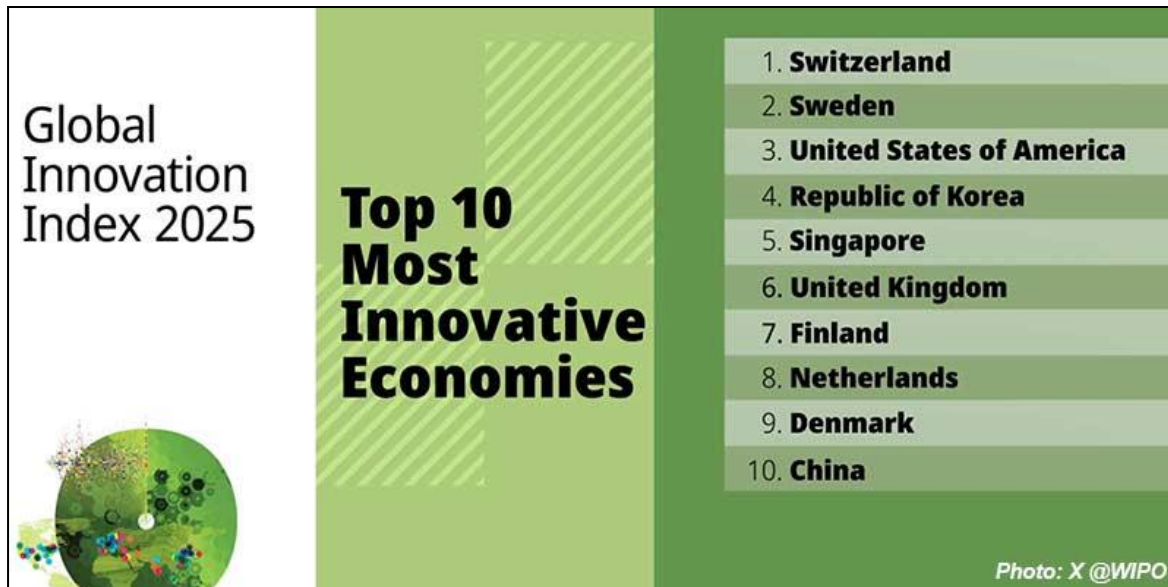- **AI Expo**: An exhibition showcasing cutting-edge AI technologies and applications.

GLOBAL SOUTH FOCUS

India aims to advocate for equitable and non-discriminatory access to AI for countries in the Global South.

The summit will serve as a platform for discussions on the ethical and responsible use of AI while promoting fair participation for underserved regions in AI innovation and benefits.

27	WIPO GLOBAL INNOVATION INDEX (GII) 2025

The WIPO Global Innovation Index (GII) 2025 ranked India 38th globally out of 139 economies, retaining its position as the top performer in Central & Southern Asia.

Global Innovation Index 2025

Top 10 Most Innovative Economies

1. Switzerland
2. Sweden
3. United States of America
4. Republic of Korea
5. Singapore
6. United Kingdom
7. Finland
8. Netherlands
9. Denmark
10. China

Photo: X @WIPO

GLOBAL INNOVATION INDEX 2025

- The **Global Innovation Index (GII)** is an annual ranking published by the **World Intellectual Property Organization (WIPO),** in collaboration with other institutions such as Cornell University and INSEAD.

- It measures the **innovation performance of countries** based on various economic, institutional, and technological indicators.

PURPOSE

- To **evaluate and compare** the innovation capabilities and outcomes of economies worldwide.

- To provide a **benchmark for policymakers** for improving innovation ecosystems.

- To promote **global knowledge sharing** on innovation best practices.

METHODOLOGY

The GII uses **around 80 indicators**, grouped into **two broad categories**:
- **Innovation Inputs** – factors that enable innovation, including:

    o Institutions (political, regulatory environment)
    o Human capital and research
    o Infrastructure

- o Market sophistication
- o Business sophistication

- **Innovation Outputs** – measurable results of innovation, including:

  - o Knowledge and technology outputs (patents, scientific publications)
  - o Creative outputs (creative goods and services, intangible assets)

GII 2025 KEY HIGHLIGHTS

- **Top Innovators**: Switzerland, Sweden, USA, South Korea, Singapore, UK, Finland, Netherlands, Denmark, and China (China enters top 10 for the first time).

- **India's Ranking**: 38th out of 139 countries; 1st among **lower-middle-income economies**.

- **India's Strengths**: Knowledge and technology outputs; strong innovation clusters (e.g., Bengaluru).

- **India's Weaknesses**: Innovation inputs such as infrastructure and R&D investment.

INDIA'S PERFORMANCE IN GII 2025

- **Overall Ranking**: India is ranked **38th** among 139 economies.

- **Regional Leadership**: India holds the **1st position** among 37 lower-middle-income economies.

- **Sectoral Strengths**:

  - o **Innovation Outputs**: Ranked **32nd**, indicating strong performance in areas like knowledge and technology outputs.

  - o **Innovation Inputs**: Ranked **52nd**, suggesting areas for improvement in factors such as R&D investment and infrastructure.

- **Innovation Clusters**: India has **4 clusters** in the top 100 innovation clusters globally, with **Bengaluru** leading as the most innovative cluster in the country.

28	EL NIÑO

A new study shows El Niño raises the probability of extreme daily rainfall across central India by nearly 50%, even though it suppresses overall monsoon rainfall, raising fresh concerns about flood hazards and climate resilience planning.
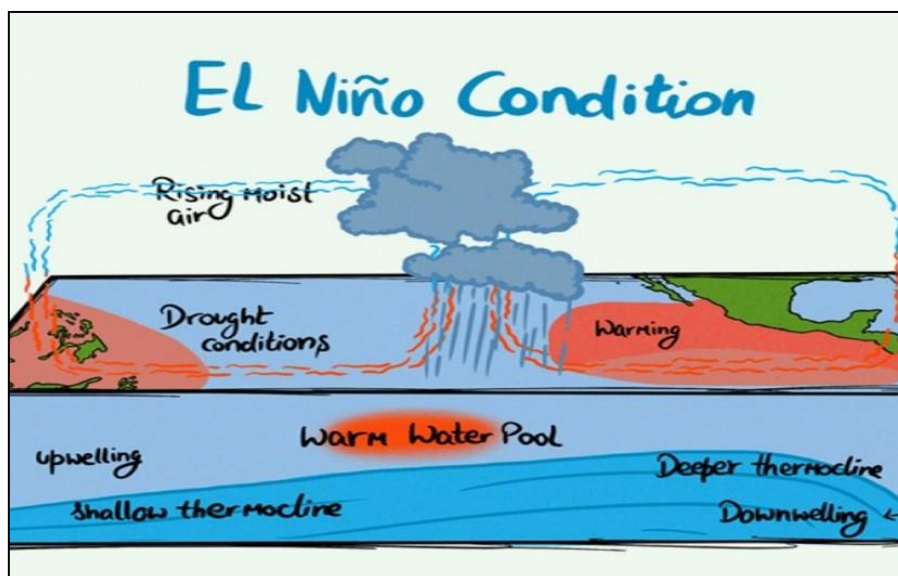
EL NIÑO

- El Niño is a **climatic phenomenon** characterized by a **warming of the central and eastern tropical Pacific Ocean**, along with large-scale changes in atmospheric circulation.

- It is the **warm phase of the El Niño–Southern Oscillation (ENSO)** cycle.

BACKGROUND: ENSO CYCLE

The ENSO cycle has **three phases**:

- **El Niño (warm phase)** — above-average sea surface temperatures (SST) in the central and eastern Pacific.

- **La Niña (cold phase)** — below-average SST in the same region.

- **ENSO-neutral** — normal conditions.

MECHANISM OF EL NIÑO

- Normally, trade winds blow from east to west across the tropical Pacific, piling warm surface water in the western Pacific and allowing cooler waters to rise in the east (upwelling).

- During El Niño:

  - Trade winds weaken or reverse.

- Warm water moves eastwards towards the central and eastern Pacific.
- Upwelling of cold water is reduced.
- This alters atmospheric circulation (Walker circulation), affecting weather globally.

CAUSES OF EL NIÑO

- Changes in trade wind patterns due to atmospheric pressure changes over the Pacific.
- Variability in ocean–atmosphere interactions.
- Long-term climate change can influence the frequency and intensity of El Niño events.

DURATION AND FREQUENCY

- Typically lasts **9–12 months**.
- Peaks around **December–February**.
- Occurs roughly every **2–7 years**.

GLOBAL IMPACTS OF EL NIÑO

El Niño affects weather, ecosystems, and economies worldwide.

CLIMATIC EFFECTS

- **Droughts** in Australia, Indonesia, and India.
- **Heavy rains and floods** in Peru, Ecuador, and the west coast of South America.
- Warmer winters in northern USA and Europe.
- Disruption of monsoon patterns in India and Southeast Asia.

ENVIRONMENTAL IMPACTS

- Coral bleaching due to higher sea temperatures.
- Reduced fish catches because of changes in upwelling and nutrient availability.
- Increased wildfires in drought-prone areas.

SOCIOECONOMIC IMPACTS

- Agricultural losses due to drought or floods.
- Water scarcity in affected regions.
- Disruption of fisheries and food supply chains.

- Economic losses in sectors dependent on climate-sensitive activities.

EL NIÑO AND INDIA

- In India, El Niño is associated with **weaker Southwest Monsoon**, leading to reduced rainfall and drought conditions.

- The **IMD (India Meteorological Department)** monitors El Niño forecasts to predict monsoon performance.

- **Examples:** El Niño years (2002, 2009, 2015) had weaker monsoons and drought-like conditions in parts of India.

DETECTION AND PREDICTION

- Use of **satellite observations**, buoys, and ocean sensors (e.g., TAO/TRITON array in the Pacific).

- **Meteorological agencies** such as NOAA (USA) and IMD track SST anomalies and trade wind patterns.

- Prediction models allow **early warnings**, often 6–12 months in advance.

DIFFERENCE BETWEEN EL NIÑO AND LA NIÑA

Feature	El Niño	La Niña
SST in Pacific	Warmer than average	Cooler than average
Trade winds	Weaken or reverse	Strengthen
Weather impacts	Drought in Asia, floods in South America	Excess rainfall in Asia, drought in South Amer

29	AGEING DAMS IN INDIA

India faces an ageing dam challenge over 1,065 dams are 50–100 years old and 224 are 100+ years old (2023 data).

HISTORY OF DAMS IN INDIA:

- **Pre-Independence:** Kallanai (2nd century CE) is one of the world's oldest functioning dams, built for irrigation; Mettur (1934) and Nizam Sagar (1931) were among the earliest large modern reservoirs.

- **Colonial Era:** British built Krishna and Godavari anicuts to boost canal irrigation; conceptualized Damodar Valley Corporation on the Tennessee Valley model.

- **Post-Independence Era:** Bhakra-Nangal (1963), Hirakud (1957), Rihand, Tungabhadra and Koyna dams symbolized Nehru's "temples of modern India," fueling Green Revolution.

- **1951–1971 Expansion:** India started work on 418 large dams in two decades, marking a massive nation-building push for irrigation, power, and flood control.

- **Modern Era:** Shift to multipurpose projects integrating irrigation, power, tourism, navigation, and inland fisheries for holistic water resource development.

- **Current Phase:** Focus on **rehabilitation, modernization, and climate resilience** to extend lifespan and ensure safety of ageing infrastructure.

LAWS & POLICIES FOR DAMS IN INDIA:

- **Dam Safety Act, 2021:** Provides a legal framework for dam surveillance, operation, and maintenance; establishes NDSA, National Committee on Dam Safety, and State Dam Safety Organizations (SDSOs).

- **Mandatory Inspections:** Requires pre- and post-monsoon inspections, Emergency Action Plans, and inundation maps to prevent disasters and ensure preparedness.

