KERALA STATE CIVIL SERVICE ACADEMY

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NATO SUMMIT 2025

At the NATO summit in The Hague on **June 25, 2025**, member states agreed to raise defence and security spending to **5% of GDP** by **2035**, marking the alliance's largest military commitment since the Cold War.

Key Highlights

- **New Spending Target**:
  - **Total**: 5% of GDP
  - **Core Defence (troops, weapons, etc.)**: 3.5%
  - **Broader Security (infrastructure, innovation, civil preparedness)**: 1.5%
- **Annual Progress Review**: Countries must submit yearly plans; a formal review will take place in **2029**.
- **Collective Defence Reaffirmed**: Emphasizes NATO's solidarity amid rising threats from **Russia**, **terrorism**, and **cyber warfare**.
- **U.S. Influence**: The decision follows long-standing U.S. pressure for greater burden-sharing among European allies.
- **Divergence in Support**: While most members back the plan, some like **Spain**, **Belgium**, and **Slovakia** have expressed difficulty in meeting the 5% target due to budgetary constraints.

Strategic Context

This move supports NATO's **largest rearmament drive** in decades and reflects the need for stronger **deterrence**, enhanced **readiness**, and adaptability to modern threats, including the war in Ukraine and cyberattacks.

NATO (North Atlantic Treaty Organization)

The **North Atlantic Treaty Organization (NATO)** is a political and military alliance formed in **1949** to ensure collective defence and security for its member nations.

Founding and Purpose

- **Established**: April 4, 1949, by the **North Atlantic Treaty (Washington Treaty)**
- **Headquarters**: Brussels, Belgium
- **Motto**: "*Animus in consulendo liber*" (A mind unfettered in deliberation)
- **Primary Objective**: Safeguard the freedom and security of member countries through political and military means.

Key Features

- **Collective Defence**: Under **Article 5**, an attack on one member is considered an attack on all.
  - Invoked only once: After the **9/11 attacks** in 2001.
- **Members**: 32 countries (as of 2025), including the U.S., Canada, most European nations, and new entrants like Finland and Sweden.
- **Decision-Making**: Based on **consensus** among all member states.

Functions

1. **Military Cooperation**: Joint defense, training, and strategic planning
2. **Crisis Management**: Peacekeeping and conflict resolution missions
3. **Cyber & Hybrid Threats**: Addressing modern security challenges beyond traditional warfare
4. **Partnership Programs**: Works with non-member countries to promote global stability

CAS9 CRISPR TECHNOLOGY

In agriculture, it is revolutionizing how crops respond to **biotic** (diseases) and **abiotic** (heat, drought) stresses

How It Works

- Uses **Cas9 enzyme** guided by custom RNA to target specific genes.
- Enables **knockout** of genes that cause disease susceptibility or **enhancement** of genes that promote resistance.
- Offers faster, more accurate improvements than traditional breeding.

Applications in Crops

- **Disease Resistance**: Disabling genes like *BoBPM6* and *BoDMR6* in cabbage boosts resistance to multiple diseases like Fusarium wilt and black rot.
- **Heat & Drought Tolerance**: Editing genes such as *SiEPF2* in foxtail millet helps regulate water use and stomatal density, improving stress tolerance.
- **Stronger Immunity**: Enhances plant immune responses to evolving pathogens.

Benefits

- **Reduces pesticide use**, supporting eco-friendly farming.
- **Accelerates breeding cycles**, allowing rapid response to threats.
- **Stabilizes yields** under climate-induced stress conditions.

CRISPR Technology

CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) is a **revolutionary gene-editing technology** that allows scientists to modify DNA with high precision, efficiency, and speed.

Origin

- Discovered as a **natural defence mechanism in bacteria**, where it helps fight viruses.
- Adapted for gene editing using the **CRISPR-Cas9 system**, developed in the early 2010s.

How It Works

- The **Cas9 enzyme** acts like molecular scissors that cut DNA at targeted locations.
- A **guide RNA (gRNA)** directs Cas9 to a specific DNA sequence.
- Scientists can then delete, insert, or modify genes at that site.

Applications

1. **Medicine**: Correcting genetic disorders like sickle cell anaemia, cancer therapies, and HIV treatment.
2. **Agriculture**: Developing disease-resistant, heat- and drought-tolerant crops.
3. **Research**: Studying gene functions in various organisms.
4. **Veterinary Science**: Improving animal health and productivity.

Advantages

- **High precision** with minimal off-target effects
- **Faster and cheaper** than older gene-editing tools (e.g., TALENs, ZFNs)
- Applicable to a **wide range of organisms**

Concerns

- **Ethical issues** around editing human embryos
- Potential for **unintended genetic consequences**
- Calls for global regulation and oversight

BONNET MACAQUE

Kerala is planning to launch a **birth control programme** for **bonnet macaques to** address rising human–monkey conflicts, especially in forest fringe areas where crop damage and property loss are significant.

Objective:

To reduce conflict without harming wildlife, ensuring protection for both **human livelihoods** and **biodiversity conservation**.

Key Features:

- **Target Species:** Bonnet macaque (*Macaca radiata*), listed as **'vulnerable'** on the IUCN Red List.

- **Proposed Methods:**
  - **Surgical sterilisation**
  - **Intramuscular contraceptive injections**
  - **Oral contraceptives** (exploratory phase)
- **Approach:**
  - Ethical and **sustainable wildlife population control**
  - Based on **international models**
  - To be implemented with **central government approval**
- **Additional Measures:**
  - Creation of **monkey shelters** in deep forest areas
  - **Habitat enrichment** to localise populations and reduce human intrusion.

Bonnet Macaque (Macaca radiata)

The **bonnet macaque** is a species of Old-World monkey native to southern India. It is named for the cap-like whorl of hair on its head that resembles a bonnet.

Scientific Name: *Macaca radiata*

Conservation Status:

- Listed as **"Vulnerable"** on the **IUCN Red List** due to habitat loss and increasing human-wildlife conflict.

Habitat:

- Found in **southern India**, especially in **forests, temples, urban areas**, and near agricultural fields.
- Highly **adaptable** to human-dominated landscapes.

Behaviour and Ecology:

- **Diurnal** and **social**, living in troops with complex hierarchies.
- Omnivorous—feeds on fruits, seeds, insects, and often human food waste.
- Exhibits **strong adaptability**, often leading to conflict in urban and rural settings.

Threats:

- **Habitat fragmentation**
- **Urbanisation and deforestation**
- **Crop raiding**, leading to conflict with humans
- **Illegal captivity** and mistreatment in religious or tourist areas

Conservation Measures:

- Ethical **population management** (e.g., sterilisation initiatives)
- **Habitat enrichment** in forests
- **Public awareness** and scientific interventions to reduce human-monkey conflict

RWANDA AND THE DEMOCRATIC REPUBLIC OF CONGO (DRC) SIGNED PEACE AGREEMENT

Rwanda and the Democratic Republic of Congo (DRC) signed peace agreement, brokered by the United States. This agreement aims to end years of conflict that have resulted in thousands of deaths and widespread displacement. The deal is important step towards stability in the region, which is rich in valuable minerals.

Background

The conflict between Rwanda and the DRC has deep historical roots, dating back to the 1994 Rwandan genocide. Following the genocide, tensions escalated, leading to multiple violent confrontations. The M23 rebel group has been player in this ongoing conflict, seizing control of key areas in eastern Congo.

Details of the Peace Agreement

The peace agreement was signed in Washington, D.C., with the presence of U.S. Secretary of State Marco Rubio. Key provisions include the withdrawal of Rwandan troops from eastern Congo within 90 days and the establishment of a joint security coordination mechanism. The agreement also outlines a framework for regional economic integration.

International Involvement

The U.S. played a very important role in facilitating the agreement. President Donald Trump brought into light the importance of the deal, emphasising its potential to attract Western investment in the mineral-rich region. The U.S. aims to secure mineral rights as part of the agreement, which could benefit its economy.

Implementation Timeline

The agreement stipulates that both nations will initiate the economic integration framework within 90 days. Additionally, a separate agreement concerning mineral supply chains will be signed. The implementation of these provisions is crucial for ensuring lasting peace and stability.

Challenges Ahead

Despite the optimism surrounding the agreement, challenges remain. Both countries must adhere to the terms of the deal for it to be successful. Ongoing negotiations in Doha, which involve the Congolese government and M23, are also critical. Analysts express cautious optimism, noting that previous peace efforts have faced difficulties.

Regional Implications

The peace agreement has broader implications for the Great Lakes region. Stability in the DRC could lead to improved economic conditions and security in neighbouring countries. However, the involvement of external powers and the historical complexities of the conflict may complicate the peace process.

C-FLOOD

C-FLOOD will act as a unified system integrating flood modelling outputs from national and regional agencies, offering a comprehensive decision-support tool for disaster management authorities.
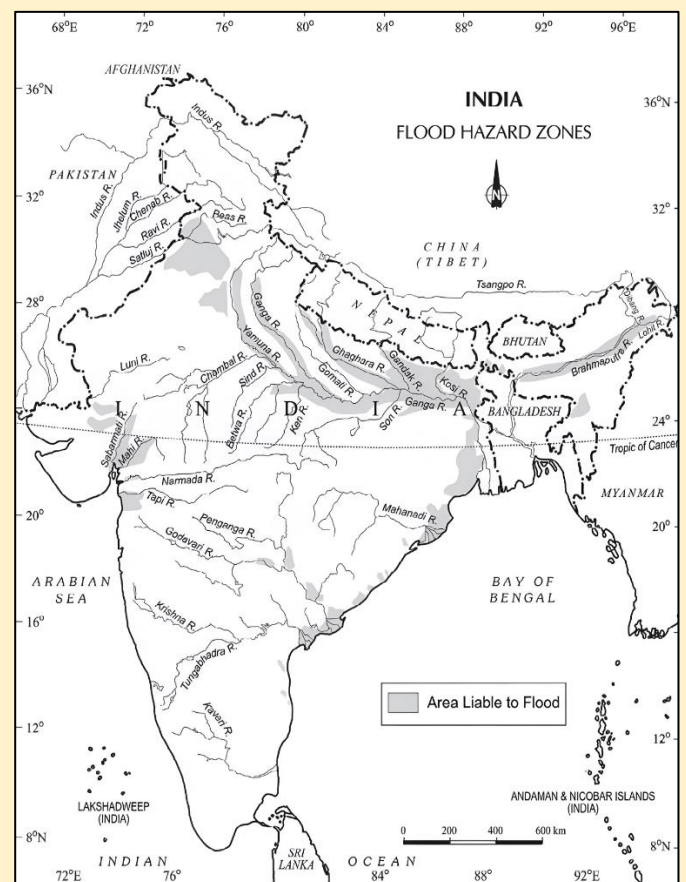
Over 40 million hectares (mha) (~12% of total area) out of 329 mha is flood prone in India.

About C-FLOOD

It is a web-based platform providing 2-day advance flood inundation forecasts up to village-level.

It uses advanced 2-D hydrodynamic modelling to simulate flood scenarios.

It offers flood inundation maps and water level predictions to aid disaster preparedness.

Jointly developed by:
Centre for Development of Advanced Computing (C-DAC), Pune.
Central Water Commission (CWC), nodal organisation entrusted with the task of flood forecasting & early flood warnings in the country.

Nodal Agency : Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti.
National Remote Sensing Centre (NRSC) has also collaborated in its development.
Present Coverage: Mahanadi, Godavari, and Tapi river basins. Planned to expand to cover all river basins across India.
Forecasts to be integrated with the National Disaster Management Emergency Response Portal (NDEM).
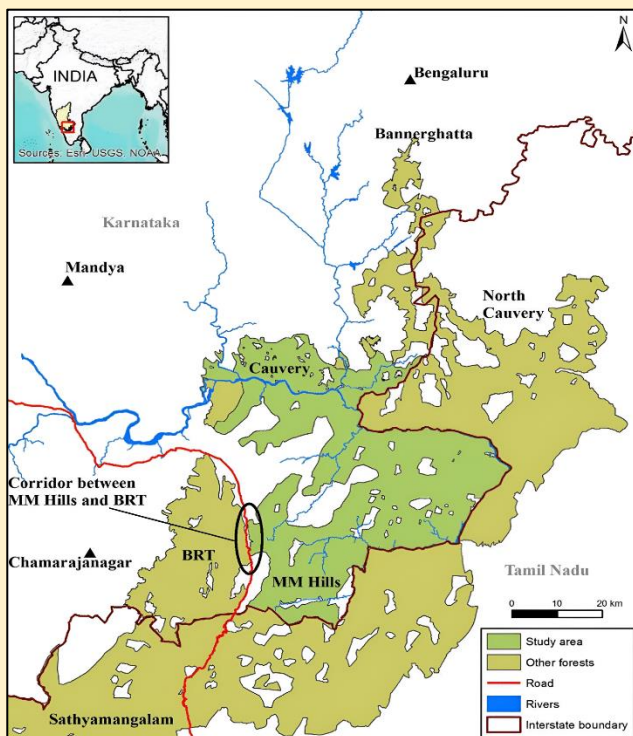
MALE MAHADESHWARA (MM) HILLS WILDLIFE SANCTUARY.

Five tigers found dead in Male Mahadeshwara (MM) Hills Wildlife sanctuary.
About MM Hills Wildlife Sanctuary
Located in Southeast Karnataka.
It forms connecting corridor between Biligiri Ranganatha Swamy Temple (BRT) Wildlife Sanctuary and the Cauvery Wildlife Sanctuary.

Dominated by dry deciduous forests and Patches of Semi- evergreen, Shola forests at higher altitudes and scrub forests in fringe zones. Soligas and Lingayats are the dominant communities in the MM Hills. Species include Tiger, Elephant, Leopard, Wild dog (dhole), Sloth bear, etc. Important corridor in the Eastern Ghats–Western Ghats landscape.

OPERATION MED MAX

It was an operation conducted by Narcotics Control Bureau (NCB) for cracking down on illegal pharmaceutical drug trade.
Under it, NCB dismantled a transnational drug trafficking syndicate that smuggled controlled medicines across four continents.

The syndicate used encrypted digital platforms, drop shipping models, and cryptocurrency to smuggle the controlled substances. The network showcases the growing convergence of digital platforms, cryptocurrency, and transnational logistics in modern illicit trade.

TERBIUM

Indian Institute of Science (IISc) Scientists have developed a glowing paper sensor to help detect liver cancer. It uses the green glow of Terbium to sense the presence of an enzyme called β-glucuronidase, a critical biomarker for liver cancer.
About Terbium
It is a rare-earth metal of the lanthanide series of the periodic table. Appearance: Soft, silvery metal.

Occurrence: Can be recovered from minerals, monazite and bastnaesite. Also obtained from euxenite, a complex oxide containing 1% or more of terbium. Applications: Solid-state devices, low-energy lightbulbs and mercury lamps, safety of medical x-rays, laser devices etc.

NATIONAL SPORTS POLICY (NSP) 2025

The **Union Cabinet has approved the National Sports Policy (NSP) 2025**, aiming to transform India into a **global sporting powerhouse**, with a strategic focus on success at events like the **2036 Olympic Games**

Key Features:

- **Replaces 2001 Policy:** Marks a major shift in India's sports strategy after more than two decades.
- **Extensive Consultation:** Developed in collaboration with Central Ministries, State Governments, NITI Aayog, sports federations, athletes, and the public.

Five Pillars of NSP 2025:

Pillar	Focus Areas
Excellence on the Global Stage	Talent scouting, elite pathways, leagues, coaching, infrastructure, and athlete support.
Sports for Economic Development	Promotes sports tourism, local manufacturing, international events, start-ups, and private investment.
Sports for Social Development	Encourages inclusion of women, weaker sections, PwDs, and revival of traditional games.
Sports as a People's Movement	Drives mass participation, volunteerism, and diaspora engagement.
Integration with Education	Embeds sports into the school curriculum as per NEP 2020, enabling dual-career paths.

Strategic Vision:

- Improve governance in sports bodies.
- Expand infrastructure in rural and urban areas.
- Train coaches, referees, and officials.
- Foster entrepreneurship and job creation through sports.

National & Global Ambitions:

- Targets enhanced performance in global competitions, especially the **2036 Olympics**.
- Positions India as a **host for major international sporting events**.
- Promotes health, social inclusion, and economic growth through sports.

Learning Corner:
Major Government Schemes Related to Sports
Khelo India Scheme

- **Objective:** Revive sports culture at the grassroots level and build a strong framework for talent identification and development.
- **Key Features:**
  - Annual **Khelo India Youth Games (KIYG)** and **University Games**
  - **Scholarships** for talented athletes (₹5 lakh/year for 8 years)
  - Creation of **Khelo India Centres** and **State Centres of Excellence**
- **Target Group:** School and college-level athletes

Target Olympic Podium Scheme (TOPS)

- Objective: Identify and support elite athletes who can win medals at the Olympics and other international events.
- **Key Features:**
  - Financial support for training, coaching, equipment, international exposure
  - Covers both **senior and junior athletes**
- **Administered by:** Sports Authority of India (SAI)

Fit India Movement

- **Launched:** 2019 by the Prime Minister
- **Objective:** Encourage citizens to adopt **fitness as a lifestyle**
- **Key Activities:** Fitness challenges, school certifications, and awareness campaigns

National Sports Development Fund (NSDF)

- **Objective:** Mobilize private and public sector contributions for sports development.
- **Focus:** Infrastructure, training, equipment, and welfare of sportspersons

Pandit Deendayal Upadhyay National Welfare Fund for Sportspersons

- **Purpose:** Financial assistance for **injured or retired sportspersons**, or those facing financial hardship

Special Area Games (SAG) Scheme

- **Objective:** Nurture talent from **tribal, coastal, hilly, and remote regions** with natural sporting abilities
- **Implemented by:** Sports Authority of India

National Physical Fitness Programme (NPFP)

- **Focus:** Introduced under **NEP 2020**, this aims to integrate fitness and physical education across schools

Urban Sports Infrastructure Scheme (USIS)

- **Objective:** Develop sports infrastructure like synthetic tracks, turf fields, and stadiums in urban areas

-

'QUAD-AT-SEA SHIP OBSERVER MISSION'

Quad nations—India, Japan, the United States, and Australia—launched their **first-ever 'Quad-at-Sea Ship Observer Mission'** to enhance maritime cooperation in the **Indo-Pacific**.

The initiative was formalized under the **Wilmington Declaration** during the Quad Leaders' Summit in Delaware.

Key Highlights:

- **Participants:** Two officers (including women) from each country's **coast guard** have joined the **USCGC Stratton**, currently en route to Guam.
- **Objective:** To improve **interoperability, maritime security**, and **operational coordination**, supporting a **free, open, and rules-based Indo-Pacific**.

- **Nature:** A **cross-embarkation mission** where officers from all four nations observe and operate jointly at sea—**a first for Quad maritime forces**.
- **Strategic Alignment:**
  o Supports India's SAGAR (Security and Growth for All in the Region) initiative.
  o Complements the **Indo-Pacific Oceans Initiative (IPOI)**.

- **Significance:**
  o Marks a milestone in **multilateral coast guard collaboration**.
  o Builds **trust and readiness** through real-time maritime cooperation.
  o Expected to be an **annual initiative**, expanding strategic depth in Indo-Pacific partnerships.

QUAD (Quadrilateral Security Dialogue)

The **Quadrilateral Security Dialogue (QUAD)** is a strategic forum comprising **India, the United States, Japan, and Australia**, aimed at promoting a **free, open, inclusive, and rules-based Indo-Pacific** region.

Origins and Evolution:

- **Initiated in 2007** by Japanese PM **Shinzo Abe**, with support from India, the US, and Australia.
- Revived in **2017**, amidst growing concerns over **China's assertiveness** in the Indo-Pacific.
- Elevated to the **leader-level summit format in 2021**, highlighting its growing importance.

Objectives:

- Ensure **maritime security and freedom of navigation**.
- Promote **rules-based international order**.
- Address regional challenges like **terrorism, cyber security, climate change, critical technologies**, and **supply chain resilience**.
- Support **capacity building and infrastructure development** in Indo-Pacific nations.

Key Initiatives:
- Quad Vaccine Partnership
- Critical and Emerging Technologies Working Group
- Quad Climate Working Group
- Maritime Domain Awareness (IPMDA)
- Quad-at-Sea Observer Mission (2024) – boosting coast guard cooperation.

Significance:
- Seen as a balancing force in the Indo-Pacific amidst China's rising influence.
- Promotes multilateral cooperation among like-minded democracies.
- Enhances strategic and security partnerships in the region without forming a formal military alliance.

GLOBAL GENDER GAP INDEX

India's position in the World Economic Forum's Global Gender Gap Index has declined.

Recently, India ranked 131st out of 148 countries. This fall is attributed to a worsening situation in political empowerment. While economic participation, educational attainment, and health have shown improvements, political representation remains a pressing issue.

Current Gender Gap Context

India's gender gap has narrowed in several areas. However, political empowerment has deteriorated. The percentage of women in Parliament decreased from 14.7% to 13.79%.

Women in ministerial positions also fell from 6.45% to 5.56%. These statistics show the ongoing challenges in achieving gender equality in leadership roles.

Women's Reservation Legislation

In 2023, India passed a law mandating 33% reservation for women in the Lok Sabha and State legislatures. This law will take effect in 2029, following a new Census and delimitation. The reservation is valid for 15 years, raising concerns about the sustainability of women's political gains.

Historical Context of Women's Representation

Women's representation in the Lok Sabha has fluctuated from 3.4% in 1977 to 14% in 2019. As of 2023, women made up only 9% of MLAs in State Assemblies.

Chhattisgarh had the highest representation at 18%, while some states had no women MLAs at all. The impending reservation aims to increase these figures substantially.

Impact of Women Voters

The number of women voters has increased dramatically since the first general election in 1952. Women have overtaken men as voters in recent elections.

Political parties are now targeting women as a key demographic, introducing welfare schemes aimed at them. This shift in voting patterns has not yet translated into increased representation.

Challenges in Candidate Selection

Despite the rise in women voters, political parties continue to offer limited representation to women candidates. Many women are fielded in reserved seats for Scheduled Castes or Tribes.

This practice undermines their chances in more competitive constituencies. Although women candidates have a higher winning percentage, they often struggle to make it onto candidate lists.

Future Prospects for Political Empowerment

The upcoming reservation law could alter the landscape of women's political empowerment. However, the effectiveness of this policy will depend on the willingness of political parties to support women in ministerial roles. There is a need for a clear pathway to elevate local leaders to higher political offices.

KARIYACHALLI ISLAND

The Tamil Nadu government has initiated the restoration of Kariyachalli Island, part of the Gulf of Mannar Marine National Park. This effort follows the successful restoration of Vaan Island and is part of the Tamil Nadu Sustainably Harnessing Ocean Resource (TNSHORE) initiative.

