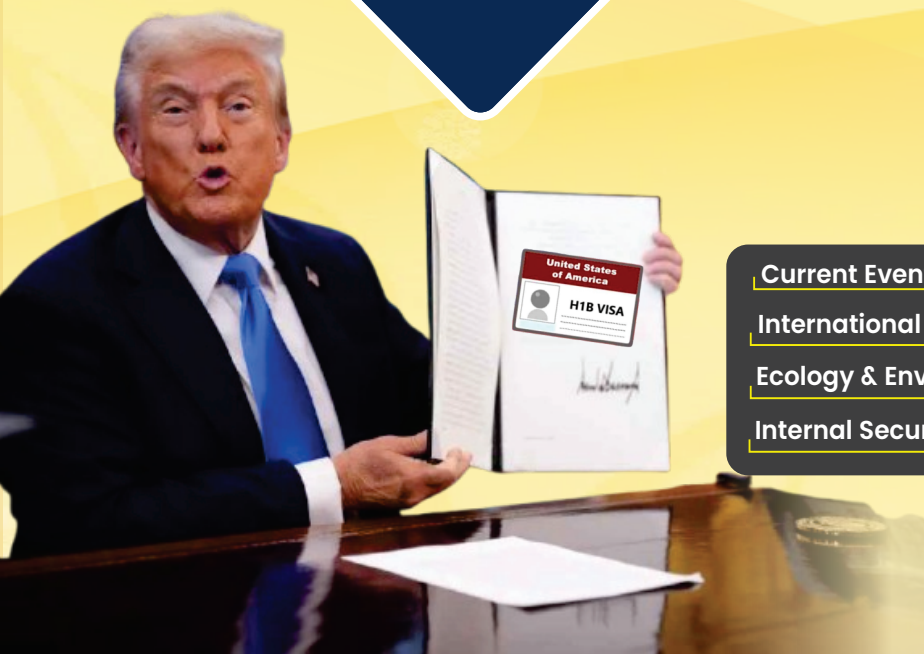


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BURNING NEWS

H-1B Visas, Indian Workers & the Changing Immigration Discourse in the US



Context: The Trump administration has imposed a **\$100,000 annual fee** on each H-1B visa. This move significantly affects **Indian tech workers**, who constitute over **70% of H-1B visa holders**, and has reignited the debate on immigration, protectionism, and skilled foreign labour in the United States.

1. Why in News

- From **September 21, 2025**, companies hiring foreign talent under the **H-1B visa program** in the US must **pay \$100,000 annually per visa**.
- This change is expected to **heavily impact Indian professionals**, who form the majority of H-1B visa holders.
- It aligns with the Trump administration's broader agenda of **restrictive immigration policies**, justified on the grounds of protecting American jobs.
- The move is part of a **larger ideological battle** within the US around skilled immigration, wage depression, and the future of global talent mobility.

2. What is the H-1B Visa Program?

- H-1B** is a **non-immigrant visa** that allows **US employers** to temporarily hire **foreign workers in specialty occupations**, especially in STEM (Science, Technology, Engineering, and Math) fields.

- The program is **capped at 85,000 new visas annually**:
 - 65,000 regular H-1B cap
 - 20,000 for advanced degree holders from US institutions
- The visa is usually valid for **3 years**, extendable to **6 years**.

3. Details of the New Policy

- The Trump administration has imposed:
 - A **\$100,000 annual fee** for every H-1B worker employed.
- Previously, filing costs ranged from **\$1,500 to \$6,000 per visa**, depending on company size and legal compliance.

Why It's a Game Changer

- It **disincentivizes companies**—especially tech firms—from hiring foreign workers.
- Smaller companies and **Indian IT firms like Infosys and TCS** may reduce or halt H-1B recruitment.
- Major shift from policy reform to **prohibitive economic barriers**.

4. India's Dominance in the H-1B Program

Country of Birth	Share of H-1B Approvals
India	70–74% (since 2015)
China	12–13%
Others	<15% combined

- Indian tech workers have been **the backbone of US tech firms**, working in roles from software development to AI research.

5. Trump Administration's Justification

- Commerce Secretary Howard Lutnick** called the H-1B program a **"scam"** in an August 2025 Fox News interview.
- Claimed it **undercuts American workers' wages**:
 - "Why are we doing that? It's like picking the bottom core."

- Echoes long-held **nativist Republican positions** that:
 - Foreign workers are taking jobs from Americans.
 - Immigration leads to **wage depression** and **higher unemployment** for US citizens.

6. Wage Data: Does the Criticism Hold?

Data from FY 2023 (USCIS & Bloomberg):

Salary Bracket (USD)	Share of Indian H-1B Approvals
Below \$100,000	~70%
\$100,000–\$150,000	~25%
Above \$150,000	~5%

- Median salary for US IT professionals: **\$104,420** (May 2023, US Bureau of Labor Statistics)
- Critics argue Indian H-1B hires are **underpaid** relative to market standards.
- Supporters say wages are **market-driven**, and the **skills gap** necessitates foreign hiring.

7. US Immigration Discourse: Political & Cultural Drivers

- **Immigration** is now one of the **top political issues** in the US.
 - **14.6% of voters** considered it the most important issue in 2024 (YouGov poll).
 - Up from just **2.1% in 2012**.
- Trump’s narrative:
 - Framed **low-skilled and now skilled immigration** as threats to American livelihoods.
 - Echoes his earlier “**Mexicans stealing jobs**” rhetoric—now targeted at **Indian tech workers**.

8. Skilled Workforce Realities

- **India and China** dominate global STEM talent.
 - **STEM graduates (2020, CSET data):**
 - China: **3.57 million**
 - India: **2.55 million**
 - US: **820,000**

- Industry insiders argue:
 - H-1B is **essential to bridge US skill shortages**, especially in emerging fields like AI, robotics, and semiconductors.
 - Restrictions may lead to **outsourcing** or talent shifting to **Canada, Europe, or Australia**.

9. Abandoning Reform: Trump’s H-1B Strategy

Earlier Reform Proposals (2017–2020):

- Restrict intake to **higher-paying positions**.
- Change lottery to favor **salary-based selection**.
- Proposals shelved under the **Biden administration**.

Current Strategy (2025):

- No structural reform ‘! Instead, impose a **massive fee to deter hiring**.
- **\$100,000/year fee = De facto cap** without changing laws.
- Applies across the board ‘! affects **students, early-career professionals, and mid-level workers**.

10. Introduction of the “Gold Card” Program

- Introduced alongside the H-1B fee hike.

Category	Eligibility
Individual	Invest \$1 million for permanent residency
Company	Pay \$2 million to fast-track a sponsored worker

- Meant to attract:
 - **Ultra-rich entrepreneurs**
 - **Top-tier researchers and executives**
- Seen as an attempt to “**cherry-pick**” **global elites** while shutting out mid-tier talent.

11. Likely Impacts on India

Economic Impact:

- Indian IT companies may:
 - Cut back on **H-1B hiring**
 - Increase **offshoring**
 - Shift operations to **Canada, Europe**
- Sectors affected:
 - **Technology**
 - **Consulting**
 - **Startups**

- o **Higher education (student-to-worker pipeline)**

Strategic Concerns:

- India's **people-to-people ties** with the US weaken.
- Visa restrictions + trade tariffs (like those from August 2025) signal a **hostile US policy environment**.

Conclusion

The \$100,000 annual H-1B fee marks a **paradigm shift** in the US approach to skilled immigration. While framed as a protectionist measure to support American workers, it disproportionately hurts **Indian professionals and firms**, who have been the largest participants in the program for over a decade. This move, along with the introduction of a **pay-to-stay "Gold Card"**, reflects a **dual-track immigration system**:

- One for the **ultra-rich and elite**
- One that increasingly excludes **skilled mid-tier talent from developing nations**

India will need to recalibrate its **talent export strategy**, expand **bilateral skilled worker agreements** with other nations, and invest in **domestic innovation ecosystems** to mitigate the fallout.

Saudi Arabia–Pakistan Defence Pact and What It Means for the Region

ACTS OF AGGRESSION

The "Strategic Mutual Defence Agreement" states that any aggression against either Saudi Arabia or Pakistan shall be considered an aggression against both, said a joint statement issued after the pact was signed.

JOINT DETERRENCE

The pact "reflects the shared commitment of both nations to enhance their security and to achieving security and peace in the region and the world".

IMPLICATIONS OF THE DEAL

- The agreement institutionalises Pakistan's role in the security architecture of West Asia.
- Saudi Arabia has worked to build its defence ties with Pakistan, with an eye on benefiting from its nuclear arsenal.
- The pact was also a signal from Saudi Arabia to the leadership of the US and Israel following the latter's attacks on Gaza and in countries such as Qatar, Iran.

MEA ISSUES STATEMENT

"We will study the implications of this development for our national security as well as for regional and global stability. The government remains committed to protecting India's national interests and ensuring comprehensive national security in all domains."

HT

Context: Pakistan and Saudi Arabia signed a **mutual defence agreement** on Wednesday, significantly formalising their decades-long military partnership. The pact is being seen as a major strategic realignment in the Middle East and South Asia, with possible geopolitical implications for countries like **India, Iran, and Israel**.

1. Why in News

- **Pakistan and Saudi Arabia** signed a **mutual defence pact** in Islamabad on September 18, 2025.
- The agreement contains a significant clause: "Any aggression against either country shall be considered an aggression against both."
- This is the **first formal defence agreement** between a **nuclear-armed country (Pakistan)** and an **Arab nation (Saudi Arabia)**.
- The pact was signed in the **presence of Pakistani PM Shehbaz Sharif, Saudi Crown Prince Mohammed bin Salman, and Pakistan's army chief Field Marshal Asim Munir**.
- Comes in the backdrop of **Israel's strike on Qatar** and growing regional insecurity, along with **doubts about US defence commitments**.

2. Key Features of the Pact

- **Mutual defence clause:** Any act of aggression on one country will be treated as aggression against the other.
- Focus on:
 - o **Joint deterrence**
 - o **Counter-terrorism cooperation**
 - o **Military training and arms procurement**
 - o **Expanded defence exercises and deployments**
- Strengthens the **long-standing informal security relationship** and converts it into a **formal military alliance**.

3. Historical Context: Saudi–Pakistan Defence Ties

- **1960s:** Pakistani troops deployed to Saudi Arabia during regional tensions, especially related to Egypt and Yemen.
- **1979:** Pakistani special forces assisted Saudi security during the **Grand Mosque Seizure** in Mecca.
- **1982:** Signed a **Bilateral Security Cooperation Agreement**, enabling:
 - Training of Saudi military by Pakistani personnel.
 - Deployment of Pakistani troops in Saudi Arabia.
- **2024–2025:** Continued military exercises, arms sales, and officer exchanges.
- **February 2025:** Joint Military Cooperation Committee met in Riyadh, paving the way for deeper defence collaboration.

4. Strategic Implications for Pakistan

- **Most consequential defence pact in decades** for Pakistan.
- Strengthens Pakistan’s position as a **pan-Islamic security partner**.
- May allow Pakistan to **procure US-made weapons using Saudi funding**.
 - Former diplomat **Husain Haqqani**: “Pakistan will now be able to buy US weapons with Saudi money.”
- Helps Pakistan:
 - Gain **economic relief** through Saudi investment.
 - Bolster its **military capabilities** without straining its own budget.

5. Strategic Implications for Saudi Arabia

- Gains a **nuclear-armed ally** amid regional instability.
- Enhances deterrence against:
 - **Iran**
 - **Yemen’s Houthi militias**

- **Israel**, amid rising tensions post-Qatar strike.

- Reduces dependence on **US military umbrella**, which appears **increasingly unreliable**.
- Signals Saudi Arabia’s intention to **assert strategic autonomy** in regional security.

6. India’s Response

- India has responded **cautiously and diplomatically**.
- **MEA spokesperson Randhir Jaiswal**: “We are aware that this development had been under consideration. We will study the implications for national security and regional/global stability.”
- India is watching closely for any **shifts in Saudi strategic priorities**, particularly given:
 - Pakistan’s **nuclear status**
 - The **shared border and history of conflict** between India and Pakistan

7. Saudi Arabia–India Relations: A Parallel Strategic Track

Economic & Strategic Ties

Metric	Value
Bilateral Trade (FY 2023–24)	USD 42.98 billion
Indian Exports	USD 11.56 billion
Indian Imports (mostly crude oil)	USD 31.42 billion

- **India is Saudi Arabia’s 2nd largest trading partner.**
- **Saudi Arabia is India’s 5th largest trading partner.**

High-Level Engagement

- **2006:** King Abdullah’s visit ‘! *Delhi Declaration*
- **2010:** PM Manmohan Singh ‘! *Riyadh Declaration* ‘! Strategic Partnership
- **2016:** PM Modi conferred the **King Abdulaziz Sash**, the Kingdom’s highest civilian honour.
- Ongoing cooperation in **energy, investment, counter-terrorism, and diaspora engagement**.

Saudi Stance on India–Pakistan Issues

- **Balanced approach:**
 - Condemned **Pulwama attack (2019)**.
 - Avoided criticism of India's **Article 370 abrogation**.
 - Did not condemn India's **Balakot airstrikes**.
- During **Operation Sindoor (2025)**, Saudi Arabia condemned the **Pahalgam terror attack** and hosted PM Modi.

8. Regional Context: Why Now?

- **Israel's military strike in Qatar** has caused a regional security scare.
- Growing **Iran–Saudi tensions**, despite ongoing détente talks.
- **US security commitments** in the Middle East are perceived as **weakening**, especially after:
 - Trump's focus on **Indo-Pacific** and **America First** policies
 - NATO's shifting priorities
- Saudi Arabia sees value in **regional diversification of defence partnerships**:
 - Pakistan (for manpower and nuclear umbrella)
 - India (for trade, technology, and energy markets)
 - China (via economic corridors and diplomacy)

9. Challenges and Risks

- **Geopolitical balancing:**
 - Saudi Arabia must manage relations with **India, Pakistan, Iran, and Israel** simultaneously.
- **India's concerns:**
 - The pact could indirectly embolden Pakistan's **military posture**.
 - Any **Pakistan–Saudi joint activity in Kashmir context** could trigger major diplomatic fallout.

- **Iran's response:**
 - May view the pact as a threat, especially given **Iran–Pakistan border tensions**.
- **US reaction:**
 - Might welcome reduced burden in the Gulf, or may push back if the pact leads to **destabilisation**.

Conclusion

The Saudi Arabia–Pakistan defence pact marks a **historic turning point** in regional security alignments. While rooted in decades of military cooperation, the **formalisation of mutual defence** obligations sends a strong message in a time of growing insecurity in West and South Asia. For **Pakistan**, the deal boosts both **military credibility** and **economic leverage**. For **Saudi Arabia**, it offers a **nuclear-capable ally** amid strategic uncertainty. For **India**, the development is a cause for **careful monitoring**, but not immediate alarm, given New Delhi's strong and growing ties with Riyadh.



CURRENT EVENTS OF INTERNATIONAL IMPORTANCE

Global Peace Index (GPI) 2025



The **Global Peace Index (GPI)** is the world's leading assessment of global peacefulness, produced annually by the **Institute for Economics & Peace (IEP)**. The 2025 edition, the 19th report, ranks 163 independent states and territories, covering 99.7% of the world's population.

Global Peaceful-ness: Key Findings

The GPI 2025 highlights a **record decline** in global peacefulness, deteriorating by **0.36%** over the past year. This marks the 13th decline in the last 17 years, signaling an ongoing trend towards a "Great Fragmentation" of the global order.

- **Conflict Escalation:** There are now **59 active state-based conflicts**, the highest number since the end of WWII. The resolution of conflicts is also at a 50-year low.

- **Militarisation:** The long-term trend of falling militarisation has reversed, with more countries increasing their military spending and build-up amidst rising geopolitical tensions.
- **High-Risk Factors:** Many factors that typically precede major conflicts (like geopolitical fragmentation and strained relations with neighbours) are at their highest levels since WWII.
- **Economic Impact:** The economic cost of violence on the global economy in the previous year was estimated at **\$19.97 trillion** (11.6% of gross world product).

GPI Ranking Highlights

Ranking Category	Countries	Key Regions
Most Peaceful Country	Iceland (remains #1 since 2008), followed by Ireland, Austria, New Zealand, and Switzerland.	Western and Central Europe remains the most peaceful region, hosting eight of the top ten countries.
Least Peaceful Country	Russia (for the first time), followed by Ukraine, Sudan, Democratic Republic of the Congo, and Yemen.	The Middle East and North Africa (MENA) is the world's least peaceful region, while South Asia recorded the largest regional decline in peacefulness.
India's Rank	115th (up one position from the prior year).	
Most Peaceful Asian Countries	Singapore (#6), Japan (#12), Malaysia (#13), Bhutan (#21), and Mongolia (#37).	

GPI Measurement Domains

The Index uses **23 qualitative and quantitative indicators** grouped into three key domains to measure the state of peace:

Domain	Focus of Measurement	Example Indicators
Societal Safety and Security	Evaluates the level of harmony or discord within a nation.	Perceptions of criminality, Homicide rate, Level of political instability, Internal security officers per 100,000 people.
Ongoing Domestic and International Conflict	Assesses the extent of a country's involvement in both internal and external conflicts.	Number of deaths from organised conflict, Intensity of internal conflict, Relations with neighbouring countries.
Militarisation	Reflects the link between a country's level of military build-up, access to weapons, and its level of peacefulness.	Military expenditure (% of GDP), Armed services personnel per 100,000 people, Weapons imports/exports, Financial contribution to UN peacekeeping missions.

Strait of Malacca

Indian Ocean to Pacific Ocean maritime chokepoints



Why in News?

India recently secured Singapore's support for its interest in patrolling the Malacca Strait, highlighting the strait's continued strategic importance for New Delhi.

1. About the Strait of Malacca

- **Location:** It is a narrow, natural waterway that connects the **Andaman Sea (Indian Ocean)** in the west to the **South China Sea (Pacific Ocean)** in the east.
- **Geographical Position:** It runs between:
 - o The Indonesian island of **Sumatra** (to the west).
 - o **Peninsular (West) Malaysia** and extreme southern **Thailand** (to the east).
- **Naming:** Its name is derived from the **Malacca Sultanate**, which ruled the archipelago from 1400 to 1511.
- **Global Importance:** It links the Indian and Pacific oceans and is one of the **busiest and most important shipping lanes in the world** (a critical global **choke point**).
- **Control/Patrolling:** The joint patrolling of the Strait is currently controlled by **Singapore, Malaysia, and Indonesia**.

2. Strategic Significance of the Strait

- **For India:**
 - o Roughly **60% of India's seaborne trade** passes through the Malacca Strait.

- o Almost **all of India's Liquefied Natural Gas (LNG) imports** transit this route.

- **As a Choke Point:** The route is a crucial and **strategically sensitive choke point** for international shipping, especially for **Chinese shipping and energy supplies**.

3. Malacca Straits Patrols (MSP)

- **Launch:** The MSP was launched in **2004**.
- **Objective:** To curb key security threats in the sea lane, including **piracy, terrorism, and trafficking**.
- **Member Countries:** Initially launched by **Indonesia, Malaysia, and Singapore**. **Thailand** joined later.
- **Structure (Three Coordinated Layers):** The MSP consists of a layered approach to surveillance and security:

1. **Malacca Straits Sea Patrol:** Regular **joint naval patrols**.
2. **Eyes-in-the-Sky (EiS):** Combined **air patrols** for surveillance.
3. **Intelligence Exchange Group (IEG):** Real-time **data sharing** among the four member states.

Taiwan Strait (Formosa Strait)



Why in News?

China's military recently announced that its forces **followed and warned Canadian and Australian warships** sailing through the sensitive **Taiwan Strait**, criticizing the passage as a provocation.

1. About the Taiwan Strait

- **Alternate Name:** Also known as the **Formosa Strait**.
- **Location:** It is a waterway that separates **continental Asia (mainland China)** and the **island of Taiwan**.

- **Connections:** It extends from the **South China Sea** in the southwest to the **East China Sea** in the northeast.
- **Geographical Position:** It runs between the coast of the **Fujian (Fukien) Province** (China) and the island of **Taiwan**.
- **Dimensions:**
 - **Average Width:** 180 km.
 - **Narrowest Part:** 130 km.
- **Depth:** It is relatively shallow, sitting on Asia's continental shelf:
 - **Average Depth:** About 490 ft.
 - **Minimum Depth:** 82 ft.
- **Rivers:** Several rivers, including the **Jiulong** and **Min rivers** from China's Fujian Province, drain into the Strait.
- **Ports:** The chief ports are **Amoy** (mainland China) and **Kao-hsiung** (Taiwan).
- **Significance:** It serves as a **busy navigational waterway** for millions of tons of cargo annually and is one of the **most important fishing grounds in China**.