- **Dam Rehabilitation and Improvement Project (DRIP I–III):** Covers 736 dams across 19 States with World Bank & AIIB funding for structural strengthening, gate replacement, monitoring equipment, and staff training.

- **Central Water Commission (CWC) Guidelines:** Issue technical protocols for periodic safety reviews, risk assessment, and remedial action to maintain dam health.

- **No Formal Decommissioning Policy:** India currently focuses on extending lifespan; lacks a structured framework to safely retire obsolete or unsafe dams.

OVERVIEW OF AGEING DAMS IN INDIA

- **Total Large Dams**: India has approximately **6,138 completed large dams**.

- **Age Distribution**:

  o **1,065 dams** are between **50 and 100 years old**.

  o **224 dams** are over **100 years old**.

  o By **2050**, it's projected that **over 4,400 dams** will be **50+ years old**, comprising about **80% of the nation's large dams**.

CHALLENGES POSED BY AGEING DAMS

SAFETY RISKS

- Older dams are more susceptible to structural failures due to material degradation and seismic activity.

- **Mullaperiyar Dam** in Kerala, built over 100 years ago, poses a significant risk to approximately **3.5 million people** if it were to fail.

DECLINING FUNCTIONALITY

- Over time, sedimentation reduces water storage capacity.

- Dams like Krishna Raja Sagara (1931) and Mettur Dam (1934) are close to completing 100 years of service.

- These century-old structures now face challenges in maintaining their original functions.

MAINTENANCE AND REHABILITATION COSTS

- The **Bor and Dham dams** in Maharashtra, originally built for ₹5 crore each, now require over ₹400 crore for repairs due to years of poor maintenance.

CASE STUDIES:

- **Mullaperiyar Dam (1895):** 120+ years old, inter-state safety dispute between Kerala & TN, seismic vulnerability flagged by experts.

- **Hirakud Dam (1957):** Lost 25% capacity and near-overtopping in 1982 prompted auxiliary spillway creation.

- **Bhakra Nangal (1963):** Sedimentation reduced reservoir capacity by 23%; seismic reanalysis underway.

- **Tiware Dam Failure (2019):** Breach killed 19 people and highlighted need for robust inspection regime.

WAY FORWARD:

- **Risk-Based Prioritization**
  - Focus on **high-consequence dams** first (downstream population, economic value).
  - Independent third-party safety audits.
- **Strengthening Infrastructure**
  - Retrofit spillways, reinforce structures per latest seismic & climate standards.
  - Catchment area treatment to slow silt inflow.
- **Decommissioning & Repurposing**
  - Develop **formal policy** for safe decommissioning when risk > benefit.
  - Explore alternate water storage systems (aquifer recharge, check dams).
- **Community Engagement & Transparency**
  - Downstream hazard mapping, public warning systems, mock drills.
  - Open-access dam safety database for citizen oversight.
- **Climate-Resilient Design**
  - Incorporate **probable maximum flood (PMF)**, GLOF risk, glacial retreat modelling in dam management plans.

30   JUNGLE WARFARE SCHOOL

The government will set up a new Jungle Warfare School at Karreguta Hills, Bijapur (Chhattisgarh) — a former Maoist stronghold — to train CRPF, DRG, CoBRA, and state police forces.

NEW JUNGLE WARFARE SCHOOL AT KARREGUTA HILLS, BIJAPUR, CHHATTISGARH

- The Government of India has approved the establishment of a **Jungle Warfare School** in **Karreguta Hills, Bijapur district, Chhattisgarh**.

- Karreguta Hills is historically significant as a **former Maoist stronghold**, part of India's "Red Corridor" which has witnessed insurgency and Left-Wing Extremism (LWE) activities for decades.

PURPOSE OF THE SCHOOL

- To provide **specialized jungle warfare training** to forces engaged in counter-insurgency and anti-Maoist operations.

- To enhance the **capabilities of security forces** in operating in dense forest and guerrilla warfare conditions.

AGENCIES TO BE TRAINED

- **CRPF** (Central Reserve Police Force)

- **DRG** (District Reserve Guard — state police unit focused on anti-Naxal operations)

- **CoBRA** (Commando Battalion for Resolute Action — elite unit of CRPF for jungle warfare)

- **State Police Forces** involved in LWE operations

TRAINING FOCUS AREAS

The Jungle Warfare School will specialize in:

- **Counter-insurgency operations**

- **Guerrilla warfare tactics**

- **Survival skills in dense forests**

- **Tracking and ambush techniques**

- **Improvised explosive device (IED) detection and disposal**

- **Use of modern technology in jungle operations**

STRATEGIC IMPORTANCE

- **Bijapur (Chhattisgarh)**: Core area in India's anti-Naxal operations — strategically located in the heart of the Red Corridor.

- Enhances **operational readiness** and reduces casualties in high-risk zones.

- Improves **coordination between central and state forces** in counter-insurgency efforts.

- Strengthens India's **internal security architecture** in LWE-affected regions.

BROADER CONTEXT

- This initiative aligns with India's broader **national strategy to counter Left-Wing Extremism**, including:

  o Modernization of police and paramilitary forces.

  o Increasing presence of specialized units such as CoBRA.

  o Improved infrastructure in LWE-affected states.

  o Community engagement and development programmes alongside security measures.

31	NATIONAL POLICY ON GEOTHERMAL ENERGY 2025

MNRE launched the National Policy on Geothermal Energy (2025) to accelerate exploration and deployment of geothermal energy resources.
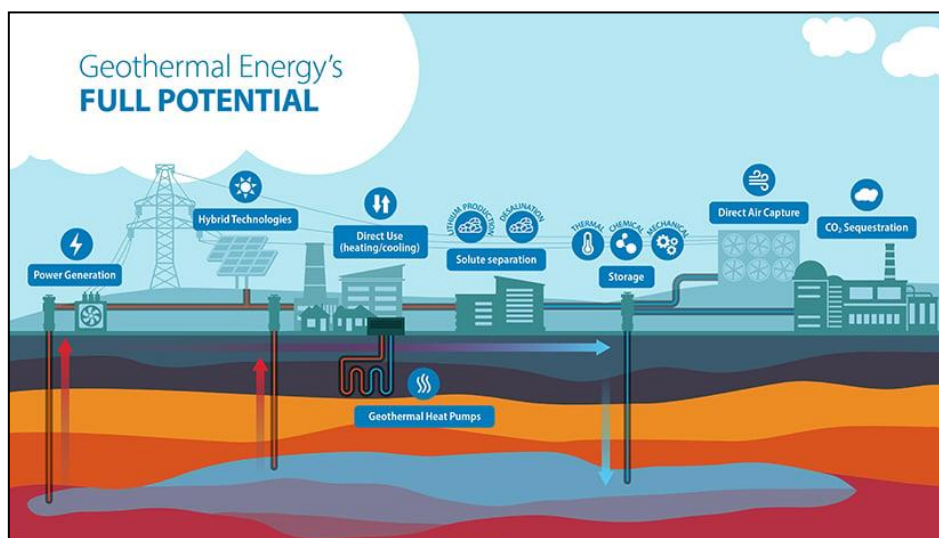
India has launched its first National Policy on Geothermal Energy in September 2025, marking a significant step toward diversifying the country's renewable energy sources and supporting its Net Zero 2070 commitment.

KEY HIGHLIGHTS OF THE NATIONAL POLICY ON GEOTHERMAL ENERGY (2025)

POLICY FRAMEWORK AND OBJECTIVES

- **Nodal Agency**: The Ministry of New and Renewable Energy (MNRE) will oversee the policy's implementation, with support from state agencies and other stakeholders.

- **Primary Goals**:
  - Unlock India's untapped geothermal potential for power generation and direct applications.
  - Promote research, innovation, and ecosystem development in geothermal energy.
  - Encourage public-private partnerships and international collaborations.
  - Contribute to India's Net Zero 2070 target by reducing carbon emissions.

STRATEGIC INITIATIVES

- **Incentives and Risk Mitigation**: The policy outlines financial incentives, subsidies, and risk mitigation measures to attract developers.

- **Regulatory Streamlining**: Simplified permitting processes to facilitate project development.

- **Repurposing Infrastructure**: Encourages the use of abandoned oil and gas wells for geothermal energy extraction.

- **Hybrid Energy Models**: Supports the integration of geothermal energy with other renewable sources, such as solar, to enhance grid stability.

RESEARCH AND DEVELOPMENT FOCUS

- **Advanced Exploration Techniques**: Invest in improved drilling and geothermal reservoir management.

- **Technology Deployment**: Promote cost-effective power generation and direct-use applications, such as heating and cooling.

- **Global Collaboration**: Foster partnerships with international geothermal bodies and research institutes to integrate best practices.

REGIONAL IMPLEMENTATION

- **State-Level Policies**: States like Uttarakhand have already developed their own geothermal policies to support local initiatives.

- **Pilot Projects**: The successful drilling of Northeast India's first geothermal well in Dirang, Arunachal Pradesh, serves as a model for sustainable energy development in the region.

GEOTHERMAL POTENTIAL:

- **381 hot springs** identified by GSI; 10 geothermal provinces including Himalayas, Cambay Graben, Godavari Basin, Aravalli.

- **Puga (Ladakh), Manikaran (HP), Tattapani (Chhattisgarh)** highlighted as high-potential zones.

SCOPE OF THE POLICY:

- Covers **electricity generation**, **district heating/cooling**, cold storage, greenhouse heating, aquaculture, tourism, desalination.

- Encourages **hybrid systems** (geothermal + solar) and **mineral extraction** (lithium, boron) for economic viability.

DEVELOPMENT MODEL:

- 100% FDI permitted in geothermal sector.

- Promotes **risk-sharing mechanisms**, **joint ventures** with oil & gas companies, and **single-window clearance** by states.

- **Fiscal incentives:** GST & import duty exemptions, tax holidays, accelerated depreciation, viability gap funding.

32	DE-NOTIFIED, NOMADIC AND SEMI-NOMADIC TRIBES (DNTS)

Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic Communities (DWBDNC) members wrote to PM seeking permanent commission status, staff, funds, and financial powers.

DE-NOTIFIED, NOMADIC, AND SEMI-NOMADIC TRIBES (DNTS) IN INDIA.

- De-notified, Nomadic, and Semi-Nomadic Tribes (DNTs) are communities in India that have historically faced marginalization and discrimination.

- **De-notified Tribes**: Tribes that were listed as "criminal tribes" under the British-era Criminal Tribes Act (1871), but later "de-notified" in 1952.

- **Nomadic Tribes**: Communities whose traditional livelihood is based on seasonal movement.

- **Semi-Nomadic Tribes**: Communities with partial settlement and partial mobility in their way of life.

- **Population**: Around **110 million people** across more than 1,000 communities in India.

Denotified, Nomadic & Semi-nomadic Tribes of India (DNTs)
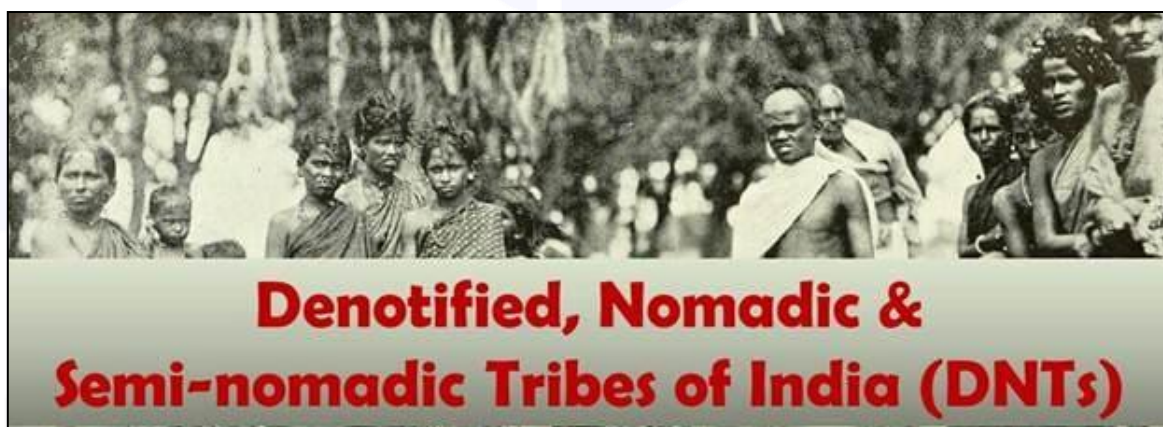
HISTORICAL BACKGROUND

- **Criminal Tribes Act, 1871**: British colonial legislation that classified several tribes as "criminal" by birth.
  - Resulted in systematic surveillance, restricted mobility, and stigmatization of these communities.