Funded by the state government and the World Bank, the project has a budget of ₹50 crore. The Tamil Nadu Forest Department, in collaboration with IIT-Madras and the Suganthi Devadason Marine Research Institute, is leading this ambitious project.

Background of Kariyachalli Island

Kariyachalli Island is located in the Gulf of Mannar, which is known for its rich biodiversity and coral reefs. The island has experienced shrinkage over the years. Historical records indicate that its area was 20.85 hectares in 1969. By 2017, it had reduced to just 5.97 hectares.

Recent measurements show an alarming decline to 3.14 hectares during high tide and 4.12 hectares during low tide. This shrinkage is primarily due to coastal erosion and the impacts of climate change.
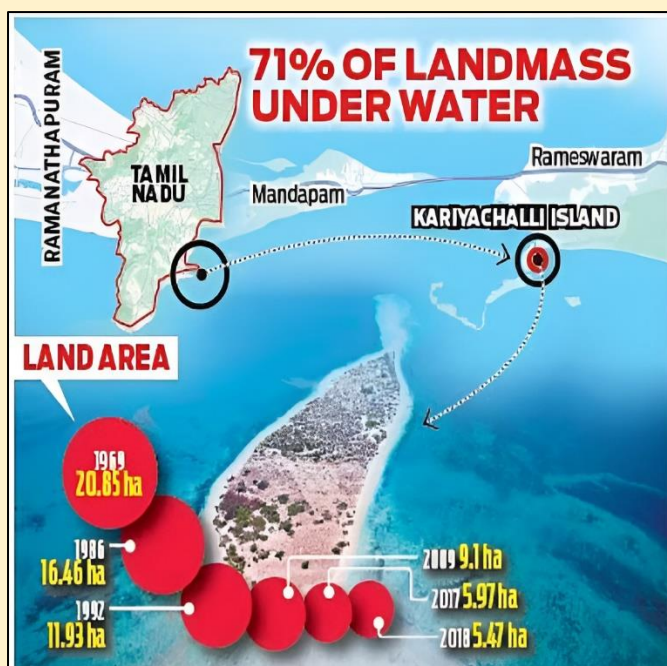
Importance of Coral Reefs

Coral reefs play important role in protecting coastlines from erosion and supporting marine biodiversity. They act as natural barriers that mitigate the effects of extreme weather. The Gulf of Mannar, home to one of India's four major coral reef systems, has suffered from extensive coral mining, which halted in 2005. The mining primarily targeted vital reef-building species, leading to habitat degradation.

Restoration Efforts

The restoration project includes the deployment of 8,500 artificial reef modules designed to protect the island and restore its biodiversity.

These modules aim to enhance marine life by providing habitats for fish and other organisms. Additionally, the project focuses on restoring degraded coral reefs and seagrass beds, which are essential for the health of marine ecosystems.

Community Involvement

The project will engage over 300 local community members, ensuring that the restoration efforts are inclusive and beneficial to those who rely on the marine resources for their livelihoods. This community involvement is vital for the long-term success of the restoration initiative.

Scientific Studies and Assessments

Before commencing the restoration, environmental and social impact assessments were conducted. Investigations into wave dynamics and bathymetry were also carried out by IIT-Madras to inform the restoration strategy. These studies help to understand the island's unique challenges and formulate effective solutions.
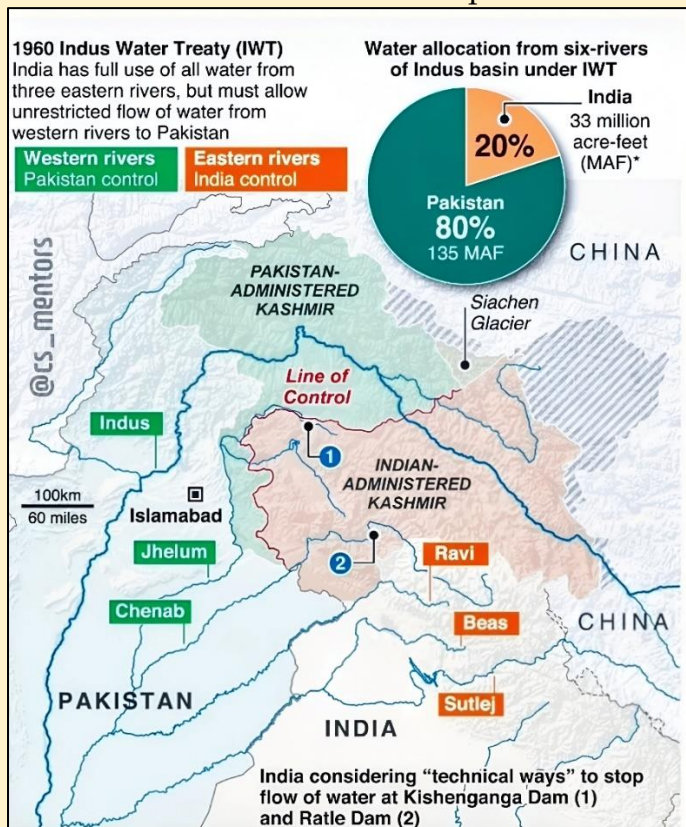
Future Prospects

The restoration of Kariyachalli Island is expected to be a gradual process. Experts note that the recovery of the ecosystem may take time due to the extent of degradation. However, the initiative aims to enhance biodiversity, protect the island from further erosion, and sustain the livelihoods of local fisherfolk.

INDUS WATERS TREATY (IWT)

Rethinking the Indus Waters Treaty (IWT) in the context of geopolitics, climate change, and India's national interest.

Why IWT Needs Rethinking:

- The **Indus Waters Treaty (1960)** was signed during a time of **new geopolitical realities** post-Partition.
- Pakistan's location as a lower riparian state made it vulnerable, prompting a Western-brokered agreement.
- The treaty was **never a simple water-sharing agreement** but a product of Cold War-era geopolitics involving the World Bank and Western powers.

1960 Indus Water Treaty (IWT)
India has full use of all water from three eastern rivers, but must allow unrestricted flow of water from western rivers to Pakistan

Western rivers — Pakistan control
Eastern rivers — India control

Water allocation from six-rivers of Indus basin under IWT
India 20% — 33 million acre-feet (MAF)*
Pakistan 80% — 135 MAF

India considering "technical ways" to stop flow of water at Kishenganga Dam (1) and Ratle Dam (2)

Climate Change & Hydrological Impact:

- Climate change is a **critical factor**: altering glacier melt, river flows, and storage needs.
- The treaty does **not account for changing water availability** or **extreme weather events**.
- India's need for more **storage capacity** and **hydropower** must be factored into a renegotiation.

Asymmetry in the Treaty:

- Pakistan, as the lower riparian, has **veto power** over Indian projects on the western rivers (Indus, Jhelum, Chenab).
- India receives **only 20%** of the basin's waters despite contributing significantly to the basin's geography and climate.
- The treaty is **not reciprocal**, giving Pakistan more leverage and delaying Indian hydropower projects.

Strategic Need for Renegotiation:

- India must **assert its rights** and **renegotiate** on terms that reflect present realities.
- A revised treaty should consider:
  - India's **climatic and developmental needs**,
  - China and Bangladesh's influence on other river systems,
  - The **scientific understanding** of the Indus Basin (e.g., glaciology, hydrology).

Learning Corner:
Indus Waters Treaty (IWT)

- **Signed:** 1960
- **Parties:** India and Pakistan, brokered by the **World Bank**
- **Objective:** Water-sharing of the **Indus River System** between India (upper riparian) and Pakistan (lower riparian)

Key Provisions:

- **Western Rivers** (Indus, Jhelum, Chenab): Allocated to **Pakistan**, with limited use permitted to India (non-consumptive uses like hydropower)
- **Eastern Rivers** (Ravi, Beas, Sutlej): Allocated to **India**
- **Permanent Indus Commission**: Established for cooperation and dispute resolution
- **Dispute Mechanism**: Includes negotiation, neutral expert, and international arbitration

GREAT HORNBILL

A recent sighting of the Great Hornbill in Ezhimala, Kannur (Kerala) has drawn attention to the ecological significance of the region.

Significance of the Great Hornbill

- The **Great Hornbill** (*Buceros bicornis*) is a large bird known for its role as a **seed disperser** and indicator of mature, healthy forests.
- It is classified as **Vulnerable**, with declining populations due to **habitat loss and hunting**.

Why the Ezhimala Sighting Matters

- Ezhimala is not part of the species' typical range, suggesting the presence of **remnant forest patches or ecological corridors**.
- The sighting indicates the region's **biodiversity potential** and highlights opportunities for ecological restoration.

Conservation Imperatives

- **Protect forest fragments** and ecological corridors in Ezhimala and nearby areas.
- Promote **community-based conservation**, including habitat monitoring and restoration.
- Strengthen **wildlife protection laws** and consider expanding protected area networks.
- Use the Great Hornbill as a **flagship species** to raise awareness and inspire conservation action.

Broader Implications

- Highlights the need to curb **deforestation and habitat fragmentation**.
- Emphasizes the value of combining **scientific research, traditional knowledge, and local participation** in conservation.
- Shows that **wildlife recovery is possible** with timely and sustained efforts.

Learning Corner:
Great Hornbill (Buceros bicornis)
The **Great Hornbill** is one of the largest and most iconic hornbill species found in the Indian subcontinent and Southeast Asia.

Key Features:

- **Distinctive casque** (helmet-like structure) on top of its beak.
- Large, colorful bird with black, white, and yellow plumage.
- Known for its **loud calls** and **graceful flight** despite its size.

Habitat:

- Prefers **dense evergreen and moist deciduous forests**.
- Commonly found in the **Western Ghats**, **Northeast India**, and parts of **Southeast Asia**.

Ecological Role:

- Acts as a **key seed disperser**, aiding in forest regeneration.
- Considered an **indicator species** for healthy, mature forests.

Conservation Status:

- Listed as **Vulnerable** on the IUCN Red List.
- Threatened by:
  - **Habitat loss** due to deforestation
  - **Hunting** for casque and feathers
  - **Loss of nesting trees**

Conservation Efforts:

- Protection under **Schedule I** of the Wildlife Protection Act, 1972.
- Community-led programs like the **Hornbill Nest Adoption Program** promote habitat preservation and awareness.

17TH BRICS SUMMIT

PM Narendra Modi addressed the 17th BRICS Summit in Rio de Janeiro.

Key Takeaways

- Emphasized that **20th-century institutions** like the **UNSC**, **WTO**, and **Multilateral Development Banks** no longer reflect the realities of the **21st century**.
- Urged for a **multipolar and inclusive world order**, with reforms in global institutions to ensure **fair representation**.
- Highlighted that **two-thirds of the global population**, largely from developing nations, remain **underrepresented**.
- Criticized **double standards** and **tokenism** in global commitments on development, climate finance, and technology access.
- Called for reforms that bring **tangible outcomes**—restructuring governance, leadership roles, and voting rights.
- Used analogies like "**SIM card without network**" and "**21st-century software on a 20th-century typewriter**" to stress outdated global systems.
- Welcomed **Indonesia** as a new **BRICS** member and praised Brazil's leadership in expanding the bloc.
- Reiterated **India's commitment** to the Global South and working with BRICS to promote **inclusive global cooperation**.
- The summit saw participation from new members such as **Egypt, Ethiopia, Iran, UAE, and Indonesia**, focusing on building a **more just and sustainable world order**.

Learning Corner:
17th BRICS Summit (2025)
- The **17th BRICS Summit** was held in **Rio de Janeiro, Brazil**, from **July 6–7, 2025**.
Theme: "Reforming Global Governance for a Multipolar World"

Key Highlights:
- Attended by leaders of **Brazil, Russia, India, China, South Africa**, and **new members**: Egypt, Ethiopia, Iran, UAE, and Indonesia.
- **Prime Minister Narendra Modi** called for:
  - **Greater representation of the Global South** in global institutions
  - **Urgent reforms** in the **UNSC**, **WTO**, and **international financial institutions**
  - End to **double standards** in global development, climate finance, and technology access
- Modi emphasized that **20th-century institutions are outdated** for 21st-century challenges.
- Welcomed **Indonesia's inclusion** and praised **Brazil's leadership** in driving BRICS expansion.

Summit Outcomes:
- Reaffirmed commitment to **inclusive multilateralism**
- Supported **expansion of BRICS membership**
- Called for **equitable and sustainable global development**
- Emphasized **South-South cooperation** and reforms in **global governance architecture**

Significance:

- Marked a shift toward making BRICS a more **inclusive platform** for the **Global South**.
- Strengthened BRICS' role in shaping a **more balanced international order**.

BRICS

BRICS is a multilateral grouping of five major emerging economies:

Brazil, Russia, India, China, and South Africa. It was established to promote **peace, development, and cooperation** among developing countries and to **reform global governance** structures.

Key Features:
- **Formation:**
  Originated as "BRIC" in 2006; South Africa joined in 2010, making it **BRICS**.
- **Purpose:**
  - Promote **economic cooperation** among emerging economies
  - Advocate for a **multipolar world order**
  - Push for **reforms in global institutions** like the UN, IMF, and World Bank
  - Strengthen **South-South cooperation**

Core Pillars of Cooperation:
1. **Political and Security**
2. **Economic and Financial**
3. **Cultural and People-to-People Exchanges**

Major Initiatives:
1. **New Development Bank (NDB):** Provides funding for infrastructure and development projects
2. **Contingent Reserve Arrangement (CRA):** Supports member countries during financial crises
3. **BRICS Summit:** Annual meeting of leaders to discuss strategic global issues

Recent Expansion:
In 2024–25, BRICS expanded to include **Egypt, Ethiopia, Iran, UAE, and Indonesia**, increasing its global influence.

Significance:

- Represents over **40% of the world population** and nearly **25% of global GDP**.
- Acts as a **voice for the Global South** in shaping a more **balanced and equitable international order**.

GREAT NICOBAR ISLAND INFRASTRUCTURE PROJECT

The Great Nicobar Island infrastructure project has sparked criticism for inadequately addressing seismic risks in its Environmental Impact Assessment (EIA), despite the region's vulnerability to major earthquakes.

The Great Nicobar development project

Key Criticisms:

- **Downplaying Seismic Risk:**
  The EIA relies on a limited 2019 study focused mainly on tsunami threats and overlooks broader earthquake hazards, despite the region having a high probability of major quakes.
- **Neglect of Independent Research:**
  Independent studies indicate the region is among India's most seismically active, with potential for ground shaking, soil liquefaction, and land subsidence, as witnessed in the 2004 tsunami.
- **Lack of Transparency:**
  Critics claim the clearance process was non-transparent and prioritized technical and financial considerations over environmental and safety concerns.

Official Stand:
- The government assures that all construction will follow Indian earthquake-resistant codes and a disaster management plan is in place.
- It downplays the risk of another 2004-scale earthquake in the near future.

Expert Recommendations:
- **Independent Review:**
  Experts urge a transparent reassessment by a high-powered committee focused on seismic vulnerability.
- **Regulatory Oversight:**
  The National Green Tribunal had imposed a temporary stay, calling for re-evaluation of environmental and coastal regulation clearances.

Environmental Impact Assessment (EIA) :
Environmental Impact Assessment (EIA) is a process used to evaluate the **potential environmental consequences** of a proposed development project **before it is approved or implemented**. It aims to ensure that decision-makers consider environmental impacts alongside economic and technical factors.

Objectives of EIA:
- Predict environmental impacts at an early stage of project planning
- Propose mitigation measures to reduce adverse impacts
- Promote sustainable development
- Facilitate informed and transparent decision-making

Key Components of an EIA:
1. **Screening** – Determines if a project requires EIA
2. **Scoping** – Identifies the key issues and impacts to be studied
3. **Impact Assessment** – Evaluates potential environmental effects
4. **Public Consultation** – Involves stakeholders in decision-making
5. **Environmental Management Plan (EMP)** – Suggests mitigation strategies
6. **Monitoring and Compliance** – Ensures project follows environmental safeguards

Legal Framework in India:
- Governed by the **Environmental Protection Act, 1986**
- Operationalized through the **EIA Notification, 2006** (amended from time to time)
- Regulated by the **Ministry of Environment, Forest and Climate Change (MoEFCC)** and **State Environmental Impact Assessment Authorities (SEIAAs)**

Great Nicobar Island Project
The **Great Nicobar Island Project** is a mega infrastructure development initiative aimed at strategically transforming the southernmost island of the Andaman & Nicobar archipelago. It has significant **economic, strategic, and environmental implications**.

Key Features:
- **Location:** Great Nicobar Island, located in the Bay of Bengal near the Malacca Strait

- **Project Components:**
  - **International Container Transshipment Terminal (ICTT)**
  - **Greenfield Airport**
  - **Power Plant**
  - **Township for workers and residents**

- **Implementing Agency:** Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO), with support from the central government.

Strategic Importance:
- Enhances India's maritime presence in the **Indo-Pacific region**
- Aims to **counterbalance Chinese influence** in the Indian Ocean
- Facilitates **secure maritime trade** through proximity to major shipping routes

Environmental Concerns:
- The island is an **ecologically fragile zone**, rich in **biodiversity and tribal heritage.**
- **Criticisms of EIA:** Alleged underestimation of **seismic risks**, lack of transparency, and insufficient consultation.
- Potential impact on **coral reefs**, **mangroves**, **tribal communities**, and **wildlife habitats.**

Current Status:
- Project has received **environmental and coastal regulation clearances**, though challenged by environmentalists and civil society groups
- Subject to **review by the National Green Tribunal (NGT)** for compliance and risk reassessment.

ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS (OPCW)

The **Organisation for the Prohibition of Chemical Weapons (OPCW)** held its **23rd Regional Meeting of National Authorities of States Parties in Asia** from **1st to 3rd July 2025** in **New Delhi**

The agenda focused on sharing best practices, enhancing cooperation, and addressing challenges in national implementation of the CWC, with the ultimate goal of promoting a world free of chemical weapons.

This platform enabled member states to exchange experiences, coordinate on technical and legislative matters, and reinforce the global commitment to preventing the proliferation and use of chemical weapons.
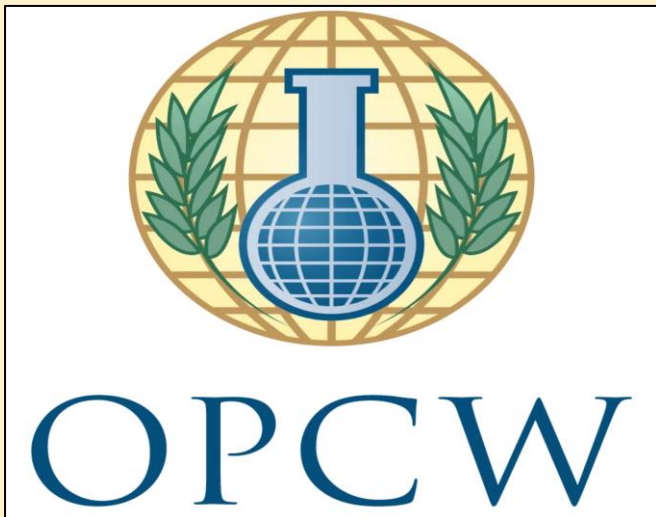
Learning Corner:

The **Organisation for the Prohibition of Chemical Weapons (OPCW)** is an intergovernmental organization established in **1997** to implement the **Chemical Weapons Convention (CWC)**. The OPCW's primary mission is to promote and verify the elimination of chemical weapons and prevent their use in warfare.

Key Functions:

- **Verification and Monitoring:** The OPCW conducts inspections of chemical weapons production facilities and ensures compliance with the CWC, promoting global security by preventing the use and proliferation of chemical weapons.

- **Assistance and Cooperation:** It provides technical and legal assistance to member states to help them comply with the CWC's provisions and supports the peaceful use of chemistry.

- **Destruction of Chemical Weapons:** The OPCW oversees the destruction of declared chemical weapons stockpiles and production facilities.

Significance:

- The OPCW has played a crucial role in the disarmament of chemical weapons, contributing to global peace and security.

- In **2013**, the OPCW was awarded the **Nobel Peace Prize** for its efforts in eliminating chemical weapons.

The OPCW currently has over **190 member states**, working towards a world free of chemical weapons.

Major **weapon control regimes** :

Nuclear Non-Proliferation Treaty (NPT)

- **Purpose:** To prevent the spread of nuclear weapons, promote peaceful uses of nuclear energy, and encourage disarmament.

- **Key Provisions:** Non-nuclear states agree not to acquire nuclear weapons, while nuclear-armed states commit to disarmament efforts and share peaceful nuclear technology under safeguards.

Chemical Weapons Convention (CWC)

- **Purpose:** To eliminate chemical weapons and prevent their use in warfare.

- **Key Provisions:** Bans the development, production, and use of chemical weapons and mandates the destruction of existing stockpiles. Countries that sign the CWC must declare and dismantle their chemical weapons.

Biological Weapons Convention (BWC)

- **Purpose:** To prevent the development, production, and stockpiling of biological weapons.

- **Key Provisions:** The BWC prohibits the use and spread of biological weapons and promotes cooperation among states in biodefense and public health.

Nuclear Suppliers Group (NSG)

- **Purpose:** To control the export of nuclear materials and technology, ensuring they are used only for peaceful purposes.
- **Key Provisions:** The NSG imposes restrictions on nuclear exports to countries that do not comply with non-proliferation norms or have not signed the NPT, enhancing global nuclear security.

Missile Technology Control Regime (MTCR)

- **Purpose:** To prevent the spread of missile technology that could be used for the delivery of weapons of mass destruction.
- **Key Provisions:** The MTCR limits the export of missile-related technologies and materials, particularly those capable of carrying payloads greater than 500 kg over distances of 300 km.

Australia Group

- **Purpose:** To control the export of materials and technologies used in the development of chemical and biological weapons.
- **Key Provisions:** This multilateral export control regime aims to ensure that sensitive technologies and materials are not diverted to the production of WMDs.

Wassenaar Arrangement

- **Purpose:** To promote transparency and greater responsibility in the transfer of conventional arms and dual-use technologies (those with both civilian and military applications).

- **Key Provisions:** It sets controls on exports of conventional arms, including small arms, and sensitive dual-use goods to prevent their misuse for military aggression or terrorism.

FINANCIAL ACTION TASK FORCE (FATF)

The Financial Action Task Force (FATF) has issued a critical report in 2025 denoting the growing threat posed by the misuse of e-commerce and digital payment platforms for terrorist financing.