2. Key Islands in the Taiwan Strait

Island/Island Group	Administration	Significance
Penghu (Pescadores)	Republic of China (Taiwan)	Largest and most populous island in the Taiwan Strait.
Kinmen & Matsu	Republic of China (Taiwan)	Two of the largest and most significant islands located off the Fujian coast.
Xiamen & Pingtan	People's Republic of China (PRC)	Islands administered by mainland China.

Papua New Guinea (PNG)



Why in News?

The **Indian Navy Band** recently participated in the grand **Military Tattoo at Port Moresby** as part of Papua New Guinea's **50th Independence Day celebrations**.

1. About Papua New Guinea (PNG)

- **Location:** It is an **island nation in Oceania**, located in the southwestern **Pacific Ocean**.
- **Capital City:** **Port Moresby**.
- **Neighboring Countries/Regions:**
 - **Indonesia** (to the west).
 - **Australia** (to the south).
 - **Solomon Islands** (to the south-east).
- **Surrounding Water Bodies:** Bounded by the **Pacific Ocean, Bismarck Sea, Solomon Sea, Coral Sea, Torres Strait, and Gulf of Papua**.

2. Geographical Features and Biodiversity

- **Terrain:** Much of the nation is **mountainous** and covered in **tropical rainforests**.
- **Seismic Activity:** It has several **volcanoes** and is prone to **earthquakes and tsunamis** (part of the Pacific 'Ring of Fire').
- **Highest Point:** **Mount Wilhelm** – with an elevation of 14,793 ft (4,509 m).
- **Major Rivers:** **Sepik River** and **Fly River**.
- **Active Volcano:** **Rabaul Caldera** is its most active volcano.
- **Biodiversity:** PNG's rainforests are exceptionally **rich in biodiversity**, housing rare species such as:
 - **Birds of paradise.**
 - **Tree kangaroos.**
 - **The Queen Alexandra's birdwing butterfly.**

3. Government Structure

- **Form of Government:** It is a **constitutional monarchy** and a member of the **Commonwealth**.
- **Head of State:** The **British monarch**, who is represented by a **governor-general**.
- **Head of Government:** The **Prime Minister**.

Missile Technology Control Regime (MTCR)



Why in News?

The **U.S. President Donald Trump** was expected to unilaterally **reinterpret the MTCR agreement** (signed in 1987) to facilitate the sale of sophisticated **“Reaper” style and other advanced military drones (UAVs)** abroad.

1. About the Missile Technology Control Regime (MTCR)

- **Nature:** It is an **intergovernmental organization** (not a formal international treaty).
- **Objective:** Members implement **voluntary export controls** on missiles and related technology capable of delivering **nuclear, chemical, or biological weapons**.
- **Formation:** Founded in **1987** by **seven countries** (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States).
- **Evolution of Focus:**
 - o **1987:** Established to control the spread of **nuclear-capable missiles** and related technology.
 - o **1993:** Focus broadened to include missiles capable of carrying **chemical and biological weapons**.

2. Membership and Controls

- **Current Members (Partners):** There are currently **35 countries** that are members.
- **India's Status:** India became the **35th member of the MTCR on June 27, 2016**.
- **Member Obligation:** Member states agree to impose export controls on **rocket systems** and

Unmanned Aerial Vehicle systems (UAVs), as well as associated technical components and software.

Category of Items

The controlled equipment, software, and technology are broken down into two categories:

Category	Description	Control Level
Category I	Missiles (rocket systems/UAVs) capable of delivering a warhead weighing 500 kilograms or more to ranges exceeding 300 kilometers , plus their major subsystems (engines, re-entry vehicles).	Strictly controlled under the organization's guidelines.
Category II	Less sensitive items, such as propulsion and launch components, and missile systems with a range of at least 300 kilometers (no matter the payload).	Member countries have more discretion regarding transfer.

3. Legal Status and Significance

- **Legal Status:** MTCR guidelines are an **informal standard** set by members, **not an international treaty** with legally binding provisions or regime-wide compliance procedures.
- **Consequences for Violation:**
 - o The agreement outlines **no legal repercussions** for breaking the adopted standards.
 - o Disagreements can be handled through bilateral consultation or raised at the annual **Plenary Meeting**.
 - o **US Legislation:** The United States government has passed its own legislation allowing for the introduction of **sanctions** against nations that export MTCR-restricted items.
- **Why Join MTCR?**
 - o Provides member countries with **international legitimacy** and signals support for the **nonproliferation of missiles**.
 - o Can assist in **legitimizing existing long-range ballistic missile capabilities** in the eyes of other MTCR members by showcasing responsible handling of technology.

Dongsha Islands (Pratas Islands)



Why in News

- The conflict over the **Dongsha Islands** was recently highlighted when **Taiwan's Coast Guard Administration (CGA)** confirmed deploying vessels to repel a **Chinese coast guard ship** and a **Chinese fishing boat** that were operating near Dongsha Island.

About the Dongsha Islands

- Alternative Name:** Also known internationally as the **Pratas Islands**.
- Location:** They are a small group of islands located in the **northern section** of the **South China Sea**.
- Geographical Position:** The islands lie approximately **445 km southwest of Kaohsiung, Taiwan**, and about **320 km southeast of Hong Kong**.
- Administration:** The islands are currently **governed by Taiwan** (Republic of China, ROC).
- Population:** There are **no permanent civilian residents**, but the island is used for military purposes, with Taiwanese marines permanently stationed there.

Key Geographical Features

- Structure:** The island group is characterized by a distinctive **circular coral atoll structure**.
- Composition:** They are primarily composed of clastic coral and extensive reef flats.
- Atoll Dimensions:** The entire atoll is approximately **24 kilometers (15 miles)** in diameter, enclosing a central lagoon about **16 kilometers (10 miles)** in diameter.

- Islands in the Group:** The group includes:
 - Dongsha Island:** This is the only island in the group that remains **above sea level**. It is relatively small, measuring about 1.6 kilometers long.
 - Northern Vereker and Southern Vereker Atolls:** Both of these formations are permanently **submerged (below sea level)**.

International Electrotechnical Commission (IEC)



International
Electrotechnical
Commission

Why in News

- India** is set to host the **89th General Meeting (GM)** of the International Electrotechnical Commission (IEC) from **September 15th to 19th, 2025**, at **Bharat Mandapam, New Delhi**. This marks the fourth time India will host this prestigious meeting.

About the International Electrotechnical Commission

- Nature and Establishment:** The IEC is a global **nonprofit organization** established in **1906**.
- Core Function:** It is the leading international body responsible for preparing and publishing **International Standards** for all electrical, electronic, and related technologies.
- Mission:** To facilitate global cooperation among its member countries on all aspects of **electrotechnical standardization** and related technical policy matters.
- Standard Development:** IEC Standards are developed through a **consensus process** involving technical experts from all participating member countries. These standards are frequently adopted worldwide to harmonize technical requirements.

- **Global Reach:** IEC standards are currently utilized in over **150 countries**.
- **Headquarters:** Geneva, Switzerland.

Governance and Collaboration

- **Governance Body:** The **Standardization Management Board (SMB)** serves as the apex governance body of the IEC, specifically overseeing all technical policy matters related to standardization.
- **Key Collaborators:** The IEC works in close partnership with other major international standardization bodies, including the **International Organization for Standardization (ISO)** and the **International Telecommunication Union (ITU)**.
- **Expert Network:** The Commission operates with a vast global network of approximately **30,000 experts** dedicated to developing the international standards that underpin the electrical and electronic industries.

International Labour Organisation (ILO)



Why in News

- The **Union Minister for Labour & Employment** recently signed a Memorandum of Understanding (MoU) between the **Government of India** and the **International Labour Organisation (ILO)**. The agreement aims to collaborate on the development of an **'International Reference Classification of Occupations'**.

About the International Labour Organisation

- **Status:** The ILO is a **specialized agency of the United Nations (UN)**, dedicated to improving **global labour conditions** and **living standards**.
- **Tripartite Structure:** It is the only tripartite UN agency, uniquely bringing together **governments, employers' representatives, and workers' representatives** from its member states.
- **Membership:** It currently has **187 member states** (186 of the 193 UN members plus the Cook Islands).
- **Affiliation:** It is also a member of the **United Nations Development Group (UNDP)**, which works to achieve the Sustainable Development Goals (SDGs).
- **Headquarters:** Geneva, Switzerland.
- **Recognition:** The ILO was awarded the **Nobel Prize for Peace in 1969** in recognition of its work.

History and Evolution

- **Foundation:** The ILO was established in **1919** as part of the **Treaty of Versailles**, which officially concluded World War I.
- **UN Integration:** It became the first specialized agency of the newly formed UN in **1946**.

Core Functions

The ILO's work is centered on promoting social justice and internationally recognized human and labour rights:

- **Policy and Programme Formulation:** Creating international policies and programmes that promote **basic human rights**, improve working and living conditions, and enhance employment opportunities worldwide.
- **Setting Labour Standards:** Establishing international labour standards, which are supported by a unique system to supervise and ensure their application by member states.

- **Technical Cooperation:** Implementing an extensive programme of international **technical cooperation** formulated and put into practice through active partnership with its constituents (governments, workers, and employers).
- **Education and Research:** Conducting training, education, and research activities to support and advance all of its aforementioned efforts.

One-In, One-Out Scheme



Why In News

The UK has commenced deportations under the new “one-in, one-out” migration agreement with France. An **Indian national** was reported to be the **first person deported** from the UK to France under the scheme, having arrived illegally via a small boat. In a reciprocal move, the UK has also begun accepting the first legal arrivals, including a family of three with a small child, from France under the agreement.

About the One-In, One-Out Scheme

The “One-In, One-Out” scheme is a **migration agreement** between the **UK and France** designed to deter migrants from making dangerous crossings of the English Channel in small boats.

Feature	Details
Goal	To deter illegal crossings of the English Channel and undermine people-smuggling gangs.
Mechanism	It operates as a swap system for asylum seekers between the two countries.
"One-Out" (From UK to France)	The UK returns migrants who arrived illegally (e.g., in small boats) from France and whose asylum claims are deemed inadmissible (typically due to having passed through a safe country like France).
"One-In" (To UK from France)	For each person returned, the UK accepts one asylum seeker from France who applies legally, has family ties to the UK, and has not previously attempted to enter the UK illegally .
Status	It began as a pilot scheme and is set to run until at least June 2026 . Initial reports suggested the UK could return up to 50 people per week .
Context	The deal addresses the politically sensitive issue of increased small boat arrivals across the Channel, which pose significant dangers, often facilitated by criminal gangs.

The agreement is a crucial post-Brexit effort by the UK government to create a formal returns framework with an EU country, a process that was previously handled under the EU’s Dublin regulation.

International Criminal Court (ICC)



Why In News

- The military-led West African nations of **Burkina Faso, Mali, and Niger** recently announced their **withdrawal** from the International Criminal Court (ICC), branding it a “neo-colonial” imperialist tool.
- This move is considered a serious setback for the fight against impunity in the Sahel region and follows a wave of military coups in these countries since 2020.
- The withdrawal will take effect one year after official notification is received by the UN Secretary-General.

About International Criminal Court

The International Criminal Court is the **only permanent international criminal tribunal** mandated to prosecute individuals for the gravest international crimes.

Aspect	Details
Establishment	Created by an international agreement, the Rome Statute , adopted on 17 July 1998 .
Entry into Force	The Rome Statute officially entered into force on 1 July 2002 .
Mandate (Core Crimes)	The ICC investigates and tries individuals charged with: genocide, war crimes, crimes against humanity , and the crime of aggression .
Members	There are 125 member countries (States Parties to the Rome Statute).
Non-Members	Several major global players are not ICC parties , including China, India, Israel, Russia, and the United States , often citing concerns over national sovereignty and potential for politically motivated prosecutions.
Funding	Primarily funded by contributions from the States Parties , supplemented by voluntary contributions.

Composition of the ICC

The Court is organized into four main organs:

- **Judges:** Comprises **eighteen judges**, each from a different member country, elected to **non-renewable nine-year terms**.
- **The Presidency:** Consists of three judges (President and two Vice-Presidents) who represent the Court and organize the work of the judges.
- **Office of the Prosecutor (OTP):** Responsible for receiving information, conducting **investigations**, and carrying out **prosecutions** before the Court.
- **Registry:** Provides all the necessary **administrative and operational support** to the other organs.

Jurisdiction of the ICC

The ICC is a court of **last resort** (principle of **complementarity**), meaning it is only competent to act when national courts are **unwilling or unable** to genuinely carry out the investigation or prosecution themselves.

- **Individuals, Not States:** Unlike the International Court of Justice (ICJ), the ICC handles **prosecutions of individuals**, not disputes between states.
- **Jurisdictional Triggers:** The ICC can exercise jurisdiction if the alleged crime was:
 1. Committed in the territory of a **State Party** to the Rome Statute.
 2. Committed by a **national** of a State Party.
 3. Referred to the Prosecutor by the **United Nations Security Council (UNSC)**.
- **Temporal Limit:** The ICC only has jurisdiction over offences committed **after the Statute's entry into force on 1 July 2002**.

EDITORIALS

Crux of The Hindu & Indian Express

International Issues

India-Japan Relationship: Explained



Background of the Visit

- Just Before the SCO summit, PM **Narendra Modi** visited Japan for the **15th Annual Summit** with newly elected Japanese PM **Shigeru Ishiba**.
- This was Modi's **8th visit to Japan**, and **1st Annual Summit** with Ishiba.
- This marked his **first standalone bilateral visit to Japan in nearly 7 years**, aiming to review and advance the **Special Strategic and Global Partnership** between the two nations.
- The two leaders have previously met at:
 - o **ASEAN Summit** (Vientiane, Oct 2024)
 - o **G7 Summit** (Kananaskis, Canada, June 2025)

Major Outcomes of the Visit

1. Strategic Space Cooperation

- **ISRO-JAXA Collaboration:** Formalized through a Memorandum of Understanding (MoU) to jointly work on the **Chandrayaan-5 mission**, focusing on **lunar polar exploration**.
- **Scope:**
 - o Shared scientific payloads
 - o Joint rover and technology development
 - o Deep-space research

2. High-Speed Rail & Infrastructure Technology Transfer

- PM Modi, accompanied by PM Ishiba, experienced the **Shinkansen (bullet train)** in

Sendai and met Indian train operators under training with **JR East**.

- Directly connected to the **Mumbai–Ahmedabad High-Speed Rail Corridor**, developed with Japanese technological and financial assistance.
- **Impacts:**
 - Accelerates India's high-speed rail capabilities
 - Facilitates technology transfer and capacity building
 - Enhances people-to-people connectivity and infrastructure modernization

3. Economic Partnership and Investment Commitment

- **Japan pledged 10 trillion yen (~\$68 billion)** in investments over the next decade.
- Investments will be **private sector-led**, targeted at key strategic sectors:
 - Semiconductors and electronics
 - Rare earth elements and critical minerals
 - Digital technologies and AI
 - Clean energy (Hydrogen and Ammonia)
 - Smart mobility and health tech
- **Strategic Implications:**
 - Strengthens India's economic resilience
 - Supports Make in India and Atmanirbhar Bharat
 - Diversifies India's supply chains and boosts advanced manufacturing

4. State–Prefecture Partnership

- PM Modi met with **governors from 16 Japanese prefectures** to promote the State–Prefecture Partnership Initiative.
- Originally launched during a previous summit, this initiative emphasizes:
 - Decentralized economic cooperation
 - Innovation and startup ecosystems
 - Trade facilitation between Indian states and Japanese prefectures

- AI and tech collaboration at sub-national levels

- **Objective:** Deepen federal-level diplomacy and widen the base of India–Japan cooperation beyond national governments.

5. Human Resource and Skill Exchange

- Launched the **India–Japan Human Resource Exchange Plan**, with a target of **500,000 personnel exchanges** over a decade.
- **50,000 skilled/semi-skilled Indian workers** to be trained and deployed in Japan in the next five years.
- Areas of collaboration include:
 - Technical Intern Training Program (TITP)
 - Language and cultural orientation
 - Collaboration with Japanese industries for skill-matching
- **Strategic Rationale:** Addresses demographic challenges in Japan and employment generation in India.

6. Technological and Digital Collaboration

Digital Partnership 2.0

- Upgraded from previous frameworks to include:
 - Joint research in AI, IoT, and semiconductors
 - Cooperation on digital public infrastructure
 - Digital talent exchange programs

India–Japan AI Initiative

- Focused on:
 - Development of large language models (LLMs)
 - Building regulatory and ethical AI governance frameworks
 - Data center infrastructure development
- India will host the **AI Impact Summit** in February 2026, with Japan as a strategic partner.

7. Environmental and Climate Cooperation

- **Joint Crediting Mechanism (JCM):** Promotes low-carbon technologies through investment in decarbonisation projects in India.
- **MoU on Clean Hydrogen and Ammonia:** Focused on joint R&D, infrastructure development, and commercial scaling of green fuels.
- **MoU on Decentralised Wastewater Management:** Targets rural sanitation and public health improvement.
- **MoU on Environmental Cooperation:** Covers biodiversity, air and water pollution control, and climate mitigation strategies.
- **Strategic Goal:** Align bilateral development with global environmental sustainability objectives.

8. Defence and Strategic Convergence

- **Joint Declaration on Security Cooperation:**
 - Expands defence dialogue and military exercises
 - Enhances maritime and cyber security
- **Support for Indo-Pacific Frameworks:**
 - Japan reaffirmed support for India's **SAGAR doctrine** and **Indo-Pacific Oceans Initiative (IPOI)**
 - Strengthened trilateral coordination under the **Supply Chain Resilience Initiative** (India–Japan–Australia)
 - Continued commitment to **QUAD cooperation**
- **Implication:** Reinforces shared vision for a free, open, inclusive and rules-based Indo-Pacific.

9. Cultural and Symbolic Diplomacy

Symbolic Gifts:

- **To PM Ishiba:** Ramen bowls crafted from:
 - Brown moonstone (Andhra Pradesh)
 - Makrana marble base (Rajasthan) with traditional *parchin kari* inlay work
 - Accompanied by handcrafted silver chopsticks
- **To PM Ishiba's Wife:** Ladakh pashmina shawl (Changthangi goat wool), woven by Kashmiri artisans

Daruma Doll Presentation:

- Gifted to PM Modi by the chief priest of the **Shorinzan Darumaji Temple**
- Represents:
 - Perseverance, goal achievement, meditation
 - Historic linkage to **Bodhidharma**, an Indian monk credited with founding Zen Buddhism
- Cultural significance enhanced by shared spiritual heritage and the Indian origin of Zen traditions

List of Major Agreements/MoUs Signed

No.	Agreement / MoU	Purpose
1	Joint Vision for the Next Decade	Strategic roadmap covering 8 sectors
2	Joint Declaration on Security Cooperation	Deepens defence, maritime, cyber collaboration
3	Human Resource Exchange Plan	500,000-person bilateral exchange
4	Joint Crediting Mechanism (JCM)	Clean technology investment and carbon credit
5	Digital Partnership 2.0	Emerging tech cooperation
6	MoC on Mineral Resources	Secure access to rare earths, critical minerals
7	ISRO–JAXA MoU	Chandrayaan-5 lunar mission collaboration
8	MoC on Hydrogen & Ammonia	Green fuel R&D and commercialization
9	MoC on Cultural Exchange	Museum partnerships, exhibitions, preservation
10	MoC on Wastewater Management	Rural sanitation and water reuse
11	MoC on Environmental Cooperation	Biodiversity, climate action, pollution control
12	SSIFS–Japan MoFA MoU	Diplomatic training and academic cooperation
13	S&T Ministries Statement	Startup and researcher exchange

India-Japan Relations:

Historical & Cultural Ties

India and Japan share deep **civilizational bonds**:

Ancient Ties

- **Bodhisena**, an Indian monk, consecrated the **Great Buddha at Todaiji Temple, Nara (752 AD)**
- Cultural similarities like:
 - Hindu influence on **Shichifukujin** (Seven Lucky Gods) in Japanese tradition

Prominent Indian Figures in Indo-Japanese History

- **Swami Vivekananda & Rabindranath Tagore:** Promoted cultural links
- **Netaji Subhash Chandra Bose & Rash Behari Bose:** Key role in India's independence with Japanese support
- **JRD Tata:** Industrial engagement

Institutional Link

- Establishment of **Japan-India Association (1903)**: Formal start of institutional ties

Historical Timeline of the Relationship

Year	Status
1952	Peace Treaty signed (post-WWII re-engagement)
2000	Global Partnership
2006	Strategic and Global Partnership
2014	Special Strategic and Global Partnership (current status)

- India and Japan share **civilizational ties, democratic values, and strategic trust.**
- The partnership is one of the **oldest Annual Summit mechanisms** (along with Russia).