- **Post-Independence**: Act repealed in 1952, tribes were "de-notified," but stigma and socio-economic exclusion persisted.

- **Nomadic and Semi-Nomadic Tribes**: Continued displacement and poverty due to livelihood insecurity, loss of grazing land, and modernization pressures.

CURRENT STATUS & ISSUES

- **Population:** Around **10% of India's population** (~13 crore people).
- **Spread:** 150 DNT groups, ~500 nomadic communities across states.

SOCIO-ECONOMIC CHALLENGES

- High poverty rates and low literacy levels.
- Poor access to basic facilities like health care, education, and housing.
- Livelihood insecurity due to loss of traditional occupations (e.g., animal herding, craft-making, seasonal labor).

SOCIAL STIGMA

- Lingering prejudice due to colonial criminal classification.
- Discrimination in accessing resources, employment, and government benefits.

LACK OF POLITICAL REPRESENTATION

- Under-representation in political institutions and policymaking processes.

GOVERNMENT POLICIES & CONSTITUTIONAL PROVISIONS

CONSTITUTIONAL RECOGNITION

- Not explicitly listed as a separate category, but many DNT communities are recognized under the **Scheduled Castes (SC)**, **Scheduled Tribes (ST)**, or **Other Backward Classes (OBC)** categories.

LEGAL FRAMEWORK

- The **Criminal Tribes Act, 1871** repealed in 1952 and replaced by the **Habitual Offenders Act** — still criticized for targeting these communities.

POLICIES & PROGRAMMES

- **National Commission for De-notified, Nomadic and Semi-Nomadic Tribes (NCDNT)** (2006): Advises the government on welfare policies.
- **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act**: Offers some protection, but not specifically for all DNTs.
- State-level welfare programmes — though implementation remains uneven.

CHALLENGES IN POLICY IMPLEMENTATION

- Absence of a **uniform national policy** specific to DNTs.

- Poor identification and enumeration in census data.

- Limited access to targeted welfare schemes due to lack of official recognition.

- Loss of traditional livelihoods due to urbanization, climate change, and land alienation.

SUGGESTED MEASURES FOR EMPOWERMENT

POLICY LEVEL

- Formulate a **Comprehensive National Policy for DNTs** with clear definitions and legal recognition.

- Implement robust welfare programmes for education, skill development, housing, and healthcare.

- Ensure inclusion in reservations and affirmative action schemes.

SOCIAL LEVEL

- Awareness campaigns to remove social stigma.

- Integration of DNT culture and heritage into mainstream society.

ECONOMIC LEVEL

- Promote livelihood security through skill training and access to credit.

- Support traditional occupations with modern marketing and technology.

LEGAL LEVEL

- Repeal or reform laws that discriminate against DNTs.

- Strengthen anti-discrimination laws and grievance redressal mechanisms.

33   EVMS TO HAVE COLOUR PHOTOS OF CANDIDATES

Election Commission of India (ECI) has revised EVM ballot paper norms under Rule 49B of the Conduct of Election Rules, 1961.

EVMS TO HAVE COLOUR PHOTOS OF CANDIDATES:

- A **revised guideline** for Electronic Voting Machine (EVM) ballot papers.

- Mandates **colour candidate photographs** on ballot papers for the first time to enhance **voter visibility and identification**.

AIM OF THE REFORM

- Improve **clarity, transparency, and voter experience**.

- Reduce voter confusion in constituencies with multiple candidates having similar names/symbols.

- Strengthen **free and fair election principles** through better ballot paper design.

PROCEDURE & GOVERNANCE:

- Governed by **Rule 49B, Conduct of Election Rules, 1961** (design & printing of ballot papers).

- Chief Electoral Officers (CEOs) of all States/UTs directed to implement revised format.

- Printing to be done at **government/semi-government presses**, private presses only if required capacity is unavailable — with strict safety protocols.

KEY FEATURES:

- **Colour Photographs:** Candidate face covers **75% of allotted space** for easy recognition.

- **International Numerals:** Candidate/NOTA serial numbers printed in bold (size 30).

- **Better Paper Quality:** Pink paper for Assembly elections with specified RGB values.

- **Layout Standardization:**
  - Max 15 candidates per sheet and NOTA placed after last candidate.
  - If fewer than 16 candidates, remaining space kept blank.

- **Uniform Font:** Names printed in same bold typeface for readability.

SIGNIFICANCE:

- **Voter-Friendly:** Helps first-time voters, elderly, visually weaker voters to identify candidates quickly.

- **Transparency Boost:** Reduces scope for impersonation/confusion in candidate identity.

- **Electoral Credibility:** Strengthens ECI's commitment to fair and inclusive elections.

CONDUCT OF ELECTIONS RULES, 1961:

The *Conduct of Elections Rules, 1961* are framed under the **Representation of the People Act, 1951** to regulate the procedure for conducting elections to the Parliament, State Legislatures, and offices of the President and Vice-President of India.

They ensure free, fair, and uniform conduct of elections in the country.

LEGAL BASIS

- **Parent Act**: Representation of the People Act, 1951 (Section 64).

- **Enactment**: These rules were notified by the Election Commission of India under powers conferred by Section 64 of the Act.

- **Purpose**: To detail the procedures for nomination, polling, counting of votes, and declaration of results.

KEY PROVISIONS OF THE CONDUCT OF ELECTIONS RULES, 1961

NOMINATION OF CANDIDATES

- **Filing of Nomination**: Rules specify forms and procedure for submission of nomination papers, including security deposit requirements.

- **Scrutiny of Nomination Papers**: Candidates' nominations are scrutinized to verify compliance with eligibility criteria.

- **Withdrawal**: Rules provide timelines and procedures for withdrawal of candidature.

POLLING PROCESS

- **Appointment of Election Officers**: The Election Commission appoints officers responsible for conducting elections.

- **Polling Stations**: Criteria for setting up polling stations to ensure accessibility for all voters.

- **Polling Hours**: Uniform guidelines for polling hours.

- **Ballot Papers/Electronic Voting Machines (EVMs)**: Detailed guidelines for the preparation, sealing, and handling of ballot papers/EVMs.

- **Voting Procedure**: Rules to ensure secrecy of the ballot and smooth conduct of voting.

COUNTING OF VOTES

- **Counting Process**: Procedures for opening ballot boxes/EVMs and counting votes.

- **Recounting**: Conditions and procedures for recounting of votes.

DECLARATION OF RESULTS

- **Formal Declaration**: Rules lay down how results are to be declared and notified.

- **Return of Election**: Submission of election return to the Election Commission.

CONDUCT OF BY-ELECTIONS

- The rules also provide special procedures for conducting by-elections in case of vacancy.

IMPORTANT RULES UNDER THE CONDUCT OF ELECTIONS RULES, 1961

SOME SIGNIFICANT RULES INCLUDE:

- **Rule 4**: Form and manner of filing nominations.

- **Rule 8**: Security deposit amounts for different elections.

- **Rule 28**: Manner of taking votes by ballot or EVM.

- **Rule 56A**: Counting of votes.

- **Rule 65**: Declaration of results.

AMENDMENTS AND UPDATES

- Over the years, rules have been amended to incorporate changes like the use of EVMs, introduction of Voter Verified Paper Audit Trail (VVPAT), and procedures for postal ballots.

- Amendments have also been made to strengthen transparency and efficiency.

SIGNIFICANCE

- Ensures **uniformity and fairness** in electoral processes across India.

- Protects democratic rights by ensuring free and fair elections.

- Provides clear procedures to resolve disputes and complaints during elections.

RELATED PROVISIONS

- **Representation of the People Act, 1951**: Parent legislation.

- **Model Code of Conduct**: Issued by Election Commission to regulate the conduct of political parties and candidates during elections.

- **Election Symbols (Reservation and Allotment) Order, 1968**: Rules about election symbols.

34	META DISPLAY SMART GLASSES

Meta launched the first Ray-Ban smart glasses with in-built AR display, showcased at the Meta Connect event 2025.

WHAT IS META DISPLAY SMART GLASSES?

- **Wearable Augmented Reality (AR) device** built into eyeglasses.

- Projects **digital content (text, images, video)** onto the lens, overlaying virtual information onto real-world view.

- Meta's Ray-Ban Display is the **first mainstream AR glasses with a built-in display** since Google Glass.

HOW IT WORKS?

- **Micro-Display System:** Projects a small, bright image onto the inside of the right lens, appearing below eye-line.

- **Sensors & Cameras:** Capture surroundings, enabling environment-aware overlays.

- **Processors:** Render AR content in real time.

- **Connectivity:** Bluetooth links to smartphone for data, calls, messaging.

- **Controls:** Touch panel on arms, voice commands, and neural wristband (detects finger gestures).

KEY FEATURES OF META RAY-BAN DISPLAY

INTEGRATED AR DISPLAY

- **Display Technology**: The right lens houses a full-color, high-resolution display with a 600x600 pixel resolution and 5,000 nits of brightness, ensuring visibility even in bright environments.

- **User Interface**: The display is designed for short, glanceable interactions, allowing users to check messages, preview photos, view translations, and access Meta AI assistance without distraction.

META NEURAL BAND

- **Gesture Control**: Accompanying the glasses is the Meta Neural Band, an EMG wristband that detects subtle muscle movements, enabling gesture-based control of the glasses. This allows users to navigate menus, adjust volume, and interact with the display discreetly.

AI INTEGRATION

- **Meta AI Assistant**: The glasses are powered by Meta's AI, facilitating real-time translations, live captions, and contextual information overlays. This integration enhances user experience by providing intelligent assistance in various scenarios.

COMMUNICATION CAPABILITIES

- **Video Calls**: Users can make video calls directly through the glasses, with the display serving as a viewfinder and the built-in microphone and speakers handling audio.

- **Messaging and social media**: The glasses support messaging services and social media platforms, allowing users to stay connected without needing to interact with their phones.

DESIGN AND COMFORT

- **Style**: Maintaining the classic Ray-Ban Wayfarer design, the glasses are lightweight and suitable for everyday wear.

- **Lens Technology**: Equipped with Transitions® lenses, the glasses automatically adjust to changing light conditions, providing comfort in various environments.

TECHNICAL SPECIFICATIONS

- **Display**: 600x600 pixel resolution, 5,000 nits' brightness

- **Battery Life**: Up to 6 hours of mixed-use; additional 30 hours with collapsible case

- **Connectivity**: Bluetooth and Wi-Fi support

- **Audio**: Built-in speakers and microphone for hands-free communication

- **Control**: Gesture-based input via Meta Neural Band

- **Operating System**: Meta's proprietary OS with integration to Meta apps.

| 35 | MACHU PICCHU |

Peru evacuated 1,600 tourists from Machu Picchu after protests blocked train access, demanding inclusion in the bidding process for a new bus operator.

MACHU PICCHU:

- **Machu Picchu** is an ancient Incan city located in the Andes Mountains of **Peru**.