This comprehensive update reveals that terror groups are increasingly exploiting online systems to fund operations and evade detection. The report stresses the urgent need for global cooperation and improved detection mechanisms to counter these evolving methods.
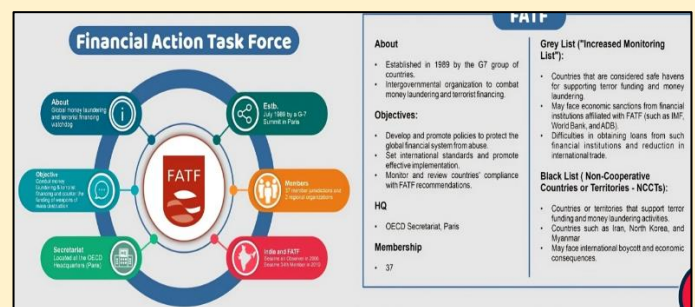
Evolution of Terror Financing Methods

Terrorist financing techniques are rapidly changing. Traditional funding like cash smuggling and informal transfers are now supplemented by digital tools.

Online shopping, social media, gaming platforms, and digital wallets are being used to move and launder funds. These methods are tailored to local contexts, making detection harder. Many countries lack the capacity to fully identify and disrupt these activities.

Case Studies – Pulwama and Gorakhnath Attacks

The report cites the 2019 Pulwama attack where explosives were bought via Amazon.

The attackers used e-commerce platforms to procure materials, exposing vulnerabilities in online marketplaces. Another case is the 2022 Gorakhnath Temple attack, where the attacker received ₹6.7 lakh through PayPal.

The attacker used VPNs to conceal transactions. PayPal detected suspicious activity and blocked the account, preventing further misuse.

Misuse of E-Commerce Platforms

E-commerce sites are increasingly exploited for money laundering. Terror groups buy goods online and ship them internationally.

These goods are sold locally to generate clean money. This cycle helps hide the true origin of funds. The FATF warns that without strict oversight, these platforms risk becoming conduits for terror financing.

Challenges in Global Detection and Prevention

The report reveals that 69% of assessed countries fail to effectively investigate or prosecute terror financing. Weak regulatory frameworks and poor data sharing hinder efforts. Terror groups exploit these gaps to sustain operations.

FATF urges enhanced cooperation between governments and private sectors. Sharing data on suspicious payments, travel, and social media activity is critical.

International Support to Terrorist Groups

The report also marks that some terrorist organisations continue to receive direct or indirect backing from certain states. This support includes financial aid, weapons, and training.

FATF calls for global pressure to end such sponsorship, which undermines international peace and security.

Recommendations for Governments and Providers

FATF advises governments to strengthen legal frameworks and enforcement. Digital service providers must implement robust monitoring to detect suspicious transactions. Developing advanced tools for pattern recognition in payments and online behaviour is essential. Collaboration with international bodies like the United Nations Counter-Terrorism Committee Executive Directorate (UN CTED) is recommended.

NATIONAL MEDICAL COMMISSION

Three out of the four autonomous boards under the National Medical Commission (NMC) — India's apex medical education regulator — have no presidents.
Current Problems:
- **3 out of 4 boards** lack presidents; other members have also resigned or completed their tenure.
- Boards are running in an **ad hoc manner**, stalling inspections, decisions, and curriculum updates.
- **11 of 18 board posts** and 6 part-time posts are vacant.
- Even **virtual inspections** of colleges are being done by **non-technical staff**, leading to concerns over quality assurance.
- Lack of official acceptance of resignations has worsened the leadership vacuum.

Consequences:
- **New medical college inspections** and seat renewals are delayed.
- **Academic changes** (e.g., curriculum updates on LGBTQ+ issues, ethics) are stalled.
- **No full Commission meeting** has happened in nearly a year.
- Students and colleges are affected due to **regulatory inaction**.

National Medical Commission (NMC) Background:
- **Established:** September 2020
- **By:** National Medical Commission Act, 2019 (replacing the Indian Medical Council Act, 1956).
- **Objective:** To overhaul the medical education system, improve governance, transparency, and eliminate corruption associated with the Medical Council of India (MCI).

Composition of NMC:
- **Chairperson**
- **10 Ex-officio members**
- **22 part-time members**
- **4 autonomous boards (very crucial):**
    1. **Undergraduate Medical Education Board (UGMEB)**

2. **Postgraduate Medical Education Board (PGMEB)**
3. **Medical Assessment and Rating Board (MARB)**
4. **Ethics and Medical Registration Board (EMRB).**

Each board is headed by a **President** and performs a specialized regulatory function.

Key Functions of NMC:

- Regulate **medical institutions**, **education**, and **professionals**.
- Frame **curriculum standards** for undergraduate and postgraduate education.
- Grant permission for establishment of **new medical colleges** and **increase of seats**.
- Maintain **National Register** of licensed medical practitioners.
- Ensure adherence to **ethical codes of conduct**.
- Conduct **National Exit Test (NEXT)** for final-year MBBS students (will serve as a licentiate exam and PG entrance test).
- Promote **evidence-based** medical education and practice.

PM DHAN DHANYA KRISHI YOJANA

The Indian government has launched the PM-DDKY, an ambitious umbrella scheme that merges 36 existing agricultural schemes to revitalize farming in 100 low-performing districts across India.

PM Dhan Dhanya Krishi Yojana 2025

Key Features:

- Integration of 36 Schemes across 11 departments with involvement from states and private partners.
- Focus Areas include:
  - Increasing crop productivity through sustainable practices.
  - Promoting crop diversification toward climate-resilient and high-value crops.
  - Expanding irrigation and water-use efficiency.
  - Boosting rural credit and strengthening storage at panchayat/block levels.

Implementation Details:

- Target Districts: 100 districts selected based on low crop productivity, cropping intensity, and weak credit flow. Each state/UT has at least one district.
- District Committees: Local "Dhan-Dhaanya Samitis" will design and monitor farm-level plans with support from progressive farmers.
- Monitoring: A digital dashboard will track progress across 117 indicators, guided by NITI Aayog and central nodal officers.

Scheme Highlights:

Key Area	Details
Scheme Name	PM Dhan-Dhaanya Krishi Yojana (PM-DDKY)
Schemes Merged	36
Duration	6 years (starting FY26)
Annual Budget	₹24,000 crore
Target Coverage	100 districts, 1.7 crore farmers
Key Goals	Productivity, sustainability, credit, storage
Monitoring Framework	117 indicators, digital dashboard

Objectives:

- Enhance agricultural productivity and farmer incomes
- Promote natural and organic farming
- Strengthen water and soil conservation
- Develop district-level agricultural resilience

Learning Corner:

Major Agricultural Schemes in India
Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)
- Launched: 2019
- Objective: Provides ₹6,000 per year in three installments to all landholding farmer families for income support.
- Implementing Ministry: Ministry of Agriculture and Farmers' Welfare

Pradhan Mantri Fasal Bima Yojana (PMFBY)
- Launched: 2016
- Objective: Crop insurance scheme that provides financial support in case of crop failure due to natural calamities, pests, or diseases.
- Premium: Farmers pay 2% for Kharif, 1.5% for Rabi, and 5% for commercial/horticulture crops.
- Implementing Agency: Ministry of Agriculture & State Governments

Soil Health Card Scheme
- Launched: 2015
- Objective: Provides soil health reports to farmers with recommendations on nutrient management for better crop yield and soil sustainability.

Paramparagat Krishi Vikas Yojana (PKVY)
- Launched: 2015
- Objective: Promotes organic farming through the adoption of traditional practices and cluster-based certification.
- Support: Up to ₹50,000 per hectare for 3 years, including inputs and certification.

National Mission on Sustainable Agriculture (NMSA)
- Under: National Action Plan on Climate Change (NAPCC)
- Objective: Promotes climate-resilient farming, soil and water conservation, and efficient resource use.

Rashtriya Krishi Vikas Yojana (RKVY-RAFTAAR)
- Launched: 2007 (revised in 2017 as RAFTAAR)
- Objective: Assists states in boosting agriculture development, marketing infrastructure, and value chains.
- Flexible funding model for innovation and entrepreneurship.

E-NAM (National Agriculture Market)
- Launched: 2016
- Objective: Digital platform to create a unified national market for agricultural commodities.
- Integrates mandis (APMCs) across India to enable transparent price discovery.

PM-Kisan Maandhan Yojana
- Launched: 2019
- Objective: Voluntary pension scheme for small and marginal farmers (age 18–40).
- Benefit: Monthly pension of ₹3,000 after the age of 60.

Agri-Infra Fund (AIF)
- Launched: 2020
- Corpus: ₹1 lakh crore
- Objective: Provides medium-long term debt financing for post-harvest infrastructure like cold storage, warehouses, etc.
- Interest subsidy: Up to 3% per annum

Pradhan Mantri Krishi Sinchai Yojana (PMKSY)
- Launched: 2015
- Objective: "Har Khet Ko Pani" – expands irrigation coverage and improves water use efficiency.
- Components: Accelerated Irrigation Benefits Programme, Watershed Development, and Per Drop More Crop.

INDIA'S ACTIONS ON DUMPING AND IMPORT SURGES (2025)

Anti-Dumping Measures

- **Duties Imposed:** India imposed or extended anti-dumping duties on goods like:
  - Plastic injection moulding machines (27–63% for 5 years)
  - Chemicals such as PEDA, Acetonitrile, Vitamin A Palmitate, Insoluble Sulphur
  - Aluminium foil and selected agricultural chemicals
- **Focus Areas:**
  Over 60% of actions target Chinese imports, protecting sectors like chemicals, plastics, and industrial goods.
- **Criteria:**
  Duties are imposed based on proof of dumping, injury to domestic producers, and causation, with adjustments to protect downstream users when necessary.
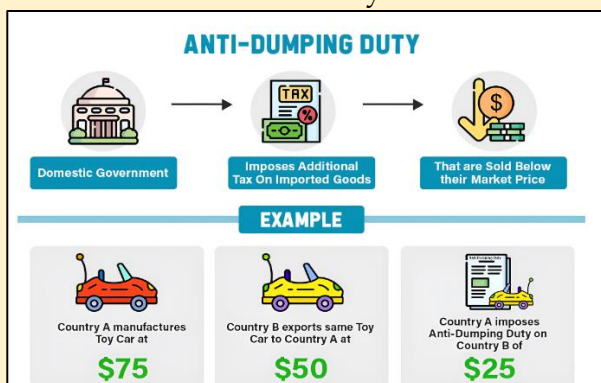
Monitoring Import Surges

- **Real-time Surveillance:**
  The Commerce Ministry and DGFT monitor unusual spikes in imports and alert concerned ministries.
- **World Trade Watch:**
  Monthly reports track country-wise and product-wise surges, helping formulate trade responses and export strategies.
- **Notable Trends:**
  Imports rose by 4.4% (April–June 2025). Major spikes were seen in electronics, machinery, and coal, while gold and petroleum imports stagnated or declined.

- **Specific Action – Liquid Gold:**
  Curbs were imposed on colloidal precious metals to prevent misuse and smuggling.

Institutional Mechanisms

- **Import Monitoring Group:**
  A new inter-ministerial group tracks diverted imports—especially from China and Vietnam—to prevent India from becoming a dumping ground for globally rerouted goods.

- **Trade Remedies:**
  The DGTR (Directorate General of Trade Remedies) continues active investigations and recommendations, with an increased acceptance rate of its findings.

Duties on Foreign Trade

Foreign trade duties are taxes imposed on imports and exports to regulate international trade, protect domestic industries, and generate revenue.

Customs Duty

- **Definition:** General term for duties levied on goods when they are transported across international borders.
- **Includes:** Basic Customs Duty, Countervailing Duty, Safeguard Duty, etc.

Basic Customs Duty (BCD)

- **Imposed on:** All imported goods.
- **Purpose:** To protect domestic industries and generate revenue.
- **Rates:** Vary depending on product category and trade agreements.

Countervailing Duty (CVD)

- **Imposed when:** A foreign country subsidizes its exports, making them cheaper.
- **Objective:** Neutralize the unfair advantage and protect domestic producers.
- **Legal Basis:** WTO Agreement on Subsidies and Countervailing Measures.

Anti-Dumping Duty
- Imposed when: Foreign goods are sold in India at a price lower than their domestic price (dumping).
- Purpose: Protect Indian industry from predatory pricing.
- Authority: Directorate General of Trade Remedies (DGTR).

Safeguard Duty
- Imposed when: Sudden surge in imports threatens domestic industries.
- Temporary measure to allow the local industry to adjust to competition.
- WTO-compatible measure.

Protective Duty
- Recommended by: Tariff Commission.
- Purpose: To protect specific domestic industries against imports.
- Nature: Temporary and selective.

Social Welfare Surcharge (SWS)
- Rate: Usually 10% on the aggregate customs duties (excluding IGST).
- Objective: To finance education, health, and social welfare schemes.

Integrated Goods and Services Tax (IGST) on Imports
- Imposed under: GST Act.
- Applied on: Imports to bring them at par with domestic goods.
- Collected by: Central Government.

BIRD SURVEY AT KAZIRANGA NATIONAL PARK

- In the first such survey of avians conducted in March 2025, a team of forest officials, bird experts, scientists, and conservationists recorded 43 grassland species across Kaziranga's three wildlife divisions.
- The survey report marks a milestone in the documentation and protection of grassland-dependent bird species in the Brahmaputra floodplains.

Key findings of the survey:
- The recorded species included the critically endangered Bengal florican, the endangered Finn's weaver, and the swamp grass babbler.

- Among the remaining 40 species, six were in the vulnerable category — the black-breasted parrotbill, marsh babbler, swamp francolin, Jerdon's babbler, slender-billed babbler, and bristled grassbird.
- The study is significant because wet grasslands are not very well surveyed in India. Kaziranga's grassland bird diversity can, thus, be compared in terms of species richness with the dry grasslands of Gujarat and Rajasthan.

About Kaziranga National Park:
- **Location:** It is located in the State of Assam and covers 42,996 Hectare (ha). It is the single largest undisturbed and representative area in the Brahmaputra Valley floodplain.

- **Conservation status:** It was declared as a National Park in 1974. It has been declared a tiger reserve since 2007. It has a total tiger reserve area of 1,030 sq km with a core area of 430 sq. km.
- **Heritage:** It was declared a UNESCO World Heritage Site in 1985.
- **Speciality:** It is the home of the world's most one-horned rhinos. Much of the focus of conservation efforts in Kaziranga are focused on the 'big four' species— Rhino, Elephant, Royal Bengal tiger and Asiatic water buffalo.

The park has the Diphlu River running through it.

LOCUST SWARMS

Recent locust swarms have caused severe agricultural damage across East Africa, Pakistan, and India. The 2019-2020 outbreak was the worst in 25 years.

Traditional pesticide use harms the environment and food security. New research offers a pollution-free method to control locust swarming by targeting their pheromones.

Locust Swarming and Its Impact

Locusts shift from solitary to gregarious phases, forming large swarms that consume crops rapidly. These swarms can travel over 150 km daily, devastating thousands of hectares.

Swarming is triggered by chemical signals locusts release after feeding. Controlling these signals can prevent swarm formation.

Role of Pheromones in Swarming

The pheromone 4-vinylanisole (4VA) attracts locusts to gather. Locusts emit 4VA from their hind legs after eating.

This causes others to join, rubbing legs and releasing serotonin, which triggers collective behaviour. Blocking 4VA release can stop swarming.

Biochemical Mechanism Behind 4VA Production

Locusts convert a non-aggregating molecule 4VP into 4VA using enzymes 4VPMT1 and 4VPMT2.

The amino acid phenylalanine in their diet initiates this conversion. Deactivating the gene for 4VPMT1 stops locusts from becoming gregarious, preventing swarms.

Molecular Inhibition of Swarming

Researchers identified 4-nitrophenol (4NP) as a molecule that binds strongly to 4VPMT enzymes. It blocks conversion of 4VP to 4VA, halting aggregation pheromone production. This offers a targeted way to prevent swarming without broad pesticide use.

Environmental Concerns and Alternatives

4NP is toxic and persists in soil and water, raising environmental risks. Its use requires caution. Scientists suggest

RNA interference (RNAi) technology to silence 4VPMT genes as a safer alternative. RNAi can prevent enzyme production and swarming without harmful residues.

Historical and Modern Locust Control Methods

Humans have fought locusts for millennia using noise, smoke, and arrows. Chemical pesticides emerged in the 19th century and remain common despite limited success and environmental damage. The 2019-2020 swarm renewed calls for sustainable control methods.

Proposed Integrated Locust Management Strategy

A five-step approach includes – using synthetic 4VA to lure locusts into traps; spraying 4VA to disrupt aggregation; monitoring populations via 4VA detection; releasing genetically modified locusts that remain solitary; and combining small-molecule inhibitors with biopesticides. This integrated method aims for effective, eco-friendly control.

INDIA'S FIRST DIGITAL NOMAD VILLAGE

The village of Yakten in Sikkim's Pakyong district was declared India's first digital nomad village. This initiative was launched to create a sustainable remote work hub in the Himalayas. It aims to support local homestay owners with steady income and attract digital professionals from across India and abroad.

India's First Digital Nomad Village
Yakten in Sikkim invites remote workers, freelancers, and digital entrepreneurs to India's first digital nomad village. Supported by the state government and Asian Development Bank (ADB), this Himalayan retreat blends productivity with peaceful mountain living.

Representational

YAKTEN – SIKKIM'S 1ST DIGITAL NOMAD VILLAGE WHERE WORKING FEELS JUST LIKE VACATIONING!

Background and Recent Developments

Yakten's transformation is part of the 'Nomad Sikkim' project, a collaboration between the Pakyong district administration and NGO Sarvahitey. The project addresses the seasonal income gap for homestay operators, especially during the six-month off-season from April to October.

Infrastructure upgrades include dual internet lines, village-wide Wi-Fi, and power backups to ensure uninterrupted connectivity. Plans are underway to resolve water scarcity under the Jal Jeevan Mission.

Significance of Yakten as a Digital Nomad Village

Yakten offers a unique blend of rural life and modern work needs. Unlike urban coworking spaces, it provides broadband-ready homestays run by local families, encouraging a warm and authentic experience.

The village setting includes orchards, mountain trails, and traditional meals, creating a balanced environment for work and well-being. This model promotes sustainable tourism and rural development.

Infrastructure and Amenities

Internet connectivity is a priority, with two internet lines and comprehensive Wi-Fi coverage installed. Electricity supply is supported by inverters to prevent outages. Water management solutions are planned to address scarcity. The village is accessible via **Pakyong Airport,** with well-maintained roads ensuring year-round connectivity.

Community and Cultural Integration

Homestays are more than lodging; they are community spaces where guests share meals and stories with hosts. Local culture is showcased through folk music, dance, and visits to monasteries and historical sites. Nature walks and birdwatching are common activities, connecting visitors with the Himalayan environment.

Impact on Rural Economy and Remote Work Culture

Yakten's initiative provides a new income source for locals, reducing dependence on seasonal tourism. It exemplifies how rural areas can adapt to the digital economy without losing cultural identity.

This model may inspire similar projects across India, supporting decentralisation of work and promoting sustainable livelihoods.

Tourism and Recreational Opportunities

Visitors can explore scenic trails such as the 7-km trek to Jhandi Dara View Point with views of Mt. Kanchenjunga. The village offers peaceful walks through terraced fields and community gardens. Nearby historical ruins and monasteries add cultural depth to the visitor experience.

Future Prospects

Yakten's success lies in its small scale and quality-focused approach. It is a pilot for integrating remote work with rural life and sustainable tourism. The village's example encourages rethinking workspaces beyond cities and marks the potential of India's countryside in the digital age.
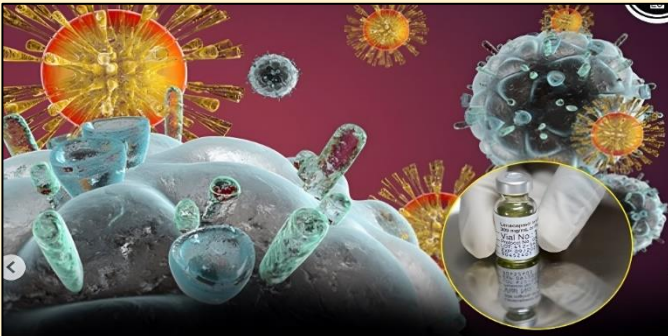
LENACAPAVIR

The World Health Organization (WHO) has updated its HIV prevention guidelines in 2025. It now recommends lenacapavir, a new long-acting antiretroviral, for people at high risk and areas with high HIV infection rates.

This announcement was made at the 13th International AIDS Society Conference in Kigali, Rwanda. Lenacapavir was approved by the US FDA as a twice-yearly injectable pre-exposure prophylaxis (PrEP) treatment. This marks a key advancement in HIV prevention worldwide.

Lenacapavir – A Breakthrough in HIV Prevention

Lenacapavir is a long-acting injectable drug developed by Gilead Sciences in New Delhi. It belongs to the capsid inhibitor class. This drug blocks multiple steps in the HIV replication process.

Initially approved for HIV treatment in 2022, lenacapavir gained approval for prevention in 2024. Unlike daily oral PrEP pills, lenacapavir requires only two injections per year. This feature improves adherence and benefits those with limited healthcare access or stigma concerns.

WHO's Revised Prevention Strategy

WHO's endorsement of lenacapavir reflects a broader strategy to expand HIV prevention tools. The organisation aims to offer people more choices beyond daily pills. The new guidelines promote use of lenacapavir especially for populations at high risk.

These include sex workers, men who have sex with men, transgender individuals, injecting drug users, prisoners, children, and adolescents. WHO also supports simplified HIV testing with rapid diagnostic kits to facilitate access.

Challenges in Global HIV Prevention

Despite advances, global HIV prevention has stalled. In 2024, about 1.3 million new infections were reported. Funding cuts, especially from the US, threaten progress. The US reduced aid to programmes like USAID and PEPFAR.

This has led to sharp declines in PrEP use in countries like Nigeria. The United Nations warns that millions could die from HIV-related causes by 2029 if funding is not restored. Some low- and middle-income countries plan to increase domestic spending but may not fully offset lost aid.

Access and Affordability of Lenacapavir

Gilead Sciences has partnered with the Global Fund to provide lenacapavir at cost price. This means no profit margin will be charged in low- and middle-income countries.

In the US, the drug's annual list price is about $28,218, similar to other PrEP treatments. The cost-effective supply model aims to improve accessibility in resource-limited settings. WHO and partners are working to ensure rapid and safe distribution of this new prevention option.

Future Directions in HIV Prevention

The introduction of lenacapavir signals a shift towards long-acting prevention methods. It offers a promising alternative to daily adherence challenges. Combined with rapid testing and community delivery models, it could transform HIV prevention. However, sustained funding and global cooperation remain critical to maximise impact.

CLINICAL MANAGEMENT OF ARBOVIRAL DISEASES.