Indo-Pacific Synergy :

- Shared vision for a **Free, Open, and Rules-Based Indo-Pacific**
- Alignment of policies:
 - India's **Act East Policy, SAGAR doctrine, and Indo-Pacific Oceans' Initiative (IPOI)**
 - Japan's **Free and Open Indo-Pacific (FOIP)** strategy

Geopolitical & Strategic Convergence

- Both nations are members of plurilateral groups:
 - **QUAD** (India, Japan, US, Australia)
 - **ISA** (International Solar Alliance)
 - **CDRI** (Coalition for Disaster Resilient Infrastructure)
 - **SCRI** (Supply Chain Resilience Initiative)

Defence and Security Cooperation

Key Agreements

Year	Agreement
2008	Joint Declaration on Security Cooperation
2014	Defence Cooperation & Exchanges MoU
2015	Information Protection Agreement
2020	Reciprocal Provision of Supplies and Services
2024	Co-development of UNICORN Naval Mast

Military Exercises

- **JIMEX** (Bilateral Naval)
- **Dharma Guardian** (Army)
- **Malabar** (with US and Australia)
- **Milan** (Multilateral Naval)
- **Coast Guard Cooperation**

Dialogue Mechanisms

- Regular **Defence Ministers' Meetings**
- **Service Chiefs' Visits**
- **Joint Service Staff Talks (2024)**

Upcoming Focus:

- Upgrade the **2008 Security Cooperation Declaration**
- Enhance **technology transfers** and **interoperability**

Trade and Investment

Trade Data

Period	Trade Volume
2023-24	\$22.8 billion
Apr-Jan 2024-25	\$21 billion

- **India's exports:** Chemicals, Vehicles, Aluminium, Seafood
- **Imports from Japan:** Machinery, Steel, Copper, Reactors

Investment

- Japan = **5th largest FDI source** for India
- **Cumulative FDI:** \$43.2 billion (till Dec 2024)
- **2023-24 FDI Inflows:** \$3.1 billion

- **2024-25 (Apr-Dec):** \$1.36 billion
- ~1,400 Japanese companies operate in India
- ~100 Indian companies operate in Japan

Emerging Areas

- **Semiconductors & Digital Cooperation**
- **AI & Telecommunications**
- **Critical Minerals**
- **Clean & Renewable Energy**
- **Industrial Competitiveness & Skill Development**
- **FDI Goal:** Increase investment target from 5 trillion yen (achieved) to 7–10 trillion yen by 2026.

Mumbai-Ahmedabad High-Speed Rail (Bullet Train)

- Flagship India-Japan collaboration
- Latest funding tranche: **JPY 300 billion (~\$2.2 billion)** signed in March 2023
- Focus on **technology transfer** and **skill development**

People-to-People, Culture & Education

Tourism

- **2023-24: Year of Tourism Exchange**
- Theme: *“Connecting Himalayas with Mount Fuji”*

Education

- 665+ India-Japan academic partnerships
- Programs: **Edu-Connect, Universities Forum, Skill Connect**
- Focus on:
 - Japanese language learning in India
 - Indian Studies in Japan
 - Employment linkage between Indian youth and Japanese industries

Indian Diaspora in Japan

- ~54,000 Indians (mainly IT professionals, engineers)
- Efforts to strengthen **sub-national ties** between Japanese prefectures and Indian states

PM Modi's Visit to China – SCO Summit 2025 (Tianjin)



- The **25th Shanghai Cooperation Organisation (SCO) Heads of State Summit** was held in Tianjin, China, from August 31 to September 1, 2025.
- **Theme** : *“Upholding the Shanghai Spirit: SCO on the Move”*
- **Significance:** PM Modi's first visit to China in 7 years
- **India's Stand:** Security, sovereignty, and solidarity in Eurasian multilateralism

What is the SCO?

What is the SCO?

The Shanghai Cooperation Organisation is a Eurasian political, economic and international security group comprised of 10 countries. It was established in 2001.



CHINA



KAZAKHSTAN



KYRGYZSTAN



RUSSIA



TAJIKISTAN



UZBEKISTAN



INDIA



PAKISTAN



IRAN



BELARUS

The SCO members account for **23%** of global GDP

along with **43%** of the world's population

- A **regional intergovernmental organisation** focused on **political, economic, and security cooperation** among Eurasian countries.
- Originated as the **“Shanghai Five”** in 1996 (China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan)
- **Formally established** as SCO: **2001, Shanghai**
- **Headquarters:** Beijing, China

Organizational Structure :

Decision-Making Bodies

- **Council of Heads of States (CHS):** Supreme body, meets annually
- **Council of Heads of Government (CHG):** Prime Ministers, meets annually for economic cooperation strategy

Standing Bodies

- **Secretariat:** Beijing (Secretary General: Zhang Ming, China - since Jan 1, 2022)
- **Regional Anti-Terrorist Structure (RATS):** Tashkent (Director: R.E. Mirzaev, Uzbekistan - since Jan 1, 2022)
- **Terms:** 3-year appointments by CHS

Current Membership (26 Total)

Member States (10)

- Belarus, India, Iran, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan

Observer States (2)

- Afghanistan, Mongolia

Dialogue Partners (14)

- Azerbaijan, Armenia, Bahrain, Egypt, Cambodia, Qatar, Kuwait, Maldives, Myanmar, Nepal, UAE, Saudi Arabia, Turkey, Sri Lanka

Core Objectives of SCO

Area	Goals
Security	Combat terrorism, separatism, extremism (Three Evils doctrine)
Geopolitics	Promote multipolarity , oppose unilateralism
Sovereignty	Uphold non-interference in internal affairs
Economy	Promote trade, investment, connectivity , and energy cooperation
People-to-People	Foster cultural exchange, youth engagement, traditional knowledge sharing

PM Modi's Full Speech – Key Points (Plenary Address, Sept 1, 2025)

Opening Remarks

- Thanked **President Xi Jinping** for hosting.

- Extended greetings to **Uzbekistan** (Independence Day) and **Kyrgyzstan** (National Day).

1. Pillar : 'S' for Security

- Security, peace, and stability are the **foundation of development**.
- **Terrorism** is not just a national but **global threat**.
- Condemned the **April 22 Pahalgam attack** (26 killed).
- Called out nations **openly supporting terrorism**, implying **Pakistan**.
- India led **Joint Information Operation** under SCO-RATS to target **Al-Qaeda**.
- Proposed enhanced coordination against **radicalisation & terror financing**.
- Asserted: **"No double standards on terrorism will be acceptable."**

2. Pillar: 'C' for Connectivity – Sovereignty Comes First PM Modi's Message:

- "Connectivity fosters not just trade, but trust."
- "Connectivity that bypasses sovereignty loses trust and meaning."
- Clear criticism of **China's Belt and Road Initiative (BRI)** and **China-Pakistan Economic Corridor (CPEC)** (which passes through Pakistan-occupied Kashmir).

India's Strategic Connectivity Projects :

A. Chabahar Port – Iran

- Gives India access to **Afghanistan and Central Asia**
- **Counter to Gwadar Port (CPEC)**
- Faces **uncertainty due to US sanctions**

B. International North-South Transport Corridor (INSTC)

- Multimodal corridor connecting **India–Iran–Russia–Europe**
- **Length:** 7,200 km

- **Mode:** Sea, road, rail
- **Signed in:** 2000 by India, Iran, Russia
- **Participating Countries:** 13 including India, Iran, Russia, Kazakhstan, Azerbaijan, Armenia

Key Milestones:

Year	Event
2014	First Indian container shipment to Russia via INSTC
2022	Eastern branch through Kazakhstan launched
2024	Rasht–Bandar-e Anzali rail link (Iran) completed
2025	Rasht–Astara (final leg) scheduled for completion

- **Purpose:** Bypasses **Pakistan** and **Suez Canal**

Relevance: Red Sea tensions, maritime instability

3. Pillar: 'O' for Opportunity

- Highlighted SCO under India's 2023 presidency:
 - Focused on **startups, innovation, traditional medicine**, youth, digital inclusion.
 - Promoted **shared Buddhist heritage**.
- Proposed a **"Civilizational Dialogue Forum"** under SCO for cultural exchange.

Domestic Progress & Global Role

- Highlighted India's **"Reform, Perform, Transform"** model.
- Invited SCO countries to be part of **India's development journey**.
- Emphasized need for **UN reform** (upcoming 80th anniversary).

"Old black-and-white frameworks can't display new multicolour dreams."

Final Remark

- Welcomed SCO's new focus on **cybersecurity, drugs, and organised crime**.
- Supported **Kyrgyzstan's new presidency** of SCO.

III. Bilateral Meetings

With President Xi Jinping (China)

- Both leaders recognized **India & China as victims of terrorism**.
- Emphasis on:
 - **Border peace** as key to broader ties.
 - Strengthening **visa access, direct flights**, resuming **Kailash Manasarovar Yatra**.

With President Vladimir Putin (Russia)

- Travelled together to meeting venue – symbolic gesture.
- Reaffirmed India-Russia ties: "India and Russia have always stood shoulder to shoulder."
- Key topics:
 - **Ukraine war:** Modi urged early peace, Putin appreciated India's role.
 - **Energy cooperation** and **strategic alignment**.
 - Putin invited to India in **December 2025**.

IV. Major Summit Outcomes: SCO 2025 Tianjin

Tianjin Declaration Highlights

- Strong condemnation of:
 - **Pahalgam attack (India)**
 - **Jaffer Express & Khuzdar attacks (Pakistan)**
- Rejection of **cross-border terrorism** and external use of terror groups.
- Reaffirmed:
 - Fight against **terrorism, separatism, extremism**
 - End to **double standards**

Geopolitical Statements

- SCO denounced:
 - **Israel–US strikes on Iran (June 2025)**
 - **Gaza humanitarian crisis**
- Supported:
 - Just resolution of **Palestinian issue**
 - UNSC **Resolution 2231** on Iran
 - Inclusive government in **Afghanistan**

V. China's Role at SCO

Economic Initiatives

- Proposed **SCO Development Bank**
- Announced:
 - 2 billion yuan grants (2025)**
 - \$1.4 billion in loans over 3 years**
 - 10 billion yuan credit to SCO Interbank Consortium**

Political & Economic Vision

- Stressed on:
 - Opposing **Cold War mentality**
 - Supporting **true multilateralism**
 - Promoting **Belt and Road Initiative (BRI)**
Supported by all SCO members **except India**

VI. Russia's Position at the Summit

- Putin strongly defended **Russia's actions in Ukraine**.
- Blamed:
 - 2014 Kyiv coup**
 - NATO expansion**
- Appreciated peace efforts by **India and China**.
- Referred to "**understandings**" reached with **Donald Trump** (Alaska Summit, Aug 2025).

VII. India's Broader Strategic Messages

Against Terrorism

- India reaffirmed leadership in global counter-terrorism efforts.
- Rejected hypocrisy in global security discourse.

For Global South & Reform

- Urged reform of **UN and global financial institutions**.
- Called SCO a platform for **Global South empowerment**.

On Connectivity

- Advocated **sovereignty-based connectivity**, implicitly opposing **China's BRI**.

Strategic Autonomy

- Balanced ties with Russia, China despite Western pressure.

- Did **not sign BRI support clause**.
- Skipped **SCO+ Summit** with observer states like Nepal, Turkey.

VIII. Organisational & Institutional Changes in SCO

- Kyrgyzstan** assumed SCO presidency (to host in 2026).
- SCO to establish 4 new centres for:
 - Cybersecurity**
 - Organised crime**
 - Drug trafficking**
 - Other transnational threats**

Economic and Trade Data :

India-China Trade (2024-25)

- Exports:** \$14.25 billion
- Imports:** \$113.5 billion
- Deficit:** \$99.2 billion
- China's share in India's trade deficit:** ~35%
- China-India total trade imbalance:** \$283 billion

Dependency on Chinese Imports (GTRI Analysis):

Product	% Dependency on China
Erythromycin	97.7%
Silicon wafers	96.8%
Flat panel displays	86%
Solar cells	82.7%
Lithium-ion batteries	75.2%
Laptops	80.5%
Embroidery machinery	91.4%
Viscose yarn	98.9%

Strategic Risk:

- High dependency = **geopolitical leverage for China**

India-Russia Trade (2024-25)

- Total Trade:** \$68.7 billion
 - Exports: \$4.88 billion
 - Imports: \$63.84 billion

Indian Exports:

- Pharma, agri-products, steel, machinery, aircraft parts

Russian Exports:

- Oil, fertilisers, minerals, petrochemicals

Services Trade:

- **Russia > India:** \$1.021 billion (2021)

Investment Targets:

Metric	Value
Indian investment in Russia (2023)	\$16 billion
Russian investment in India	\$20 billion
Target by 2025	\$50 billion mutual investments
Target trade by 2030	\$100 billion

Geopolitical Messaging Summary

Target Country	PM Modi's Message
Pakistan	State-sponsored terrorism is unacceptable
China	Connectivity without sovereignty is coercion
Russia	Keep INSTC alive despite geopolitical pressure
Global South	Push for meaningful reform of global institutions

“India will apologise and negotiate soon,” says US – Here’s what happened

India will be at negotiating table saying sorry, in a month or two: US Commerce Secretary Howard Lutnick

‘And it will be on Donald Trump’s desk how he wants to deal with (Narendra) Modi, and we leave that to him. That’s why he’s the President,’ Lutnick added.

PTI Last Updated : 05 September 2025, 21:54 IST



US Secretary of Commerce Howard Lutnick. Credit: Reuters File Photo

WHAT IS THE ISSUE?

In **September 2025**, a major **trade dispute** has erupted between **India and the United States**.

The US has:

- Imposed a **25% extra tariff** on Indian goods.
- Claimed that India is **not supporting American interests**.
- Asked India to **change its foreign policy**.

This has led to **tensions** between the two countries.

WHY DID THE US IMPOSE EXTRA TARIFFS ON INDIA?

According to US Industry Minister Howard Lutnick, India must:

1. Stop buying oil from Russia

US believes buying Russian oil helps **fund the war in Ukraine**.

2. Leave BRICS (a group of emerging economies: Brazil, Russia, India, China, South Africa)

US sees BRICS as a **China-Russia-led alliance** against Western influence.

3. Support the US and the US dollar

The US wants India to **align more closely with America**, not Russia or China.

Quote:

“Support your biggest customer (the US), or pay a 50% tariff.”

IMPACT ON INDIA

- The 25% extra tariff **increases total tariffs on Indian exports to over 50%**.
- This affects key industries:
 - o Textiles
 - o Pharma
 - o Engineering goods
 - o Auto parts

India called this move **“unfair, unjustified, and unreasonable**.

WHAT ELSE DID THE US SAY?

Howard Lutnick also claimed:

- **India will soon apologise** and come to the negotiating table with **Donald Trump**.

- A **new trade deal** will be made – **on Trump’s terms**.
- The deal will be finalised with **Prime Minister Narendra Modi**.

WHAT IS INDIA’S RESPONSE?

Official statement from India’s Foreign Ministry (MEA spokesperson Randhir Jaiswal):

- India is **open to trade talks**, but **no apology** has been given or planned.
- India supports **Quad** (US-Japan-Australia-India grouping) but also works with **BRICS**.
- India wants **peace in Ukraine** and supports efforts toward ending the conflict.
- Refused to comment on Trump’s social media posts.

WHAT DID TRUMP SAY ABOUT INDIA?

- **On social media (Truth Social), Trump said:** “It seems that we have lost India and Russia to China.”
- **Later, he clarified:** “I don’t think we have lost India... but I’m disappointed they’re buying so much oil from Russia.”

MODI’S RESPONSE TO TRUMP’S COMMENTS

Trump also said:

- “I’ll always be friends with PM Modi... but I don’t like what he is doing right now.”

PM Modi replied on X (formerly Twitter):

- “Deeply appreciate and fully reciprocate President Trump’s sentiments...”
- India and the US have a very positive and forward-looking Comprehensive Strategic Partnership.”

This shows PM Modi is keeping the tone friendly, even during disagreements.

THE REAL PROBLEM: RUSSIAN OIL

- India imports about **35% of its crude oil from Russia**.
- Total value of oil imported from Russia in 2025: **Over \$60 billion**.

- US wants to **cut off Russia’s income** due to the Ukraine war.
- But India says it needs cheap oil to **meet domestic energy needs**.

WHY IS BRICS AN ISSUE?

- **BRICS has grown** in recent years and now includes:
 - **Brazil, Russia, India, China, South Africa, Iran, Egypt, Argentina**, and others.
- The group is planning to **create its own currency** and challenge the **US dollar**.
- US fears this **weakens its global dominance**.

India is **still an active BRICS member** and was seen **smiling and shaking hands with Putin and Xi** at the recent **SCO Summit in China (Sept 2025)**.

INDIA’S FOREIGN POLICY: A BALANCING ACT

Strategic Forum	India’s Role
Quad (US-Japan-Australia-India)	Member (aligned with US)
BRICS (China-Russia-led bloc)	Member (neutral or multipolar stance)
SCO (Shanghai Cooperation Organisation)	Active (with China, Russia, Central Asia)

India is trying to **balance relations with all sides** – a strategy called **“strategic autonomy.”**

WHAT COULD HAPPEN NEXT?

Scenario 1: India negotiates a trade deal with the US to reduce tariffs

Might give some concessions, but unlikely to fully accept all US demands.

Scenario 2: India does not agree, and tariffs stay

Could hurt Indian exporters and push India closer to **Russia/China**.

Scenario 3: A compromise where both sides adjust positions

Most likely outcome to avoid long-term damage.

WTO Agreement on Fisheries Subsidies Enters into Force



What is the News?

- On **15 September 2025**, the **WTO** officially put into force the **Agreement on Fisheries Subsidies**.
- The agreement aims to **stop harmful subsidies** that are leading to **overfishing**, **depletion of marine resources**, and **damage to ocean ecosystems**.

What is the WTO Agreement on Fisheries Subsidies?

Key Objectives:

- Protect marine fish stocks** from over-exploitation.
- Ban harmful subsidies** that encourage illegal or unsustainable fishing.
- Support sustainable livelihoods** of coastal communities.
- Make **trade rules support environmental sustainability**.

Key Provisions of the Agreement

🚫 Prohibitions	✅ Supportive Measures
Subsidies for:	WTO to support:
- Illegal, Unreported, Unregulated (IUU) fishing	Capacity building in poor countries
- Fishing overfished stocks	Sustainable fishery practices
- Fishing in unregulated high seas	Technical & financial support via WTO Fish Fund

Why Was This Agreement Needed ?

- One-third** of global fish stocks are **overfished** (35.5% in 2021).
- Around **\$35 billion/year** is spent globally on fishing subsidies.
- Of this, **\$22 billion** are considered **harmful subsidies**.
- Millions rely on fishing for **food, jobs**, and **livelihood**.
- Oceans are under **severe ecological stress**.

Background

- First agreed at the **12th WTO Ministerial Conference (MC12)** in **June 2022**.
- It needed **ratification by 2/3rds of WTO members** — now completed.
- Countries like **Brazil, Kenya, Vietnam, Tonga, Mali, Oman** have submitted their ratification.

Why Is This Agreement Special?

- First-ever WTO agreement** that puts **environmental sustainability at the center**.
- It shows that **multilateral trade rules can protect both people and planet**.
- Helps restore fish populations and ensure food for future generations.

WTO Fish Fund

- Created to help **developing countries** and **Least Developed Countries (LDCs)**.
- Purpose: **Implement the agreement smoothly**.
- So far, **17 countries** have pledged **\$18 million+**.
- Fund invites **project proposals** for capacity-building and sustainable fishing.
- Deadline for proposals: **9 October 2025**.

Implementation

- A **Committee on Fisheries Subsidies** will be formed to:
 - Monitor compliance
 - Increase transparency
 - Promote fair and sustainable fishing practices

India Condemns Violation of Qatar's Sovereignty at UNHRC



Background of the Issue

- On **September 9, 2025**, Israel launched **airstrikes in Doha, Qatar**, reportedly targeting Hamas officials, including **Khaled Meshal**, a top Hamas political leader.
- These strikes were seen as a violation of **Qatar's territorial sovereignty**, prompting widespread international criticism.
- Qatar is currently playing a **mediatory role in the Gaza conflict**, hosting **Hamas' political negotiating team** and facilitating dialogue efforts to end the Israel-Gaza war.

India's Stand at UNHRC (Sept 16)

- **India's Permanent Representative to the UN, Arindam Bagchi**, made a formal statement at the **UN Human Rights Council**.
- India **"unequivocally condemned"** the attack, without **explicitly naming Israel**.
- Bagchi highlighted:
 - **Respect for sovereignty** is a cornerstone of international relations.
 - Conflicts must be resolved through **dialogue and diplomacy**.
 - Any **escalation or external aggression** undermines regional and global peace.
 - Adherence to the **UN Charter** and **international law** is essential.