- Often called the "Lost City of the Incas," it is one of the most iconic archaeological sites in the world and a UNESCO World Heritage Site since **1983**.

- Situated at an altitude of about **2,430 meters (7,970 ft)** above sea level, it offers a remarkable blend of natural beauty and historical significance.

HISTORICAL BACKGROUND

- Built in the **15th century** during the reign of Inca emperor **Pachacuti** (r. 1438–1472).

- Abandoned in the mid-16th century during the Spanish Conquest, though it was never discovered by Spanish conquistadors.

- Rediscovered in **1911** by American historian **Hiram Bingham**.

- Machu Picchu is believed to have served as:

  - A royal estate for the Inca emperor.

  - A ceremonial and religious centre.

  - A strategic military site due to its location and fortifications.

ARCHITECTURE AND LAYOUT

Machu Picchu's architecture showcases the Inca's engineering brilliance:

- **Urban Layout**: Divided into two main areas:

    - **Agricultural sector**: Terraced fields for farming and preventing erosion.

    - **Urban sector**: Religious, residential, and administrative buildings.

- **Key Structures**:

    - **Temple of the Sun**: Used for astronomical observations and religious ceremonies.

    - **Intihuatana Stone**: A ritual stone associated with astronomical functions.

    - **Room of the Three Windows**: Offers symbolic insight into Inca cosmology.

- **Construction Techniques**: Precision stone masonry without mortar (ashlar technique), seismic-resistant construction, and advanced drainage systems.

CULTURAL AND RELIGIOUS SIGNIFICANCE

- Machu Picchu reflects the **Inca cosmology**, linking architecture with astronomy and nature.

- Religious significance linked to worship of **Inti (Sun God)** and Pachamama (Mother Earth).

- The site served as a pilgrimage destination for Inca elites.

UNESCO WORLD HERITAGE STATUS

- Designated in 1983 under criteria of cultural significance, integrity, and authenticity.
- Listed as one of the **New Seven Wonders of the World** in 2007.

MODERN CHALLENGES

ENVIRONMENTAL CONCERNS

- Over-tourism leading to erosion, degradation of terraces, and threat to biodiversity in the Machu Picchu Historic Sanctuary.
- Climate change affecting preservation of stone structures and terraces.

CONSERVATION ISSUES

- Illegal construction and farming around the site.
- Infrastructure projects (e.g., railway and road expansions) posing ecological risks.

GOVERNMENT AND INTERNATIONAL EFFORTS

- The Peruvian government has imposed strict visitor limits and regulations.
- UNESCO monitors conservation and sustainability measures.
- Sustainable tourism initiatives are being promoted to balance heritage preservation with local livelihoods.

GEOGRAPHICAL SIGNIFICANCE

- Located in the **Cusco Region** of Peru, part of the **Andes Mountains**.
- Sits above the Urubamba River valley, offering a strategic view and defensive advantage.
- Surrounded by rich biodiversity and cloud forests, making it ecologically significant.

36	PM INAUGURATES DEVELOPMENT PROJECTS IN MANIPUR

The Prime Minister inaugurated and laid the foundation stone for multiple development projects in Imphal, Manipur.


KEY HIGHLIGHTS OF DEVELOPMENT PROJECTS

- **Infrastructure and Connectivity:**
    - Launch of the **Manipur Urban Roads Project** with an investment of over ₹3,600 crore to boost road connectivity and improve urban infrastructure in Imphal.
    - The **Jiribam-Imphal railway line**, worth ₹22,000 crore, will soon connect Imphal to the national rail network.
    - **Imphal Airport** has been expanded with ₹400 crore investment, and helicopter services inaugurated to enhance air connectivity.
    - **Civil Secretariat building (worth ₹538 crore) and Police Headquarters** (₹101 crore) inaugurated to improve governance.
- **Digital and IT Initiatives:**
    - **Manipur Infotech Development Project** aiming to boost IT and startup ecosystem in the state.
- **Women Empowerment:**

- o Inauguration of **four new Ima Markets (women-only markets)** reinforcing Manipur's women-led economy tradition.

  - o **Construction of working women's hostels** at nine locations to empower women and support education and employment.

- **Sports and Culture:**

  - o Support for National Sports University and Khelo India initiatives.

  - o Promotion of polo through the Marjing Polo Complex, which includes the world's tallest polo statue.

BACKGROUND

- An ethnic conflict broke out in May 2023, between the **Meitei people** who dominate the **Imphal valley** and the **Kuki-Zo people** who dominate the surrounding hills.

  - o The violence has claimed above **250 lives** and displaced over **60,000 people.**

- The conflict originated from the **Meitei demand for Scheduled Tribe (ST) status,** which the Kukis opposed. By getting ST status, the Meiteis wants to;

  - o **Access to constitutional safeguards** such as reservations in jobs, education, and political representation.

  - o **Rights to purchase land** in the hill areas, which are currently reserved for tribal communities (mainly Kuki-Zo and Naga groups).

- A political crisis erupted in the State after the resignation of the Chief Minister and the subsequent **imposition of President's Rule.**
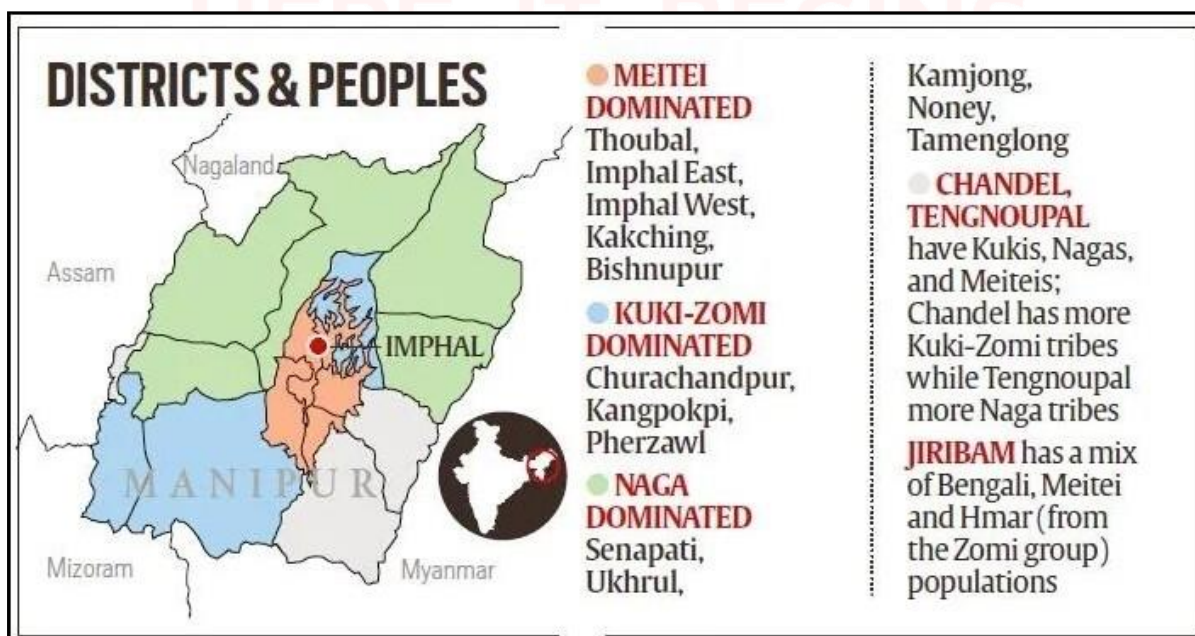
WHAT IS THE KEY UNRESOLVED ISSUES IN MANIPUR?

- **Rehabilitation of Displaced Families:** There are more than **280 relief camps** in Manipur, sheltering about **57,000 people**, many displaced for over **two years**.

- **Restrictions on Movement:** During the conflict, **"buffer zones"** were set up as militarized boundaries **separating the valley and hill districts.**

  - These zones restricted free movement, with Meiteis in the valley cut off from certain services and Kuki-Zo groups unable to access Imphal and other valley-based facilities.

- **Border Concerns:** The porous international border with Myanmar is an issue. Meitei leaders allege that unchecked migration of Chin people (ethnically related to Kuki-Zo) is worsening tensions.

  - **The Government scrapped the Free Movement Regime**, which allowed border tribes to travel up to **16 km** into either country without visa, and plans to fence the border.

  - These measures have met opposition from **Kuki-Zo and Naga communities,** who have cultural, economic ties across the border.

- **Political Vacuum:** There is a need to ensure good governance and justice in Manipur, creating conditions for stability and development in the State.

- **Dialogue Still Missing:** Though large-scale violence has reduced since late **2024,** there is no sustained dialogue between Meitei and Kuki-Zo communities.

DEMAND FOR SEPARATE ADMINISTRATION

- **The Kuki-Zo Council** has demanded for their hill areas of Manipur to be carved out administratively from the rest of the state, specifically, as a Union Territory (UT) with a legislature under **Article 239A** of the Indian Constitution.

  - **Article 239A** of the Indian Constitution grants the Parliament the power to create a local legislature or a Council of Ministers, or both, for certain Union Territories.

  - This provision was inserted into the constitution by the **14th Amendment Act of 1962.**

- However, **Meitei organizations like COCOMI strongly oppose** the proposal, viewing it as a threat to Manipur's territorial integrity and a step toward "ethnic partition."

NEED FOR DEVELOPMENT

- Infrastructure and connectivity improvements are critical for trade, mobility, and access to healthcare and education.

- Digital and IT sector growth can provide employment, entrepreneurship opportunities, and integration with the broader economy.

- Women-centric initiatives like Ima Markets help preserve cultural identity while boosting local economies.

- Peace-building efforts and targeted relief for displaced groups are crucial for social cohesion and long-term stability.

- Regional integration through infrastructure aligns with the Act East Policy and fosters economic collaboration with Southeast Asia.

WAY AHEAD

- A sustainable peace in Manipur requires inclusive dialogue between Meitei and Kuki-Zo groups, backed by neutral mediation.

- The government must prioritize rehabilitation of displaced families with dignity and livelihood support. At the same time, balanced border management and strengthening of local governance institutions can reduce alienation.

- In the long run, a political settlement that safeguards tribal rights while preserving Manipur's territorial integrity is essential.

37	INDIA'S OUTWARD FDI GOES TO 'TAX HAVENS'

Indian companies are increasingly channeling their outward foreign direct investment (FDI) through low-tax jurisdictions—commonly referred to as tax havens—to expand their global footprint.

PRESENT SCENARIO

- The companies are routing their foreign investments through low-tax jurisdictions (tax havens) such as **Singapore, Mauritius, UAE, the Netherlands, UK, and Switzerland.**

- According to data ,56% of India's outward FDI in 2023-24 (₹1,946 crore of ₹3,488.5 crore) went to these jurisdictions.

- In Q1 of 2024-25, this increased to 63%.