The World Health Organization (WHO) has introduced its first comprehensive guidelines for the **clinical management of arboviral diseases.**
These include dengue, chikungunya, Zika, and yellow fever. The guidelines aim to standardise treatment and improve patient outcomes globally. They also assist health policymakers in preparing for epidemics and pandemics in regions affected by mosquito-borne viruses.

About Arboviral Diseases

Arboviral diseases are viral infections transmitted mainly by Aedes mosquitoes. The key diseases are dengue, chikungunya, Zika, and yellow fever. The Aedes aegypti mosquito can spread several viruses simultaneously in the same area.
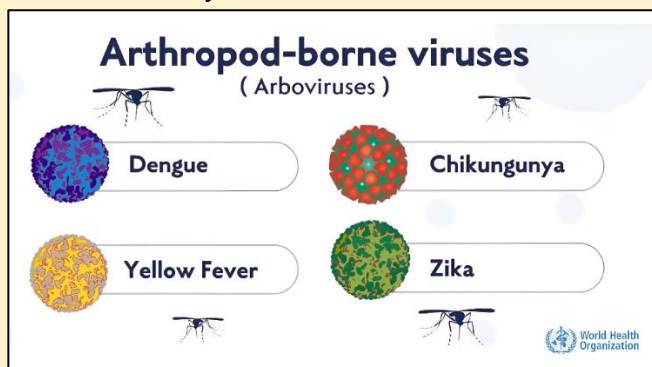
Over 5.6 billion people worldwide live in regions at risk of these infections. Early symptoms often mimic common flu with fever, joint pain, and rash.

This similarity complicates clinical diagnosis without laboratory tests. Severe complications can occur, sometimes leading to death.

Need for Integrated Clinical Guidelines

Outbreaks of arboviral diseases are increasing in frequency, severity, and geographic spread. This rise is driven by ecological changes, urbanisation, and social factors. The diseases often coexist in the same regions, making differential diagnosis challenging.

Limited diagnostic resources in many areas add to the problem. WHO's integrated guidelines provide a unified, evidence-based approach to diagnosis and treatment.

They serve as a practical tool for frontline healthcare workers and health system planners to improve care and readiness.

Key Clinical Recommendations for Mild Cases

For non-severe arboviral infections, WHO recommends oral fluid therapy to prevent dehydration. Paracetamol or metamizole should be used for pain and fever relief.
Non-steroidal anti-inflammatory drugs (NSAIDs) are discouraged due to bleeding risks. Corticosteroids are also avoided in mild cases. These measures help manage symptoms safely and reduce complications.

Management of Severe Arboviral Disease

Severe cases require hospitalisation and careful fluid management using crystalloid solutions. Colloids are not recommended.
Monitoring capillary refill time and lactate levels guides hydration. The passive leg raise test helps assess fluid responsiveness in patients with shock.
Corticosteroids and immunoglobulin therapies are avoided even in severe illness. Platelet transfusions are reserved for patients with active bleeding.
For yellow fever-related liver failure, intravenous N-acetylcysteine is advised. Experimental treatments such as monoclonal antibody TY014 and sofosbuvir are limited to research settings.

Implications for Health Systems and Policy

The guidelines support policymakers and health administrators in epidemic preparedness. Standardised protocols enhance clinical care consistency and patient safety. They also improve resource allocation during outbreaks. As arboviral diseases expand to new areas, these guidelines will be vital in managing public health challenges. WHO plans to update the recommendations as new evidence becomes available.

THALI INDEX

Poverty estimates in India, sparked by household consumption data (2023–24) from the National Statistics Office. Reports from SBI and the World Bank suggest a significant drop in poverty.

Decoding the context:

1. **Questioning Traditional Poverty Metrics:**
   - **Critique poverty measurement based solely on calorie intake and physiological needs**, calling it outdated and inadequate in capturing real-life deprivation.

2. **Introduction of the 'Thali Index':**
   - Propose the **Thali Index** as a more **realistic, relatable, and region-specific indicator**, measuring the cost of a **basic home-cooked meal**.
   - It reflects **actual food consumption patterns** and **regional variations in prices**, offering a clearer picture of living costs.

3. **Relevance to Policy and Subsidies:**
   - The Thali Index serves as a **practical tool for evaluating poverty** and guiding food subsidy policies.
   - It provides a **grounded economic perspective** by directly connecting food costs with livelihood realities.

4. **Critique of Premature Subsidy Removal:**
   - There should be caution against **removing food subsidies** based on **optimistic or debatable poverty estimates**.
   - Instead, there should be **rationalising subsidies**, as many citizens **still rely on them** for basic sustenance.

5. **Policy Recommendation:**
   - Poverty assessment and welfare decisions should be **anchored in real costs of living**, like those captured by the Thali Index, rather than relying on abstract statistical estimates.

WHAT IS THE THALI INDEX?

A measure based on the price of a home-cooked vegetarian thali across Indian regions
It reflects:
- Real cost of food
- Regional price variations
- Actual food consumption, not just calories
Eg: In 2023–24, a thali consumed 30% of daily income in poor households
Value of free food grains can reduce the burden by up to 40% for poor families.

Poverty Measurement in India

Poverty measurement in India has traditionally relied on **household consumption expenditure surveys** to estimate the proportion of people living below a defined poverty line. The focus has largely been on ensuring a **minimum calorie intake** necessary for survival and work.

Traditional Approach (Calorie-based):
- Based on the **Tendulkar Committee (2009)** and **Rangarajan Committee (2014)**.
- Defines poverty using a minimum **daily caloric intake** (e.g., 2400 kcal in rural, 2100 kcal in urban areas).
- The monetary poverty line is derived from the expenditure required to meet this intake.
- This is a **physiological approach** — focused on energy needs through food.

Consumption Expenditure Surveys:
- Conducted by the **National Sample Survey Office (NSSO)** and **NSO**.
- Data is used to estimate poverty headcount ratios, consumption patterns, and economic inequality.

Issues with the Current Method:
- Does not reflect **nutritional quality, non-food needs**, or **regional variations**.
- Ignores changing lifestyles, health costs, education, housing, etc.
- Urban and rural cost differences often not adequately captured.

Emerging Approaches:
- Use of **"Thali Index"**: Cost of a simple, home-cooked meal (thali) to reflect real food expenditure and living standards.
- **Multidimensional Poverty Index (MPI)**: Used by NITI Aayog in line with UNDP — includes indicators like education, health, and living standards.

Policy Implications:
- Recent claims of poverty decline (SBI & World Bank reports) raise questions on how poverty is defined.
- Critics argue for more **realistic, consumption-linked, and multidimensional poverty** assessment.
- Emphasis is shifting from calorie-based to **livelihood and dignity-based measurements**.

Poverty estimation committees

Tendulkar Committee (2009):
- **Chairperson:** Suresh D. Tendulkar
- **Objective:** To revise the methodology for poverty estimation in India.

Key Features:
- Shifted from **calorie-based poverty line** to one based on **actual private consumption expenditure**, including health and education.
- **Introduced a uniform poverty line basket** for both rural and urban areas (earlier, calorie norms were different for each).
- Used **2004–05 NSS data** and updated the poverty line accordingly.
- Recommended using **Mixed Reference Period (MRP)** for consumption data.
- Estimated poverty in 2004–05 as:
  - **Rural:** 41.8%
  - **Urban:** 25.7%
  - **Overall:** 37.2%

Significance:
- Marked a major methodological shift and was adopted by the Planning Commission until 2014.
- Faced criticism for setting a **very low poverty line** (₹33/day in urban areas in 2011–12).

Rangarajan Committee (2014):
- **Chairperson:** C. Rangarajan

- **Objective:** To revisit the poverty estimation methodology due to criticisms of the Tendulkar Committee.

Key Features:
- **Restored calorie norms** (2400 kcal rural, 2100 kcal urban) and added norms for protein and fat intake.
- Considered **basic non-food expenses** more comprehensively (education, housing, clothing, etc.).
- Based on **2011–12 NSS data**, it set a higher poverty line:
  - **Rural:** ₹32/day
  - **Urban:** ₹47/day
- Estimated poverty in 2011–12 as:
  - **Rural:** 30.9%
  - **Urban:** 26.4%
  - **Overall:** 29.5%

SANTHAL REBELLION

On **June 30, 2024**, Prime Minister **Narendra Modi** paid tribute to the tribal heroes of the **Santhal Rebellion (1855–56)** on the occasion of **Hul Diwas**, commemorating their courage in resisting British colonial rule.

He honored legendary leaders **Sidhu-Kanhu, Chand-Bhairav, and Phoolo-Jhano**, describing them as symbols of self-respect and bravery. In his **'Mann Ki Baat'** address, PM Modi highlighted the Santhal Rebellion as one of the earliest organized uprisings against British rule—**predating the Revolt of 1857**.
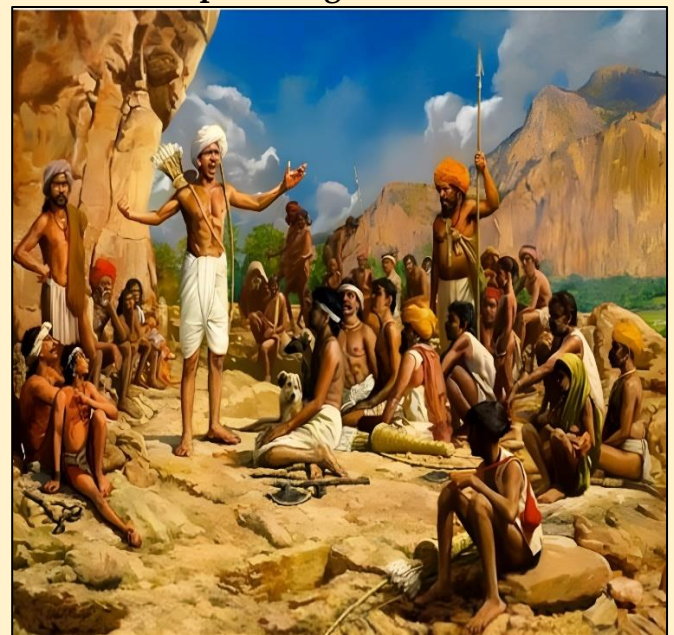
Led by Sidhu and Kanhu Murmu in the **Santhal Pargana region** (now in Jharkhand), the rebellion united the tribal community in a determined fight against colonial oppression.

Hul Diwas serves as a reminder of the **tribal community's valor, unity, and enduring legacy** in India's freedom struggle.

Tribal Revolts Against British Rule in India
During British colonial rule, numerous **tribal revolts** erupted across India in response to **land alienation, economic exploitation, forest laws, and disruption of traditional tribal life**. These revolts were often **localized, violent, and community-led**, and they reflected the tribals' resistance to both British authority and exploitative intermediaries like landlords and moneylenders.

Key Tribal Revolts:
1. **Santhal Rebellion (1855–56)**
   ○ **Leaders:** Sidhu and Kanhu Murmu
   ○ **Region:** Santhal Parganas (now in Jharkhand)
   ○ **Cause:** Exploitation by zamindars, moneylenders, and British officials.
   ○ **Significance:** One of the **earliest organized tribal uprisings**, predating the 1857 revolt.
2. **Kol Rebellion (1831–32)**
   ○ **Region:** Chotanagpur (Jharkhand)
   ○ **Cause:** British land revenue policy, encroachment by outsiders (dikus), and forced labor.
3. **Bhil Rebellion (1817–19, and others)**
   ○ **Region:** Western India (Rajasthan, Maharashtra)
   ○ **Cause:** Loss of autonomy, high taxation, and harsh forest laws.
4. **Munda Rebellion / Ulgulan (1899–1900)**
   ○ **Leader:** Birsa Munda
   ○ **Region:** Chotanagpur
   ○ **Cause:** Land alienation, Christian missionary activity, and British disruption of tribal governance.
   ○ **Outcome:** Sparked tribal identity and later inspired tribal rights movements.
5. **Khond Uprising (1846–55)**
   ○ **Region:** Odisha
   ○ **Cause:** Resistance to British interference in tribal customs, particularly human sacrifice.
6. **Rampa Rebellion (1879–80, 1922–24)**
   ○ **Leader (1922):** Alluri Sitarama Raju
   ○ **Region:** Godavari Agency (Andhra Pradesh)
   ○ **Cause:** Forest laws restricting tribal access to resources.

Common Features of Tribal Revolts:
● Led by charismatic leaders or community elders.
● Rooted in **loss of land, forest rights**, and **cultural autonomy**.
● Targeted both **British officials** and **local intermediaries**.
● Often brutally suppressed but laid the foundation for future **tribal rights movements**.

Significance:
Tribal revolts were **early expressions of anti-colonial resistance**. Though mostly localized, they highlighted the **exploitation of indigenous communities** and help

CANCER DRUG

A recent investigation by the Bureau of Investigative Journalism, published in *The Hindu*, has revealed that many cancer drugs shipped globally have failed quality tests.

Common Chemotherapy Drugs Covered:
1. **Cisplatin**
   ○ **Type**: Platinum-based
   ○ **Use**: Treats testicular, ovarian, bladder, and lung cancers
   ○ **Mechanism**: Binds to cancer DNA, blocking division
   ○ **Side Effects**: Kidney damage, sickness, immune suppression, hearing issues
2. **Oxaliplatin**
   ○ **Type**: Platinum-based
   ○ **Use**: Advanced colorectal cancer
   ○ **Mechanism**: Similar to cisplatin
   ○ **Side Effects**: Similar to cisplatin

3. **Cyclophosphamide**
   ○ **Use**: Breast cancer, leukemia, sarcoma, lymphoma
   ○ **Mechanism**: Damages cancer DNA, lowers white blood cells
   ○ **Side Effects**: Inflammation in bladder, immune suppression

4. **Doxorubicin**
   ○ **Nickname**: "Red devil" (due to color and toxicity)
   ○ **Use**: Breast cancer, leukemia, lymphoma, sarcoma
   ○ **Mechanism**: Interferes with DNA replication
   ○ **Side Effects**: Heart damage, infections, skin issues, hair loss

5. **Methotrexate**
   ○ **Use**: Leukemia, lymphoma, tumor types
   ○ **Mechanism**: Blocks DNA synthesis
   ○ **Side Effects**: Toxic at high doses; managed by leucovorin

6. **Leucovorin**
   ○ **Type**: Not a direct chemotherapy drug
   ○ **Use**: Taken with methotrexate to reduce its toxicity
   ○ **Function**: A form of vitamin B9 used to protect healthy cells

Learning Corner:

Cancer Care and Treatment in India

Cancer is a major public health challenge in India, with over **1.5 million new cases** diagnosed annually. The country is working to strengthen its cancer care system through a mix of **public health programs, infrastructure development, and financial assistance schemes**.

Key Components of Cancer Treatment in India

1. **Types of Treatment Available**
   ○ **Surgery**: Removal of tumors or cancerous tissues
   ○ **Radiation therapy**: Use of high-energy rays to kill cancer cells
   ○ **Chemotherapy**: Use of anti-cancer drugs
   ○ **Immunotherapy & Targeted Therapy**: Advanced treatments to boost the body's immune response or attack specific cancer cells
   ○ **Bone marrow transplant**: For blood cancers like leukemia
   ○ **Palliative care**: To improve quality of life in advanced stages

Government Initiatives and Support

1. **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)**
   ○ Focuses on early detection, screening, and referral for cancer
   ○ Implemented under **Ayushman Bharat Health & Wellness Centres**
2. **Tertiary Cancer Care Centres (TCCC)**
   ○ Upgrading existing medical colleges and hospitals to provide advanced cancer care
3. **Financial Assistance Schemes**
   ○ **Ayushman Bharat–PMJAY**: Free treatment for poor and vulnerable families
   ○ **Health Minister's Cancer Patient Fund**
   ○ Support from state-level insurance schemes (e.g., Arogyasri in Telangana/AP)

Recent Developments

● Launch of **Digital Cancer Registry** and **AI-based diagnostics**
● Expansion of **National Cancer Grid** (NCG) to link over 300 cancer centers
● Promotion of **indigenous cancer drugs and equipment** to lower treatment costs.

INS UDAYGIRI

On 1 July 2025, the Indian Navy received INS Udaygiri, the second ship of Project 17A stealth frigates. This delivery signifies a major advancement in India's naval capabilities. Udaygiri is built at Mazagon Dock Shipbuilders Limited, Mumbai, and is part of a series of seven ships designed for modern naval warfare. The frigate is a successor to the Shivalik class and is equipped to operate in a 'Blue Water' environment, addressing both conventional and non-conventional threats.
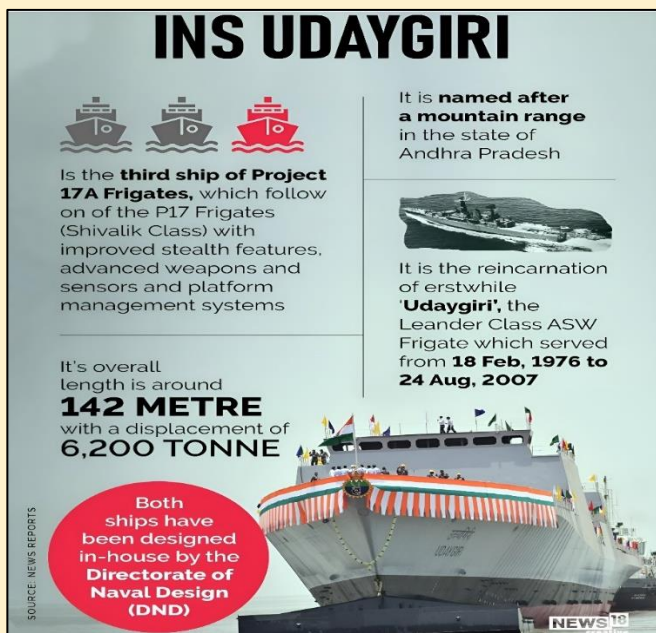
Project 17A

Project 17A is a follow-on to the earlier Shivalik class (Project 17) frigates. The project includes the construction of seven multi-mission frigates. These ships are designed with enhanced stealth features and advanced weaponry. The capabilities of the Project 17A frigates represent upgrade from their predecessors.

Design and Construction

Udaygiri showcases the Indian Navy's in-house design capabilities. The Warship Design Bureau has led this initiative. The frigates are built using 'Integrated Construction' philosophy, allowing extensive pre-outfitting to reduce build times. Udaygiri was delivered in a record 37 months since its launch.

The advanced weapon suite comprises a supersonic surface-to-surface missile system, a medium-range surface-to-air missile system, and various rapid-fire close-in weapon systems.

Indigenous Manufacturing and Employment

Udaygiri exemplifies India's commitment to self-reliance in shipbuilding. The project has generated direct employment for around 4,000 personnel, with more than 10,000 jobs created indirectly through ancillary sources. The involvement of over 200 medium, small, and micro enterprises (MSMEs) has boosted the industrial ecosystem.

Future Prospects

The remaining five Project 17A frigates are under construction at both Mazagon Dock Shipbuilders Limited and Garden Reach Shipbuilders and Engineers. They are scheduled for progressive delivery by the end of 2026. The completion of these ships will further enhance India's naval capabilities and military manufacturing strength.

GREEN CLIMATE FUND
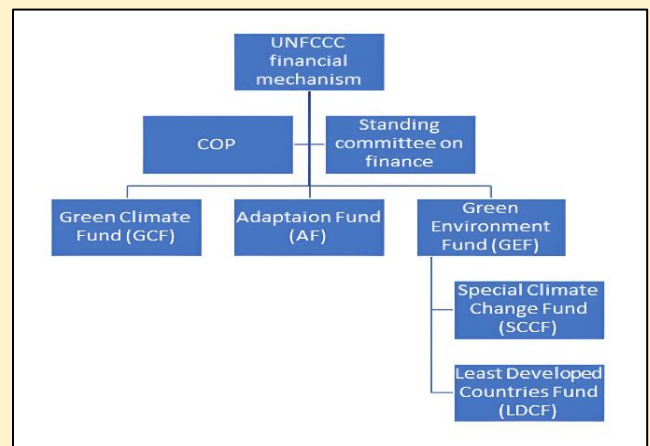
The Green Climate Fund (GCF) has approved over USD 120 million for new projects.

About Green Climate Fund

It is the world's largest climate fund.
Mandated to support developing countries raise and realize their Nationally Determined Contributions ambitions towards low-emissions, climate-resilient pathways.

Established at COP 16 of United Nations Framework Convention on Climate Change (UNFCCC) held in Cancun, 2010.

It serves the Paris Agreement in accordance with Article 9.

Governance: Fund is governed by the GCF Board and it is accountable to and functions under the guidance of the COP,
UNFCCC.

Hq: Songdo, Incheon City, Republic of Korea.

SEA TURTLE CONSERVATION

Recent studies show critical challenges in marine conservation, particularly regarding sea turtles. As nations strive to achieve the 30×30 goal of the Kunming-Montreal Global Biodiversity Framework,

it is evident that current Marine Protected Areas (MPAs) may not suffice. Only 23% of sea turtle hotspots are within MPAs, and merely 3% of these areas are effectively managed. This raises concerns about the effectiveness of static conservation measures in the face of climate change.

The 30×30 Biodiversity Target

The 30×30 target aims to protect 30% of marine environments by 2030. This initiative is crucial for preserving biodiversity and mitigating climate impacts. However, the current coverage of MPAs is inadequate. Many critical habitats for sea turtles remain unprotected, putting these species at risk.

Climate Change Impact on Sea Turtles

Climate change is shifting sea turtles from their traditional habitats to cooler waters. This transition often leads them outside protected areas and into shipping lanes.

The North Sea, Mediterranean, and East China Sea are examples of high-risk zones where turtles face increased threats from vessel strikes.

Research Findings

A comprehensive study analysed over 27,000 sea turtle sightings and ship locations. It revealed that over 50% of current sea turtle hotspots could disappear by mid-century.

In worst-case scenarios, certain species may lose up to 67% of their habitats. This alarming trend puts stress on the urgency for adaptive conservation strategies.

Adaptive Conservation Strategies

Researchers advocate for flexible conservation methods that adapt to changing ocean conditions. Real-time data-driven initiatives, like those used for whale conservation, could be adapted for sea turtles. These strategies aim to reduce vessel speeds in high-risk areas, thereby decreasing collision risks.

Recommendations for Future Conservation

To align with the 30×30 goal, several recommendations have been made:

1. Expand MPA coverage in future turtle hotspots.

2. Design dynamic MPAs that can adjust based on species distributions.

3. Implement targeted shipping regulations to mitigate risks in high-traffic areas.

The Need for Innovative Approaches

As sea turtles migrate in response to climate stress, conservation methods must evolve. The integration of high-resolution species models with real-world shipping data offers a pathway for developing forward-thinking marine conservation strategies. This approach ensures that protection measures follow species as their habitats change.