India's Diplomatic Outreach :

- **PM Narendra Modi** spoke to **Qatari Emir Sheikh Tamim Bin Hamad Al-Thani**.

- Modi reiterated:
 - India's strong opposition to the violation of **Qatari sovereignty**.
 - Support for a peaceful resolution of conflicts.
 - India views Qatar as a **"brotherly state."**
- The **Ministry of External Affairs (MEA)** had earlier issued a statement expressing concern about the **"Israeli strikes"**.

Emergency OIC Summit (Sept 15, 2025) :

- Following the attacks, **Qatar hosted an emergency summit** of the **Organisation of Islamic Cooperation (OIC)**.
- Attended by representatives of **57 member countries**, including heads of state.
- **OIC Resolution Highlights:**
 - Condemned the **Israeli aggression** as a serious escalation.
 - Accused Israel of attempting to **undermine Qatar's mediatory efforts**.
 - Praised Qatar's **constructive diplomatic role** in attempting to resolve the Gaza conflict.
 - Called for respect for the **sovereignty and territorial integrity** of all nations.

Significance of India's Statement

- **Strategic Positioning:** India has taken a **neutral but principled stance**, balancing ties with Israel and Gulf countries.
- **Middle East Relations:**
 - Qatar is an important energy partner and home to over **700,000 Indian expatriates**.
 - India also maintains strong **defense and tech ties with Israel**.
- **Support for Sovereignty:** Reflects India's **consistent foreign policy principle** – non-intervention and peaceful resolution of disputes.

- **International Law:** Reaffirms India's commitment to the **UN Charter**, crucial for its image as a responsible global player.

Broader Geopolitical Implications

- The attack and India's response highlight growing **tensions in the Middle East**.
- Risks of further **regional destabilization**, especially if mediators like Qatar are targeted.
- India's emphasis on diplomacy aligns with wider global concerns about **escalating conflict in Gaza**.

About India-Qatar Bilateral Relations :

- Diplomatic ties established in 1973; 50th anniversary in 2023.
- Elevated to Strategic Partnership in February 2025 during Qatar Amir's State visit to India.
- Relations based on historical commercial ties and strong people-to-people contacts.

Political Relations

- Frequent high-level visits and talks between leaders (e.g., PM Modi and Amir Sheikh Tamim).
- Multiple State visits:
 - Amir's State visit to India in Feb 2025; 7 MOUs signed including strategic partnership, taxation, youth affairs, investment cooperation.
 - PM Modi's visits to Qatar in 2024 and 2016 with significant bilateral agreements.
- Regular telephone and meeting exchanges discussing regional and bilateral concerns including India-Pakistan crisis and terrorism.
- Visits by key ministers (EAM, MOS) and delegations from both countries, enhancing cooperation across multiple sectors.
- Joint forums and business councils active in promoting collaboration.

Institutional Mechanisms

- Regular Foreign Office Consultations (FOCs).

- Joint Task Forces on Investment, Trade & Commerce, Energy, Security, Health, and Labour.
- Joint Business Council established for enhanced business relations.

Trade & Investment

- India among top three export destinations for Qatar and a major source of imports.
- Bilateral trade USD 14.14 billion in FY 2024-25; Qatar trade surplus largely due to LNG imports.
- Agreement to double trade by 2030; discussion on Comprehensive Economic Partnership Agreement.
- Active Indian participation in Qatar events and exhibitions (agri, construction, tourism, gems & jewellery).
- Qatari investments in India approx. USD 1.5 billion; QIA commitment to increase investments to USD 10 billion.
- Major investments by QIA in Indian startups, retail, infrastructure sectors.

Energy Cooperation

- Qatar is largest LNG and LPG supplier to India.
- Bilateral hydrocarbon trade approx. USD 11 billion, accounting for nearly 79% of total trade.
- Long-term LNG supply agreements (e.g., 7.5 MTPA for 20 years from 2028).
- Collaborations in petrochemicals and strategic energy projects.

Defence & Security

- Defence Cooperation Agreement since 2008, renewed in 2018.
- Regular joint meetings, training, and maritime exercises (Za'ir Al Bahr, MILAN).
- High-level defence visits and participation in defense expos and exercises.
- Collaboration in counter-terrorism, cybersecurity, and law enforcement mechanisms.

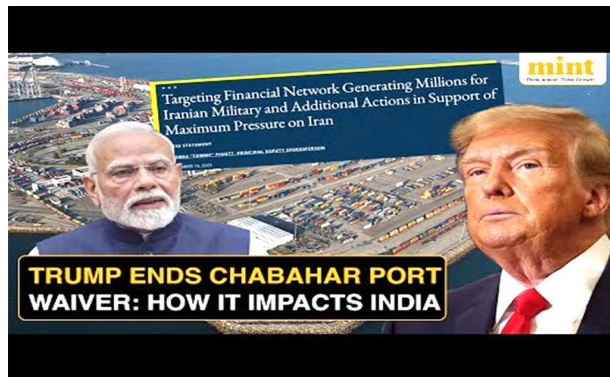
Consular and Cultural Relations

- Extensive consular services with over 1,00,000 passports/attestations issued annually.
- Bilateral cultural cooperation since 2012; India-Qatar Year of Culture 2019; multiple festivals and cultural events.
- Promotion of Indian practices like Ayurveda and Yoga; Guinness World Record for Yoga diversity.
- Strong community welfare support via Indian Community Welfare Fund.

Indian Community in Qatar

- Over 830,000 Indians in Qatar—the largest expatriate community.
- Contributions across diverse sectors: medicine, engineering, finance, media, and blue-collar jobs.
- Over 20,000 Indian companies operate in Qatar, with investments over USD 350 million (2017-2025).
- Significant Indian student population in schools and universities; MIE-SPPU graduate programs available.
- Robust air connectivity with 214 weekly flights between Doha and India.
- Well-organized Indian community with four apex bodies: ICC, IBPC, ICBF, ISC.

US Withdraws Sanctions Waiver to Chabahar Port



1. Why in News

- On **September 19, 2025**, the **United States announced the withdrawal of the sanctions waiver** granted in **2018** to India for its involvement in the development of **Iran's Chabahar Port**.

- The waiver, issued under the **Iran Freedom and Counter-Proliferation Act (IFCA)**, had allowed India to operate at the Chabahar port without facing US sanctions.
- The waiver will be revoked effective **September 29, 2025**, significantly impacting India's strategic and economic interests in the region.
- The decision follows **US military strikes on three Iranian nuclear facilities on June 22, 2025**, escalating tensions between Washington and Tehran.

2. What is the Chabahar Port?

- **Location:** Southeastern Iran, along the **Gulf of Oman**, near the border with Pakistan.
- **Strategic Position:** Provides direct access to the Arabian Sea and bypasses Pakistan for trade with **Afghanistan and Central Asia**.
- **Components:**
 - **Shahid Beheshti Terminal** – being developed by India.
 - **Shahid Kalantari Terminal** – developed by Iran.
- **Importance:** First deepwater port in Iran, capable of handling large cargo vessels, enhancing Iran's role in global trade.

3. India's Involvement in the Chabahar Port

Timeline of Engagement

Year	Event
2002	Hassan Rouhani, then Iranian NSA, discusses port with India
2003	Strategic cooperation roadmap signed during President Khatami's visit to India
2015	Formation of India Ports Global Ltd (IPGL) for overseas port development
2016	India–Iran–Afghanistan trilateral agreement signed
2017	First phase of Shahid Beheshti terminal inaugurated; India sends wheat to Afghanistan
2018	IPGL takes over partial operations at the port
2019	First Afghan exports to India via Chabahar begin
2022	India reopens its embassy in Kabul
2023	India allocates ₹100 crore for Chabahar port and sends 20,000 MT of wheat to Afghanistan
2025	US announces revocation of waiver , effective September 29

India's Investments and Operations

- India's involvement is focused on the **Shahid Beheshti terminal**.
- Operated by **India Ports Global Ltd (IPGL)** since December 2018.
- Aimed at enhancing trade with Afghanistan and Central Asia by bypassing Pakistan.
- India's investment so far includes:
 - ₹ 100 crore (2023–24 budget) for Chabahar port development.
 - Additional ₹ 200 crore in aid to Afghanistan (2022 onwards).

4. Infrastructure Status of the Port

- The **Shahid Beheshti terminal** is being developed in **four phases**.
- Upon completion:
 - Total capacity: **82 million tonnes per year**.
 - Infrastructure: **32 jetties** – including 16 multipurpose, 10 container, 3 oil, and 3 dry bulk jetties.
- As of 2019, port capacity had reached **5.8 million tonnes per year**.
- A cruise terminal was also built to increase cargo handling.

5. Strategic Importance of Chabahar Port

For India

- **Bypasses Pakistan**: Vital trade route for connecting with Afghanistan, Central Asia, and Europe.
- **Connectivity to INSTC**: Integral to the **International North–South Transport Corridor (INSTC)**, linking India to Russia and Europe via Iran and the Caspian Sea.
 - **India-Middle East-Europe Economic Corridor (IMEC)** announced during the **G20 Summit 2023**
IMEC connects India '! UAE '!
Saudi Arabia '! Jordan '! Israel'!
Europe
Chabahar was meant to serve as an eastern complement for **land access to Central Asia and Russia**

- **Counterbalance to Gwadar**: India's answer to **China's development of the Gwadar Port** in Pakistan under the **Belt and Road Initiative (BRI)**.

For Iran

- Facilitates **economic development** and **international trade** amid Western sanctions.
- Strengthens strategic partnerships with India and potentially Central Asian countries.

For Afghanistan

- Offers **regional connectivity** independent of Pakistan.
- Facilitates Indian humanitarian and trade assistance.

6. Background: US–Iran Relations and the Waiver

- The **Joint Comprehensive Plan of Action (JCPOA)** or Iran nuclear deal was signed in 2015 between Iran and P5+1 countries (US, UK, France, China, Russia + Germany).
- In **2018**, the Trump administration **unilaterally withdrew** from JCPOA and imposed **sanctions on Iran** under the **"maximum pressure"** campaign
- An exception (waiver) was granted to India for Chabahar port under **Section 1244(h)** of the **Iran Freedom and Counter-Proliferation Act (IFCA)**:
 - Justification: The port's use in **Afghanistan's reconstruction** and humanitarian needs.
- In **September 2025**, the US revoked this waiver, stating that continued operations at the port would now be considered sanctionable.

Trump's Push to Reclaim Bagram Air Base

Recent Developments

- Trump, during a UK visit in September 2025, announced his intention to **"take back Bagram"**.
- He claimed:
 - "We want it back, and we want it back right away."
 - Suggested that the base is key due to its proximity to **China's nuclear facilities**.

Taliban's Reaction

- Taliban **rejected the demand outright**.
- Supreme leader **Hibatullah Akhundzada** and Afghan Defence Chief **Fasihuddin Fitrat** both declared that **foreign reoccupation is unacceptable**.

US Motivation

- Bagram is **2,000 km from China's Lop Nur nuclear site**, much closer than US bases in:
 - **Philippines (~3,000 miles from Xinjiang)**
- A 2024 **Defense Intelligence Agency** report indicated:
 - China is undertaking the **fastest nuclear modernization** in its history

7. Statement by the US State Department

Principal Deputy Spokesperson Thomas Pigott:

"Consistent with President Trump's maximum pressure policy to isolate the Iranian regime, the Secretary of State has revoked the sanctions exception issued in 2018 under the Iran Freedom and Counter-Proliferation Act (IFCA) for Afghanistan reconstruction assistance and economic development, effective September 29, 2025."

8. Reasons for the US Withdrawal

- Part of renewed **geopolitical tension** following **US airstrikes on Iranian nuclear facilities** on June 22, 2025.
- Reflects a hardline stance towards Iran under the **Trump-era policy of maximum pressure**.
- Aimed at **isolating Iran economically and diplomatically**, even at the cost of disrupting India's strategic projects.

9. Implications of Waiver Withdrawal

For India

- **Strategic Setback:**
 - Disruption in access to **Afghanistan and Central Asia** via Iran.
 - Weakens India's efforts to counter **China-Pakistan-Iran** strategic alignment.

- **Economic Impact:**

- India's investments in Chabahar risk becoming **non-operational** or **sanctioned**.
- **IPGL and contractors** may face **secondary sanctions**.

- **Diplomatic Dilemma:**

- India needs to **balance ties with the US and Iran**.
- May need to lobby for **reinstatement of waiver** or carve out a humanitarian exemption.

For Afghanistan

- Loss of a neutral trade corridor for **humanitarian aid** and exports.
- Increases reliance on **Pakistan-based routes**.

For Iran

- Intensifies **economic isolation** amid renewed US pressure.
- May accelerate **closer ties with China and Russia** as alternatives to Western alignment.

10. Alternatives and Policy Options for India

- **Diplomatic Engagement:**

- Open discussions with the US to **restore a limited waiver**.
- Emphasize the port's use for **humanitarian and non-strategic purposes**.

- **Multilateral Partnerships:**

- Involve **Central Asian nations** or Russia in Chabahar to dilute US pressure.

- **Diversify Connectivity:**

- Accelerate alternative routes through **Russia, Central Asia**, or via the **North-South Corridor through Azerbaijan**.

Conclusion

The withdrawal of the Chabahar waiver marks a **major turning point** in India's regional connectivity strategy and poses challenges to its influence in Afghanistan and Central Asia. India must now **reassess its options**, step up **diplomatic engagement**, and explore **alternative connectivity routes** while maintaining a fine balance in its **geopolitical relations with both the US and Iran**.

India Brazil Agri-Innovation Collaboration: Maitri 2.0 Cross Incubation Programme



Launched: 22 September 2025 | Organized by:

ICAR, New Delhi

Why in News?

- The **Indian Council of Agricultural Research (ICAR)** launched **Maitri 2.0**, the second edition of the **India–Brazil Cross-Incubation Programme in Agritech**.
- The programme was inaugurated in **New Delhi** in the presence of:
 - Secretary (DARE) & Director General (ICAR)
 - Ambassador of Brazil to India
 - Senior officials, incubators, and startups from both countries.

About Maitri 2.0 Programme

Aspect	Details
Full Name	Maitri 2.0 – Brazil–India Cross-Incubation Programme in Agritech
Organizers	Indian Council of Agricultural Research (I) & Brazilian institutions
Nature	Bilateral Agri-Tech Collaboration Platform
Objective	Promote co-creation, innovation exchange and incubation partnerships between start-ups and research institutions of India and Brazil
Focus Areas	Sustainable agriculture, digital farming, climate resilience, agri-value chains, food & nutritional security
Approach	Two-way learning, incubation support, exchange of best practices

Key Highlights of the Launch Event (DG, ICAR)

- Celebrated **77 years of India–Brazil relations**.
- Stressed on historical ties and **shared multilateral platforms** like **BRICS** and **G20**.
- Cited recent **ICAR–EMBRAPA MoU** as a milestone.
- Emphasized:
 - Complementarity** in agriculture and food systems.
 - Shift from 74 patents in 1996 to **1,800+ patents annually**.
 - Over **5,000 licensing agreements** through ICAR.
 - Commercialization of innovation as **public service**, not profit-driven.
 - Maitri 2.0 as a “**two-way learning and co-creation**” platform.

(Ambassador of Brazil)

- Lauded ICAR for the initiative.
- Reaffirmed **strategic alignment** between Brazil and India in:
 - Agriculture innovation
 - Food and nutritional security
 - Emerging technologies
- Called Maitri 2.0 a **strategic step** in bilateral relations.

Programme Objectives

- Strengthen **incubator linkages** between India and Brazil.
- Facilitate **cross-incubation and co-innovation** in:
 - Climate-smart agriculture
 - Agri-digital technologies
 - Supply chain and value-chain development
- Foster a **resilient, inclusive agri-food system**.
- Enable **technology transfer and startup scaling**.

Significance of the India–Brazil Agri Partnership.

Global Context

- Both countries are **agricultural powerhouses** with:
 - Large agri-ecosystems

- o Shared tropical farming challenges
- o Influence in **global food governance** (WTO, G20, BRICS)

Innovation Ecosystem

- India: **ICAR, Startup India, Krishi Vigyan Kendras (KVKs), Agri-Incubators.**
- Brazil: **EMBRAPA** – world-renowned agricultural research body.
- Potential for joint R&D, tech transfer, and business model co-creation.

Climate Resilience & SDGs

- Addresses **climate-smart agriculture**, in line with **SDG 2 (Zero Hunger)** and **SDG 13 (Climate Action)**.

Way Forward

1. **Expand Co-Incubation Framework** to cover more agri-sectors (e.g. livestock, fisheries, agri-biotech).
2. **Bilateral Start-up Exchange Programs** to strengthen capacity building.
3. Joint participation in **international agri-innovation competitions and platforms.**
4. **Monitor and Evaluate** outcomes via metrics like startup success, innovations commercialized, and farmers reached.
5. Leverage this model for **South-South Cooperation** across Africa, Latin America, and ASEAN.

India–Morocco Defence Cooperation MoU Signed (2025)



Signed on: September 22, 2025 | **Location:** Rabat, Morocco

Why in News?

- India and Morocco signed a **Memorandum of Understanding (MoU) on Defence Cooperation**

during Defence Minister **Rajnath Singh's official visit to Rabat, Morocco.**

- A **new Defence Wing** was inaugurated at the **Embassy of India in Rabat**, strengthening bilateral defence diplomacy.
- This is a **strategic milestone** in expanding India's defence outreach in **North Africa** and the **Atlantic region.**

Key Highlights of the MoU

Aspect	Details
Signed Between	Ministry of Defence (India) and Ministry of Defence (Morocco)
Indian Signatory	Shri Rajnath Singh , Defence Minister of India
Moroccan Signatory	Mr. Abdeltif Loudiyi , Defence Minister of Morocco
Venue	Rabat, Capital of Morocco
Major Development	Opening of a Defence Wing at Indian Embassy in Morocco

Key Areas of Cooperation

1. Defence Industry Collaboration

- o Co-development and co-production opportunities
- o Technology transfer, including Indian defence platforms (e.g., drones, anti-drone systems)

2. Military Training & Capacity Building

- o Joint training exercises
- o Specialized military courses and exchange programmes

3. Counter-Terrorism and Maritime Security

- o Joint frameworks for regional and global counter-terrorism strategies
- o Cooperation in securing maritime trade routes in the **Indian Ocean** and **Atlantic corridors**

4. Cyber Security & Military Medicine

- o Shared expertise in **cyber defence**
- o Development of **medical protocols** for battlefield readiness

5. Peacekeeping Operations

- o Collaboration in **UN Peacekeeping** missions
- o Sharing of Indian peacekeeping expertise with Moroccan counterparts

6. Institutional Framework

- o Mechanism for **high-level dialogues, expert exchanges, and joint R&D**

Strategic Significance

For India

- Expands India's **strategic footprint in North Africa** and the **Atlantic Ocean region**.
- Supports the **Make in India in Defence** initiative via:
 - o **Tata Group's defence manufacturing facility in Morocco**
 - o Indigenous systems like **WhAP 8x8 ground combat vehicle**
- Enhances India's **defence exports** and technology outreach in African and European markets.
- Strengthens India's partnerships under **South-South cooperation**.

For Morocco

- Gains access to India's **cost-effective, reliable, and battle-tested defence technologies**.
- Strengthens its own **defence industrial base** and **training capacity**.
- Leverages **India's peacekeeping and maritime security experience**.

Geostrategic Importance of Morocco



Factor	Significance
Geography	Only African country with coasts on both the Atlantic Ocean and Mediterranean Sea
Location	At the crossroads of Africa, Europe, and the Middle East
Borders	Adjacent to Algeria, Western Sahara, and Spain (via Strait of Gibraltar)
FTA Network	Access to 90 countries through Free Trade Agreements, offering a gateway for Indian defence exports
Natural Terrain	High Atlas Mountains, Mount Toubkal, and the Draa River — suitable for high-altitude training exercises

India's Defence Export Push

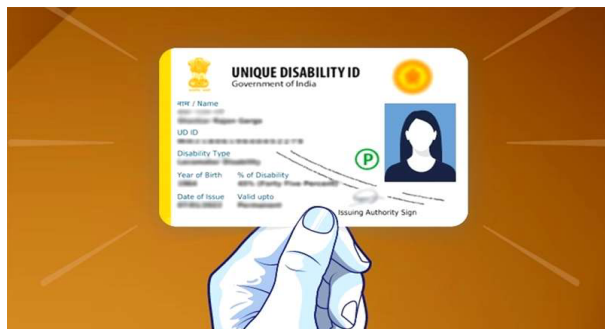
Metric	Data
Exports in FY 2013–14	₹686 crore
Exports in FY 2023–24	₹21,083 crore
Growth	~30-fold increase in a decade
Key Export Products	Drones, radar systems, armoured vehicles, naval platforms, bulletproof jackets
Export Partners	Armenia, Philippines, Vietnam, UAE, now expanding to Africa via Morocco

Way Forward

1. **Operationalise MoU** with a clear implementation roadmap.
2. Conduct **joint exercises** and staff-level talks annually.
3. Launch **joint defence R&D projects**, especially in cyber and autonomous warfare.
4. Use Morocco as a **launchpad** for expanding Indian defence exports in **Francophone Africa and EU regions**.
5. Align with **India's Africa Outreach Strategy** for a deeper presence in continental security architecture.