Investment choices

Outward FDI by Indian firms are predominantly in low-tax jurisdictions

Others 44.3%

Singapore 22.6%

Mauritius 10.9%

UAE 9.1%

Netherlands 5.3%

Other low-tax countries 0.9%

Switzerland 2.2%   UK 4.7%

Source: RBI
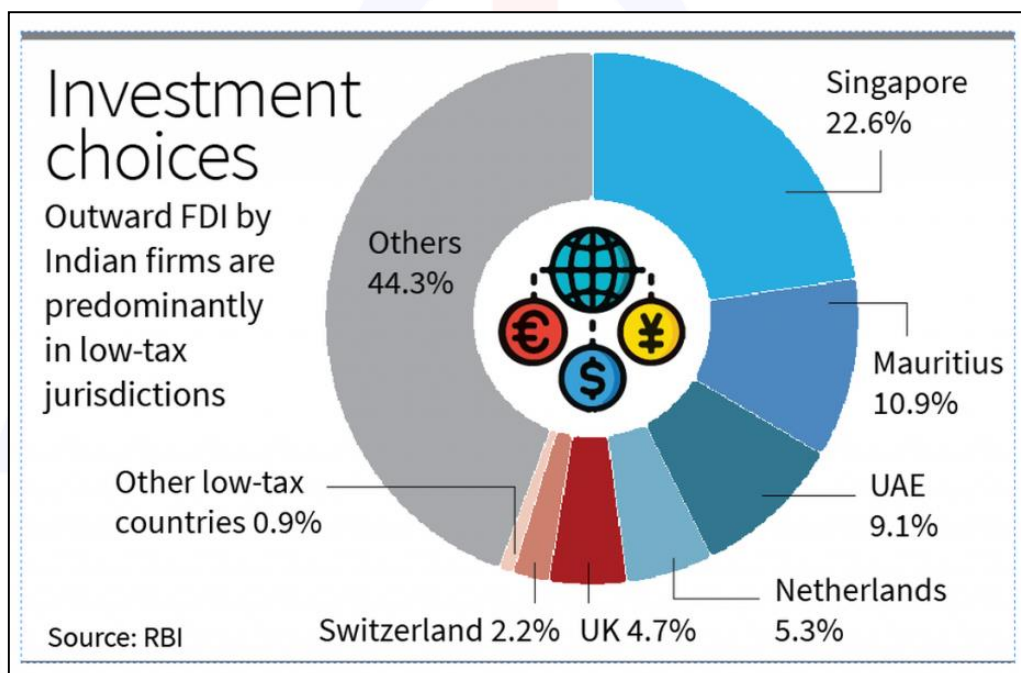
REASONS BEHIND THE TAX HAVEN PREFERENCE

- Indian companies prefer tax havens due to favorable legal frameworks, bilateral treaties (like the India-Mauritius DTAA) and low corporate tax rates.

- FDI regulations and taxation in India are often restrictive.

- Experts also warn that high U.S. tariffs on Indian imports might encourage companies to set up subsidiaries abroad to avoid these tariffs in the future.

- Strategic locations such as Singapore and the UAE also serve as gateways to broader markets.

- **Flexible financial regulations** in tax havens allow smoother capital movement and investment structuring.
- **Special Purpose Vehicles (SPVs)** in tax havens help attract international investors and facilitate stake dilution.

IMPACTS ON INDIA'S ECONOMY

- Routing profits through tax havens can **reduce India's taxable income base.**
- Tax havens are often associated with **money laundering and base erosion.**
- Increases the risk of round-tripping, where Indian money is sent abroad and reinvested in India under the guise of FDI.
- **Overreliance** on foreign structuring may **reduce direct investment in Indian operations,** impacting job creation and local growth.
- Difficult for Indian authorities to track ultimate investment destinations and enforce compliance.

STEPS TAKEN

- India has initiated several reforms to address the challenges posed by tax haven-linked FDI and these includes:
  - Renegotiation of treaties with Mauritius and Singapore to include anti-abuse clauses.
  - India is part of the **OECD's Base Erosion and Profit Shifting (BEPS) initiative to curb profit shifting.**
  - The government has streamlined FDI norms, enhanced sectoral caps, and introduced **Jan Vishwas reforms** to improve ease of doing business.

CONCLUSION AND WAY AHEAD

- Indian companies use tax havens not only for tax benefits but also for strategic and operational reasons.
- While this supports global expansion, it challenges India's tax system, regulations, and domestic investments.
- To balance this, India should improve ease of doing business, simplify regulations, and strengthen international tax cooperation to ensure outward FDI benefits the economy.
- Additionally, international cooperation is key to enforcing tax standards and curbing illicit flows.
  - A balanced, reform-driven approach is essential to support global ambitions without compromising fiscal integrity.

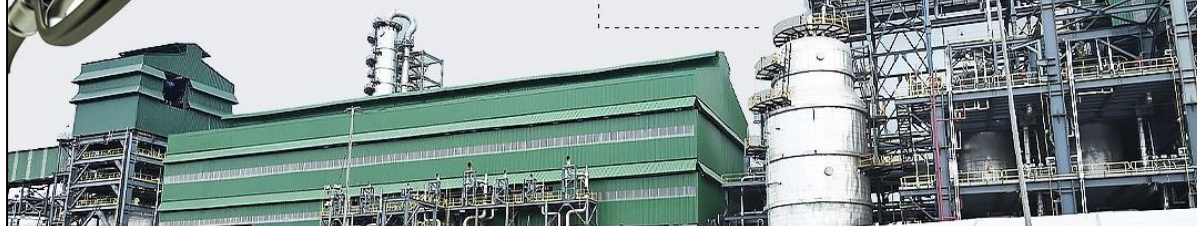| **38** | **FIRST BAMBOO–BASED BIO–REFINERY** |

Prime Minister Modi inaugurated **India's first bamboo-based bio-refinery at Golaghat district in Assam.**

India's First Bamboo Biorefinery
Takes Shape in Assam

The Golaghat-based unit **produces 99.7% pure ethanol**

It is also the world's largest bamboo-based bio-ethanol facility

WHAT IS BIOETHANOL?

Bioethanol is a renewable form of **ethanol** (ethyl alcohol, chemical formula: C_2H_5OH) produced by the fermentation of sugars and starches from biological sources such as plants, agricultural waste, or other organic matter.

It is primarily used as a **biofuel**—either blended with petrol or as a pure fuel substitute.

SOURCES OF BIOETHANOL

FIRST-GENERATION BIOETHANOL

- Derived from **food crops** rich in sugar or starch.

- Common sources: sugarcane, maize, wheat, barley.

- Example: Brazil uses sugarcane extensively; the U.S. uses maize.

SECOND-GENERATION BIOETHANOL (2G)

- Derived from **lignocellulosic biomass** (non-food plant material such as wood, straw, and bamboo).

- Avoids food vs. fuel conflict.

- Example: India's Numaligarh bamboo-based bio-refinery uses bamboo.

THIRD-GENERATION BIOETHANOL

- Produced from algae or other microorganisms.

- Still largely experimental.

PRODUCTION PROCESS

- **First-generation**: Sugars are extracted and fermented using yeast to produce ethanol.

- **Second-generation**:

    - **Pre-treatment** of biomass to break down lignin and cellulose.

    - **Hydrolysis** to convert cellulose into sugars.

    - **Fermentation** of sugars into ethanol.

    - **Distillation** to purify ethanol.

APPLICATIONS

- **Fuel**:

    - Blended with petrol (e.g., E10 = 10% ethanol, E20 = 20% ethanol).

    - Pure ethanol in flex-fuel vehicles.

- **Chemical Industry**:

    - Solvent, disinfectant, precursor for other chemicals.

- **Beverage Industry**:

    - Alcoholic drinks (food-grade ethanol only).

PROJECT OVERVIEW

- **Name**: Assam Bioethanol Plant (ABEP)

- **Location**: Numaligarh, Golaghat District, Assam

- **Inauguration**: September 14, 2025, by Prime Minister Narendra Modi

- **Investment**: ₹7,200 crore

- **Capacity**: Processes 5 lakh tonnes of bamboo annually to produce 49,000 tonnes of bioethanol, 11,000 tonnes of acetic acid, and 19,000 tonnes of furfural per year

- **Technology**: Chempolis' fractionation technology combined with enzymatic hydrolysis and fermentation

- **Feedstock**: Bamboo, a non-food, renewable biomass resource abundant in Northeast India

- **Partners**: Numaligarh Refinery Limited (NRL), Fortum Oyj, and Chempolis Oy.

TECHNOLOGICAL HIGHLIGHTS

- **Second-Generation (2G) Bioethanol**: Utilizes lignocellulosic biomass (bamboo) for ethanol production, avoiding the food vs. fuel dilemma associated with first-generation biofuels.

- **Fractionation Process**: Separates cellulose, hemicellulose, and lignin components of bamboo, enhancing the efficiency of subsequent enzymatic hydrolysis and fermentation stages.

- **By-Products**: Produces acetic acid and furfural, valuable in the chemical industry, contributing to the refinery's economic viability.

- **Captive Power Generation**: Employs bamboo residues to generate 20 MW of power, supporting the plant's operations and contributing to local energy needs.

ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACT

- **Sustainable Resource Utilization**: Bamboo, being a fast-growing and renewable resource, ensures a continuous supply without depleting forest ecosystems.

- **Reduction in Greenhouse Gas Emissions**: Bioethanol serves as a cleaner alternative to fossil fuels, aiding in the reduction of carbon emissions.

- **Waste Minimization**: The plant operates as a zero-waste facility, utilizing all by-products and residues, including the generation of liquid CO_2 for industrial applications.

- **Employment Generation**: The project is expected to create significant employment opportunities in bamboo cultivation, collection, transportation, and processing, benefiting thousands of local farmers and workers.

ECONOMIC SIGNIFICANCE

- **Contribution to Energy Security**: Supports India's goal of achieving 20% ethanol blending in petrol by 2025-26, reducing dependence on imported crude oil.

- **Value Addition to Bamboo**: Transforms bamboo into high-value products, enhancing its economic value and promoting sustainable agriculture in the region.

- **Rural Development**: Stimulates local economies through infrastructure development, skill enhancement, and increased income levels among rural communities.

- **Atmanirbhar Bharat Alignment**: Aligns with the government's vision of self-reliance by promoting indigenous production of biofuels and reducing reliance on fossil fuels.

POLICY LINKAGES

- **National Policy on Biofuels (2018)**: Recognizes bamboo as a feedstock for bioethanol production, encouraging its utilization in biofuel programs.

- **Ethanol Blended Petrol (EBP) Program**: Aims to achieve 20% ethanol blending in petrol by 2025-26, with the Numaligarh plant playing a pivotal role in meeting this target.

- **Atmanirbhar Bharat Initiative**: Promotes self-reliance in energy production, with the bamboo-based bio-refinery contributing to this objective.

- **Sustainable Development Goals (SDGs)**: Aligns with SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), and SDG 13 (Climate Action).

WHAT IS BIOREFINERY?

- **A biorefinery** is an industrial facility that **converts biomass** (plant material, agricultural residues, forestry waste, algae, organic waste, etc.) into a wide range of value-added products such as:

  - Biofuels (ethanol, biodiesel, biogas, biohydrogen);

  - Biochemicals (organic acids, solvents, bioplastics, enzymes);

  - Biomaterials (fibers, bio composites, biodegradable plastics);

  - Bioenergy (electricity, heat, syngas).

- A biorefinery is like a **green alternative** to an oil refinery, converting renewable biomass into fuels, energy, and chemicals in an efficient, sustainable, and eco-friendly way.

39 AUSTRALIA APPROVES FIRST VACCINE TO SAVE KOALAS FROM CHLAMYDIA

Australia has approved the **first vaccine** to protect its **shrinking koala population against chlamydia.**

ABOUT

- The vaccine was found to have **decreased mortality by at least 65%.**

- **Chlamydia:** It is a sexually transmitted infection caused by the **bacterium Chlamydia pecorum** that can cause infertility and blindness. In koalas, chlamydia is a threat to survival and a key conservation issue.

  o It is also found in humans caused by **Chlamydia trachomatis,** in humans, chlamydia is a major sexually transmitted infection (STI) but treatable.

KOALA:

The **Koala** (*Phascolarctos cinereus*) is a marsupial native to **Australia** and one of the country's most iconic species.

Despite often being called a "koala bear," it is **not a bear**, but a marsupial an animal that carries its young in a pouch.

PHYSICAL CHARACTERISTICS

- Grey or brown fur, dense and woolly for insulation.

- Large nose, round fluffy ears, and strong claws for climbing.

- **Weight:** typically, 4–15 kg; length: 60–85 cm.

- **Lifespan:** 10–15 years in the wild.