SUGAMYA BHARAT APP

The Sugamya Bharat App (SBA) is a vital initiative by the Government of India aimed at improving accessibility for persons with disabilities and elderly citizens.

Launched in 2021 by the Department of Empowerment of Persons with Disabilities, this app has undergone revamp to enhance user experience and effectiveness.

As of June 2025, the app has achieved remarkable milestones, including over 14,358 registered users and 83,791 downloads, predominantly from Android devices.

Key Features of the Sugamya Bharat App

The revamped SBA introduces several features designed to improve accessibility. It now boasts a more intuitive user interface that simplifies navigation. An AI-powered chatbot has been integrated to provide real-time assistance to users.

This feature allows users to receive immediate support for their queries. Additionally, the app includes notifications about new initiatives aimed at enhancing accessibility. It also offers a compilation of government schemes and resources beneficial for persons with disabilities.

User Engagement and Feedback

The app encourages users to actively participate in reporting accessibility issues. Users can upload geo-tagged photos of locations where barriers exist. This feature allows authorities to identify and address these issues promptly.

Since its inception, the app has received 2,705 complaints from users. Out of these, 1,897 have been resolved, reflecting the government's commitment to encouraging an inclusive environment.

Impact on Accessibility Reporting

The Sugamya Bharat App serves as a central platform for citizens to report accessibility challenges across various sectors, including public infrastructure and transportation.

The ease of reporting accessibility issues empowers users to contribute to the creation of a barrier-free India. The app's success is evident in the volume of complaints received and resolved, denoting its effectiveness in addressing user concerns.

Future Prospects and Government Commitment

The ongoing development of the app aims to incorporate more features based on user feedback. The DEPwD continues to promote public participation in reporting accessibility challenges.

This initiative aligns with the broader vision of creating an inclusive society where all citizens can access essential services without barriers.

NEW AGROFORESTRY GUIDELINES

The Government of India has introduced new model rules to support agroforestry. Announced on June 18, 2025, these regulations aim to boost farmers' income and address climate change.

The Union Ministry of Environment, Forest and Climate Change (MoEFCC) is leading this initiative. The rules create a structured framework for the felling of trees on agricultural land, ensuring sustainable practices while improving market access for farmers.

Objectives

The primary goal is to enhance farmers' income. The rules aim to increase tree cover and reduce timber imports. They also seek to ensure that agroforestry practices are sustainable. By creating a clear regulatory framework, the government hopes to encourage more farmers to adopt agroforestry.

Regulatory Framework

A streamlined regulatory framework has been established. This includes guidelines for the promotion, maintenance, and felling of trees. The model rules also include a certification process for timber sourced from non-forest land. This framework is crucial for creating effective market linkages for agroforestry products.

State-Level Committee Role

Each state will form a committee to evaluate applications for tree felling. The committee is responsible for verifying the details provided by applicants. This includes information about the agricultural land and the trees to be felled. The committee plays a vital role in ensuring compliance with the new regulations.

National Timber Management System (NTMS)

Farmers must register on the NTMS. This system requires them to update details about their agricultural land and tree plantations. Applicants must provide specific information about tree species, number of saplings, and plantation dates. Regular updates are essential to maintain compliance.

Felling Application Process

For felling trees, an online application must be submitted. Applicants need to specify the number of trees intended for felling and the date. For up to ten trees, photos must be uploaded to assess the trees' size and species. This process ensures that only suitable trees are felled.

Verification and Permit Issuance

Verifying agencies will assess the application details. They will provide a report on the potential timber yield. For more than ten trees, a felling permit will be issued after verification. For fewer trees, a No Objection Certificate will be automatically generated.

Monitoring and Supervision

Divisional Forest Officers will oversee the implementation of these rules. They will monitor the verifying bodies to ensure adherence to regulations. This oversight is crucial for maintaining sustainable agroforestry practices.

What is Agroforestry?
- Agro forestry is a **land use system that integrates trees, crops and animals** in a way that is scientifically sound.
  - It integrates trees and shrubs on farmlands and rural landscapes to **enhance productivity, profitability, diversity and ecosystem sustainability**.
- It is a dynamic, ecologically based, natural resource management system that, through integration of woody perennials on farms and in the agricultural landscape, diversifies and sustains production and builds social institutions.

How is Agroforestry Significant?

- **Economic Value:** It meets **almost half of the country's fuelwood needs**, about two-thirds of the **small timber demand**, 70-80% of the **plywood requirement**, 60% of the r**aw material for the paper pulp**industry, and 9-11% of the **green fodder needs**.
  - Tree products and tree services also **contribute robustly to rural livelihoods**.
  - Fruit, fodder, fuel, fibre, fertiliser, and timber add to **food and nutritional security**, income generation, and work as **insurance against crop failure**.
- **Carbon Sequestration:** Agroforestry or tree-based farming is an established nature-based activity that can **aid carbon-neutral growth**.
  - It enhances tree **cover** outside forests, works as a **surrogate for natural forests sequestering carbon**, keeps the pressure off natural forests, and helps increase farmers' income.
- **Lower Consumption of Fertilisers:** Nitrogen fixing trees grown in the agroforestry systems are c**apable of fixing about 50 - 100 Kg Nitrogen/ha per year** - one of the most promising components of the agroforestry system.
  - The leaf litter after decomposition forms humus, releases nutrients and improves various soil properties, it also **reduces the fertiliser needs.**
  - Due to lower requirement of chemical fertilisers agroforestry can supplement **organic farming**.

- **Ecology Friendly:** Use of lesser chemicals will also help in **mitigating anthropogenic effects on climate**.
  - Agroforestry helps in **erosion control and water retention, nutrient recycling,** carbon storage, biodiversity preservation, and cleaner air and helps communities withstand extreme weather events.
- **Global Climate Goals:** Agroforestry can also help India meet its international obligations on -
  - **Climate** - creating an **additional carbon sink of 2.5 to 3 billion tonnes** of carbon dioxide equivalent through additional forest and tree cover by 2030 and **net-zero by 2070.**
  - **Desertification** - achieving 26 million hectares of **Land Degradation Neutrality by 2030,** thus, meeting 9 of the **17 Sustainable Development Goals**.

- **Better Agriculture Yields:** Higher yields of crops have been observed in forest-influenced soils than in ordinary soils.
  - Appropriate agroforestry systems **improve soil physical properties,** maintain soil organic matter and **promote nutrient cycling**.
  - Agroforestry will also help in generation and promotion of sustainable renewable **biomass based energy**.

How has India Responded to Agroforestry?

- In 2014, **India became the first country** to adopt an agroforestry policy - **National Agroforestry Policy (NAP)** - to promote employment, productivity, and environmental conservation.
- In 2016, a under the NAP was launched, with nearly **₹1,000 crore to transform agroforestry** into a national effort with the tagline: **"Har medh par ped"** (trees on every field boundary).
- In the **2022-23 Union Budget,** the Finance Minister of India announced that the Government of India would **promote agroforestry**.
  - However, the Ministry of Agriculture and Farmers' Welfare **merged the SMAF with the Rashtriya Krishi Vikas Yojana** which deprived the agroforestry sector of its flagship implementation arm.

QUAD CRITICAL MINERALS INITIATIVE

The Quad (United States, Japan, India, and Australia) launched the Initiative to strengthen cooperation on priorities such as securing and diversifying reliable supply chains, and electronic waste (e-waste) critical minerals recovery and re-processing.

The Initiative will expand the Quad's cooperation on supply chain resilience measures for critical minerals.

Need for Critical Minerals Initiative

Diversifying Supply Chain: : Production and processing of many critical minerals are geographically concentrated, making global supply vulnerable to several risks such as political stability, etc.

E.g., Democratic Republic of Congo supplies ~70% of the world's cobalt.

China refines 68% of the world's cobalt, 65% of nickel, and 60% of lithium.

Economic & National Security: E.g., In 2024, China banned exports of gallium, germanium, and other key materials to the US (weaponising critical mineral exports).

Other: Inadequate recycling infrastructure, etc.

What are Critical Minerals?

About: Critical minerals are naturally occurring elements or compounds including lithium, cobalt, nickel, etc.

These are classified as critical due to high demand (diverse applications), supply risks, etc.

Applications: Industry (Electric Vehicles, Electronics); Defence (Radars, Missiles); Clean Energy (Battery storage, Solar Modules), etc.

Other initiatives taken to secure Critical Minerals supply

India Mines and Minerals (Development and Regulation) Amendment Act, 2023, enables exploration and mining of critical minerals.

National Critical Mineral Mission (NCMM)

National Mineral Policy, 2019

International Collaborations & Agreements

Minerals Security Partnership (MSP): India joined this US-led initiative in 2023.

Khanij Bidesh India Limited (KABIL), 2019: A joint venture company of Ministry of Mines to acquire critical minerals globally.

♦ E.g., India-Argentina Agreement (2024) for exploration of lithium mines.

CITES

Originally conceived in 1963 at the International Union for Conservation of Nature (IUCN) meeting, it entered into force in 1975,as a first of its kind global agreement.

About CITES

Aim: Voluntary international agreement between governments ensuring international trade in specimens of wild animals and plants does not threaten their survival.

It subjects international trade to certain controls covering all import, export, re-export, through a licensing system.

Secretariat: Administered by the UN Environment Programme (UNEP) at Geneva, Switzerland.

IUCN provides scientific and technical services to the CITES Secretariat.

Parties: 185 parties (States or regional economic organizations). India ratified in 1976.

CITES Appendices (Lists Species in 3 Appendices based on their degree of protection)		
Appendix I: Species threatened with extinction, trade permitted in only exceptional cases.	Appendix II: Species not necessarily threatened with extinction, but in which trade must be controlled.	Appendix III: Species protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

Although CITES is legally binding on the Parties, it does not take the place of national laws, rather each party implements it through CITES Appendices (Lists Species in 3 Appendices based on their its own domestic legislation degree of protection) Conference of Parties (CoP): Highest Decision making body. CoP3 was held in New Delhi in 1981.

Key Initiatives

Protects over 40,900 species (6,610 species of animals and 34,310 species of plants). MIKE Programme, established by Resolution adopted at the 10th CoP (1997, Harare). Site-based system to monitor trends in levels of illegal killing of elephants across the range of African and Asian elephants.

Others: International Consortium on Combating Wildlife Crime (ICCWC), 2010; CITES Tree Species Project, 2024, etc.

RESIGNATION OF VICE PRESIDENT

Vice President Jagdeep Dhankhar resigned on July 21, 2025, citing health reasons. His resignation, effective immediately under Article 67(a) of the Constitution.

Constitutional Process & Impact

- Until a new Vice President is elected, Deputy Chairperson Harivansh Narayan Singh will preside over the Rajya Sabha under Article 91.
- A new Vice President must be elected within 60 days (by September 19, 2025).
- The election will follow the proportional representation system with a single transferable vote, involving an electoral college of 788 MPs.

Resignation – What the Constitution says

Article 67(a) of the Indian Constitution :

- A Vice-President may, by writing under his hand addressed to the President, resign his office.
- There is no minimum notice period required.
- The resignation takes effect immediately upon acceptance by the President.
- The Vice President is also the ex-officio Chairman of the Rajya Sabha, so his resignation affects both the Executive and Legislative branches.

Vice President of India

Constitutional Position:

- The Vice President of India is the second-highest constitutional office in the country.
- Defined under Articles 63 to 71 of the Constitution.

Key Functions:

- Ex officio Chairperson of the Rajya Sabha (Council of States).
- Acts as President of India in case of vacancy (due to death, resignation, removal, or absence) until a new President is elected (for a maximum of 6 months).
- Does not perform executive functions unless acting as President.

Election Process:
- Elected by an electoral college consisting of members of both Lok Sabha and Rajya Sabha (including nominated members).
- Voting method: Proportional representation by means of a single transferable vote and secret ballot.
- No separate state-level representation (unlike Presidential election).

Eligibility Criteria:
- Must be an Indian citizen,
- At least 35 years old,
- Qualified to be a member of the Rajya Sabha,
- Must not hold any office of profit under the Government.

Term and Vacancy:
- Term: 5 years, but continues until successor takes office.
- Can resign (under Article 67) by writing to the President.
- In case of resignation or vacancy, Article 91 allows the Deputy Chairperson of Rajya Sabha to perform duties as presiding officer.

Notable Facts:
- The Vice President is not subordinate to the President but has a distinct role.
- India's first Vice President was Dr. S. Radhakrishnan.
- The Vice President can be removed by a resolution of the Rajya Sabha passed by an absolute majority and agreed to by the Lok Sabha.

BIO STIMULANTS, NOW UNDER AGRI MINISTRY'S SCRUTINY

What are Bio stimulants?
- Definition: Substances that stimulate physiological processes in plants to enhance nutrient uptake, yield, growth, and stress tolerance.
- Components: Derived from natural sources—botanical extracts, seaweed, vitamins, bio-chemicals.
- Exclusion: Not classified as pesticides or fertilizers under current law.

Why Under Scrutiny?
- Farmers complained retailers were bundling bio stimulants with subsidized fertilizers like urea and DAP.
- Concerns raised over ineffectiveness of many products.
- ~30,000 unchecked products existed until recently; now reduced to ~650 after stricter checks.

Legal Framework
- Previously unregulated, unlike fertilizers/pesticides.
- Regulated under:
  - Fertiliser Control Order (FCO), 1985 – amended in 2021 to include bio stimulants.
  - Essential Commodities Act, 1955 – allows periodic updates to FCO.
- 2021: Government created a 5-year Central Bio stimulant Committee for scientific assessment.

The benefits of biostimulants in crop production
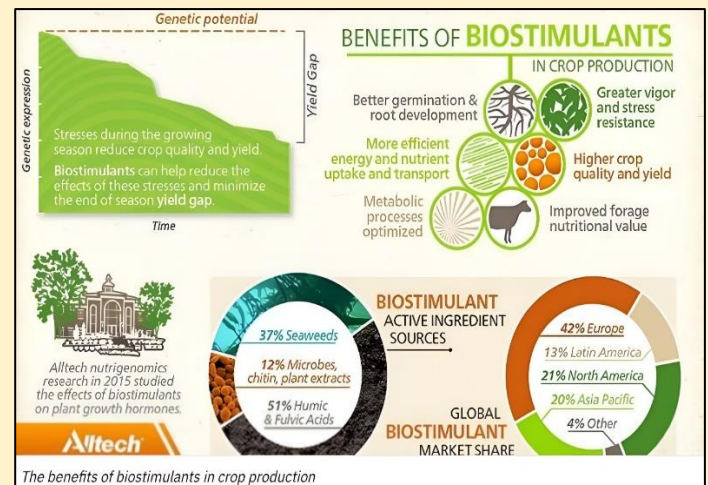
Biofortification
- Definition: Process of increasing the nutritional value of food crops through agronomic practices, conventional plant breeding, or modern biotechnology.
- Example: Iron-rich pearl millet, zinc-rich wheat.
- Objective: Address hidden hunger (micronutrient deficiency).

Biofertilizers
- Definition: Microorganisms that fix nutrients (like nitrogen, phosphorus) in the soil and make them available to plants.
- Examples: Rhizobium (legumes), Azospirillum, Mycorrhiza.
- Benefit: Reduce chemical fertiliser dependency.

Precision Farming
- Definition: Use of technology and data analytics to deliver nutrients and water in precise amounts needed by crops.
- Tools: GPS, remote sensing, drones.
- Outcome: Efficient nutrient delivery, reduced wastage.

Nutrient Use Efficiency (NUE)
- Definition: Ratio of crop yield to the amount of nutrient applied.
- Goal: Increase yield with minimal nutrient loss.
- Enhanced Through: Balanced fertilization, slow-release fertilizers.

Integrated Nutrient Management (INM)
- Definition: Combined use of chemical fertilizers, organic manures, and biofertilizers to maintain soil fertility and productivity.
- Advantage: Sustainable nutrient supply.

Nanofertilizers
- Definition: Fertilizers developed using nanotechnology to enhance nutrient availability and uptake.
- Example: Nano Urea (by IFFCO).
- Pros: Lower doses, reduced environmental impact.

Foliar Nutrition
- Definition: Application of nutrients directly to plant leaves in liquid form.
- Use Case: Quick correction of micronutrient deficiencies (like Zn, Fe).

U.S. TO WITHDRAW FROM UNESCO

The U.S. will exit UNESCO by December 2026, citing ideological concerns, opposition to Palestine's membership, and alignment with its "America First" policy. This marks the third U.S. withdrawal (after 1984 and 2017), despite rejoining in 2023. The move may reduce U.S. influence in global education, culture, and tech governance. UNESCO has expressed regret but is prepared to continue without U.S. support.

UNESCO (United Nations Educational, Scientific and Cultural Organization) is a specialized agency of the UN, founded in 1945. It aims to promote peace and sustainable development through international cooperation in education, science, culture, and communication.

Key Functions:
- Protects cultural heritage through the World Heritage Sites program
- Promotes education for all, including literacy and girls' education
- Supports scientific collaboration and freedom of expression
- Works on ethical AI, climate education, and preservation of intangible cultural heritage
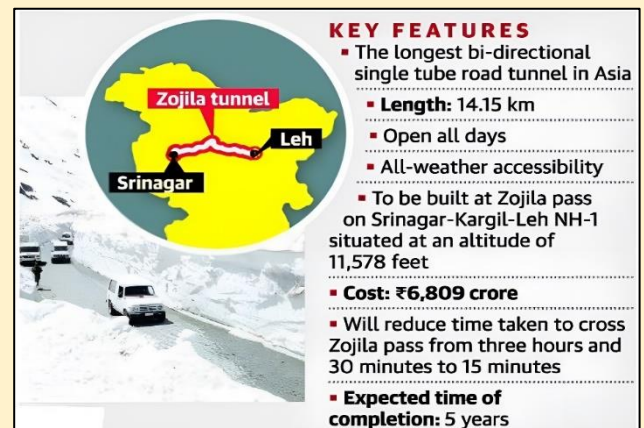
Headquarters: Paris, France
Members: 194 countries (as of 2025).
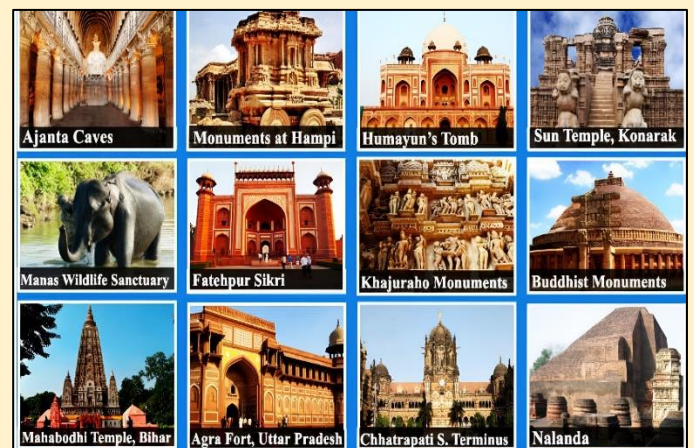
Key Reports by UNESCO:
- **Global Education Monitoring (GEM) Report**
  - Tracks progress on education targets under SDG 4.
  - Formerly known as the *Education for All Global Monitoring Report*.
- **State of the Education Report for India**
  - Focuses on India-specific themes like teacher education, vocational education, digital learning, etc.
- **World Trends in Freedom of Expression and Media Development**
  - Assesses global press freedom, journalist safety, and media viability.
- **Global Report on Culture for Sustainable Development**
  - Highlights the role of culture in achieving sustainable development.

- **UNESCO Science Report**
  - Published every 5 years.
  - Analyses trends in global science, research, and innovation.
- **Global Report on the Futures of Education**
  - Strategic outlook on education's role in shaping future societies.
- **World Heritage Outlook** *(in collaboration with IUCN)*
  - Evaluates the conservation status of UNESCO World Heritage Sites.
- **Internet Universality Indicators Report**
  - Measures internet development across countries based on rights, openness, accessibility, and multistakeholder participation.

SAIL POWERS ZOJILA TUNNEL WITH OVER 31,000 TONNES OF STEEL.

KEY FEATURES
- The longest bi-directional single tube road tunnel in Asia
- **Length:** 14.15 km
- Open all days
- All-weather accessibility
- To be built at Zojila pass on Srinagar-Kargil-Leh NH-1 situated at an altitude of 11,578 feet
- **Cost:** ₹6,809 crore
- Will reduce time taken to cross Zojila pass from three hours and 30 minutes to 15 minutes
- **Expected time of completion:** 5 years

The Zojila Tunnel, set to be India's longest road tunnel and Asia's longest bi-directional tunnel, will span over 30 km at an altitude of 11,578 feet, connecting Srinagar to Leh via Kargil and Dras. It will provide crucial all-weather connectivity, vital for civilian and military logistics.

Zojila Tunnel Project
The Zojila Tunnel is an ambitious all-weather road tunnel project being constructed in the Union Territory of Ladakh, aimed at enhancing connectivity between Srinagar (Jammu & Kashmir) and Leh (Ladakh) via Dras and Kargil.

Key Features:
- Length: Over 30 km, it will be India's longest road tunnel and Asia's longest bi-directional tunnel once completed.
- Altitude: Located at 11,578 feet in the challenging terrain of the Western Himalayas.
- Route: Connects Baltal (near Sonamarg) in Jammu & Kashmir to Minamarg in Ladakh.

Significance:
- Ensures all-weather connectivity between Kashmir and Ladakh (Zojila Pass remains closed ~6 months due to snow).
- Boosts civilian and military logistics in a strategically sensitive region.
- Promotes economic development and tourism in remote Himalayan regions.

Construction & Timeline:
- Being executed by Megha Engineering & Infrastructures Ltd. (MEIL).
- Scheduled for completion by 2027.
- Over 31,000 tonnes of steel supplied by SAIL, showcasing public sector involvement.

Strategic and National Importance:
- Enhances border infrastructure.
- Critical for defense preparedness.
- Symbol of engineering excellence and nation-building in tough Himalayan terrain.

MOON DAY

Moon Day, observed every year on July 20, commemorates the first manned Moon landing during NASA's Apollo 11 mission in 1969.