UNIQUE DISABILITY ID (UDID) CARD



Why In News

Data show that **less than 40%** of India's projected population of **Persons with Disabilities (PwDs)** have been issued a **Unique Disability ID (UDID) Card**, which is essential for accessing various government benefits.

About Unique Disability ID (UDID) Card

The UDID Card is a key initiative by the **Department of Empowerment of Persons with Disabilities** under the **Ministry of Social Justice & Empowerment**.

Core Features

- **Single Document of Identification:** It serves as the **universal, single-document ID** for PwDs, accepted nationwide.
- **RPwD Act, 2016:** UDID cards can be issued by home district hospitals or any hospital where the PwD is receiving medical treatment, as per the **Rights of Persons with Disabilities (RPwD) Act, 2016**.
- **UDID Number Structure:** The card has a total of **18 digits/characters** with an encoded structure:
 - o First 2 characters: **State Code**
 - o Next 2 digits: **District Code**
 - o Next 1 digit: **CMO Code**
 - o Next 2 digits: **Disability Type**
 - o Next 4 digits: **Year of Birth of PwD**
 - o Following 6 digits: **Running Number**
 - o Last digit: **Check Sum** (for security)

- **Disabilities Covered:** The system currently supports all **21 disabilities** specified in the **RPwD Act, 2016**.

Color-Based Classification

The UDID Cards are **color-coded** based on the severity (percentage) of the disability:

Card Color	Disability Percentage	Description
White Card	Below 40%	Not classified as a 'benchmark disability' for reservation purposes, but still enables tracking and certain benefits.
Yellow Card	40% to 80%	Represents a 'benchmark disability' category.
Blue Card	Above 80%	Represents severe disability.

Unique ID for Persons with Disabilities Project

The UDID Project is being implemented to create a **National Database of PwDs** and build a comprehensive **end-to-end integrated system** for issuing Universal IDs and Disability Certificates.

Objectives and Benefits

1. **Uniformity and Portability:** It provides a **single, unique record** for PwDs, ensuring **standardization of disability assessment** and certification across the entire country. This facilitates the **portability of benefits** from one state to another without the need for re-certification.
2. **Ease of Access to Benefits:** The UDID card acts as a **single point of reference** for all disability-related information, making it easier and faster for PwDs to access various **government schemes, concessions, and entitlements** (e.g., scholarships, pensions, and railway concessions).
3. **Data Management:**
 - o **Centralized Web Application:** Ensures nationwide availability of PwD data.
 - o **Non-Duplication:** Helps in the elimination of **duplicate PwD records** and prevents the misuse of government funds.
4. **Process Streamlining:**
 - o Facilitates **online application** submission, efficient assessment by Medical Boards, and **online renewal** or update of information.

- o Aids in **tracking the physical and financial progress** of beneficiaries across all administrative levels (village, block, district, state, and national).

5. **Data-Driven Policy:** The centralized database provides **comprehensive data** for informed policymaking, planning, and targeted interventions for the PwD community.

Securities Appellate Tribunal (SAT)



- **Why in News:** The US-based trading firm **Jane Street Group** recently filed an appeal in SAT against SEBI regarding an alleged market manipulation case.
- The **Securities Appellate Tribunal (SAT)** is a specialized, quasi-judicial body in India established to provide an impartial forum for resolving disputes in the securities, insurance, and pension sectors.

About the Securities Appellate Tribunal

- **Statutory Body:** SAT was established under the **Securities and Exchange Board of India (SEBI) Act, 1992**, giving it a legal, statutory basis.
- **Primary Objective:** To hear and dispose of appeals against orders passed by SEBI or an adjudicating officer appointed under the Act.
- **Expanded Jurisdiction:** SAT also hears appeals against orders issued by two other major financial regulators:
 - o **Insurance Regulatory and Development Authority of India (IRDAI).**
 - o **Pension Fund Regulatory and Development Authority (PFRDA).**
- **Jurisdiction:** The Tribunal's jurisdiction extends over the **whole of India**, but it currently operates with a single bench from its office in **Mumbai**.

- **Appeals To:** Appeals can be filed by any person aggrieved by the decisions of these regulators, including market participants, listed companies, intermediaries, or investors.

Composition, Appointment, and Tenure

The SAT consists of a **Presiding Officer** and such number of **Judicial** and **Technical Members** as the Central Government may determine.

Position	Appointment Criteria	Appointment Authority	Tenure
Presiding Officer	Must be a retired or sitting Judge of the Supreme Court, Chief Justice of a High Court, or a High Court Judge with at least seven years of service.	Central Government in consultation with the Chief Justice of India (CJI) or their nominee.	5 years or till the age of 70 , whichever is earlier. Eligible for re-appointment for one additional term of maximum 5 years.
Judicial Member	Must be a Judge of the High Court for at least five years of service.	Central Government in consultation with the CJI or their nominee.	5 years or till the age of 70 .
Technical Member	Must be a Secretary or Additional Secretary in a Ministry/Department of the Central/State Government, OR a person of proven ability with at least 15 years of professional experience in the financial sector (securities, pension funds, insurance, etc.).	Central Government.	5 years or till the age of 70 .

Powers and Further Appeal

SAT Powers

The SAT is vested with the powers of a **Civil Court** under the Code of Civil Procedure, 1908, for the purposes of discharging its functions. These powers include:

- Summoning and enforcing the attendance of witnesses.
- Requiring the discovery and production of documents.
- Receiving evidence on affidavits.
- Examining witnesses under oath.

Appeal Against SAT Orders

Any person aggrieved by an order or decision of the Securities Appellate Tribunal can file an appeal directly to the **Supreme Court of India**. This appeal can only be made on a **question of law**.

Particularly Vulnerable Tribal Groups (PVTGs)

PVTGs



Why in News :

The Ministry of Tribal Affairs recently requested the **Registrar General and Census Commissioner of India (RGI)** to consider a **separate enumeration** of **Particularly Vulnerable Tribal Groups (PVTGs)** in the upcoming Census. This measure is crucial to ensure accurate data for targeted policy formulation and effective resource allocation for these highly marginalized communities, as current demographic information is often outdated.

About Particularly Vulnerable Tribal Groups (PVTGs)

PVTGs are a sub-category of **Scheduled Tribes (STs)** in India, identified as being the most vulnerable among tribal groups due to their extreme socio-economic backwardness and isolation.

- **Origin:** This category was created based on the recommendations of the **Dhebar Commission (1960-61)**, which found that an inequality existed in the rate of development among Scheduled Tribes. They were initially known as **Primitive Tribal Groups (PTGs)**, and the name was changed to PVTGs in 2006.
- **Current Status:** At present, there are **75 tribal groups** designated as PVTGs, spread across **18 states** and the **Union Territory of Andaman and Nicobar Islands**.
- **Population:** As per a recent survey, there were an estimated **47.5 lakh PVTGs** across India, with **Madhya Pradesh** having the highest estimated population.

Criteria for Identification

PVTGs are identified based on four specific, often interrelated, characteristics:

1. **Declining or Stagnant Population:** A negative or zero population growth rate.
2. **Use of Pre-agrarian Practices:** Livelihood based on pre-agricultural technology, such as **hunting and gathering** or primitive shifting cultivation.
3. **Geographical Isolation:** Living in remote, often difficult-to-access, areas.
4. **Economic Backwardness and Low Literacy:** Extremely low levels of literacy compared to other tribal groups.

Livelihoods

PVTGs largely depend on subsistence economies connected to forest resources, including:

- Food gathering
- Collection of Non-Timber Forest Produce (NTFP)
- Hunting
- Livestock rearing
- Shifting cultivation
- Artisan works

Welfare Scheme for PVTGs

The most significant recent initiative to address the challenges faced by PVTGs is:

- **PM JANMAN Scheme (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan):**
 - o **Outlay:** A major mission with a budgetary outlay of over **₹ 24,000 crore**.
 - o **Aim:** To improve the socio-economic status of PVTGs by bridging infrastructural and social gaps. It focuses on saturating PVTG households and habitations with basic facilities like **safe housing, clean drinking water, education, health, road and telecom connectivity, and sustainable livelihood opportunities**.
 - o The mission is implemented by **nine ministries** and focuses on **11 critical interventions** to bring basic services to PVTG habitats in more than 200 districts.

Doctrine of Contributory Negligence



Contributory Negligence

Why in News

- The **Andhra Pradesh High Court** recently ruled that the **doctrine of contributory negligence does not apply to criminal actions**. Consequently, a driver found guilty of rash and negligent driving leading to a death is liable under **Section 304A of the Indian Penal Code (IPC)**, even if the victim was also partially negligent.

About the Doctrine

- Core Principle:** This doctrine is based on the idea that individuals have a **duty to exercise reasonable care for their own safety**.
- Contributory Negligence (CN):** CN occurs when the injured party (the **plaintiff**) fails to take due care, and their actions or omissions subsequently contribute to the damages resulting from the other party's (the **defendant's**) wrongful conduct.
- Legal Defense:** CN serves as a defense in a tort claim (civil wrong) where the defendant argues that the plaintiff's failure to take reasonable care played a role in the harm they suffered.
- Maxim:** The concept is rooted in the Latin maxim "**Volenti non-fit injuria**" (to a willing person, injury is not done), implying the victim suffered the injury voluntarily, thus limiting the defendant's liability.
- Burden of Proof:** The responsibility lies with the **defendant** to demonstrate that the plaintiff was also negligent and, therefore, equally liable for the resulting injury.

Application in India

- Legal Status:** India currently **does not have a specific statute** that comprehensively codifies the doctrine of contributory negligence.
- Judicial Approach (Comparative Negligence):** Indian courts generally apply the principle of **Comparative Negligence** (or fault) in civil cases.
 - Under this principle, liability and **damages are apportioned** based on the degree of comparative fault or negligence of each party involved.
 - Judges exercise discretion, assessing the relative fault based on the specific facts and circumstances of each case to ensure fairness and equity.
- Exception (Defendant's Duty):** The defense of CN is generally **not available** if it is proven that the defendant had a pre-existing legal duty to exercise full care and diligence toward the plaintiff, and the injury resulted from a breach of that duty.

Doctrine of Escheat



Why in News

- The **Supreme Court** recently ruled that a State Government **cannot invoke the doctrine of escheat** under Section 29 of the Hindu Succession Act if a Hindu male has executed a **valid Will** that has been granted **probate** (judicially certified) by a Court.

About the Doctrine of Escheat

- Core Concept:** Escheat is a fundamental legal principle ensuring that **no property is left without an owner**. It mandates that property reverts, or "escheats," to the state when the original owner dies **intestate** (without a will) and lacks any legal heirs.

- **Purpose:** This legal mechanism maintains order and protects societal interests by preventing assets from becoming wasted, misused, or permanently unclaimed.
- **Primary Triggers:**
 1. When a person dies without making a will and without having any legal heirs.
 2. When property is abandoned or remains unclaimed for a statutory period.
- **Underlying Principle:** Property must always have an identifiable owner; in the ultimate absence of heirs, the government (the State) assumes ownership.
- **Status in India:** In India, the doctrine is primarily regulated by **Section 29 of the Hindu Succession Act, 1956**, and **Article 296 of the Constitution**.

Historical Origins

- **Etymology:** The term originates from the Old French word “*eschete*,” meaning “to fall to.”
- **Feudal System:** The concept is historically rooted in the feudal system of medieval Europe. If a tenant died without an heir or was convicted of a serious crime, the land would *escheat*, or revert, to the feudal lord. This ensured the continuous control of property within the rigid feudal hierarchy.
- **Evolution:** Over time, the monarch or the state became the ultimate recipient of property that lacked legal succession.

Escheat as a Last Resort

- **Supreme Court Clarification:** The Supreme Court has made it clear that the doctrine of escheat under the Hindu Succession Act is a **remedy of last resort**.
- **Conditions for Invocation:** The State can only assert rights over an estate when it is proven that the person died **intestate** (without a will) *and* without **any legal heir**.
- **Effect of a Will:** Where a valid will is executed and granted probate, the property must devolve strictly according to the **testator’s intent**. In such cases, the property is not considered ownerless, and the State has no legal basis to invoke the doctrine.

Draft Civil Drone (Promotion and Regulation) Bill, 2025



Why in News

- The **Ministry of Civil Aviation** recently made public the **Draft Civil Drone (Promotion and Regulation) Bill, 2025**, and invited comprehensive feedback from stakeholders and citizens.

About the Draft Bill

- **Nodal Ministry:** Ministry of Civil Aviation.
- **Purpose:** To create a dedicated, robust legal framework for the promotion, safety, security, and regulation of Unmanned Aircraft Systems (UASs) operations in India.
- **Scope:** The law applies to individuals and entities involved in drone ownership, operation, design, manufacture, import, export, leasing, training, or maintenance.
- **Exclusions:** The provisions **do not apply** to:
 - Unmanned aircraft used by the **Armed Forces** (Naval, Military, Air Force).
 - UASs weighing over **500 kilograms** (which are governed under the *Bharatiya Vayuyan Adhiniyam, 2024*).

Key Regulatory Provisions

DGCA as Regulator

- **Directorate General of Civil Aviation (DGCA)** is retained as the primary regulatory authority.
- **Mandatory Registration:** No drone can be operated without registration and the issuance of a **Unique Identification Number (UIN)** by the DGCA.
- **Type Certification:** Manufacturers must obtain a **Type Certification** from the DGCA before their drones can be sold or operated in India.

Safety and Security

- **Compulsory Features:** All manufactured, sold, or operated UASs must incorporate mandatory **safety and security features** (unless exempted by the government). These features are designed to ensure **airworthiness, prevent tampering**, and enable **traceability** of all drone operations.

Digital Sky Zones

- The concept of the '**Digital Sky**' online platform for airspace zoning is retained:
 - **Green Zone:** Operations are **freely permitted**.
 - **Yellow Zone:** Requires clearance from **Air Traffic Control (ATC)**.
 - **Red Zone: Prohibited** without prior, express permission from the Central Government and the Red Zone creating agencies.

Compulsory Insurance and Compensation

- **Mandatory Insurance: Third-party insurance coverage** is made compulsory for all operators, unless specifically exempted.
- **Victim Compensation:** The UAS owner or the authorized insurer is liable to pay fixed compensation on a no-fault basis for accidents:
 - **₹ 2.5 lakh** in case of death.
 - **₹ 1 lakh** in case of grievous hurt.
- **Claim Tribunals:** The existing **Motor Accident Claims Tribunals** are proposed to be designated as the judicial body to adjudicate compensation claims arising from UAS accidents.

Penalties for Violations

Offence	Penalty	Status
General Contravention (First Offence)	Fine up to ₹50,000 or imprisonment up to 3 months, or both.	-
General Contravention (Subsequent Offence)	Fine up to ₹1 lakh or imprisonment up to 6 months, or both.	-
Violation in Restricted Airspace (Red Zone)	Imprisonment up to three years or fines extending to ₹1 lakh , or both.	Cognisable and Non-compoundable
Use as Weapon or Carrying Dangerous Goods	Imprisonment up to three years or fines extending to ₹1 lakh, or both.	Cognisable and Non-compoundable

- **Confiscation Power:** The Director General or authorized officers are empowered to **seize and confiscate** the UAS, documents, or devices relevant to the investigation of an offence.

Strategic Lawsuits Against Public Participation (SLAPP)



Why In News

- The Supreme Court of India has repeatedly expressed concern over courts recognizing and permitting **SLAPP suits**, which are often disguised as defamation cases.
- This concern became prominent following a civil court's **ex-parte injunction** (an order passed without hearing all parties) against journalists, restraining them from publishing or circulating allegedly unverified and defamatory material against **Adani Enterprises**.
- The Supreme Court has cautioned that such pre-trial, ex-parte injunctions can act as a "**death sentence**" to the material sought to be published, thus stifling public debate and violating the **constitutional mandate of protecting journalistic expression**.

About Strategic Lawsuits Against Public Participation (SLAPP)

- **Definition:** SLAPPs are **meritless civil suits** (often defamation claims) that are not aimed at winning a judgment on the facts, but are **solely used to censor, intimidate, and silence critics** by burdening them with the cost of protracted litigation to **dry up their resources** and morale.
- **Motive:** The primary objective is to transform a **political or public dispute into a legal one**, forcing the opposing party to drop their criticism or opposition due to fear and financial exhaustion.

- **Core Characteristics:**
 - **Disparity of Power:** They are typically filed by **influential and wealthy individuals or businesses** against individuals or organizations with significantly fewer resources.
 - **Targets:** They frequently target **journalists and the media**, as well as **NGOs, academics, researchers, artists, and human rights defenders** who engage in public discourse and demand accountability.
 - **Tactics:** They often include **exorbitant claims for damages** and are designed to smear, harass, and overwhelm critics.

Legal Status and Response

- **International Response (Anti-SLAPP Laws):** Many nations, including the **USA (in over 30 states), Canada (Ontario and British Columbia), the UK, and the European Union**, have enacted **anti-SLAPP laws**. These statutes provide mechanisms for the:
 - **Early dismissal** of frivolous suits.
 - **Fee-shifting**, requiring the plaintiff to pay the defendant's legal costs.
- **Indian Status:** India has **no specific anti-SLAPP statute** (Act). Indian courts must instead rely on:
 - Existing **Civil Procedure Rules**.
 - **Constitutional Guarantees** under Article 19(1)(a) (Freedom of Speech and Expression).
- **Supreme Court's Stance:** The Supreme Court emphasizes that courts must **"tread cautiously"** when granting pre-trial interim injunctions, especially against media, and should only do so in **"exceptional cases"** where the content is proven to be maliciously or palpably false. The court has adopted the stringent **'Bonnard standard'** to protect free speech.

Petroleum and Natural Gas Regulatory Board (PNGRB)



Petroleum and Natural Gas Regulatory Board

Why in News

- The **PNGRB** recently sought public comments on an **LPG Interoperability Framework**.
- This proposed framework is similar to mobile number portability and would allow households to seamlessly receive cooking gas refills from **distributors of other Public Sector Undertaking (PSU) oil companies** (like Indian Oil, Bharat Petroleum, or HP Gas), eliminating the current restriction of being locked into a single company's distributor.
- The move aims to improve **service quality, reduce delivery delays, and foster competition** among suppliers by ensuring consumers can get a refill from the nearest available source.

About the Petroleum and Natural Gas Regulatory Board

- **Establishment:** It is a **statutory body** established under the **Petroleum and Natural Gas Regulatory Board Act, 2006**.
- **Objective:** To **protect the interests of consumers** and entities engaged in specified activities, and to **promote competitive markets** in the petroleum, petroleum products, and natural gas sector.
- **Nodal Ministry:** Ministry of Petroleum and Natural Gas.
- **Composition:** The Board consists of 1 Chairperson, 3 Members, and 1 Member (Legal), and its seat is in **New Delhi**.

Regulatory Mandate and Key Functions

The PNGRB is mandated to regulate the entire **midstream and downstream** oil and gas sector, specifically covering:

- **Regulation of Activities:** Refining, processing, storage, transportation, distribution, marketing, and sale of petroleum, petroleum products, and natural gas. (It **excludes** the upstream activity of **production of crude oil and natural gas**).
- **Infrastructure Authorisation:** It **authorises** the laying, building, expansion, and operation of:
 - Natural gas and petroleum product pipelines (declaring them as Common or Contract Carriers).
 - City Gas Distribution (CGD) networks.
- **Standards and Pricing:** It determines **tariffs** (transportation rates) for common carrier pipelines, and lays down **technical and safety standards** for all regulated activities to ensure an uninterrupted and adequate supply across the country.

PNGRB Powers (Adjudication and Inquiry)

The Board functions as a quasi-judicial body with powers to enforce regulations:

- **Dispute Adjudication:** It has jurisdiction to decide on disputes arising among entities (or between an entity and a person) regarding refining, storage, transportation, distribution, marketing, and sale, unless the parties opt for arbitration.
- **Complaints and Investigation:** It can receive complaints, conduct inquiries, and investigate contraventions related to:
 - Retail service and marketing service obligations.
 - Display of retail prices.
 - Terms and conditions of access to pipelines and CGD networks.
- **Enforcement:**
 - Its decisions are **binding** on the parties of a dispute and are **enforceable** with the powers vested in a civil court.
 - The Board also has the power to **review its own decisions** via a Review petition. Appeals against the Board's orders can be made to the **Appellate Tribunal** established under the Act.