HABITAT AND DISTRIBUTION

- Native to eastern and southeastern Australia — Queensland, New South Wales, Victoria, and South Australia.

- Lives in **eucalyptus forests** and woodlands, where its diet is abundant.

- Arboreal in nature — spends most of its life in trees.

DIET

- Almost exclusively **eucalyptus leaves** (specialist folivore).

- Chooses leaves from specific eucalyptus species for nutrition and lower toxin content.

- Low metabolic rate — sleeps up to 18–20 hours/day to conserve energy.

BEHAVIOUR

- Nocturnal or crepuscular — most active at night or dawn/dusk.

- Solitary animals with defined home ranges.

- Communicate with deep bellows, grunts, and snores.

REPRODUCTION

- Breeding season: spring to summer (August–February).

- Gestation: ~35 days.

- Newborn joey crawls into pouch and remains there for about six months.

- Fully weaned by about 12 months.

CONSERVATION STATUS

- Classified as **Vulnerable** by the IUCN Red List due to:
    - Habitat destruction (deforestation, land clearing).
    - Bushfires (notably the catastrophic 2019–20 fires in Australia).
    - Disease (*Chlamydia pecorum* infection, which causes blindness, infertility).
    - Climate change impacts on habitat and food supply.

THREATS

- Habitat loss and fragmentation from agriculture and urban development.
- Vehicle strikes.
- Dog attacks.
- Disease — especially chlamydia and koala retrovirus (KoRV).
- Climate change — droughts, heat stress, and reduced leaf quality.

CONSERVATION EFFORTS

- Protected under Australia's **Environment Protection and Biodiversity Conservation Act, 1999**.
- Establishment of koala reserves and corridors to maintain habitat connectivity.
- Rehabilitation and rescue centres.
- Disease management and vaccination research.
- Public awareness and community involvement.

CHLAMYDIA:

Chlamydia is a genus of **obligate intracellular bacteria** that infect human cells and cause a range of diseases.
The most common human pathogen is *Chlamydia trachomatis*, which is a significant cause of **sexually transmitted infections (STIs)** and certain eye infections.

KEY SPECIES AFFECTING HUMANS

- **Chlamydia trachomatis**
  Causes:
    - **Urogenital infections** (most common STI globally)
    - **Trachoma** (leading cause of preventable blindness)

- o **Lymphogranuloma venereum** (LGV) — an invasive STI

- **Chlamydia pneumoniae**
  Causes respiratory tract infections such as pneumonia and bronchitis.

- **Chlamydia psittaci**
  Causes psittacosis, a respiratory infection transmitted from birds.

TRANSMISSION

- **Sexual contact** — for *C. trachomatis* (urethra, cervix, rectum, throat).

- **Mother to child** — during childbirth (causing conjunctivitis or pneumonia in newborns).

- **Airborne droplets** — for *C. pneumoniae* and *C. psittaci*.

- **Direct contact** — contaminated surfaces or secretions.

SYMPTOMS

- **Urogenital chlamydia infection**:
  - o Often **asymptomatic** (especially in women — up to 70% cases).
  - o Symptoms may include burning during urination, abnormal discharge, pelvic pain, testicular pain.

- **Trachoma**:
  - o Chronic conjunctivitis, eye irritation, and eventual scarring of the eyelid.

- **Respiratory chlamydial infections**:
  - o Cough, fever, shortness of breath.

DIAGNOSIS

- Nucleic acid amplification tests (NAATs) — highly sensitive and specific.

- Urine tests or swabs from the affected area.
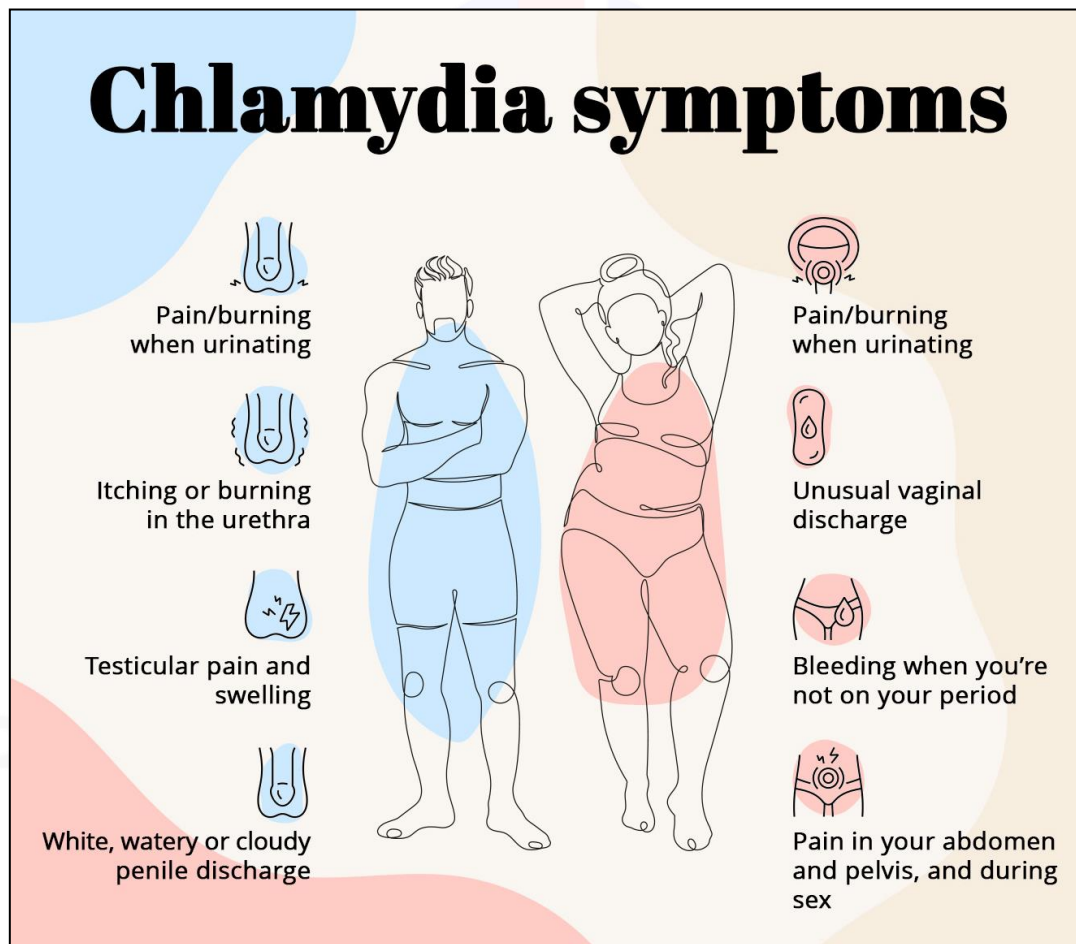
- Eye swabs for trachoma diagnosis.

TREATMENT

- **Antibiotics**: Azithromycin (single dose) or doxycycline (7-day course) are common treatments.

- Sexual partners should be treated simultaneously to prevent reinfection.

- Trachoma treatment includes antibiotics (azithromycin), improved hygiene, and surgery for advanced cases.

PUBLIC HEALTH SIGNIFICANCE

- **Global STI Burden**: Chlamydia is among the most reported bacterial STIs worldwide.

- **Blindness Prevention**:
    - Trachoma, caused by *C. trachomatis*, is the leading infectious cause of blindness globally.
    - WHO's SAFE strategy — Surgery, Antibiotics, Facial cleanliness, Environmental improvement — targets elimination.

- **Asymptomatic Nature**:
  Many infections go undiagnosed, leading to long-term complications such as infertility, ectopic pregnancy, and chronic pelvic pain.

Chlamydia symptoms

Pain/burning when urinating

Itching or burning in the urethra

Testicular pain and swelling

White, watery or cloudy penile discharge

Pain/burning when urinating

Unusual vaginal discharge

Bleeding when you're not on your period

Pain in your abdomen and pelvis, and during sex

40	EUSTOMA FLOWER

Eustoma, a flower earlier available in Odisha only through imports, has bloomed locally for the first time.This breakthrough was achieved by the **National Botanical Research Institute (NBRI)**, a research arm of the Council of Scientific and Industrial Research (CSIR).

EUSTOMA FLOWER:

The **Eustoma flower**, commonly known as **Lisianthus**, is a perennial flowering plant belonging to the family **Gentianaceae**.
It is prized for its delicate beauty, long vase life, and range of colors, making it a popular choice in floriculture and horticulture.

BOTANICAL DETAILS

- **Scientific Name**: *Eustoma grandiflorum*

- **Family**: Gentianaceae

- **Common Names**: Lisianthus, Texas Bluebell, Prairie Gentian

- **Origin**: Native to warm regions of the southern United States, Mexico, Caribbean, and northern South America.

- **Plant Type**: Herbaceous perennial, often grown as an annual in temperate climates.

PHYSICAL DESCRIPTION

- **Height:** 15–60 cm.

- **Flowers:** Rose-like blooms, often trumpet-shaped, with double or single petals.

- **Colour Range:** White, pink, lavender, purple, blue, and bi-coloured varieties.

- **Leaves:** Smooth, lance-shaped, greyish-green foliage.

- **Blooming Season:** Summer to early autumn.

CULTIVATION

- **Climate**: Prefers warm climates with mild summers; sensitive to frost.

- **Soil**: Well-drained, sandy loam with good organic content.

- **Sunlight**: Full sun to partial shade.

- **Watering**: Regular but moderate watering; avoids waterlogging.

- **Propagation**: By seeds or cuttings; seed germination takes 10–14 days.

USES

- **Floriculture**: Widely used in bouquets, arrangements, and wedding decorations.

- **Horticulture**: Ornamental plant in gardens.

- **Cultural Symbolism**: Symbolises appreciation, charisma, and elegance.

- **Medicinal Research**: Some studies explore potential antioxidant properties.

ECONOMIC IMPORTANCE

- Lisianthus is a high-value cut flower crop in the international floriculture market.

- Its long vase life (up to 2 weeks) and wide colour range make it a favourite for export and ornamental trade.

- Countries such as Japan, USA, Netherlands, and Colombia are major producers and exporters.

CULTIVATION IN INDIA

- **Odisha**: In Sambalpur district, the Sabuja Sanatanpali Farmer Producer Company Ltd (SSFPCL) successfully cultivated Eustoma in a polyhouse, receiving saplings from CSIR-Lucknow. Despite initial pest challenges, the plants bloomed in shades of white, violet, and pink, showcasing the flower's adaptability to India's climatic conditions.

- **Uttar Pradesh**: Research at SHUATS in Prayagraj evaluated 15 Eustoma cultivars, identifying 'Arena Red' and 'A White' as high-performing varieties in

terms of growth and floral characteristics. This study underscores the potential of Eustoma cultivation in the Indo-Gangetic plains.

- **Himachal Pradesh**: ICAR-IARI's Regional Station in Katrain, Kullu, has successfully introduced Eustoma cultivation in the mid-Himalayan region, demonstrating its viability in temperate climates.

ECONOMIC POTENTIAL

Eustoma cultivation offers significant economic benefits for farmers:

- **Profitability**: With proper management, Eustoma can be harvested twice a year, yielding up to ₹2 lakh per acre per season.

- **Market Demand**: The flower's long vase life and diverse color range make it highly sought after in the floral industry, especially for weddings and special occasions.

RESEARCH AND DEVELOPMENT

Ongoing studies focus on optimizing cultivation practices:

- **Growth Regulators**: Research in Prayagraj has explored the effects of plant growth regulators on Eustoma's growth and flower yield, aiming to enhance productivity under local agro-climatic conditions.

- **Micropropagation**: Studies have investigated rapid micropropagation techniques for Eustoma, facilitating large-scale production and consistent quality.