Why It Matters:
- Marks a milestone in human space exploration and scientific achievement.
- Honors the courage and collaboration behind Apollo 11.
- Inspires ongoing and future missions like Artemis, Chandrayaan, and others.
- Encourages public interest in STEM and the spirit of discovery.
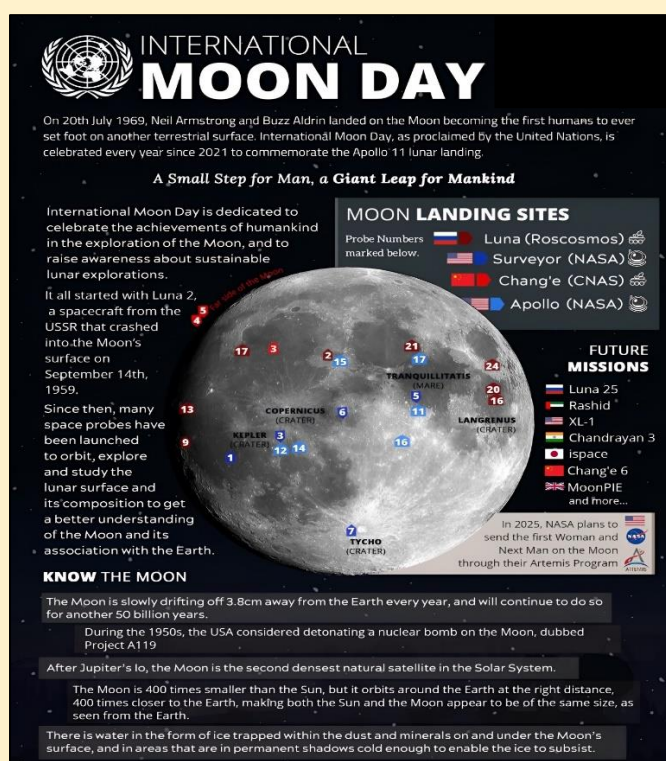
Some interesting facts on the Moon

The Moon is Earth's only natural satellite and the fifth-largest moon in the Solar System. It orbits Earth at an average distance of about 384,400 km and has a diameter of 3,474 km.

Key Features:
- Formation: Likely formed about 4.5 billion years ago, possibly from debris after a Mars-sized body collided with Earth (Giant Impact Hypothesis).
- Phases: The Moon goes through eight phases each month, from new moon to full moon, due to its position relative to Earth and the Sun.
- Tidal Influence: The Moon's gravitational pull causes ocean tides on Earth.
- No Atmosphere: It lacks a significant atmosphere, so temperatures fluctuate drastically and no weather occurs.
- Surface: Covered with craters, mountains, and basaltic plains (called *maria*) formed by ancient volcanic activity.

Scientific Facts:
- The Moon always shows the same face to Earth
  - Due to tidal locking, its rotation period equals its revolution period (~27.3 days).
- It's moving away from Earth
  - The Moon drifts 3.8 cm farther from Earth every year.
- Moon has weak gravity
  - It's about 1/6th of Earth's gravity, which affects human movement and structure building on its surface.
- No atmosphere or magnetic field
  - Thus, it can't protect from solar radiation or meteor impacts.
- It affects Earth's tides
  - Caused by its gravitational pull, crucial for marine life and coastal ecosystems.
- Largest relative to its planet
  - Though not the biggest moon, it is proportionally the largest in relation to its planet.

- Water ice discovered
  - Found in permanently shadowed craters near the Moon's poles—critical for future missions.

Space Missions and Exploration:
- First human landing: Apollo 11 (1969)
  - Neil Armstrong and Buzz Aldrin became the first humans to walk on the Moon.
- India's Chandrayaan-2 & 3
  - *Chandrayaan-3* made India the first country to land on the Moon's south pole (August 2023).
- NASA's Artemis Program
  - Aims to return humans to the Moon and build a sustainable lunar base.

Cultural & Other Facts:
- Used in calendars
  - Many cultures follow lunar calendars (e.g., Islamic, Hindu).
- Visible during the day
  - The Moon can often be seen in daylight due to its proximity and brightness.
- Blood Moon & Supermoon
  - Phenomena like lunar eclipses (Blood Moon) and closest approach to Earth (Supermoon) captivate skywatchers.

UNLAWFUL ACTIVITIES (PREVENTION) ACT (UAPA)

The Bombay High Court has upheld the constitutional validity of the Unlawful Activities (Prevention) Act (UAPA), dismissing petitions that challenged its legality in the Elgar Parishad case.

Key Legal Findings:
- Not a Preventive Detention Law: Despite using the term "prevention," UAPA is not classified as a preventive detention law.
- Date of Commencement: The Act came into force on 30 December 1967, the date it received Presidential assent, as per legal norms.

- Legislative Competence: Parliament has the constitutional authority to enact laws like UAPA under Article 22 and List I powers.
- On Amendments and Non-Notified Clauses: The court held that unless specific provisions are officially notified, original provisions continue to apply.
- Fundamental Rights Challenge: Allegations of violations of Articles 14, 19, and 21 were rejected, and the law was upheld as constitutional.

UAPA (Unlawful Activities (Prevention) Act), 1967

The Unlawful Activities (Prevention) Act (UAPA) is India's primary anti-terror law aimed at preventing activities that threaten the sovereignty, integrity, and security of the nation.

Key Features:

- Objective:
  To prevent unlawful activities and associations that threaten India's sovereignty and integrity.
- Scope:
  Covers acts of terrorism, support to terrorist organizations, and membership in or association with banned groups.
- Wide Powers to Government:
  Enables the central government to declare individuals and organizations as terrorists or unlawful.
- Stringent Bail Provisions:
  Accused under UAPA face reverse burden of proof, and getting bail is difficult due to strict conditions.
- Amendments:
  - 2004: Brought terrorism within UAPA after POTA was repealed.
  - 2019 Amendment: Allowed individuals (not just organizations) to be designated as terrorists.

Constitutional Standing:
- Parliament has the legislative competence to enact UAPA under Entry 9 of List I (Union List) and Article 22 of the Constitution.
- In July 2025, the Bombay High Court upheld its constitutional validity, stating it is not a preventive detention law and aligns with the Constitution.

INDIA'S RECENT EARTHQUAKES

India's recent earthquakes, including the July 2025 Delhi quake, have triggered a call for a fundamental transformation in earthquake preparedness.

Key Elements of the New Approach:
- Modernized Building Codes: Strict implementation of revised seismic safety standards (e.g., IS 1893 and IS 4326) for all constructions, especially in high-risk zones.
- Retrofitting Old Infrastructure: Upgrading unsafe pre-2000 buildings, particularly critical infrastructure like hospitals and schools.
- Resilient Urban Planning: Integrating seismic zoning into city plans and enforcing land-use regulations to reduce risk.
- Enhanced Monitoring: Expanding India's seismic observatory network to improve real-time data, early warnings, and risk modeling.
- Technology Integration: Leveraging AI, IoT, and geospatial data for real-time alerts and resource planning.
- Public Awareness and Preparedness: Mass education campaigns and safety training to prepare citizens for earthquakes.
- Mainstreaming Risk Reduction: Embedding resilience into schools, local governance, and business continuity frameworks.
- Risk Financing Tools: Promoting insurance, disaster bonds, and incentives to support resilience investments.

Global and Cultural Context:
Inspired by the Sendai Framework and global best practices (e.g., Japan, Chile), India aims to embed resilience in institutions and public life. Experts emphasize a mindset revolution—where seismic safety becomes a routine civic and institutional priority, not just a crisis response.

Seismic Zones in India
India lies on the Alpine-Himalayan seismic belt, one of the most seismically active regions in the world. It is prone to earthquakes due to tectonic movements, particularly the collision between the Indian and Eurasian plates.

The Bureau of Indian Standards (BIS) has classified India into four seismic zones (Zone II to V) based on the frequency and intensity of past earthquakes.
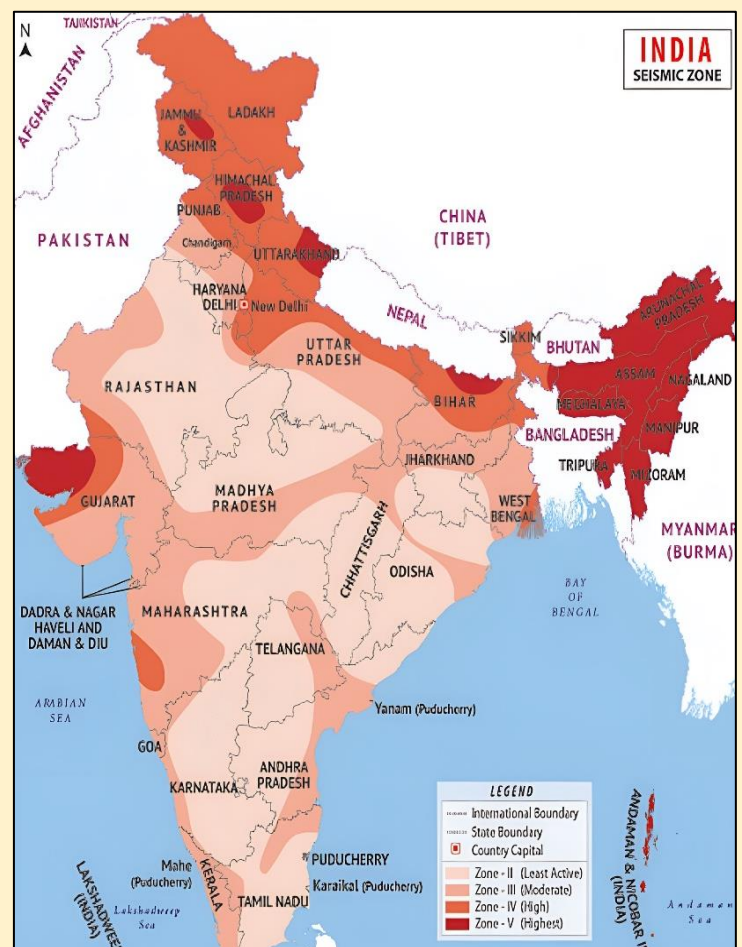
Seismic Zonation Classification:

Zone	Seismic Risk Level	Zone Factor	Regions Covered
Zone V	Very High Risk	0.36	North-East India, parts of J&K, Himachal Pradesh, Uttarakhand, Rann of Kutch (Gujarat), Northern Bihar, Andaman-Nicobar Islands
Zone IV	High Risk	0.24	Delhi, Sikkim, Punjab, Haryana, parts of Bihar, Himachal Pradesh, J&K, West Bengal
Zone III	Moderate Risk	0.16	Kerala, Goa, Lakshadweep, Western Madhya Pradesh, Telangana, parts of Tamil Nadu and Karnataka
Zone II	Low Risk	0.10	Most of South India, Central India, Eastern Maharashtra, Odisha, Chhattisgarh

Note: Zone I was present in older classifications but has now been merged with Zone II.

TEST-FIRINGS OF MULTIPLE STRATEGIC MISSILES

India successfully conducted test-firings of multiple strategic missiles, showcasing its deterrence and operational readiness.

Key Missile Tests:
- **Akash Prime**
  - Test Location: Ladakh
  - Altitude: Operates at over 4,500 metres
  - Purpose: High-altitude air defense, tested after recent India-China tensions near the Line of Actual Control (LAC)
  - Variant: Upgraded Akash missile for the Indian Army
  - Part of: Operation Sindoor.
- **Prithvi-II and Agni-I**
  - Test Location: Integrated Test Range, Chandipur, Odisha
  - Capabilities:
    - Prithvi-II: ~350 km range, 500 kg payload
    - Agni-I: 700–900 km range, 1,000 kg payload
  - Type: Short-range, nuclear-capable ballistic missiles
  - Use: Part of India's strategic nuclear deterrent.

Akash Prime

Akash Prime is an indigenously developed upgraded version of the Akash surface-to-air missile system, designed and built by the Defence Research and Development Organisation (DRDO) for the Indian Army.

Indian Army Successfully Conducts High-Alti Test of Indigenous Akash Prime Air Defence System at 15,000 ft in Ladakh

During the test, the system achieved two direct hits on fast-moving aerial targets, demonstrating its readiness in harsh conditions.

Key Features:

Purpose: High-altitude air defence against aerial threats such as fighter aircraft, drones, and helicopters.

- Range: Short- to medium-range (similar to Akash: ~25–30 km).
- Altitude Capability: Specifically configured to operate at high altitudes above 4,500 meters, ideal for deployment in areas like Ladakh and the Line of Actual Control (LAC).
- Guidance: Equipped with improved accuracy, reliability, and low-temperature operability compared to the original Akash missile.
- Warhead: Can carry both conventional and nuclear warheads.
- Mobility: Can be launched from mobile platforms, increasing tactical flexibility.
- Recent Test: Successfully test-fired in Ladakh in July 2025 under Operation Sindoor.

Prithvi-II Missile

- Type: Short-range surface-to-surface ballistic missile
- Developed by: DRDO under the Integrated Guided Missile Development Programme (IGMDP)
- Range: Approximately 350 km
- Warhead Capacity: Up to 500 kg, can carry both conventional and nuclear warheads
- Guidance System: Advanced inertial navigation system
- Launch Platform: Mobile launchers
- Users: Operated by the Strategic Forces Command of the Indian Army
- Purpose: Tactical strike missile for battlefield use
- Recent Test: Successfully tested on 17 July 2025 from the Integrated Test Range, Odisha

Agni-I Missile

- Type: Short-range nuclear-capable ballistic missile
- Developed by: DRDO -Range: 700 to 900 km
- Warhead Capacity: Up to 1,000 kg, capable of delivering nuclear payloads

- Guidance System: Sophisticated navigation and control systems with high accuracy
- Launch Platform: Road/rail mobile launchers
- Users: Strategic Forces Command
- Role: Part of India's nuclear deterrence and second-strike capability
- Recent Test: Also tested on 17 July 2025 from Chandipur, Odisha along with Prithvi-II

WORLD'S LARGEST HYDROPOWER DAM

China has initiated construction of the world's largest hydropower dam on the eastern edge of the Tibetan Plateau. The project, costing over $170 billion, is set to become China's most ambitious hydropower venture since the Three Gorges Dam.

It aims to generate 300 billion kilowatt-hours annually, matching the electricity consumption of the United Kingdom in 2024.

The dam is located on the Yarlung Zangbo River, which flows into India and Bangladesh as the Brahmaputra. The project has sparked environmental and geopolitical concerns while also boosting Chinese markets.

Project Overview

The dam consists of five cascade hydropower stations. It exploits a 2,000-metre drop in the river across 50 kilometres. This drop offers immense potential to generate electricity. The project is expected to be operational by the 2030s. It will supply power primarily to Tibet and other parts of China. The scale of investment is unprecedented, with an estimated cost of at least $170 billion.

Economic Impact and Market Response

The announcement triggered a positive reaction in Chinese financial markets. Stocks of construction and engineering firms surged sharply. Companies producing cement, explosives and tunnel equipment saw gains.

Analysts note that mature hydropower projects provide stable returns similar to bonds. The project is viewed as a major economic stimulus amid signs of slowing growth in China. It is estimated to add up to 120 billion yuan to GDP in a peak construction year.

Environmental and Ecological Concerns

Chinese authorities have emphasised ecological conservation during construction. However, NGOs warn of irreversible damage to the Tibetan Plateau's rich biodiversity. The area is one of the world's most diverse environments. The dam's impact on river flow and ecosystems downstream remains uncertain. The project site lies in a seismically active zone, raising safety concerns.

Geopolitical and Downstream Issues

The Yarlung Zangbo River becomes the Brahmaputra in India and Bangladesh. These countries have expressed apprehension about water security. State of Indias like Arunachal Pradesh fear reduced river flow could affect 80 per cent of water passing through.

Flooding risks are also noted for Assam and other downstream regions. The dam's proximity to international borders adds to geopolitical tensions.

Social and Employment Dimensions

The Three Gorges Dam previously created nearly a million jobs but displaced a similar number of people. The current project's employment impact is not yet disclosed. Displacement of local communities remains a concern. The Chinese government has not provided data on possible relocations or resettlements.

INDIA'S FIRST CENTRE OF EXCELLENCE FOR HORNBILL CONSERVATION

The Tamil Nadu government has initiated India's first Centre of Excellence for Hornbill Conservation at the Anamalai Tiger Reserve (ATR) in Coimbatore district. This pioneering effort aims to protect hornbills, vital seed dispersers in tropical forests, threatened by habitat loss and climate change.

Funded with ₹1 crore under the Endangered Species Conservation Corpus Fund, the Centre will focus on research, habitat restoration, and community involvement to safeguard four hornbill species native to the Western Ghats.

Ecological Importance of Hornbills

Hornbills are crucial for forest regeneration. They disperse seeds of native trees, maintaining biodiversity and forest health. Known as

Fig. Tiger Reserves in India

farmers of the forest, these birds support the growth of species like fig and canarium trees. Their decline affects entire ecosystems and other wildlife dependent on forest habitats.
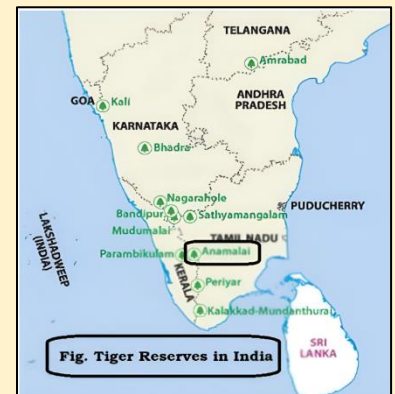
Threats to Hornbill Populations

Hornbills face threats from deforestation, habitat fragmentation, and climate change. These factors reduce nesting sites and food availability. Fragmented forests isolate populations, increasing vulnerability. Climate shifts alter flowering and fruiting patterns, disrupting hornbill feeding and breeding cycles.

Role of Anamalai Tiger Reserve

ATR was chosen for its rich biodiversity and strong conservation record. It already protects tigers, elephants, lion-tailed macaques, and other endemic species. The reserve's existing infrastructure supports scientific research and monitoring. This makes it an ideal hub for hornbill conservation leadership.

Key Species Under Protection

The Centre will focus on four hornbill species found in the Western Ghats –

- Great Hornbill (Buceros bicornis)
- Malabar Grey Hornbill (Ocyceros griseus)
- Malabar Pied Hornbill (Anthracoceros coronatus)
- Indian Grey Hornbill (Ocyceros birostris)

Each species plays a distinct ecological role and requires targeted conservation strategies.

Conservation Activities and Research

The Centre will conduct habitat mapping, nest monitoring, and climate impact assessments. Restoration of degraded forests will involve planting native tree species that support hornbill diets. Scientific studies will enhance understanding of hornbill ecology and threats. Data will guide adaptive conservation measures.

Community Engagement and Capacity Building

Local communities will be involved through nest adoption programmes and sustainable livelihoods like seed collection. Scholarships for students aim to nurture future conservationists.

Forest staff will receive training to improve protection efforts. Awareness campaigns and school field visits will encourage public support.

Collaborations and Expansion

The Tamil Nadu Forest Department will partner with national and international organisations such as the Salim Ali Centre for Ornithology and Natural History, Nature Conservation Foundation, Wildlife Institute of India, and the International Union for Conservation of Nature's Hornbill Specialist Group. Similar conservation initiatives will extend to Kalakkad Mundanthurai Tiger Reserve, Sathyamangalam Tiger Reserve, and parts of Kanyakumari district.

GRAVITATIONAL WAVES

Scientists have detected gravitational waves from the largest black hole merger observed so far.

These waves, first predicted by Einstein's General Theory of Relativity (1915), were only directly observed in 2015 with the help of LIGO (Laser Interferometer Gravitational-Wave Observatory).

Key Points:

- Gravitational waves are ripples in space-time caused by massive cosmic events like black hole mergers.
- The newly detected event involved black holes 100–150 times larger than the Sun, which challenges current theories as such sizes were not expected to exist.
- One of the black holes was spinning at extremely high speeds, nearing limits set by General Relativity.
- The event involved a merged black hole 225 times the Sun's mass, surpassing previous records.

Significance:

- This discovery could refine theories about black hole formation, star evolution, and universe composition.
- It highlights gaps in the current understanding of stellar evolution leading to black hole formation.

LIGO and Global Collaboration:

- LIGO first detected gravitational waves in 2015.
- Collaborators now include Virgo (Italy) and KAGRA (Japan).
- A new LIGO observatory is planned in India (Maharashtra), expected by April 2030, enhancing global detection capabilities.

Black Holes:

- A black hole is a region in space where gravity is so strong that nothing—not even light—can escape it.
- Formed when massive stars collapse under their own gravity at the end of their life cycle.

- The event horizon is the boundary beyond which nothing can return.
- Black holes can be of different types: stellar-mass, intermediate, and supermassive (found at the centers of galaxies).
- According to General Relativity, black holes warp spacetime, influencing nearby matter and light.

LIGO (Laser Interferometer Gravitational-Wave Observatory):

- LIGO is a large-scale physics experiment and observatory designed to detect gravitational waves—ripples in spacetime caused by massive accelerating objects like merging black holes or neutron stars.
- It uses laser interferometry to measure incredibly small disturbances caused by passing gravitational waves.
- In 2015, LIGO made the first direct detection of gravitational waves, confirming a major prediction of Einstein's theory of general relativity.
- The detected signal came from the merger of two black holes about 1.3 billion light-years away.

Link Between Black Holes and LIGO:

- Merging black holes are among the most powerful sources of gravitational waves.
- LIGO allows scientists to observe black holes indirectly, by detecting the gravitational waves produced during such cosmic events.
- This has revolutionized astrophysics by opening a new window to study invisible phenomena in the universe.

MIGRATION VISA

Australia launched a pioneering migration visa for Tuvalu residents. This visa offers a legal pathway for climate-induced migration. Over 5,000 Tuvaluans applied within a month.

The scheme allows 280 people annually to relocate to Australia through a ballot. This initiative addresses the severe impacts of climate change on Tuvalu's population.

Geographical and Environmental Vulnerability of Tuvalu

Tuvalu is a small Pacific island nation made up of nine low-lying atolls. Its average elevation is just 2 metres above sea level. Rising seas threaten flooding, storm surges, and land loss.

Sea levels near Tuvalu have risen by 15 cm in 30 years. By 2050, much of the land and infrastructure may be below high tide. Saltwater intrusion endangers freshwater supplies and agriculture.

Details of the Australia-Tuvalu Falepili Union Treaty
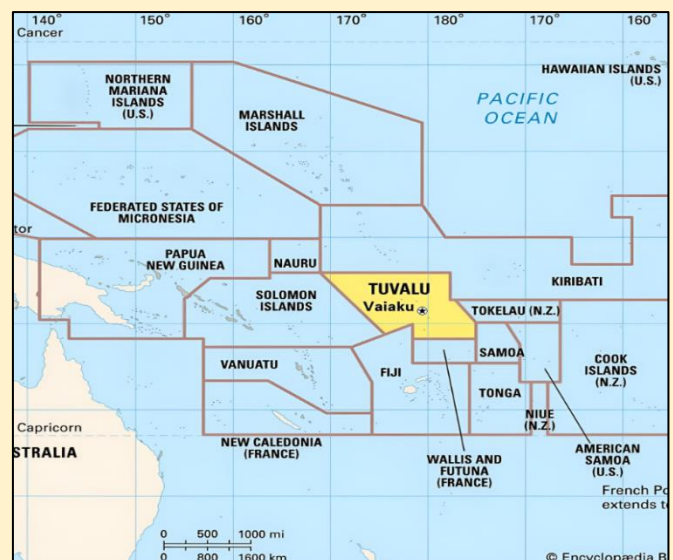
Signed in 2023 and effective from 2024, this treaty is the first of its kind globally. It grants Tuvaluans the right to live, work, and study in Australia with equal access to health and education.