Kurmi Community



Why In News

- **Rail Blockade:** Members of the **Kurmi community** staged a rail blockade at various stations across **Jharkhand** (and parts of West Bengal and Odisha), defying prohibitory orders.
- **Protest Withdrawal:** The agitation was largely **withdrawn** after the Central government, specifically the office of the Union Home Minister, assured the community's representatives of a **meeting** to discuss their demands.
- **Key Demands:** The protests were launched to press for two main demands:
 1. Granting **Scheduled Tribe (ST) status** to the community (currently classified as Other Backward Class or **OBC**).
 2. Inclusion of the **Kurmali language** in the **Eighth Schedule** of the Indian Constitution.

About Kurmi Community

- **Identity and Occupation:** The Kurmis, sometimes known as **Kunbi**, are a Hindu **farming caste** predominantly found in the lower regions of the **Indo-Gangetic plains**, particularly in parts of Bihar, eastern Uttar Pradesh, and the Chota Nagpur Plateau region (Jharkhand, West Bengal, Odisha).
 - The term "Kurmi" is widely believed to be derived from the Sanskrit word "**Krishi**," meaning **agriculture**.
- **Historical Context:**
 - They are historically renowned for their **exceptional work ethic** and superior farming techniques, earning praise from Mughal and British administrators.

- o In the **1931 Census**, the community was reportedly listed as a **Scheduled Tribe** or 'Notified Tribe,' but was later **excluded from the ST list in 1950** after India's independence.
- **Language:** The **Kurmali language** is primarily spoken by the community in Bihar, Jharkhand, and Odisha and belongs to the **Indo-Aryan language family**.
- **Demand for ST Status:** The community's demand for ST status stems from the belief that they have **tribal roots** and were wrongfully excluded from the ST list post-1950, a classification that would grant them access to greater constitutional, educational, and employment benefits through reservations. This demand is often opposed by existing tribal organizations who fear a dilution of their own reservation quota.

Goods and Services Tax Appellate Tribunal (GSTAT)



In News

- **Formal Launch:** The Union Minister for Finance and Corporate Affairs formally launched the **Goods and Services Tax Appellate Tribunal (GSTAT)** in New Delhi.
- **Significance:** This marks a major institutional milestone, creating a **specialised, independent forum** for **GST dispute resolution** to ensure **uniformity** and promote the '**Ease of Doing Business**' in India.

About GSTAT

- **Statutory Body:** Established under **Section 109** of the **Central Goods and Services Tax Act, 2017 (CGST Act)**.

- **Role:** It is the **Second Appellate Authority** (after the First Appellate Authority) for hearing appeals against orders passed by the Appellate or Revisional Authorities under the GST laws.
- **Objective:** To function as the **"One Nation, One Forum"** for resolving GST disputes between taxpayers and authorities, and between the Centre and States.
- **Jurisdiction:** Hears appeals under the CGST Act and the respective State/UT GST Acts.
- **Status:** It is equivalent to a **Civil Court** for trying a case, possessing powers like summoning individuals, demanding documents, and enforcing its orders.

Structure and Composition

GSTAT ensures a balance between judicial expertise and technical knowledge (**cooperative federalism**).

Bench	Location & Members	Key Role
Principal Bench	New Delhi. Headed by the President + 1 Judicial Member + 2 Technical Members (1 Centre, 1 State).	Acts as the apex forum and serves as the National Appellate Authority for Advance Ruling .
State Benches	31 State Benches across 45 locations. Each Bench comprises 2 Judicial Members + 1 Technical Member (Centre) + 1 Technical Member (State) .	Regional resolution of all other GST-related disputes.

Eligibility and Tenure

Post	Eligibility Criteria (Must satisfy any one)	Tenure & Age Limit
President	A Supreme Court Judge OR served as the Chief Justice of a High Court .	4 years OR till 70 years .
Judicial Member	A High Court Judge OR District/Additional District Judge with 10 years of combined experience OR a Lawyer with 10 years experience (substantial in indirect tax litigation).	4 years OR till 67 years .
Technical Member (Centre/State)	Group 'A' All India Service/Revenue Officer with 25 years of service AND 3 years experience in administering GST/Indirect Taxes/Finance/Taxation.	4 years OR till 67 years .

Procedural Highlights

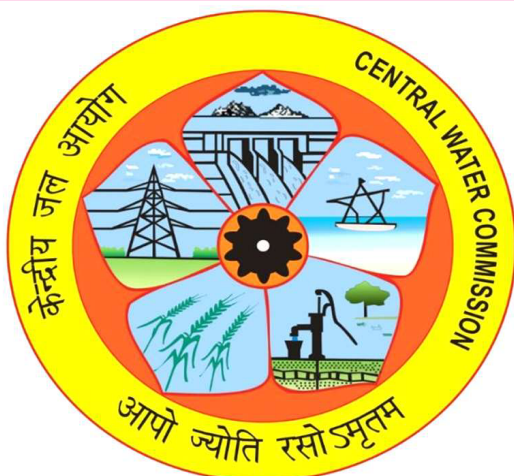
- **Digital Filing:** Appeals must be filed **online** through the GSTAT e-Courts Portal.

- **Limitation Period:** Appeal must be filed within **three months** of receiving the order from the First Appellate Authority.
- **Pre-deposit:** Taxpayers are generally required to deposit **10%** of the disputed tax amount (capped at ₹ 20 crores each for CGST/SGST).
- **Staggered Filing:** A window has been provided (e.g., till June 30, 2026, as per a recent recommendation) for filing appeals against orders passed between the GST's launch and the GSTAT's notification date.

Significance

- **Reduces Burden on High Courts:** Provides a specialised forum, preventing taxpayers from resorting directly to High Courts via writ petitions, thereby cutting down judicial backlog.
- **Uniformity and Certainty:** Ensures a **consistent interpretation** and application of GST laws across the country.
- **Citizen-Centric:** The digital portal and simplified procedures align with the principle of '**Nagarik Devo Bhava**' (citizen first), enhancing accessibility.
- **Economic Benefit:** Quicker resolution of disputes improves **cash flow** for businesses, especially **MSMEs and exporters**, boosting investor confidence.

Central Water Commission (CWC)



Why In News :

- The Central Water Commission (CWC), under the Ministry of Jal Shakti, recently organised a virtual

workshop on the theme “**Technology for Efficient Water Management**” as part of the **Sujalam Bharat Summit (2025)**.

- The workshop, chaired by **Mr. Atul Jain (Chairman of CWC)**, focused on critical strategies to reduce stress on freshwater resources, including:
- **Agricultural Efficiency:** Scaling up **micro-irrigation systems** and promoting **precision agriculture** and crop diversification toward low-water-intensive crops.
- **Modernisation & Automation:** Prioritising the use of **Remote Sensing** and **Artificial Intelligence (AI)** for water resources planning, leak detection, and monitoring water quantity and quality.
- **Water Conservation and Accounting:** Promoting water-efficient appliances and implementing robust **water accounting** to support informed water allocation decisions.

About Central Water Commission (CWC)

The Central Water Commission (CWC) is the **premier technical organisation** in the field of **water resources** in India. It functions as an attached office of the Department of Water Resources, River Development and Ganga Rejuvenation, under the **Ministry of Jal Shakti**, Government of India.

- **Headquarters:** New Delhi.
- **Chairman:** The CWC is headed by a **Chairman**, who holds the status of **Ex-Officio Secretary** to the Government of India. (Current Chairman is Sh. Atul Jain).

Core Functions

The CWC is entrusted with the general responsibility of initiating, coordinating, and furthering schemes for the **control, conservation, and utilisation of water resources** throughout the country, in consultation with the State Governments. Key functions include:

- Formulating & coordinating schemes for **flood control/management, irrigation, drinking water, navigation, and hydropower** development.
- Conducting **techno-economic appraisal** of water resource projects proposed by State Governments.

- Collecting, compiling, publishing, and analysing **hydrological data** (rainfall, run-off, temperature) and acting as the **central bureau of information** on water resources.
- Providing **Flood Forecasting services** to all major flood-prone inter-state river basins.
- Undertaking investigations, construction, and implementation of water projects.
- Monitoring major and medium irrigation projects, including those under the **Dam Rehabilitation & Improvement Project (DRIP)** and the **National Hydrology Project (NHP)**.

Structure

The work of the Commission is divided among three wings, each headed by a full-time Member with the status of Ex-Officio Additional Secretary to the Government of India:

1. **Designs & Research (D&R) Wing**
 2. **River Management (RM) Wing**
 3. **Water Planning & Projects (WP&P) Wing**
- **Training:** The **National Water Academy (NWA)** in **Pune** is the in-house training institute for engineers from central and state agencies, exposing them to various aspects of the water sector.

About Sujalam Bharat Summit (2025)

The Sujalam Bharat Summit is a **national initiative** led by the **Ministry of Jal Shakti** and coordinated by **NITI Aayog**.

- **Focus:** It focuses on comprehensive **water management, sanitation, and sustainable practices** across the country.
- **Objective:** Its primary aim is to integrate **grassroots-level inputs and feedback** on the impact and challenges of water-related policies into **national policy-making**, aligning with the vision of the Prime Minister.
- **Format:** A series of **six Departmental Summits** is planned to gather field-level insights from diverse stakeholders.

ARMED FORCES (SPECIAL POWERS) ACT (AFSPA), 1958



Why In News

The **Assam government** recently extended the **Armed Forces (Special Powers) Act (AFSPA), 1958**, in three districts for another six months.

About Armed Forces (Special Powers) Act (AFSPA), 1958

AFSPA is a controversial law enacted by the Indian **Parliament in 1958** that grants special powers and immunity to the armed forces operating in regions officially designated as “disturbed areas” to maintain public order.

- **Basis:** It is applied only after an area has been formally declared “**disturbed**” under **Section 2** of the Act.
- **Duration:** Once declared, a region must be maintained as disturbed for at least **three months** under The Disturbed Areas (Special Courts) Act, 1976. The scope and duration of its application vary based on the security situation.
- **Nodal Authority:** Ministry of Home Affairs, Government of India.

Declaration of Disturbed Areas

- **Definition (Section 3):** A “**disturbed area**” is defined as one where the use of armed forces is deemed necessary to support civil authorities in maintaining law and order.
- **Conflict Basis:** An area can be declared disturbed due to conflicts or disputes between various **religious, racial, linguistic, regional, or caste-based communities**.

- **Declaring Authorities:** The power to declare an area as disturbed rests with:

1. The **Central Government**.
2. The **Governor of the concerned state**.
3. The **Administrator of the Union Territory**.

‘Special Powers’ Granted to Armed Forces

The Act provides armed forces with extensive authority to conduct operations and enforce law and order in the disturbed regions.

Power	Details
Shoot to Kill	They have the authority to use force, even to cause death, after giving due warning , if they feel a person is contravening the law or acting against public order.
Arrest and Detention	They can arrest a person without a warrant if reasonable suspicion exists that the person has committed or is about to commit a cognizable offence.
Search and Seizure	They can enter or search a premises without a warrant and ban the possession of firearms.
Restriction on Assembly	They have the authority to prohibit a gathering of five or more persons in an area.
Post-Arrest Procedure	Any person arrested or taken into custody must be handed over to the officer-in-charge of the nearest police station, along with a report detailing the circumstances of the arrest.

Immunity and Current Application

Immunity Clause

- The Act grants **immunity from prosecution** to armed forces personnel operating under AFSPA.
- No prosecution can be initiated against them unless the **Union Government provides sanction** to the prosecuting agencies.

Current Regions of Enforcement

AFSPA is currently active, in whole or in parts, in several states and Union Territories, primarily in India’s Northeast and Jammu and Kashmir:

- **Assam**
- **Manipur** (excluding the Imphal Municipal Area)
- **Nagaland**
- **Arunachal Pradesh** (in certain districts)
- The **Union Territory of Jammu & Kashmir** (applied under different, related legislation).

EDITORIALS

Crux of The Hindu & Indian Express

Indian Polity & Governance

Foreigners Tribunals Empowered to Issue Arrest Warrants & Send ‘Foreigners’ to Detention Centres (September 2025)



What’s the News?

- The **Union Ministry of Home Affairs (MHA)** has notified a new **Immigration and Foreigners Order, 2025** under the **Immigration and Foreigners Act, 2025** (passed in April).
- **Foreigners Tribunals (FTs)** – previously limited in power – are now given authority **equivalent to a First-Class Judicial Magistrate**.
- FTs can now:
 - o **Issue arrest warrants**
 - o **Send individuals to detention or holding centres**
 - o **Do so if persons fail to prove their Indian nationality** or fail to appear before the tribunal.

Key Legal Changes & Provisions

Feature	Previous Status (Pre-2025)	Current Status (Post-2025 Order)
Governing Law	Foreigners (Tribunals) Order, 1964	Immigration and Foreigners Order, 2025
Power to Arrest/Detain	Not specified	Yes – Can issue arrest warrants & send to detention
FT Member Limit	No cap on number	Max 3 members per tribunal
Ex-Parte Orders	No clear review process	Can be set aside within 30 days of appeal
Jurisdiction	Assam only (practically)	Applicable nationally , but FTs still only in Assam
Enforcement of Deportation	Executive-based	Statutory powers given to designated forces (e.g., Coast Guard, BSF)

Background Context: Assam and FTs

- **Foreigners Tribunals (FTs)** are quasi-judicial bodies unique to **Assam**, created for identifying **illegal immigrants**, especially from Bangladesh.
- Originated from **Illegal Migrants (Determination by Tribunals) Act, 1983**, which was **struck down by the Supreme Court in 2005**.
- Assam now has **100 operational FTs**, many created post-2019 **NRC (National Register of Citizens)** process.
 - NRC excluded **19 lakh people** out of **3.29 crore applicants**.
 - FTs are tasked with deciding the fate of the **excluded individuals**.
- **Current NRC itself is under challenge** by the Assam state government.

Nationwide Implications :

Although the order applies **across India**, only Assam has operational FTs. In other states:

- Suspected illegal immigrants are handled by **regular courts**, not FTs.
- This order may be a step towards **nationwide expansion of FTs** in future.

Security & Strategic Provisions :

- **Employment Restrictions:** Foreigners cannot be employed in **critical sectors** (power, water, petroleum, defence, space, nuclear, human rights) **without Centre's approval**.
- **Border & Maritime Enforcement:**
 - **Coast Guard/Border Guarding Forces** must:
 - * Capture biometric & demographic data of suspected migrants.
 - * Push them back at border entry points.
- **Illegal Settlers:**
 - Nodal officers (appointed by states) will **track & monitor** such individuals.

Grounds for Denial of Entry/Stay :

A foreigner can be **denied entry or deported** if found involved in:

- **Anti-national activities**

- **Terrorism, espionage, subversion**
- **Rape, murder, child/human trafficking**
- **Cybercrime, money laundering, hawala**
- **Narcotics trafficking**
- **Use of fake documents/currency/crypto**

Exempted Categories :

The **Immigration and Foreigners (Exemption)**

Order, 2025 exempts:

- **Nepalese & Bhutanese citizens**
- **Tibetans**
- **Sri Lankan Tamils**

These groups are not subject to the provisions of the Act.

Significance :

- Marks a **shift from executive discretion to legal enforcement** in dealing with illegal immigration.
- Enhances **legal clarity** and **operational powers** of tribunals.
- Raises **human rights concerns**, especially in Assam where many still await NRC resolution.
- Could be **precursor to nationwide FT framework** and deeper immigration control policies.

Vice President Election 2025: C.P. Radhakrishnan Elected as 15th Vice President of India



Why in News?

- **C.P. Radhakrishnan**, former Maharashtra Governor and BJP leader from Tamil Nadu, was elected the **15th Vice-President of India** on **September 9, 2025**.
- He defeated **Justice B. Sudershan Reddy (Retd.)**, the joint Opposition (INDIA bloc) nominee, by a **margin of 152 votes**.
- The **Vice Presidential election** followed the **sudden resignation** of **Jagdeep Dhankhar** in July, two years before completing his term.
- The ruling **NDA** nominated **C.P. Radhakrishnan** (Governor of Maharashtra), while the **Opposition** fielded **B. Sudershan Reddy** (former Supreme Court judge).

Election Result Highlights

Detail	Figures
Total Strength of Electoral College	788
Vacant Seats (Rajya Sabha + Lok Sabha)	7 (6 RS + 1 LS)
Effective Strength for Voting	781
Votes Polled	767
Valid Votes	752
Invalid Votes	15
Majority Required	377
Votes Secured (Radhakrishnan - NDA)	452
Votes Secured (Reddy - INDIA bloc)	300
Abstentions	14 MPs

Result: Radhakrishnan elected with **60%** of valid votes.

Key Political Takeaways

1. Opposition Falls Short

- Despite claims of full participation, the Opposition candidate received only **300 votes** — **24 less than the INDIA bloc's estimated strength (324)**.

- Congress called this a **“moral victory”**; BJP claimed **cross-voting** occurred.

2. Cross-Voting and Invalid Ballots

- BJP MP Sanjay Jaiswal claimed **up to 40 Opposition MPs** voted in some form for the NDA candidate.
- The 15 invalid votes are believed to be **deliberately spoiled** by some Opposition MPs — suggesting **internal divisions**.

3. Ruling Alliance Exceeds Its Strength

- NDA+ allies were expected to gather 439 votes; Radhakrishnan received **452**, indicating **13 additional votes**, possibly due to cross-voting or support from unaffiliated MPs.

4. Strong Symbolic Message

- Radhakrishnan's election:
 - Reinforces BJP's **OBC outreach** (Gounder community in Tamil Nadu).
 - Adds **Southern representation** at the top constitutional level.
 - Marks a shift from confrontational predecessor **Jagdeep Dhankhar**, signaling a possible **course correction**.

5. Widespread Participation – Despite Odds

- Aged and ill MPs participated:
 - **Deve Gowda (92)** voted in a wheelchair.
 - **Engineer Rashid**, in **judicial custody under UAPA**, brought under court order.
 - **TMC MPs** voted despite illness.
 - **Amritpal Singh** (NSA detainee) abstained, returning postal ballot.

6. OBC Representation & Social Messaging

- Radhakrishnan is from the **OBC Gounder community**, reinforcing BJP's **OBC outreach**.
- Now, all **three top constitutional posts** (President, PM, Vice President) are held by **marginalised social groups**:
 - President – **Adivasi woman**

- o PM – **OBC (Western India)**
- o Vice President – **OBC (Southern India)**
- **Strategic Tamil Nadu Focus**
 - o First time in decades a **Tamil Nadu leader** holds such a high post.
 - o Seen as BJP's strategic **preparation for 2026 Tamil Nadu Assembly Elections**, where it aims to expand influence via **AIADMK alliance** and **Gounder vote consolidation**.

Constitutional Provisions: Vice President of India

Article	Provision
Article 63	Provides for the office of the Vice President
Article 64	Ex-officio Chairman of Rajya Sabha
Article 65	To act as President in case of vacancy or absence
Article 66	Election process of Vice President
Article 67	Term, resignation, and removal
Article 71	Disputes related to election
Vice-President's Pension Act, 1997	Governs post-retirement perks and pension

Key Functions and Powers

1. **Ex-officio Chairman of Rajya Sabha**
 - o Presides over Rajya Sabha sessions.
 - o Maintains order and discipline in the House.
 - o Does **not vote** in first instance; can cast **deciding vote** in case of tie.
2. **Acts as President**
 - o During **vacancy** in President's office (death, resignation, impeachment, etc.)
 - o When **President is unable to perform duties** (illness, absence, etc.)
 - o Enjoys all **powers, privileges, and salary** of the President during this period.

3. Second highest constitutional office in India (after the President).

Election Process of Vice President (Article 66)

Parameter	Detail
Electoral College	Comprises both elected and nominated members of Lok Sabha (543) and Rajya Sabha (233 elected + 12 nominated)
Voting system	Proportional Representation by means of Single Transferable Vote
Voting method	Secret ballot
Ballot rules	- Must mark 1st preference (mandatory) - Can mark 2nd, 3rd preferences (optional) - Preferences can be in Indian or Roman numerals, or any recognised Indian language

Eligibility Criteria (Article 66(3) & (4))

Criteria	Requirement
Citizenship	Must be a citizen of India
Age	Must have completed 35 years
Qualification	Must be qualified for election to the Rajya Sabha
Disqualification	Must not hold any office of profit under the Government of India, any State, or local authorities

Note: If an MP or MLA is elected as Vice President, they are deemed to have vacated their seat on assuming office.