41 PINK TAX

As per International Finance Students Association's (IFSA) research 'The Gender Tax: Assessing the Economic Toll on Women,' almost 67% of Indian individuals have never heard of the Pink Tax. This highlights a significant gap in awareness regarding gender-based pricing.

PINK TAX

- **Pink tax** is neither a real tax, nor is it a government-imposed fee.

- It's just a **pricing phenomenon** wherein **women pay more** for buying a product exclusively made for them or enjoying a service tailor-made for them.

  - Pink toys, haircuts, drycleaning, razors, shampoos, body lotions, deodorants, facial care, skincare items, beauty care, clothing, T-shirts, jeans, salon services etc. suffer the tax.

- **The term "Pink Tax"** is believed to have originated in the U.S. in California in 1994.

REGULATION IN INDIA

- While there are **no specific laws in India** to address the issue of Pink Tax, the **National Consumer Disputes Redressal Commission** ruled that companies must **follow fair pricing policies** and avoid gender-based price discrimination.

- In July 2018, the **Union Government exempted sanitary napkins and tampons from the Goods and Services Tax (GST)**. Prior to this rule, these hygiene items **were levied 12% GST.**

WAYS TO AVOID PINK TAX

- Choose gender-neutral products or men's variants whenever possible.

- Compare the quality and if the men's variant is better, skip the pink packaging or choose unisex products.

- Instead of comparing prices of the entire package, check the price per unit.

42	2025 WORLD BOXING CHAMPIONSHIPS

Jaismine Lamboria and Minakshi Hooda have won gold at the **World Boxing Championships 2025** held in Liverpool, UK.

ABOUT

- The event was hosted at M&S Bank Arena, Liverpool, UK, and brought over 550 boxers from more than 65 countries across all continents.

- The 2025 edition was historic, as it combined both men's and women's events under World Boxing, the new global boxing federation, for the first time at the elite level.

- **Kazakhstan topped the medal table** with 7 gold, ahead of Uzbekistan and India.

43	NATIONAL MAKHANA BOARD

PM Modi launched the National Makhana Board in Purnea, **Bihar,** approving a development package of about **₹475 crore** for the makhana sector.

WHAT IS MAKHANA?

- Makhana (Euryale ferox), also known as fox nut, is an **aquatic crop** cultivated in **stagnant ponds and wetlands**.
  - This plant is found in freshwater ponds throughout **South and East Asia.**
- The edible part of the Makhana plant consists of **small, round seeds** that have an outer layer ranging from **black to brown**.
  - This has led to it being referred to as the **'Black Diamond.'**
- **Climatic conditions:** For optimal growth and development, Makhana requires a temperature range of **20-35°C,** relative humidity of **50-90%,** and annual rainfall between **100-250 cm.**
- **In India**, Bihar produces about **90% of the country's makhana**, particularly the regions of **Mithilanchal and Seemanchal.**
  - In smaller quantities it is cultivated in the states of **Assam, Manipur, West Bengal, Tripura, and Odisha**, as well as in neighboring countries like **Nepal, Bangladesh, China, Japan, and Korea.**
- **GI Tag to Mithila Makhana:** In **2022**, 'Mithila Makhana' was conferred a Geographical Indication tag.
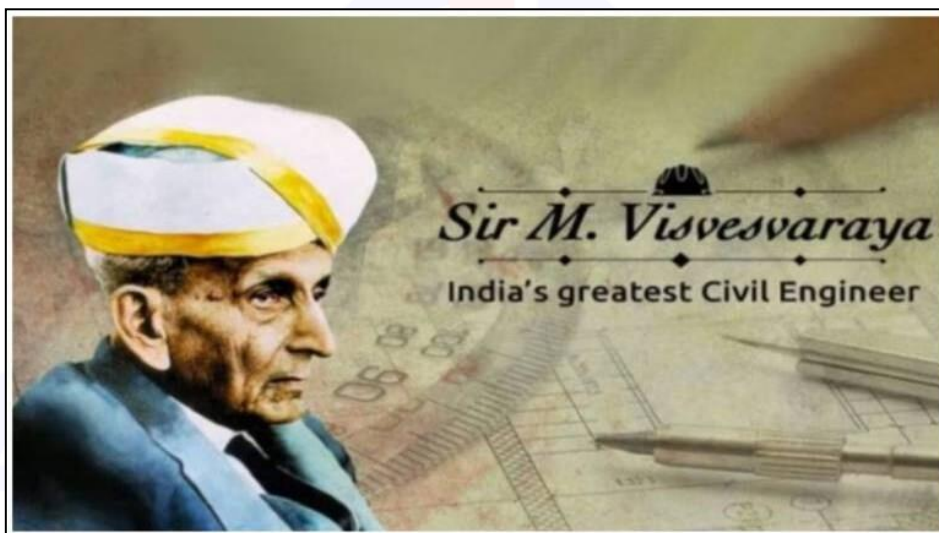
44   SIR M VISVESVARAYA

PM Modi paid homage to Sir Mokshagundam Visvesvaraya on his birth anniversary, observed nationwide as Engineers' Day.

ABOUT

- **Born on September 15, 1861,** Visvesvaraya is regarded as one of **India's greatest engineers** whose pioneering work revolutionized infrastructure development.

- He served as the **Diwan of Mysore** and **President of the All-India Manufacturers' Organisation.**

- He was conferred with the **Bharat Ratna in 1955.**

Sir M. Visvesvaraya
India's greatest Civil Engineer

CONTRIBUTIONS OF SIR M. VISVESVARAYA

- **Innovative Flood Management Systems:** After the **1908 Musi River** floods, Sir M.Visvesvaraya designed reservoirs like **Osman Sagar and Himayat Sagar** and proposed systematic flood control solutions.

- **Pioneering Dam Construction and Irrigation:** As Chief Engineer of Mysore, Sir Visvesvaraya built the **Krishna Raja Sagara (KRS) Dam in 1932,** creating Asia's largest reservoir.

  - His **automatic sluice gates** improved water regulation at multiple dams.

- **Literary Works:** Reconstructing India (1920), Planned Economy for India (1936), and Unemployment in India: Its Causes and Cure (1932).

  - **Autobiography:** Memoirs of my Working Life (1951)

45 — SC REJECTS PLEA TO BRING POLITICAL PARTIES UNDER POSH ACT

The Supreme Court declined to take into consideration a plea seeking to extend the ambit of the **Protection of Women from Sexual Harassment at Workplace (POSH) Act** to include political parties, observing that **such organisations cannot be classified as workplaces** under the law.

BACKGROUND

- **In Centre for Constitutional Rights Research and Advocacy v State of Kerala & Ors (2022)** the Kerala High Court ruled that political parties do not have a conventional employer-employee relationship and cannot be mandated to set up **Internal Complaints Committees (ICCs).**

- This ambiguity, combined with the decentralized and informal nature of political party structures, has often been cited as a reason for non-compliance.

POSH ACT

- The Act defines sexual harassment to include unwelcome acts such as physical contact and sexual advances, a demand or request for sexual favours, making sexually coloured remarks, showing pornography, and any other unwelcome physical, verbal, or non-verbal conduct of a sexual nature.

- The Act is applicable to all workplaces, including the organized and unorganized sectors, the public and private sectors, and government and non-government organizations.

- All women employees, whether employed regularly, temporarily, contractually, on an ad hoc or daily wage basis, as apprentices or interns or even employed without the knowledge of the principal employer, can seek redressal to sexual harassment in the workplace.

CONSTITUTION OF INTERNAL COMPLAINTS COMMITTEE (ICC):

- Employers are required to constitute an ICC at each office or branch with 10 or more employees.

- It has to be headed by a woman, have at least two women employees, another employee, and a third party such as an NGO worker with five years of experience.

LOCAL COMMITTEE (LC):

- It mandates every district in the country to create a local committee (LC) to receive complaints from women working in firms with less than 10 employees.

PROCEDURE FOR FILING COMPLAINTS:

- Woman can file a written complaint within three to six months of the sexual harassment incident.

- There are two ways to resolve the issue by the committee- through conciliation between the complainant and the respondent (which cannot be a financial settlement), or committees could initiate an inquiry, taking appropriate action based on what it finds.

ANNUAL AUDIT REPORT:

- The employer has to file an annual audit report with the district officer about the number of sexual harassment complaints filed and actions taken at the end of the year.

PENALTY:

- If the employer fails to constitute an ICC or does not abide by any other provision, they must pay a fine of up to ₹50,000, which increases for a repeat offence.

ARGUMENTS IN FAVOR OF EXTENDING THE POSH ACT TO POLITICAL PARTIES

- **Constitutional Mandate for Equality:** Denying women in political spaces protection under POSH undermines their rights under **Articles 14 (equality before law), 15 (non-discrimination), 19(1)(g) (right to profession), and 21 (right to life and dignity).**

- **The Vishaka v. State of Rajasthan (1997)** case established that protection from sexual harassment is integral to women's fundamental rights.

  - Excluding political parties dilutes this spirit.

- **Filling the Accountability Gap:** Over **2,700 registered political parties** function without Internal Complaints Committees (ICCs).

  - Extending POSH would fill this institutional void and establish a formal redressal mechanism where none currently exists.

- **Encouraging Women's Political Leadership:** Sexual harassment remains a key deterrent to women's participation in politics.

  - Legal protection would create a safer environment, enabling more women to contest elections, take leadership roles, and remain active in public life.

ARGUMENTS AGAINST EXTENDING THE POSH ACT TO POLITICAL PARTIES

- **Absence of Employer-Employee Relationship:** Political parties operate on informal structures and lack a clear employer-employee relationship, which complicates the applicability of the POSH Act.

- **Decentralized Party Structures:** The diverse and decentralized nature of political parties makes it difficult to implement centralized ICCs or ensure uniform compliance.

WAY AHEAD

- **Party-Level Codes of Conduct:** Political parties should voluntarily adopt gender-sensitivity policies, codes of conduct, and safe workplace protocols to build credibility and demonstrate commitment to inclusivity.

- **Sector-Specific Mechanisms:** For informal, freelance, and voluntary sectors like politics, cinema, and media, the government could establish sectoral grievance redressal boards to provide independent and credible forums outside employer control.

46	SARNATH

India officially nominated **Sarnath for the UNESCO World Heritage List for the 2025-26 cycle.**

ABOUT

- **Location:** It is situated near Varanasi, Uttar Pradesh.
  - One of the four major Buddhist pilgrimage sites (others: Lumbini, Bodh Gaya, Kushinagar).

- **Historical Importance:**
  - After attaining enlightenment at Bodh Gaya, Gautama Buddha **delivered his first sermon** at Sarnath (around 528 BCE).
  - This event is called **"Dhammachakrapravartana"** or "Turning of the Wheel of Dharma".
  - It marked the **beginning of the Buddhist Sangha** (community of monks).

- **Monuments & Structures:**
  - **Dhamek Stupa** – built by Ashoka, commemorates the Buddha's first sermon.
  - **Chaukhandi Stupa** – marks the spot where Buddha met his first disciples.
  - **Ashokan Pillar** – erected by Emperor Ashoka; its lion capital is now the National Emblem of India.

- o **Monasteries & remains** – ruins of ancient viharas, temples, and sculptures.

- **Ashoka's Contribution:** Emperor Ashoka visited Sarnath in **3rd century BCE.**

  - o Built stupas, monasteries, and inscribed edicts promoting Dharma.

  - o The Lion Capital of Ashoka from Sarnath was adopted as India's national emblem in 1950.

47   CHHATH MAHAPARVA

India is exploring a multinational nomination of 'Chhath' for inscription in UNESCO's Representative List of Intangible Cultural Heritage of Humanity.

ABOUT CHHATH

- Chhath Mahaparva, dedicated to the **Sun God** and **Goddess Chhathi Maiya**, is among India's oldest festivals.