The visa is voluntary; holders can return home anytime. The annual quota of 280 aims to balance migration with Tuvalu's economic and social stability.

Significance and Global Implications

This visa sets a precedent for climate-related migration policies. It recognises the urgent need to support climate-vulnerable nations. Experts suggest Australia may extend similar agreements to other Pacific islands like Kiribati.

The scheme promotes dignified mobility rather than forced displacement. However, it may lead to population decline in Tuvalu over time.

Social and Economic Impact on Tuvalu

With nearly 4% of the population potentially emigrating yearly, Tuvalu faces risks of brain drain and labour shortages. Over a decade, up to 40% of residents might leave if trends continue. This could affect community cohesion and economic viability. The visa's design tries to mitigate these risks by limiting numbers and allowing return visits.

Application and Future Prospects

Applications opened in June and closed in July 2025. The ballot results are expected by the end of July. The first migrants are likely to arrive in Australia by late 2025. The scheme's success will influence future climate migration frameworks worldwide. It offers a model for international cooperation on climate displacement.

MERI PANCHAYAT MOBILE APPLICATION

The Meri Panchayat mobile application gained international acclaim by winning the World Summit on the Information Society (WSIS) Prizes 2025 Champion Award. This recognition came under the Action Line Category for Cultural Diversity and Identity, Linguistic Diversity and Local Content.

The award was presented during the WSIS+20 High-Level Event 2025 held in Geneva, Switzerland. The event marked two decades since the original WSIS and focused on inclusive information societies worldwide. The app represents a major step forward in India's digital governance and rural empowerment.

Background of Meri Panchayat App

Meri Panchayat is an m-Governance platform launched by the Ministry of Panchayati Raj in partnership with the National Informatics Centre (NIC).

It serves over 2.65 lakh Gram Panchayats and empowers more than 25 lakh elected representatives. The app benefits nearly 950 million rural citizens by digitising governance and enhancing transparency at the grassroots level.

Features and Functionalities

The app offers real-time access to Panchayat budgets, receipts, payments, and development plans. It provides detailed information about elected representatives and Panchayat functionaries. Citizens can view public infrastructure data and civic services in their local Panchayat.

The platform supports Gram Panchayat Development Plans (GPDPs) and tracks project proposals. It also includes weather forecasts at the Panchayat level, social audit tools, and fund utilisation data.

Inclusiveness and Language Support

Meri Panchayat supports over 12 Indian languages, ensuring accessibility for diverse linguistic groups. The multilingual interface promotes cultural and linguistic diversity.

This inclusiveness helps bridge the digital divide in rural India and encourages wider citizen participation.

Enhancing Participatory Democracy

The app empowers citizens to propose new projects and review existing works. It allows rating of completed projects and access to Gram Sabha agendas and decisions. Geo-tagging and geo-fencing features enhance grievance redressal and monitoring of fund utilisation. These tools strengthen transparency and participatory governance at the village level.

International Recognition and Significance

The WSIS Prizes 2025 Champion Award marks the global excellence of India's digital governance model. The award was received by Ms. Sunita Jain, Senior Director, NIC–MoPR, in Geneva. The recognition underlines the role of digital tools in promoting cultural identity, linguistic diversity, and local content. It also encourages further innovation in citizen-centric governance.

Gram Panchayat Development Plans

- Gram Panchayats have been mandated for the **preparation of GPDP for economic development and social justice** utilizing the resources available to them.

- The GPDP planning process will be comprehensive and participatory by involving **full convergence** with the schemes of all related Central Ministries / Line Departments.
- The People's Plan Campaign initiated under "Sabki Yojana Sabka Vikas" is an intensive and structured exercise for planning at Gram Sabha through convergence between Panchayati Raj Institutions (PRIs) and concerned departments of the State.

About the process

- Gram Panchayat Development Plans (GPDPs) will include **48 indicators** covering various aspects such as health and sanitation, education etc.
- After each GP is scored out of 100 — **with 30 marks for infrastructure, 30 marks for human development, and 40 marks for economic activity—** the GPs will be ranked.
- The data on the 48 indicators would come from Census 2011 (for physical infrastructure), **Socio-Economic Caste Census 2011** (for Household-level deprivation data), and fresh survey starting in September 2019 that will be carried out by **local facilitators.**
- The score for each GP will reflect the **local needs and priorities.**
  - For instance, for a drought-prone area, water conservation would be accorded the highest priority.
  - Within this ranking, households suffering the worst deprivations would be prioritised further.
- The entire ranking exercise is **meant to identify the gaps at the GP level, make an assessment of where it stands, and accordingly plan the interventions.**

LAKSHADWEEP CORAL REEF DECLINE

Key Findings

- 50% decline in live coral cover over the past 24 years—from 37% in 1998 to below 20% today.
- Study tracked reefs at Agatti, Kadmat, and Kavaratti.
- Repeated marine heatwaves (1998, 2010, 2016) and climate change are major causes.

Causes of Decline

- Marine heatwaves raise ocean temperatures, leading to coral bleaching.
- Reduced recovery time between bleaching events limits reef regeneration.
- Warming seas continuously stress coral ecosystems.

Ecological & Social Impact
- Risk of functional extinction: reefs may no longer support biodiversity or protect islands.
- Even resilient coral species now show bleaching signs.
- Local communities face threats to livelihoods and coastal safety.

Urgency & Outlook
- Time is critical—reefs need long recovery periods to regenerate.
- Local measures can help, but global climate action is essential for long-term survival.

Coral Reefs
- Coral reefs are marine ecosystems made up of calcium carbonate structures secreted by corals (marine invertebrates).

- They are found in shallow, warm, and sunlit waters typically between 30°N and 30°S latitude.
- Known as "rainforests of the sea," they support around 25% of marine biodiversity despite covering less than 1% of the ocean floor.

Major Types of Coral Reefs:
1. Fringing Reefs – Directly attached to a shoreline (e.g., Gulf of Mannar, India).
2. Barrier Reefs – Separated from land by a lagoon (e.g., Great Barrier Reef, Australia).
3. Atolls – Circular reefs enclosing a lagoon, often over sunken volcanoes (e.g., Lakshadweep).

Coral Bleaching: Concept
- Coral bleaching occurs when corals expel symbiotic algae (zooxanthellae) due to stress, primarily from increased sea surface temperatures.
- The algae provide food and color to corals; without them, corals appear white (bleached) and are more vulnerable to death

Causes of Coral Bleaching:
1. **Climate Change**:
   - Elevated sea temperatures (above 1–2°C from average) are the primary driver.
   - Associated with El Niño events and global warming.
2. **Ocean Acidification**:
   - Absorption of CO_2 by oceans reduces availability of calcium carbonate, hindering coral skeleton formation.
3. **Pollution**:
   - Agricultural runoff (nitrates/phosphates), plastics, and oil spills damage coral health.
4. **Sedimentation**:
   - Reduces light penetration, affecting photosynthesis in symbiotic algae.
5. **Overfishing & Unsustainable Tourism**:
   - Disrupt reef ecosystem balance and cause physical damage.

Impacts of Bleaching:
- Ecosystem collapse: Loss of marine species reliant on coral ecosystems.
- Fisheries affected, threatening food security and livelihoods.
- Reduced coastal protection from storm surges and erosion.
- Decline in marine tourism revenue.

Global and National Efforts:
- **International**:
  - Coral Triangle Initiative.
  - UN SDG 14 (Life Below Water).
  - IPCC reports warning against warming above 1.5°C.

- **India**:
  - Coral reef monitoring under ICMAM (Integrated Coastal and Marine Area Management).
  - Coral restoration projects in Gulf of Mannar, Lakshadweep, and Andaman & Nicobar.
  - Laws: Coastal Regulation Zone (CRZ) Notification, Wildlife Protection Act, 1972 (Schedule I protection for coral reefs).

THE NATIONAL SPORTS GOVERNANCE BILL INTRODUCED IN THE LOK SABHA

- **Formation of a National Sports Board**:
  - A SEBI-like statutory body to oversee all sports federations, including BCCI.
  - Ensures centralized regulation, transparency, and accountability in sports governance.
- **Creation of a National Sports Tribunal**:
  - A civil court-like body to adjudicate sports-related disputes (e.g., selection, federation elections).
  - Tribunal decisions appealable only to the Supreme Court.
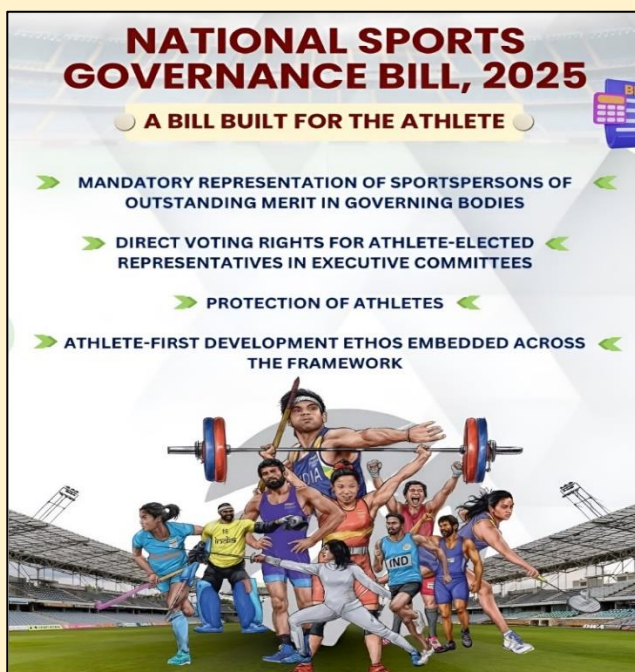
Need for the Bill:
- Current sports governance is ad hoc and fragmented.
- Aims to replace judicial overreach and frequent court interventions with specialized regulatory and adjudicatory mechanisms.

Key Issues Addressed:
- Autonomy of the Tribunal: Presumed to be independent and free of conflicts, unlike past tribunals.
- Transparency in the National Sports Board: Will require strong public accountability and clear procedures.

- Age & Tenure Cap: Caps administrators' age at 75 and removes fixed terms to make room for experienced international representation.
- BCCI under purview: Brings BCCI under government oversight for the first time, aligning it with national standards.

- Athletes' Right to Redressal: Tribunal will replace courts as the primary forum for dispute resolution, aligning with global norms like the FIFA model.

Khelo India Programme
- **Launched**: 2018
- **Aim**: Revitalize sports culture at the grassroots level and identify young talent.
- **Key Features**:
  - Annual Khelo India Youth Games and University Games.
  - Financial assistance of ₹5 lakh per annum for 8 years to selected athletes.
  - Creation of sports infrastructure (e.g., centers of excellence, academies).

Target Olympic Podium Scheme (TOPS)
- **Launched**: 2014 (revamped under Khelo India)
- **Objective**: To support India's elite athletes for Olympic and Paralympic Games.

- **Features**:
    - Funding for coaching, training, equipment, foreign exposure.
    - Support staff including physiotherapists, nutritionists, and mental trainers.

National Sports Development Fund (NSDF)
- **Established**: 1998
- **Purpose**: Mobilize private/public funds to support top-tier athletes and infrastructure.
- **Usage**:
    - Customized training.
    - Equipment and facilities development.

Fit India Movement
- **Launched**: 2019
- **Objective**: Encourage a healthy and active lifestyle across all age groups.
- **Initiated by**: Ministry of Youth Affairs and Sports (MoYAS)
- **Focus Areas**: Fitness pledges, fitness audits of institutions, campaigns in schools and workplaces.

Sports Authority of India (SAI) Schemes
- **Key Schemes**:
    - **National Centres of Excellence (NCOEs)** – elite athlete grooming.
    - **SAI Training Centres (STCs)** – grassroots level training for young talent.
    - **Extension Centres of STCs** – training in schools/colleges with sports tradition.

Pandit Deendayal Upadhyay National Welfare Fund for Sportspersons
- **Aim**: Provide financial aid to sportspersons in indigent circumstances or those injured during their career.
- **Support includes**: Medical treatment, pension, and sustenance allowance.

Mission Olympic Cell (MOC)
- **Function**: Operational arm under TOPS for monitoring and clearing athlete proposals on a fast-track basis.

National Physical Fitness Campaign
- **Target**: School children (5–18 years).

Purpose: Monitor and enhance physical fitness levels through standardized tests.

INDIA -U.K TRADE PACT

India and the United Kingdom have signed a comprehensive trade agreement aimed at enhancing bilateral trade, investment, and strategic cooperation

Key Features:
- Tariff Reductions: Lower duties on various goods and services to boost exports and benefit consumers.
- Investment Facilitation: Framework to protect and encourage investments in manufacturing, tech, pharma, and finance.
- Services Liberalization: Commitments in IT, legal, financial, and business services to expand market access.
- Ease of Doing Business: Streamlined customs, regulatory cooperation, and dispute resolution mechanisms.
- IPR & Innovation: Strengthened collaboration in intellectual property, R&D, and innovation ecosystems.

INDIA-UK FTA INKED

What is an FTA (Free Trade Agreement)?
A Free Trade Agreement is a deal between countries to make trade easier by:
- Reducing or removing import and export duties
- Lowering trade barriers for goods and services
- Covering areas like investment, intellectual property, and government procurement

Source: Ministry of Commerce & Industry

Expanded Cooperation:
- Climate: Joint projects on clean energy and climate change mitigation.
- Education: Student exchange and higher education partnerships.
- Security: Cooperation in defence, cyber security, and counter-terrorism.
- Healthcare: Collaboration in pharmaceuticals, clinical trials, and digital health.

Significance:
- Economic Impact: Aims to double trade volumes and create jobs in both nations.
- Strategic Depth: Reinforces India-U.K. ties post-Brexit, aligning economic and geopolitical interests.
- Next Steps: Implementation pending ratification and stakeholder consultations.

Types of Free Trade Agreements (FTAs)

FTAs are agreements between countries to reduce or eliminate trade barriers such as tariffs, quotas, and import duties. Based on the level of integration and commitments, FTAs can be classified into the following types:

Preferential Trade Agreement (PTA)
- Scope: Limited; offers preferential access to certain products by reducing tariffs.
- Example: India-MERCOSUR PTA
- Note: Does not cover all trade; only select goods/services get concessions.

Free Trade Agreement (FTA)
- Scope: Elimination of tariffs and quotas on substantially all trade in goods and services between member countries.
- Example: India-ASEAN FTA
- Note: Each member retains its own trade policies with non-members.

Comprehensive Economic Partnership Agreement (CEPA)
- Scope: Broader than a typical FTA; includes trade in goods, services, investment, and economic cooperation.
- Example: India-Japan CEPA
- Note: Includes non-tariff measures, dispute resolution, and regulatory transparency.

Comprehensive Economic Cooperation Agreement (CECA)
- Scope: Similar to CEPA but often at an early stage of cooperation, focused more on promoting investment and capacity-building.
- Example: India-Malaysia CECA

Customs Union
- Scope: Like an FTA, but members also adopt a common external tariff on imports from non-members.
- Example: European Union Customs Union
- Note: Requires deeper economic integration.

Common Market
- Scope: A customs union that also allows free movement of capital and labor.
- Example: European Single Market
- Note: High level of integration; harmonized policies on competition and labor mobility.

Economic Union
- Scope: Deepest form of integration, combining a common market with monetary and fiscal policy harmonization.
- Example: Eurozone (within EU)
- Note: Requires political will and institutional mechanisms.

NATIONAL COOPERATIVE POLICY 2025

Unveiled on **July 24, 2025**, the National Cooperative Policy 2025 replaces the 2002 policy

Vision & Mission
- **Vision:** "Sahkar Se Samriddhi" – Prosperity through Cooperation, aligned with "Viksit Bharat 2047".
- **Mission:** Build professional, tech-driven, accountable cooperatives with one unit in every village and mass citizen participation.

Key Targets
- Triple cooperative sector's GDP share by 2034
- Engage 50 crore citizens in cooperatives
- 30% increase in co-op societies (from 8.3 lakh to ~10.8 lakh)
- One cooperative in every village
- Launch 2 lakh new PACS, dairy, fishery cooperatives in 5 years
- Promote digitalization and professional management

Core Features
- **Grassroots Focus:** Emphasis on rural, tribal, women-led cooperatives.
- **Multi-Sectoral Growth:** Expansion into non-agricultural sectors (tourism, insurance, taxis, etc.).
- **Autonomy with Regulation:** More operational freedom, along with transparency and oversight.
- **Job Creation:** Cooperatives as engines of rural employment
- **State Participation:** States to frame their own cooperative policies by Jan 31, 2026

Policy Formation
- Drafted by a 40-member expert committee led by Suresh Prabhu
- Based on wide stakeholder consultation, workshops, and feedback from institutions like RBI and NABARD

Major Upgrades Over 2002 Policy

Feature	2002 Policy	2025 Policy
Approach	Autonomy-focused	Action-oriented, tech-driven
Governance	Broad guidelines	Professional and transparent management
Sector Focus	Primarily agriculture	Multi-sector expansion
Ambition	Maintain self-reliance	Mass outreach and economic integration
Institutional Anchor	Ministry of Agriculture	Dedicated Minis

GOLDEN JACKALS

Golden jackals in Kerala have shown remarkable adaptability to human-dominated landscapes, thriving beyond traditional forests in areas like agricultural lands, village edges, and peri-urban zones.

They exploit food sources from human activities, such as waste and livestock carryon, demonstrating a flexible diet and strong scavenging ability. This ecological plasticity allows them to survive habitat fragmentation and loss.

However, their growing presence near human settlements raises concerns about potential conflicts and disease transmission, highlighting the need for effective management of human-wildlife interactions.

Golden Jackal (Canis aureus)
IUCN Status:
- Least Concern (LC)

Distribution:
- Native to South Asia, Middle East, North and East Africa, and South-eastern Europe.
- In India, they are found across the subcontinent — from forests and grasslands to rural, agricultural, and urban fringes.

Habitats:
Golden jackals occupy a diverse range of habitats, including:
- Dry deciduous forests
- Scrublands
- Grasslands and savannas
- Mangroves and wetlands
- Agricultural fields
- Peri-urban and rural areas

Key Features:
- Size: Medium-sized canid (8–10 kg on average)
- Color: Golden to reddish-brown fur
- Diet: Omnivorous and opportunistic — includes rodents, birds, fruits, insects, carrion, and human food waste
- Behavior: Can be solitary, in pairs, or small family groups; mostly nocturnal
- Ecological Role: Important scavenger, helps control rodent populations and clean up carrion

Conservation Concerns:

- Human-wildlife conflict (livestock predation, urban presence)
- Disease transmission (rabies, canine distemper)
- Habitat loss and fragmentation

FIVE YEARS OF NEP

What Has Worked
- School Curriculum Revamp: The 10+2 system is being replaced by the 5+3+3+4 structure. NCERT has published new books for classes 1–8, emphasizing experiential learning.
- Early Childhood Education: Pre-primary learning is being strengthened with materials like NCERT's *Jaadui Pitara.*
- Foundational Learning Focus: National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat) launched to ensure reading and math skills by class 3.
- Academic Credit System: National Credit Framework allows flexible credit transfer and course entry/exit.
- CUET (Common University Entrance Test): Implemented in 2022 as a common entrance test for undergraduate admissions.
- Indian Campuses Abroad: IITs and IIMs have set up campuses in Africa and the Gulf; foreign universities are coming to India.
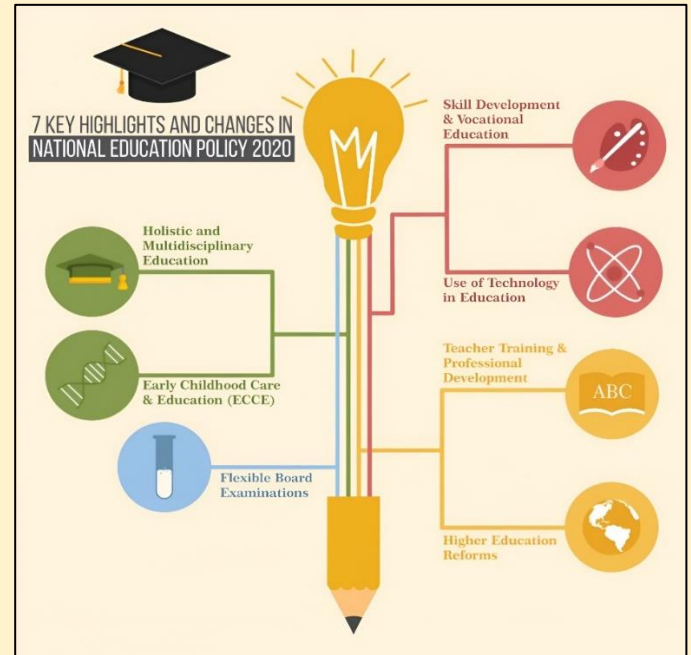
What's In Progress
- Board Exam Changes: From 2026, CBSE to allow class 10 students to choose subjects and take board exams twice a year.

- Holistic Report Cards: PARAKH under NCERT is developing assessments with self-evaluation and skills focus.
- Four-Year UG Degrees: Being rolled out slowly due to infrastructure gaps.

What's Stuck and Why
- Three-Language Formula: Remains controversial; some states like Tamil Nadu oppose Hindi imposition.
- Teacher Education Overhaul: 4-year integrated B.Ed. course announced but not yet implemented.
- UGC's Replacement Delayed: The Higher Education Commission of India (HECI) bill is still pending.
- Mother Tongue in Schools: Implementation from pre-primary to class 5 is partial.
- No School Breakfast Yet: Financial Ministry rejected the breakfast proposal for schools.
- Centre–State Divide: States like Kerala, Tamil Nadu, and West Bengal have pushed back against several key reforms.

History of the National Education Policy (NEP) in India

The National Education Policy (NEP) is India's vision document for guiding the development of the education system. Since independence, India has had three major NEPs:

National Education Policy 1968

- First NEP, based on the recommendations of the Kothari Commission (1964–66).
- Emphasized free and compulsory education for all children up to the age of 14.
- Advocated the three-language formula, improvement in the quality of education, and equal educational opportunities.

National Education Policy 1986 (Modified in 1992)

- Introduced by Prime Minister Rajiv Gandhi and later modified under P.V. Narasimha Rao in 1992.
- Focused on removal of disparities, education for women, and improving teacher education.
- Introduced Operation Blackboard, Navodaya Vidyalayas, and the Programme of Action (1992).
- Emphasized vocationalisation, open learning systems, and child-centric education.