Term and Removal (Article 67)

Provision	Detail
Term	5 years from the date of entering office
Resignation	Can resign by writing to the President
Removal	- By resolution of the Rajya Sabha passed by majority of all members - Agreed to by Lok Sabha
Holding office post-term	Continues until successor takes over

Disputes Regarding Election (Article 71)

- **Only Supreme Court** has jurisdiction to adjudicate election disputes.
- Decision is **final** and binding.
- **Acts done during term** of a Vice President whose election is later declared void **remain valid**.
- **Parliament may regulate** any matter related to such elections by law.

Post-Retirement Perks & Emoluments

Salary & Pension

Year	Salary
Before 2018	₹1.25 lakh/month
After 2018 revision	₹4 lakh/month

- **Pension:** 50% of the last drawn salary (₹ 2 lakh/month as of 2025).
- **Spouse** entitled to 50% of the pension post demise of the Vice President.

Other Perks under Vice-President's Pension Act, 1997

- **Furnished residence** (rent-free)
- **Medical facilities**
- **Secretarial staff:**
 - o Private Secretary
 - o Additional Private Secretary
 - o Personal Assistant
 - o Two Peons
- **Office and travel expenses** (up to a fixed limit)

Importance of the Vice President Election

- Reflects **parliamentary democracy at work**, as the electoral college consists **only of MPs**.
- Vacancy due to **premature resignation** (as in 2025) is rare.
- Can influence **Rajya Sabha functioning**, especially during politically tense periods.
- Vital **constitutional back-up** for the President.

Comparing Election of President Vs. Vice President

Feature	President	Vice President
Electoral College	Elected MPs + MLAs	Only elected & nominated MPs
Voting System	Proportional Representation	Proportional Representation
Voting Method	Secret Ballot	Secret Ballot
Acts as...	Head of State	Chairman of Rajya Sabha
Back-up Role	None	Acts as President in certain cases

Centre Faces Backlash Over Ban on Sikh Pilgrimage to Nankana Sahib, Pakistan



Why In News :

The Government of India, through the **Ministry of Home Affairs (MHA)**, has directed State governments not to process applications for **Sikh pilgrims' visits to Nankana Sahib (Pakistan)** for the **birth anniversary of Guru Nanak Dev** in November 2025.

- The decision is attributed to the **prevailing security situation with Pakistan**.
- This has triggered strong reactions from **political leaders, Sikh bodies, and religious organizations**, who have demanded a reversal of the decision.
- Jatha (pilgrimage) usually visits four times annually to Pakistan first in April near Vasakhi, then in June in reference to Guru Arjan dev and Mahraja ranjit singh (death anniversary) and lastly in November at birth Anniversary of Guru Nanak Dev.

Key Facts for Prelims:

Aspect	Details
Site in Question	Nankana Sahib , Pakistan (Birthplace of Guru Nanak Dev)
Occasion	Parkash Gurburab (Birth Anniversary of Guru Nanak Dev)
Govt Decision	No Jatha (group of pilgrims) allowed to Pakistan this year
Responsible Ministry	Ministry of Home Affairs (MHA)
Legal Reference	Nehru–Liaquat Pact (1950) – Allows religious visits across borders
Key Sikh Body Involved	Shiromani Gurdwara Parbandhak Committee (SGPC)

Background & Context

Nankana Sahib:

- A sacred site for **Sikhs worldwide**.
- Located in Pakistan's Punjab province.
- Birthplace of **Guru Nanak Dev Ji**, founder of Sikhism.

Cross-border Religious Visits:

- Governed under the **Nehru–Liaquat Pact, 1950**, and subsequent bilateral protocols.
- Allows Sikh and Hindu pilgrims to visit shrines in Pakistan and vice versa (**e.g., Kartarpur Corridor**).

Political and Social Reactions

Stakeholder	Viewpoint
Punjab CM Bhagwant Mann	Criticized the move as anti-people and anti-Punjab; questioned whether the issue is with Pakistan or with Indians.
Congress Leader Pargat Singh	Called out the double standards — trade, films, and cricket are allowed, but religious travel is stopped.
SAD President Sukhbir Singh Badal	Invoked the 1950 Pact and historical precedence; demanded travel be allowed "at pilgrims' own risk."
SGPC (Sikh Religious Body)	Called the decision " unfortunate " and urged a review.
Public Sentiment	Many Sikh groups see the move as a violation of religious freedom and heritage access.

Issues Involved

1. Religious Freedom vs National Security:

- Balancing the right to religious pilgrimage with concerns over cross-border tensions and safety of citizens.

2. Policy Consistency:

- Critics point to **ongoing cricket diplomacy** and trade with Pakistan as contradictions.

3. Federal Concerns:

- States (especially Punjab) feel **excluded from key decisions** affecting their religious communities.

4. Diplomatic Relations:

- Despite tensions, India and Pakistan have historically allowed pilgrimages under set agreements.

Constitutional and Legal Dimensions

Domain	Relevance
Article 25	Freedom of conscience and free profession, practice, and propagation of religion.
Nehru–Liaquat Pact (1950)	Framework for minority rights and religious visits across borders.
Kartarpur Corridor Agreement (2019)	Symbol of religious diplomacy amidst strained relations.

What is NEHRU-LIAQUAT AGREEMENT 1950 ?

- **DATE SIGNED:** 8 April 1950

LOCATION: New Delhi

- **SIGNED BETWEEN:**

- **Jawaharlal Nehru** (Prime Minister of India)
- **Liaquat Ali Khan** (Prime Minister of Pakistan)

BACKGROUND

- After **Partition in 1947**, large-scale **communal violence** and **mass migration** occurred, especially in **East Bengal** (Pakistan) and **West Bengal, Assam, and Tripura** (India).

- **Religious minorities** (Hindus in Pakistan, Muslims in India) were affected by:
 - Killings
 - Forced conversions
 - Abductions
 - Loss of property
- Urgent need arose for **diplomatic action** to **protect minority rights** and **stabilize relations**.

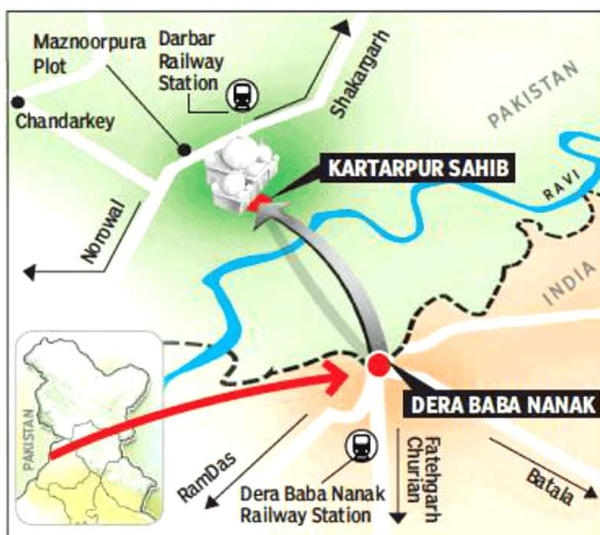
OBJECTIVES OF THE AGREEMENT

- Ensure **equality, security, and freedom** for **religious minorities** in both nations.
- Facilitate **safe return and rehabilitation** of **refugees**.
- Prevent **future communal disturbances** and promote **normalcy**.
- Strengthen **democratic participation** and **minority representation**.

LEGAL FOUNDATION

- **Indian Constitution** guarantees these rights (Articles 14–16, 25–30).
- **Pakistan’s Objectives Resolution (1949)** provided a similar commitment.

ABOUT SRI KARTARPUR SAHIB CORRIDOR AGREEMENT :



Signed in: 2019

- **Bilateral agreement** between **India and Pakistan**, initially valid for **5 years** (till 2024).

- Allows **visa-free travel** for:
 - **Indian citizens**
 - **Overseas Citizens of India (OCI) cardholder**

Main Provisions:

- **Daily access throughout the year**.
- Travel is **one-day only**: **Pilgrims must return the same day**.
- **Pakistan levies USD 20 per pilgrim per visit**.
- **No religious restrictions**: Pilgrims of **any faith** can visit.
- **Pakistani Sikhs do not have reciprocal access** to **Dera Baba Nanak** in India without an **Indian visa**.

RELIGIOUS AND CULTURAL SIGNIFICANCE

Kartarpur Sahib:

- Final **resting place** of **Guru Nanak Dev Ji**, the founder of **Sikhism**.
- Guru Nanak Dev Ji spent the **last 18 years of his life** here.
- Believed to have **composed many hymns** of the **Guru Granth Sahib** here.
- “**Guru Ka Langar**” (**community kitchen**) was started here—now a central tenet of Sikh tradition.
- The **three pillars of Sikhism** were practised here:
 - **Kirat Karo** (Earn an honest living)
 - **Vand Chhako** (Share with others)
 - **Naam Japo** (Chant the name of God)

STRATEGIC AND DIPLOMATIC SIGNIFICANCE

- Serves as a **confidence-building measure (CBM)** between **India and Pakistan**.
- Encourages **people-to-people contact** and **religious tourism**.
- Promotes **cultural diplomacy**, even amidst strained bilateral relations.
- Viewed as a **symbol of peace** and **communal harmony**.

IMPORTANT SIKH PILGRIMAGE SITES

Place	Location	Significance
Gurdwara Janam Asthan	Nankana Sahib, Pakistan	Birthplace of Guru Nanak Dev Ji
Gurdwara Ber Sahib	Sultanpur Lodhi, Punjab	Associated with Guru Nanak's life
Akal Takht & Golden Temple (Harmandir Sahib)	Amritsar, Punjab	Spiritual and temporal centre of Sikhism
Takht Sri Keshgarh Sahib	Anandpur Sahib, Punjab	Birthplace of Khalsa (1699)
Takht Sri Damdama Sahib	Talwandi Sabo, Punjab	Guru Gobind Singh compiled final Guru Granth Sahib here
Takht Sri Patna Sahib	Patna, Bihar	Birthplace of Guru Gobind Singh
Takht Sri Hazur Sahib	Nanded, Maharashtra	Guru Gobind Singh attained Mahasamadhi here

EC Delists 474 Registered Political Parties in Phase 2 of Electoral System Overhaul



Why in News

- On **September 19, 2025**, the **Election Commission of India (ECI)** delisted **474 Registered Unrecognised Political Parties (RUPPs)** in the second phase of its ongoing electoral system overhaul aimed at cleaning up the registry of political parties by removing inactive and non-compliant entities.

EC Delists 474 Registered Political Parties in Phase 2 of Electoral System Overhaul

- Delisted Parties in Phase 2:** 474 RUPPs (delisted on September 18, 2025)

- Delisted Parties in Phase 1 (August 9, 2025):** 334 RUPPs
- Total RUPPs delisted in last 2 months:** 808
- Remaining Registered Unrecognised Political Parties:** 2,046

About Registered Unrecognised Political Parties (RUPPs)

- RUPPs are parties that are:
 - Newly registered
 - Have not secured required vote share to become state parties
 - Have never contested elections since registration
- Despite lack of recognition, RUPPs enjoy benefits such as:
 - Tax exemptions under Section 13A of Income Tax Act
 - Eligibility for common poll symbols (on condition of contesting at least 5% of total candidates in the relevant Legislative Assembly election)
 - Permission to nominate up to 20 star campaigners
- Obligations of RUPPs:
 - Contest elections periodically
 - File annual audit accounts and contribution reports
 - Disclose donations exceeding ₹ 20,000 and prohibit accepting cash donations above ₹ 2,000

About Registered Political Parties

- Registration under Section 29A of the RPA, 1951, provides legal recognition and several privileges.
- Registered parties can accept donations voluntarily offered by persons or companies (except government companies).
- Registered parties get priority in the allotment of election symbols. Independent candidates do not get this benefit.

- Registered parties can apply for recognition as **State or National parties**, subject to meeting criteria prescribed by the EC.

Conditions for Recognition as a State Party

A party is recognized as a **State Party** if it fulfils **any one** of the following in a state:

- Wins **3% of seats** in the Legislative Assembly in a General Election
- Wins **one Lok Sabha seat for every 25 Lok Sabha seats allotted** to the state
- Secures a minimum of **6% votes** in the state and wins one Lok Sabha or two Legislative Assembly seats
- Secures **8% votes** in the state in the General Election to Lok Sabha or Assembly

Conditions for Recognition as a National Party

A party is recognized as a **National Party** if it meets **any one** of the following:

- Secures at least **6% votes** in **four or more states** in Lok Sabha or Assembly elections, and has at least **four Lok Sabha members**
- Has at least **2% of total Lok Sabha seats** with candidates from **at least three states**
- Is recognized as a **state party in at least four states**

Note: National and State parties must continue to meet these conditions in subsequent elections to retain their status, or else they lose recognition.

Legal Framework for Registration and Delisting

- Political parties are registered under **Section 29A of the Representation of the People Act (RPA), 1951**.
- Registration offers benefits such as:
 - Reserved electoral symbols (based on party recognition)
 - Tax exemptions under **Section 13A of the Income Tax Act, 1961**
 - Eligibility for common poll symbols (subject to contesting minimum number of candidates)

- Permission to nominate up to 20 star campaigners

- **Guideline for delisting:** Parties that **do not contest elections for six consecutive years** are liable to be removed from the register.

Reasons for Delisting

- Non-contestation of elections for **6 consecutive years**
- Failure to submit **Annual Audited Accounts** for the financial years 2021-22, 2022-23, and 2023-24
- Failure to file **Election Expenditure Reports** despite contesting elections
- The 359 RUPPs with financial non-compliance are spread across **23 States and Union Territories**.

Delisting Procedure

- The **Chief Electoral Officers (CEOs)** of the concerned States/Union Territories issue **show-cause notices** to the parties identified for delisting.
- Parties are provided an opportunity for a **hearing** to explain their non-compliance or inactivity.
- Final decision on delisting is taken by the **Election Commission** based on CEO reports and party responses.

Significance of Delisting

- Enhances **transparency and accountability** in the political system
- Ensures that only active and compliant parties enjoy privileges such as election symbols and tax benefits
- Discourages the proliferation of **dummy or inactive political parties**
- Strengthens the integrity of India's **democratic electoral framework**.



Ramon Magsaysay Award 2025



Why in News?

- The **Ramon Magsaysay Award, 2025**, was recently announced for '**Educate Girls**', an Indian non-profit organization.
- The organization was honored for its dedicated work toward educating **unprivileged girls** across rural and educationally backward areas of India, helping to bridge the gender gap in education.

About Ramon Magsaysay Award

- **Status and Objective:** It is widely regarded as **Asia's premier prize and highest honor**, often referred to as the "Nobel Prize of Asia." It celebrates **greatness of spirit** and **transformative leadership** demonstrated in selfless service to the people of Asia.
- **Inspiration and Founding:**
 - The award was established in **1957** to perpetuate the example of integrity and pragmatic idealism set by the late Philippine President **Ramon Magsaysay**.
- **Presentation:**
 - The awards are presented annually in formal ceremonies in **Manila, Philippines, on August 31st**, which marks the birth anniversary of President Magsaysay.
 - Awardees receive a **certificate** and a **medallion** embossed with the image of Ramon Magsaysay.

Award Categories (Historical and Current):

- **Historical (1958-2008):** The award was originally given in six fixed categories: Government Service, Public Service, Community Leadership, Journalism, Literature, and Creative Communication Arts, and Peace and International Understanding.
- **Current (Since 2009):** The fixed award categories were **discontinued**, and the award now recognizes accomplishments across all fields of social impact.
- **Exception (Emergent Leadership):** The category of **Emergent Leadership** (inaugurated in 2000 and supported by the Ford Foundation) remains a specific category. It recognizes an individual (aged 40 or younger) for outstanding, yet not broadly recognized, work on issues of social change within their community.

Multi-Lane Free Flow (MLFF) Tolling System



Why in News?

- The **Indian Highways Management Company Limited (IHMCL)**, a firm promoted by NHAI, recently signed an agreement with **ICICI Bank** to implement the country's first comprehensive **Multi-Lane Free Flow (MLFF) tolling system**.
- The initial implementation will take place at the **Choryasi Fee Plaza in Gujarat on National Highway (NH)-48**.

About Multi-Lane Free Flow (MLFF) Tolling System

- **Nature:** MLFF is a **barrier-less** electronic toll collection mechanism designed to remove all physical toll gates.

- **Technology Used:** It enables seamless transactions by utilizing:
 - **High-Performance RFID Readers** to scan the existing **FASTags**.
 - **ANPR (Automatic Number Plate Recognition) Cameras** to read the **Vehicle Registration Number (VRN)**, ensuring every vehicle is accounted for, even without a perfectly readable FASTag.

Significance of Multi-Lane Free Flow (MLFF) Tolling

Aspect	Impact of MLFF Tolling
Traffic Flow & Congestion	Enables seamless toll collection without stopping vehicles, significantly reducing traffic congestion and travel time at fee plazas.
Efficiency & Environment	Leads to enhanced fuel efficiency due to reduced idling time and consequently lowers emissions (contributes to green highways).
Revenue & Infrastructure	Contributes to improving toll revenue collection and helps in creating a smarter, faster, and more efficient National Highway network across India.

Key Facts about the National Highways Authority of India (NHA)

- **Role:** It is India's premier highway infrastructure creator, entrusted with the core functions of **developing, maintaining, and managing** the National Highways.
- **Status:** It is a **statutory body** operating under the administrative control of the **Ministry of Road Transport and Highways (MoRTH)**.
- **Establishment:** NHA was constituted under the **National Highways Authority of India Act, 1988**, and became fully operational in **February 1995**.
- **Composition:** The Authority consists of a full-time **Chairman**, up to five full-time **Members**, and four part-time **Members** who are appointed by the Central Government. The part-time Members are senior government officials (e.g., Secretary (RT&H), Secretary (Expenditure), etc.).

Sample Registration Survey (SRS) Statistical Report



Why in News?

The **Sample Registration System (SRS) Statistical Report 2023** was recently released by the Office of the Registrar General & Census Commissioner, India (ORGI), revealing key demographic shifts, including a rise in the elderly population (9.7 per cent) and a continued decline in the Total Fertility Rate (TFR) to 1.9.

1. About the Sample Registration System (SRS) Report

- **Conducted By:** The SRS is carried out by the **Office of the Registrar General & Census Commissioner, India (ORGI)**.
- **Purpose:** It is a large-scale demographic survey that provides crucial data on fertility and mortality in India.
- **Key Indicators:** The report includes vital statistics such as:
 - **Total Fertility Rate (TFR)**
 - **Crude Birth Rate (CBR)**
 - **Crude Death Rate (CDR)**
 - **Infant Mortality Rates (IMR)**

2. Key Highlights of the Latest SRS Statistical Report (2023)

The 2023 report presents significant trends in India's demographic indicators:

A. Total Fertility Rate (TFR)

- **Current TFR:** India's TFR has fallen to **1.9** in 2023, marking a decline for the first time in two years.
 - **Note:** TFR is the average number of children expected to be born to a woman during her childbearing years.

- **Sub-Replacement Fertility: 18 States and Union Territories (UTs)** have reported a TFR below the replacement level TFR of 2.1.

- *Context:* A TFR of 2.1 is generally considered the **replacement level**, the point at which a population exactly replaces itself from one generation to the next.

B. Crude Birth Rate (CBR)

- **National Decline:** India's CBR (births per 1,000 population) has declined by 0.7 points, from 19.1 in 2022 to **18.4** in 2023.
- **State Extremes:**
 - **Highest CBR:** Bihar (25.8)
 - **Lowest CBR:** Tamil Nadu (12)

C. Ageing Population (Seniors Aged 60+)

- **Increased Share:** The proportion of the population aged **60 or above** has significantly increased.
 - It now constitutes **9.7 per cent** of India's people (a sharp rise from 8.6 per cent in 2011).
- **Leading State:** Kerala leads the trend, with almost **15 per cent** of its population aged 60 or above.

D. Sex Ratio at Birth (SRB)

- **National SRB:** The Sex Ratio at Birth stood at **917**.
 - *Interpretation:* This denotes that **917 girls** are born for every **1,000 boys** in the population.

Health AI Global Regulatory Network (GRN)



Why in News?

India recently joined the **HealthAI Global Regulatory Network (GRN)** to strengthen the oversight and safe use of Artificial Intelligence (AI) in the healthcare sector.

1. About HealthAI Global Regulatory Network (GRN)

- **Nature:** It is a **Geneva-based, independent nonprofit organization**.
- **Core Goal:** Promotes **equitable access** to AI-powered health innovations.
- **Function:** It serves as a **global network of health regulators** dedicated to ensuring the **safe and effective use** of Artificial Intelligence (AI) in healthcare.
- **Key Objectives (Aims):**
 - Build **trust** in AI health tools.
 - Improve **safety**.
 - Accelerate **responsible innovation**.
- **Methods:** These goals are achieved through shared learning, development of joint standards, and issuing early warnings of emerging risks.
- **Member Benefit:** Members gain access to a **global directory of registered AI health tools** to support transparency and collaboration.