- It is celebrated extensively in **Bihar, Jharkhand, Uttar Pradesh, West Bengal**, and by diaspora communities in **Mauritius, Fiji, Suriname, UAE, and the Netherlands**.

- The **four-day festival**, known for its ecological and egalitarian ethos, fosters reverence for nature, sustainability, inclusivity, and community spirit.

INDIA AND UNESCO INTANGIBLE HERITAGE

- India already has **15 elements** inscribed (e.g., Yoga, Kumbh Mela, Durga Puja).

- **Nodal Agency:** Sangeet Natak Akademi coordinates India's nominations.

- For inclusion, **state parties** must submit a **nomination dossier** under the 2003 UNESCO Convention.

DO YOU KNOW?

- **Intangible Cultural Heritage (ICH):** Includes song, music, drama, skills, crafts, and the other parts of culture that can be recorded but cannot be touched.

48 | MORAN COMMUNITY

The Moran community launched an indefinite economic blockade demanding Scheduled Tribe (ST) status.

ABOUT MORAN COMMUNITY

- The Moran community is an **aboriginal tribe of Assam** that once had its own independent kingdom before the advent of **Ahom rule.**

- Historically, they lived in the **southeastern Brahmaputra valley** and had prominent chiefdoms, including the Matak country ruled by chiefs such as Bodousa.

- In the 17th century, **Sri Aniruddhadeva**, a disciple of Srimanta Sankardeva converted the **Morans to Vaishnavism**, leading to the rise of the Moamoria (Mayamara) sect and a period of social and cultural renewal.

- They are predominantly Vaishnava, with the **Moamoria uprising (1769–1799)** acting as a major challenge to Ahom power, stemming in part from their low-caste origins and reformist religious leadership.

| 49 | PM VISHWAKARMA SCHEME |

On 17 September 2025, the PM Vishwakarma Scheme completed two years.

ABOUT THE SCHEME

- It is a **Central Sector Scheme** that provides end-to-end **support to artisans and craftspeople** who work with their hands and tools.

- The Scheme covers artisans and craftspeople engaged in **18 trades.**

KEY BENEFITS:

- **Recognition** of artisans and craftspeople through PM Vishwakarma certificate and ID card.

- **Skill Upgradation:** Basic Training of 5-7 days and Advanced Training of 15 days or more, with a stipend of Rs. 500 per day.

- **Credit Support:** Collateral free 'Enterprise Development Loans' of up to **Rs. 3 lakhs** in two tranches of **Rs. 1 lakh and Rs. 2 lakhs** with tenures of 18 months and 30 months, respectively, at a concessional rate of interest fixed at **5%**, with Government of India subvention to the extent of **8%.**

- **Marketing Support** in the form of quality certification, branding, onboarding on e-commerce platforms such as GeM, advertising, publicity and other marketing activities to improve linkage to value chain.

50 | UNIFIED PENSION SYSTEM (NPS)

Central government employees have till September 30 to opt for the **Unified Pension Scheme (UPS) under the National Pension System (NPS).**

UNIFIED PENSION SCHEME (UPS)

- It was announced in **2024**; effective from **April 1, 2025.**

- **Eligibility:** Central government employees who joined on or **after January 1, 2004** (covered under NPS).

  - New recruits joining central government services on or after April 1, 2025.

  - Former employees who were under NPS but retired or voluntarily retired on or before March 31, 2025.

- **Voluntary Option:** While the NPS was mandatory for all central government employees joining from January 1, 2004, the **UPS is optional.**

- **Features of UPS:**

  - **Assured Pension:** 50% of average basic pay of last 12 months, after 25 years of service.

  - **Family Pension:** Spouses get up to 60% of pension after a pensioner's death.

- **Contributions:**

  - **Employee:** 10% of basic pay + DA.

  - **Employer:** 10% of basic pay + DA.

  - **Govt extra contribution:** 8.5% for pool corpus.

  - **Minimum Guarantee:** At least ₹10,000 per month pension after 10 years of service.

    - Employees being dismissed from service would not be eligible for the assured payout.

  - **Lump Sum Benefit:** 1/10th of last basic pay + DA for every six months of service.

51	GENOCIDE

A UN-mandated investigative body, the Independent International Commission of Inquiry, has concluded that **Israel is committing genocide in Gaza,** accusing its leadership of incitement and intent to destroy the Palestinian population.

WHAT IS GENOCIDE?

- The term "genocide" was coined in **1944 by Polish lawyer Raphael Lemkin,** combining the Greek word genos (race/tribe) and Latin cide (killing).

  o He developed the concept in response to the Holocaust and other historical mass killings.

- **Genocide** was first **acknowledged as a crime by the UN General Assembly in 1946**, and formally codified in the **1948 Genocide Convention**

  o Genocide includes any of the following acts, committed with intent to destroy, in whole or in part, a national, ethnic, racial, or religious group:

    - **Killing members of the group**

    - **Causing serious bodily or mental harm**

    - **Inflicting destructive living conditions**

    - **Imposing measures to prevent births**

    - **Forcibly transferring children to another group**

- **The International Court of Justice (ICJ)** affirms that the **prohibition of genocide** is customary international law and a peremptory norm (jus cogens), meaning all states are bound by it, regardless of treaty ratification.

- The **definition of genocide in Article II of the Genocide Convention**—also used in the Rome Statute of the International Criminal Court—was the result of negotiation among UN member states.

RECENT FINDINGS OF INDEPENDENT INTERNATIONAL COMMISSION OF INQUIRY

- The commission found that four out of five acts defined as genocide under the 1948 Genocide Convention have been committed since the war began in October 2023, following the Hamas attack on Israel.

- These include **killing, causing serious harm, imposing life conditions aimed at physical destruction, and preventing births within the group**.

RESPONSE OF ISRAEL

- Israel has strongly rejected the report, calling it false and politically biased, and demanded the commission be abolished.

52 · SEX SORTED SEMEN FACILITY UNDER THE RASHTRIYA GOKUL MISSION

Prime Minister Narendra Modi inaugurated a **Sex Sorted Semen** facility under the **Rashtriya Gokul Mission** in Purnea, Bihar.

Do you know?

Semen sex-sorting technology increases the chances of female calf births with about 90% accuracy, reducing the economic burden on dairy farmers and boosting their income by producing more replacement heifers.

The new facility in Purnea, Bihar, will benefit dairy farmers in the region, especially small, marginal, and landless farmers.

RASHTRIYA GOKUL MISSION (RGM)

- The Rashtriya Gokul Mission, launched in 2014 by the **Department of Animal Husbandry and Dairying.**

- It aims to develop and conserve indigenous cattle and buffalo breeds, improve bovine genetics, and boost milk production.

- **Key objectives** include enhancing productivity through advanced technologies, promoting high genetic merit bulls, expanding artificial insemination services, and encouraging scientific rearing and conservation of indigenous breeds.

UPDATES

- In March 2025, The Union Cabinet approved the **Revised Rashtriya Gokul Mission (RGM) to boost the livestock sector.**

- It will be implemented as a Central Sector component under the Development Programmes scheme with an increased total outlay of ₹3,400 crore for the 2021–2026 period, including an additional ₹1,000 crore.

| 53 | ION CHROMATOGRAPHY |

Scientists at the University of Tasmania, Australia have developed a portable ion chromatograph called **Aquamonitrix,** that delivers results comparable to conventional high-cost laboratory instruments.
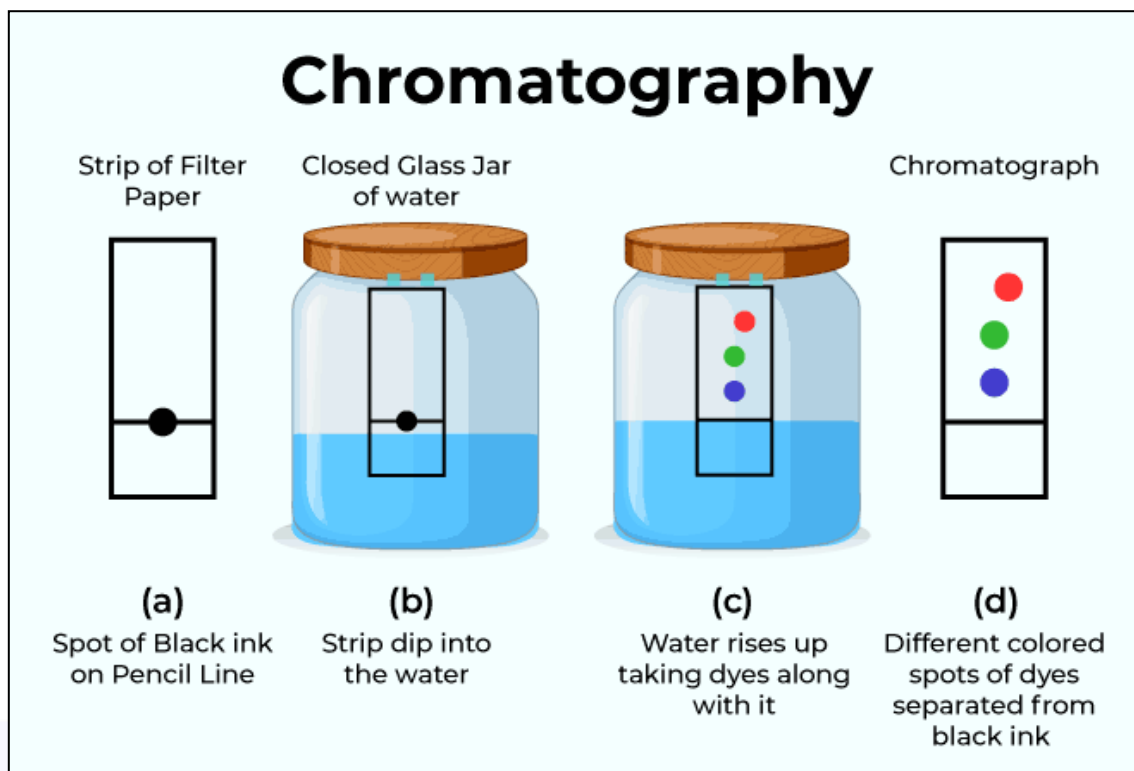

WHAT IS ION CHROMATOGRAPHY?

- Ion Chromatography (IC) is an analytical technique used to **separate and quantify charged particles (ions)** in a sample.

- The process relies on the **interaction of ions with a charged stationary phase** inside a column.

WORKING PRINCIPLE OF CHROMATOGRAPHY

- **Column:** A resin-packed column with a fixed charge (stationary phase) forms the core of IC.

- **Eluent:** A liquid carrier solution is continuously pumped through the column.

- **Sample Injection:** The sample is introduced into the eluent stream.

- **Separation:** Ions in the sample interact with the resin based on their charge and affinity.

- o Oppositely charged ions are attracted to the resin and similarly charged ions are repelled.

- o This causes different ions to move through the column at varying speeds, enabling separation.

- **Detection:** A detector, typically a conductivity meter, measures the changes in the eluent's conductivity as the separated ions pass through.

- **Chromatogram:** This data is plotted as a **chromatogram,** showing peaks that correspond to different ions and their concentrations.
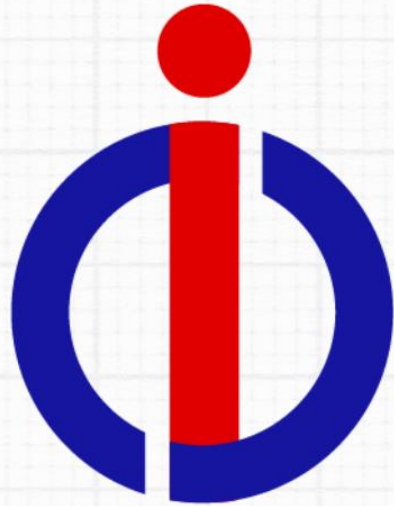
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