CEASEFIRE AGREEMENT

Ceasefire agreement between the Democratic Republic of Congo (DRC) and the Rwanda-backed M23 rebels

A ceasefire agreement in Doha, Qatar, between the Democratic Republic of Congo (DRC) and the Rwanda-backed M23 rebels

Both sides committed to a "permanent ceasefire" and pledged to engage in dialogue, including the voluntary return of refugees and displaced persons.

This deal follows years of intense conflict, especially after a renewed M23 offensive seized key cities like Goma and Bukavu in early 2025.

Despite the breakthrough, the ceasefire is considered fragile due to several factors:

- Lack of International Support: Analysts warn that without strong international backing, the peace process could falter, as previous mediation attempts failed until Qatar's surprise intervention.
- Ground Realities: Violence and mistrust persist, with the M23 threatening to resume fighting unless certain conditions are met, and some rebels have stated they will not retreat from their positions.
- Control and Administration: The M23 and its allies control vast territories in North and South Kivu provinces, raising concerns about security and the government's ability to protect civilians.
- Deep-rooted Grievances: The conflict stems from overlapping ethnic, political, and economic issues, with external actors accused of supporting armed groups for their own interests. Key questions on disarmament and reintegration remain unresolved.
- Humanitarian Crisis: The long-running conflict has caused widespread displacement, leaving thousands in dire conditions.

Learning Corner:

Rebel Group	Country/Region
M23 (March 23 Movement)	Democratic Republic of Congo
TPLF (Tigray People's Liberation Front)	Ethiopia
Taliban	Afghanistan
Houthis (Ansar Allah)	Yemen
PKK/YPG/Kurdish Groups	Turkey, Syria, Iraq, Iran
FARC (Revolutionary Armed Forces of Colombia)	Colombia
ISIS (Islamic State)	Iraq, Syria, Global

ATMANIRBHAR OIL SEEDS ABHIYAN

Launched in 2024-25, this mission aims to make India self-reliant in oilseed and edible oil production by 2030-31.

Key Objectives:
- Achieve self-sufficiency in key oilseeds like mustard, soybean, groundnut, sunflower, sesame, and others.
- Enhance research in high-yield, climate-resilient varieties.

- Promote modern farming practices and digital technologies.
- Provide financial incentives and input subsidies.
- Strengthen post-harvest management, market linkages, and processing infrastructure.
- Expand crop insurance coverage.
- Boost secondary oil extraction from sources like rice bran, cottonseed, and tree-borne oilseeds.

Atmanirbhar Oil Seeds Abhiyan — India's Journey Towards Edible Oil Self-Sufficiency
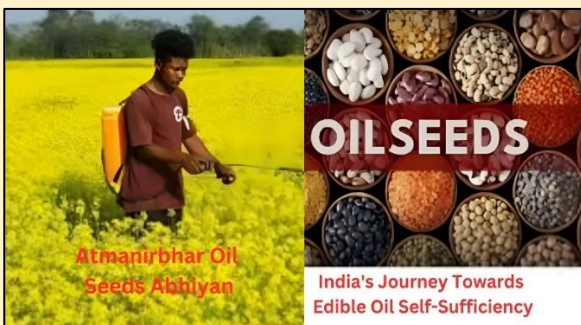
Implementation & Targets:

- Duration: 2024-25 to 2030-31
- Budget: ₹10,103 crore
- Target: Raise oilseed production from 39 to 69.7 million tonnes
- Goal: Meet 72% of projected domestic edible oil demand

Support Measures:

- Launch of SATHI portal for seed supply coordination.
- Increased MSP and schemes like PM-AASHA to ensure fair pricing.
- Higher import duties to protect domestic producers.
- Emphasis on environmental sustainability and rural employment.

Data Bank

Edible oil sector in India
➤ **4th** largest player in the global edible vegetable oil sector, behind the USA, China, and Brazil.
➤ **India accounts for-**
  ○ 15-20% of global oilseed area
  ○ 6-7% of vegetable oil production
  ○ 9-10% of total consumption.
➤ **Largest importer of vegetable oils globally,** followed by China and the USA.
  ○ Palm oil accoun for 59%, followed by soybean (23%) and sunflower (16%)

Oilseeds Production in India:
- India is one of the largest producers of oilseeds globally but remains a net importer of edible oils, meeting over 50% of its domestic demand through imports.
- Major oilseeds grown include:
  - Groundnut, Soybean, Mustard/Rapeseed, Sunflower, Sesame, Linseed, Niger, Safflower, and Castor.
- Cultivated mainly in rain-fed areas; productivity is often lower due to climate variability, low input use, and limited irrigation.

Key Government Schemes:
National Mission on Edible Oils – Oilseeds (NMEO–Oilseeds) *(2024–25 to 2030–31)*
- Aims to make India self-reliant in edible oils.
- Targets to increase oilseeds production to 69.7 million tonnes by 2030–31.
- Key components:
  - High-yielding seeds, climate-resilient varieties
  - Financial incentives, input subsidies
  - Crop insurance, SATHI portal for seed coordination
  - Post-harvest management and value addition
  - Focus on both primary and secondary sources (e.g., rice bran, cottonseed)

National Food Security Mission (NFSM – Oilseeds & Oil Palm)

- Promotes productivity and area expansion for oilseed crops.
- Provides financial support for inputs, training, and cluster demonstrations.

Price Support Scheme (PSS)

- Under PM-AASHA, ensures Minimum Support Price (MSP) procurement for oilseeds by government agencies.

Rashtriya Krishi Vikas Yojana (RKVY)

- A flexible scheme to fund state-led initiatives, including support for oilseeds based on local needs.

MOLECULAR IMAGING: CALTECH'S ANGSTROM-SCALE MICROSCOPE

Scientists at the California Institute of Technology (Caltech) have developed a groundbreaking microscope technique that enables real-time observation of molecular motion down to tens of angstroms.

Instead of imaging individual molecules directly, this new method detects them indirectly by analyzing how they interact with light and leveraging Brownian motion—the random jittering caused by molecular collisions.

Key components of the method include:
- Use of a streak camera to track nanoscale dynamics with picosecond-level speed.
- Observation of an ensemble of molecules (hundreds of billions at once), with enough precision to infer individual molecular motion.
- A non-intrusive, label-free, and fast imaging process, making it suitable for applications in biomedical research, disease diagnostics, and nanomaterial fabrication.

The technique involves directing a laser through a sample, then capturing the scattered light using a system that includes a digital micromirror device (DMD) and the streak camera. The interaction patterns and fluctuations in light provide information about molecular size and movement.

This is now the world's fastest single-molecule imaging technique, offering new possibilities in visualizing molecular behavior at unprecedented speeds and precision, without the need for fluorescent labels or direct visual observation.

Brownian Motion

Brownian motion refers to the random, irregular movement of microscopic particles suspended in a fluid (liquid or gas), resulting from collisions with the fast-moving molecules of the fluid.

Key Features:

Brownian movement
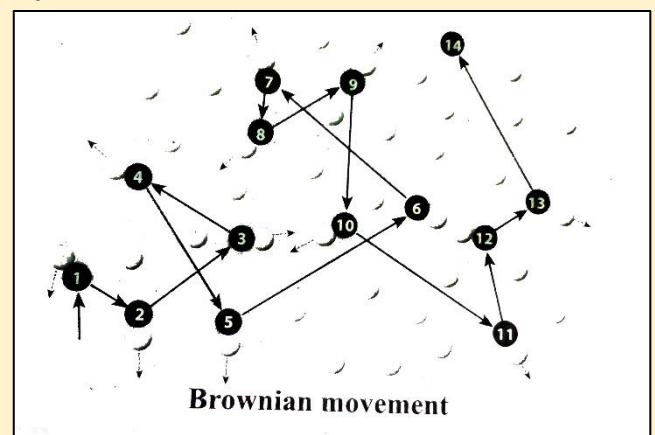
- Discovered by: Robert Brown (1827), who observed pollen grains in water moving randomly under a microscope.
- Explained by: Albert Einstein (1905), who mathematically modeled it and linked it to molecular theory.
- Confirmed by: Jean Perrin, whose experimental work validated Einstein's equations and helped establish the existence of atoms.

Scientific Significance:
- Evidence of molecular motion: Brownian motion provided strong proof for the kinetic theory of matter, supporting the atomic nature of substances.

- Statistical mechanics: It is a cornerstone concept in the development of modern statistical and quantum physics.
- Mathematical modeling: Brownian motion forms the basis of stochastic processes, including Wiener processes in probability theory.

Applications:
- Colloidal stability analysis
- Stock market modeling (in financial mathematics)
- Diffusion studies in chemistry and biology

AADI THIRUVATHIRAI FESTIVAL

Prime Minister Narendra Modi, during the Aadi Thiruvathirai festival at Gangaikonda Cholapuram, described the Chola dynasty as an "ancient roadmap" for realizing the vision of a developed India (*Viksit Bharat*).

- Military and Naval Strength: Highlighted the Cholas' powerful navy and called for strengthening India's maritime and defense capabilities.
- Cultural Unity: Praised the Cholas for fostering cultural integration, linking it to current initiatives like Kashi-Tamil Sangamam.
- Democratic Traditions: Cited the *kudavolai* system to emphasize India's indigenous democratic roots.
- Water Management: Lauded the Cholas' advanced irrigation systems as models for sustainable environmental practices.

- Art and Architecture: Recognized their enduring legacy in temple architecture, sculpture, and literature.
- Contemporary Actions: Announced statues of Raja Raja Chola and Rajendra Chola I, and highlighted efforts to recover cultural artifacts.

Chola Dynasty

The Chola Dynasty was one of the longest-ruling and most powerful South Indian empires, flourishing primarily between the 9th and 13th centuries CE.

Origin and Early Cholas

- The early Cholas are mentioned in Sangam literature (circa 300 BCE–300 CE), with rulers like Karikala Chola being notable.
- The imperial phase began with Vijayalaya Chola (850 CE), who captured Thanjavur from the Pallavas and laid the foundation of the later Chola Empire.

Important Rulers

1. **Rajaraja I (985–1014 CE)**
   - Expanded the empire across Tamil Nadu, Kerala, and parts of Sri Lanka.
   - Built the famous Brihadeeswarar Temple at Thanjavur (UNESCO World Heritage Site).
   - Reorganized administration and revenue system.
2. **Rajendra I (1014–1044 CE)**
   - Took the empire to its greatest extent—conquering Sri Lanka, Andaman-Nicobar, Malay Peninsula, and even sending a naval expedition to the Srivijaya Empire (modern Indonesia).
   - Built a new capital at Gangaikonda Cholapuram.

Administration & Governance

- Highly centralized administration with efficient revenue collection.
- Use of village assemblies (sabhas) and the famous Kudavolai system for elections.
- Well-documented land grants and temple inscriptions.

Naval Power & Foreign Trade
- The Cholas built one of the strongest navies in ancient India.
- Maintained active trade with Southeast Asia, China, and the Arab world.

Art & Architecture
- Dravidian style temple architecture reached its zenith.
- Grand temples like Brihadeeswarar, Gangaikonda Cholapuram, and Airavatesvara Temple reflect architectural brilliance.
- Patronized Tamil literature and bronze sculpture, especially the Nataraja icon.

Decline
- Began in the late 12th century due to internal strife and rising powers like the Pandyas and Hoysalas.
- The final blow came with Malik Kafur's invasion in the early 14th century.

Legacy
- Played a major role in spreading Tamil culture and Shaivism in Southeast Asia.
- Left behind enduring architectural, artistic, and literary contributions.

E3 COUNTRIES

Iran held nuclear talks in Istanbul with diplomats from Britain, France, and Germany (E3 countries) to resolve the deadlock over its nuclear programme.

The meeting ended with an agreement to continue discussions. The focus was on whether to reimpose UN sanctions on Iran using the "snapback" mechanism, especially if progress isn't made by August.

The E3 had warned of sanctions if Iran fails to meet its nuclear obligations. While Iran remains skeptical of Western intentions, European leaders are concerned about Iran's lack of transparency. Both sides agreed to meet again, but tensions remain over trust and commitment.

E3 Group:
The E3 refers to a group of three major European countries: France, Germany, and the United Kingdom. They often coordinate on foreign policy, especially on global security and non-proliferation issues.
- Origin: The E3 format emerged during negotiations with Iran over its nuclear program in the early 2000s, even before the broader P5+1 (which includes the US, China, and Russia).
- Role: They act together to uphold the Joint Comprehensive Plan of Action (JCPOA), also known as the Iran nuclear deal.
- Focus: Nuclear non-proliferation, diplomacy, sanctions enforcement, and maintaining international agreements.
- Current Relevance: The E3 continues to engage Iran diplomatically to prevent nuclear escalation and uphold UN resolutions.

DELIMITATION COMMISSION

What is delimitation

The process of redrawing boundaries of Lok Sabha and state Assembly seats to represent changes in the population.

The main task of the Delimitation Commission is redrawing the boundaries of the various assembly and Lok Sabha constituencies based on a recent census.

In the process, the number of seats allocated to states in Lok Sabha or in the Legislative Assembly may also change

It also reserves Assembly seats for Scheduled Castes (SCs) and Scheduled Tribes (STs) in accordance with the Constitution

The Supreme Court of India has rejected a plea seeking the start of the delimitation process for constituencies in Andhra Pradesh and Telangana.

A bench of Justices Surya Kant and N.K. Sinha ruled that the delimitation carried out in Jammu & Kashmir under a special provision cannot be used as a precedent for Andhra Pradesh and Telangana, as J&K is a Union Territory governed by a distinct constitutional framework.

The Court emphasized:

- Article 170 (which governs State Assemblies) does not apply to Union Territories like J&K.
- Section 26 of the Andhra Pradesh Reorganisation Act, 2014 already provides for delimitation, but only after the first census post-2026.
- The existing notifications are not arbitrary and do not violate Article 14 (Right to Equality).

Delimitation in India

Delimitation refers to the act of redrawing the boundaries of electoral constituencies to ensure fair representation based on population changes.

Constitutional Basis:

1. Article 82: Empowers the Parliament to enact a Delimitation Act after every census.
2. Article 170: Deals with the composition of State Legislative Assemblies and requires delimitation of constituencies based on population.
3. Delimitation Commission Act: Based on this Act, the Delimitation Commission is constituted to carry out the delimitation process.
4. Article 329(a): Bars courts from questioning the validity of delimitation once finalized by the Commission.

Key Points:

- The last delimitation was based on the 2001 Census; future delimitation is frozen until after the 2026 Census, to ensure population control is not disincentivized.

- Jammu & Kashmir underwent delimitation under a distinct constitutional framework post its reorganization as a Union Territory in 2019.
- The Andhra Pradesh Reorganisation Act, 2014 (Section 26) provides for delimitation only after the first census post-2026.
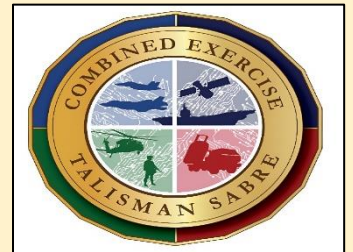
Purpose:

- Ensure equal representation.
- Maintain the principle of "one person, one vote".
- Adjust constituencies as per population shifts.

Delimitation is thus a constitutional tool to uphold democratic fairness while balancing administrative and political considerations.

EXERCISE TALISMAN SABRE

Air Marshal Ashutosh Dixit, Chief of Integrated Defence Staff (CISC), is visiting Australia from July 26 to 28, 2025, to witness the 11th edition of Exercise Talisman Sabre (TS25). TS25 involves 19 countries and features complex joint training across air, land, sea, space, and cyber domains, including live-fire and amphibious operations.

For the first time, six Indian officers are participating as Staff Planners, marking a shift from previous observer roles in 2021 and 2023. Their involvement includes planning and coordination in joint operations. The visit reflects India's growing role in regional defense cooperation and its commitment to strengthening military interoperability and partnerships in the Indo-Pacific.

Military Exercises by India

India conducts a wide range of bilateral, multilateral, and domestic military exercises aimed at strengthening military preparedness, enhancing interoperability, and fostering diplomatic ties.

**Types of Military Exercises:**
Bilateral Exercises:
- Garuda – With France (Air Force)
- MALABAR – Initially bilateral (India-US), now quadrilateral with Japan and Australia (Navy)
- Yudh Abhyas – With United States (Army)
- Shakti – With France (Army)
- Varuna – With France (Navy)
- Sampriti – With Bangladesh (Army)
- Hand-in-Hand – With China (Army)

GLACIAL LAKE OUTBURST FLOODS(GLOFS)

The Himalayan region witnessed severe Glacial Lake Outburst Floods(GLOFs) in 2025, causing widespread damage to infrastructure and power supply, especially in Nepal and India. Rising temperatures and melting glaciers have increased the frequency and intensity of GLOFs, posing a grave threat to life, property and ecosystems.

The events show the urgent need for trans-boundary cooperation and advanced early warning systems to mitigate risks.
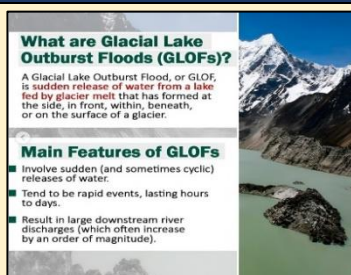
Recent GLOF Events in Nepal

On 8 July 2025, a major GLOF from a supra-glacial lake in Tibet triggered flash floods along the Lende river, damaging Nepal's Rasuwagadhi inland container port and destroying a China-built friendship bridge.

Four hydro-power plants on the Bhote Koshi river were rendered inoperable, cutting 8% of Nepal's electricity supply. Nepalese scientists confirmed the lake's surface area shrank from 63 to 43 hectares overnight.

Later the same day, another GLOF struck Mustang district in Nepal. Earlier in 2025, GLOFs occurred in Humla and Solukhumbu districts, the latter destroying the Everest base camp village of Thame. These successive events tell Nepal's vulnerability and the lack of early warning cooperation with China.

Glacial Lake Outburst Floods (GLOFs) are disaster events caused by the abrupt discharge of water from glacial lakes — large bodies of water that sit in front of, on top of, or beneath a melting glacier. As a glacier withdraws, it leaves behind a depression that gets filled with meltwater, thereby forming a lake. The more the glacier recedes, the bigger and more dangerous the lake becomes. Such lakes are mostly dammed by unstable ice or sediment composed of loose rock and debris.

Triggering Factors and Impact of GLOFs

GLOFs can be triggered by various reasons, including glacial calving, where sizable ice chunks detach from the glacier into the lake, inducing sudden water displacement.

Incidents such as avalanches or landslides can also impact the stability of the boundary around a glacial lake, leading to its failure, and the rapid discharge of water. GLOFs can unleash large volumes of water, sediment, and debris downstream with formidable force and velocity. The floodwaters can submerge valleys, obliterate infrastructure such as roads, bridges, and buildings, and result in significant loss of life and livelihoods.

MITIGATION EFFORTS AND CHALLENGES

India's National Disaster Management Authority (NDMA) has shifted focus from disaster response to risk reduction. It launched a $20 million programme targeting 195 high-risk glacial lakes. The programme includes hazard assessment, installation of Automated Weather and Water Stations (AWWS), early warning systems downstream, water level management, and community engagement.

Scientific methods like SAR interferometry are being introduced to detect micro-changes in slope stability. Several expeditions have conducted bathymetry, Electrical Resistivity Tomography (ERT), UAV surveys, and established monitoring stations. However, challenges remain in accessibility, community trust, and technology deployment in harsh environments.
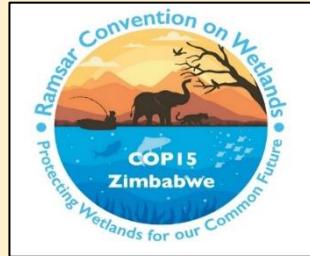
Need for Trans-boundary Collaboration

The 2025 Nepal floods exposed gaps in cross-border communication and early warning between China and Nepal. Many glacial lakes lie in trans-boundary watersheds, making joint monitoring and information sharing essential.

Nepalese officials lament the absence of established early warning systems with Chinese authorities despite increasing risks. Effective collaboration could help prevent future catastrophes by ensuring timely alerts and coordinated responses.

RAMSAR CONVENTION ON WETLANDS (COP15)

The 15th Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands (COP15) took place from 23 to 31 July 2025 in Victoria Falls, Zimbabwe. Over 3,000 delegates from 172 countries gathered to address the accelerating loss of wetlands worldwide.

This summit brought into light urgent actions to protect these vital ecosystems, which have declined by 35 per cent since 1970, posing severe ecological and economic risks.

Significance of Wetlands and Current Challenges

Wetlands are crucial for maintaining planetary health. They filter pollutants, regulate water cycles, store carbon and support biodiversity.

Despite covering only 6 per cent of the Earth's surface, wetlands contribute ecosystem services valued at over 7.5 per cent of global GDP. However, they face threats from urbanisation, agriculture, climate change and infrastructure development.

The Global Wetland Outlook 2025 report warns that 20 per cent of wetlands could vanish by 2050, potentially causing losses worth $39 trillion in ecosystem services.

Key Outcomes of COP15

COP15 centred on the adoption of the Victoria Falls Declaration. This framework commits nations to enhanced wetland restoration and integration of wetlands into climate and development policies.

Delegates discussed establishing a Global Wetland Restoration Fund to finance conservation efforts. The conference also emphasised technological innovation and multi-stakeholder collaboration to reverse wetland degradation.

Zimbabwe's Role and Leadership

Zimbabwe assumed the Ramsar Convention presidency for three years, succeeding China. As host nation, Zimbabwe showcased its commitment through its seven Ramsar Sites, including Victoria Falls, a UNESCO World Heritage Site.

The country aims to lead global efforts by promoting wetland restoration as a key climate mitigation strategy. Zimbabwe's leadership is expected to drive global momentum for sustainable wetland management.

Strategic Plans and Regional Cooperation

The meeting included preparatory sessions by regional groups from Africa, Europe, Oceania, Asia, the Americas and the Caribbean. These sessions aligned priorities and shaped draft resolutions.

The Strategic Plan 2025-2034 was a major agenda item, outlining long-term goals for wetland conservation. Regional cooperation remains vital for addressing transboundary water issues and sharing best practices.

Wetlands and Sustainable Development Goals

Wetlands contribute directly to several Sustainable Development Goals (SDGs), including clean water, climate action, biodiversity, and poverty alleviation. COP15 reinforced the need to integrate wetland conservation into national policies to achieve these goals.

Healthy wetlands support agriculture, fisheries, tourism and disaster risk reduction, making their protection essential for sustainable development

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