2. India's Involvement and Collaborating Agencies

- **Joining Entity:** India's membership aims to strengthen the country's oversight of AI in healthcare.
- **Collaborating Indian Agencies:** The following bodies will work with HealthAI:
 1. **Indian Council of Medical Research - National Institute for Research in Digital Health and Data Science (ICMR - NIRDHDS)**
 2. **IndiaAI**

3. What is IndiaAI?

- **Definition:** It is the **Government of India's central initiative** established to build a comprehensive and inclusive AI ecosystem in the country.
- **Working Body:** It operates under the **Ministry of Electronics & Information Technology (MeitY)** via the **Digital India Corporation**.
- **Objective:** Its primary aim is to position India as a **leader in AI innovation and development**.

Methandienone Long-Term Metabolite (LTM)



Why in News?

India has successfully developed a rare and high-purity Reference Material (RM) called Methandienone Long-Term Metabolite (LTM), significantly enhancing the country's capabilities for anti-doping testing in sports.

1. About Methandienone Long-Term Metabolite (LTM)

- **Nature:** It is a newly developed Reference Material (RM).
- **Collaboration:** Developed jointly by the National Institute of Pharmaceutical Education and Research (NIPER) and the National Dope Testing Laboratory (NDTL).
- **Context:** Methandienone is an anabolic steroid whose use is prohibited in sports.

What are Reference Materials (RMs)?

- RMs are the **most highly purified and scientifically characterized forms** of drug substances or their metabolites.
- **Crucial Role:** They are essential for accurate analytical testing and are vital for the detection of over **450 substances** currently prohibited by the World Anti-Doping Agency (WADA).

2. Significance of Methandienone LTM

- **Enhanced Detection:** As a Long-Term Metabolite (LTM), it helps in **identifying athletes who have used Methandienone** (anabolic steroid) even long after the drug has been administered.
- **Deterrent:** The improved detection capabilities will serve as a **deterrent** for athletes considering the use of anabolic steroids.
- **Integrity in Sports:** The new RM helps in enforcing **transparency and integrity in sports** by protecting clean athletes and acting as a deterrent against the use of prohibited substances.

3. Key Facts about National Dope Testing Laboratory (NDTL)

- **Status:** It is a premier analytical testing and research organization established under the **Government of India**.
- **Mandate:** It is the **only laboratory in the country** responsible for **human sports dope testing**.
- **Accreditation:** It is accredited by both the **National Accreditation Board for Testing & Calibration Laboratories (NABL)** and the **World Anti-Doping Agency (WADA)**.

WHO Model Lists of Essential Medicines (EML)



Why in News?

The World Health Organization (WHO) recently released updated editions of its Model Lists of Essential Medicines (EML), adding new treatments for several conditions, including various types of **cancer, diabetes, and obesity** associated with co-morbidities.

1. About WHO Model Lists of Essential Medicines (EML)

- **Function:** Acts as a **register of minimum medicine needs** for every health-care system globally.
- **Update Frequency:** The list is updated every **two years** by the **Expert Committee on Selection and Use of Essential Medicines**.
- **Global Adoption:** Over **150 countries** globally have national essential medicines lists based on the WHO Model List.
- **Selection Criteria:** WHO selects essential medicines based on:
 - **Public health relevance.**
 - **Evidence of benefits and harms.**
 - Consideration of **costs, affordability, and other relevant factors.**

2. History of the Essential Medicines List

- **First Country:** Tanzania was the first country in the world to compose its own EML in **1970**.
- **WHO Mandate:** In **1975**, the World Health Assembly requested WHO to assist member states in selecting and procuring essential medicines, ensuring good quality at a reasonable cost.
- **First WHO Model List:** The inaugural WHO Model List of Essential Medicines was published in **1977**, containing **186 medicines**.

3. What are Essential Medicines?

- **WHO Definition:** Essential Medicines are those that **satisfy the priority health care needs of the population**.
- **Key Considerations (for inclusion):** The list is created considering:
 - **Disease prevalence.**
 - **Efficacy and safety.**
 - **Comparative cost-effectiveness** of the medicines.
- **Availability Mandate:** Such medicines are intended to be available in:
 - **Adequate amounts.**
 - **Appropriate dosage forms and strengths** with assured quality.
 - Available in a way that an **individual or community can afford**.

Unified Real Estate (Regulation and Development) Act, 2016 (RERA) Portal



Why in News?

The **Minister of Housing and Urban Affairs** recently launched the **Unified Real Estate (Regulation and Development) Act, 2016 (RERA) portal** (rera.mohua.gov.in) at the 5th meeting of the Central Advisory Council in New Delhi.

1. About the Unified RERA Portal

- **Launch Authority:** Ministry of Housing and Urban Affairs (MoHUA).
- **Context:** The Real Estate (Regulation and Development) Act, **RERA, 2016**, was enacted to ensure **transparency, accountability**, and **protect homebuyers** by tackling issues like project delays. Until now, each State/Union Territory (UT) had its own RERA website.
- **Primary Purpose:** To **consolidate data** from various state RERA portals into a **single, integrated national platform**. This creates a single-window system for information and compliance.
- **Key Objectives:**
 - Create a **national database** of projects, promoters, and agents.
 - **Enhance transparency** and facilitate the sharing of **best practices** across States and UTs.
 - Allow **homebuyers and developers** to check the status of *any* project across India in **one place**.

2. Key Features and Benefits

Feature	Benefit for Homebuyers	Benefit for Developers
Centralised Access	Buyers can view project details nationwide in one place, eliminating the need to navigate multiple state websites.	Standardises reporting requirements , simplifying the process for developers to update project details and maintain compliance.
Transparency	Developer history , project approvals, and timelines are easily accessible, making transactions more dependable.	Rewards compliant builders by boosting their reputation and attracting serious buyers/investors.
Standardisation	Uniform data across states makes it simpler to compare projects, prices, and quality across different jurisdictions.	Encourages market discipline and adherence to quality assurance and timely delivery.
AI Integration	The portal is designed to deploy Artificial Intelligence (AI) tools to flag potentially delayed or stalled projects proactively for regulatory action.	Leads to faster regulatory clarity and coordination for stalled projects.
Grievance Redressal	Complaint filing and tracking can now be streamlined and simplified , potentially leading to faster resolution of disputes.	Better tracking of complaints helps identify regional issues and improve future processes.

Apatani Tribes



Why in News?

The **Apatani tribal women** of Ziro Valley in Arunachal Pradesh are distinguished by their **facial tattoos** and **wooden nose plugs**—a tradition that was **banned in the 1970s** but is still maintained by older women today.

1. About Apatani Tribe

- **Name:** Also known as the **Tanw**, Apa, or Apa Tani.
- **Location:** They inhabit the **Ziro Valley** in the Lower Subansiri district of **Arunachal Pradesh**.
- **Language:** They speak a local language called **Tani** (part of the Tani branch of the Sino-Tibetan family), which is a **tonal language** listed by UNESCO as “definitely endangered.”
- **Religion:** They principally worship the **Sun and the Moon** (Donyi-Piilo faith), revering **Abotani** as their founder.

2. Customs and Unique Lifestyle

- **Sustainable Agriculture (Apatani Cultural Landscape):**
 - o The tribe is world-renowned for its unique, sustainable practice of **integrated rice-fish farming** in their mountain terraces since the 1960s.
 - o They use relatively flat valley land for **wet-rice cultivation** where **fish are also reared**, supplemented by **millet** on the elevated partition bunds.
 - o This system is highly productive, conserves soil fertility using organic waste, and is maintained without the use of farm animals or machines.

- o The **Ziro Valley** has been proposed by UNESCO for inclusion as a **World Heritage Site** for this unique ecological and cultural landscape.

- o They principally use three rice varieties: *Emeo*, *Pyape*, and *Mypia*.

- **Distinctive Appearance:**

- o **Tattoos and Nose Plugs:** Apatani women are known for their distinctive **facial tattoos** (*Tippei*) and **wooden nose plugs** (*Yaping Hullo*).
- o **Origin:** The tradition began as a means of **protection against abduction** by men from neighboring tribes, making the women less conventionally attractive.
- o **Practice:** The tattoos were traditionally done by elder women when a girl was about **10 years old**. The practice was discontinued after the 1970s ban.

- **Traditional Governance:**

- o They possess a vibrant traditional village council called **Bulyañ** (or *bufañ*), which supervises social activities and promotes communal harmony based on moral reasoning and customary laws.

- **Crafts:** They are skilled in **cane and bamboo crafts** and traditional **handloom designs** (shawls called *jig-jagro* or *jilan* and jackets called *supuntarii*). The Apatani textile has been granted a **GI tag**.

3. Major Festivals

- **Dree:** An agricultural festival celebrated in July with prayers for a **bumper harvest** and the prosperity of all humankind.
- **Myoko:** A major, month-long festival (end of March to end of April) celebrated to honor and strengthen **friendship** and clan relations.
- **Yapung and Murung** are other significant festivals.

Bhil Tribe



Why in News

A translated collection of folk tales of the **Bhil tribe** from Madhya Pradesh is being made available on the Ministry of Tribal Affairs' **Adi Vaani website and mobile app**. This initiative aims to preserve and promote the rich oral traditions of the community.

About Bhil Tribe

The **Bhils** are considered one of India's oldest and most widely distributed tribal groups, making them a historically and culturally significant community.

- **Racial Affiliation:** They are identified as one of the Dravidian racial tribes of Western India and belong to the **Australoid** group of tribes.
- **Etymology:** The name 'Bhil' is derived from the Dravidian word *villu* or *billu*, which means "**Bow**," reflecting their traditional identity as master archers.
- **Occupation:** Nearly all Bhil people are engaged in **agriculture**, with most employing the plow, although some historically practiced the slash-and-burn (*jhum*) method.
- **Language:** They speak **Bhili**, an **Indo-Aryan** language that is a blend of Gujarati and Marathi, which has about 36 different dialects.

Distribution of Bhil Tribe

The Bhil are the **largest tribal group in India** by population.

- **Population:** As per the **2011 Census of India**, the total population of the Bhil tribe was approximately **12.7 million (1.27 crore)**, making them the largest Scheduled Tribe in the country.
- **Groups:** They are mainly divided into two groups: the **Central Bhils** and the **Eastern or Rajput Bhils**.

Geographic Concentration:

- o **Central Bhils** are predominantly found in the mountain regions of the Indian states of **Madhya Pradesh, Maharashtra, Gujarat, and Rajasthan**.
- o Significant populations also exist in parts of **Chhattisgarh, Jharkhand**, and the northeastern state of **Tripura**.

Beliefs and Customs of Bhil Tribe

- **Religion:** Most Bhils practice ethnic religions that have been heavily influenced by **Hinduism**. A small percentage also follow Christianity or Islam (like the Tadvi Bhil sub-group).
- **Deities:** They worship numerous local deities, including:
 - o **Khandoba, Kanhoba, Bahiroba, and Sitalmata**.
 - o The **Tiger God** (*vaghdev*).
- **Arts & Dance:** They are renowned for their vibrant art, such as the ritualistic **Pithora wall paintings**, and their traditional folk dance, **Ghoomar**.
- **Main Festival:** The **Baneshwar Fair**, which is dedicated to Baneshwar Mahadev (Lord Shiva) and held during the period of Shivratri, is their main festival.

Birhor Tribe



Why in News

- The **Fulwariya hamlet** in the **Koderma district** of Jharkhand, home to around 550 residents predominantly belonging to the **Birhor tribe**, is soon slated to receive an **electricity supply**, marking the end of nearly eight decades without power.

About the Birhor Tribe

- **Nature and Dependence:** The Birhor are a **semi-nomadic, forest-dependent tribal community**.
- **Concentration:** They are mainly concentrated in the eastern-central Indian state of **Jharkhand**, with smaller populations also found in Chhattisgarh, Odisha, and West Bengal.
- **PVTG Status:** The Birhor community is one of the eight **Particularly Vulnerable Tribal Groups (PVTGs)** officially recognized in Jharkhand.
- **Meaning:** The name “Birhor” is derived from the Mundari words “*Bi*” (Jungle) and “*hor*” (man), meaning “**the man living in the Jungle**” or “**people of the Jungle.**”
- **Anthropology:** They belong to the **Proto-Australoid stock** and are ethnologically akin to other prominent tribes in the region like the Santals, Mundas, and Hos.

Language and Society

- **Language:** They speak the **Birhor language**, which is part of the **Munda group** of languages within the **Austroasiatic language family**. This language shares similarities with Santali, Mundari, and Ho.
- **Settlements:** They reside in small settlements in or on the outskirts of forests. Their temporary settlements are known as **tandas** or **bands**, typically consisting of small, conical huts made of leaves and branches.
- **Social Structure:** Their society is based on strong **kinship ties** and is divided into several clans. Each clan is led by a respected leader who handles disputes and maintains community harmony.

Economy and Classification

- **Traditional Economy:** Their traditional livelihood is a “**primitive subsistence economy**” based primarily on **nomadic hunting** (especially for monkeys) and **gathering**.
- **Crafts:** They are skilled in making **ropes** from specific vine fibers, which they trade with nearby agricultural communities. They also possess a rich traditional knowledge of **medicinal plants**.

- **Socio-Economic Classification:** The community is divided into two distinct groups based on their lifestyle:

- **Uthlus:** The **wandering** or nomadic Birhors.
- **Janghis:** The **settled** Birhors who have transitioned into more stable agriculture.

Moran Community



Why In News

- The **Moran community** in Assam has **ramped up the pressure** in their demand for **Scheduled Tribe (ST) status**.
- Led by the All Moran Students’ Union (AMSU), the community has organized massive protests and even an **economic blockade** in Tinsukia district to halt the movement of key resources like oil, coal, and tea.
- The agitation is part of a long-standing demand for constitutional recognition to secure land rights, employment, and protection against socio-economic marginalization.

About Moran Community

- **Origin and Location:** The Moran are an **indigenous ethnic group** of **Tibeto-Burman origin** (belonging to the Kachari family) mainly concentrated in the **Tinsukia district** of Upper Assam, and also residing in adjoining districts of **Arunachal Pradesh**.
- **History:** It is said that prior to the advent of the **Ahoms** in the 13th century, the Morans had their **own independent kingdom** at **Bengmara** (the present-day Tinsukia). They were later part of the semi-autonomous Matak territory.

- **Language:** They originally spoke a common dialect of their own, the **Moran language**, derived from the **Bodo group** of the Tibeto-Burman linguistic family and closely related to Dimasa, but they later started predominantly using **Assamese**.

Religious Affiliation of Moran Community

- **Current Faith:** Morans are **Vaishnava** by religion and belong to the **Moamoria Sect** (or *Mayamara Satra*).
- **Conversion:** They were introduced to Neo-Vaishnavism by **Sri Aniruddha Deva**, a disciple of the founder of the faith in Assam, Sri Sankara Deva.
- **Former Faith:** Prior to their conversion to Vaishnavism in the 17th/18th century, they were the followers of the **Shakta faith**, affiliated with the **Kechaikhati Than** shrine, where the mother goddess is worshipped.

Festivals

- **Bihu:** The community celebrates various Bihu festivals, including **Gasar Talar Bihu** (Bihu dance performed under a tree), which is very popular.
- **Kheri:** This festival is also celebrated by the community.

National Maritime Heritage Complex (NMHC)



Why In News

- The Prime Minister recently **reviewed the progress** of the **National Maritime Heritage Complex (NMHC)** project at **Lothal** in the Ahmedabad district of Gujarat.
- This review highlights the project's status as a key national initiative aimed at showcasing India's ancient maritime legacy.

About the National Maritime Heritage Complex

- **Flagship Project:** The NMHC is a world-class project of the Government of India designed to consolidate and showcase the **entire 5,000 years of India's rich and diverse maritime history** under a single roof.
- **Location Significance (Lothal):**
 - The complex is being developed at **Lothal, Gujarat** (approx. 76 km from Ahmedabad).
 - Lothal is an ancient city of the **Indus Valley Civilization (IVC)**, dating back to 2400 BC, and is notably the **only port town of the IVC**.
 - Archaeological excavations here uncovered the **world's oldest man-made dockyard**, which is over 5,000 years old.
- **Scale and Vision:** The NMHC is envisioned to be **one of the largest maritime complexes in the world**, functioning as a unique, **digitally enhanced, experiential museum** to attract historians and tourists globally.
- **Nodal Agencies:**
 - **Ministry:** Ministry of Ports, Shipping, and Waterways (under the **SagarMala Programme**).
 - **Nodal Agency:** Indian Ports Association (IPA).
 - **Executing Agency:** Indian Port Rail Corporation Ltd. (IPRCL).
- **Cost and Area:** The complex is being developed over an area of about **400 acres** with an estimated cost of **₹ 4,500 crore**.

Funding and Development Phases

- **Funding Sources:** The project is primarily funded by the **Ministry of Ports, Shipping, and Waterways** and the **Ministry of Culture** through the National Culture Fund by way of grant. Future phases are also planned to be funded through contributions from other ministries, Coastal States/UTs, government institutions, and **CSR funds** from private organizations.

- **Phased Development:** The NMHC is planned in several phases:
 - o **Phase 1A:** Features the NMHC museum with **six galleries** (including one of the largest **Indian Navy & Coast Guard** galleries).
 - o **Phase 1B:** Includes the rest of the NMHC museum with **eight more galleries**, the **world's tallest Lighthouse Museum**, and the **Bagicha complex** (food hall, medical center, large car parking, etc.).
 - o **Phase 2:** Will feature **Coastal States' Pavilions**, a hospitality zone, a **recreation of real-time Lothal City**, a Maritime Institute and hostel, and **four theme-based parks** (e.g., Maritime & Naval Theme Park, Climate Theme Park, etc.).
- **Execution Model:**
 - o **Phases 1A and 1B** are being developed using the **EPC (Engineering, Procurement, and Construction)** model.
 - o **Phase 2** will be developed through land subleasing/ **PPP (Public-Private Partnership)** to establish the NMHC as a world-class destination.
- **Governance:** A separate society, led by a Governing Council headed by the Minister of Ports, Shipping, and Waterways, will be established to manage the implementation and operation of the future phases.

Adi Yuva Fellowship & Adi Karmayogi Volunteers Programme



Why In News

The **Ministry of Tribal Affairs**, in partnership with the **United Nations in India**, recently launched the **Adi Yuva Fellowship** and the **Adi Karmayogi Volunteers Programme** as part of the broader **Adi Karmayogi Abhiyan**.

- **Adi Karmayogi Abhiyan:** This flagship national movement was inaugurated by the Prime Minister in September 2025 as part of the **Janjatiya Gaurav Varsh** (Nov 2024 – Nov 2025). It is envisioned as the world's largest tribal grassroots leadership movement, aiming to engage 11 crore citizens across 1 lakh tribal-dominated villages.
- **Adi Sewa Parv:** An ongoing activity (Sept 17 – Oct 2, 2025) under the Abhiyan where tribal communities and government officials are collaboratively preparing **Tribal Village Vision 2030 Action Plans** for inclusive growth.
- **Student Chapters:** The Ministry has also launched **Adi Karmayogi Student Chapters** at premier institutions (like IITs, IIMs, AIIMS) to nurture a new generation of tribal leaders and connect top institutes with tribal communities.

Adi Yuva Fellowship

Feature	Details
Objective	A first-of-its-kind programme to empower tribal youth through structured learning, mentorship, and career development to prepare them for long-term success.
Supported by	United Nations India (UN India).
Duration & Structure	A 12-month paid Fellowship with a tailored learning plan that balances knowledge-building, on-the-job experience, and reflective practice.
Placement	Fellows are selected through a competitive process and are placed with UN agencies at the national, state, and district levels . The initial batch includes 16 Fellows.
Benefits	Fellows receive monthly allowances , comprehensive health and life insurance, and access to high-quality UN and commercial learning platforms.
Career Linkage	The programme will link Fellows to national skilling and employability schemes such as PMKVY 4.0, NAPS, and PM Viksit Bharat Rozgar Yojana.

Adi Karmayogi Volunteers Programme

Feature	Details
Objective	To equip tribal youth to act as catalysts for grassroots change and strengthen last-mile service delivery in tribal regions.
Supported by	United Nations Population Fund (UNFPA).
Deployment	82 UN Community Volunteers have been deployed as Adi Karmayogi Volunteers across 82 blocks in 13 districts of Madhya Pradesh and Rajasthan for an intensive two-month grassroots engagement.
Role of Volunteers	Volunteers support: - Village Vision 2030 planning (creating local development blueprints). - Awareness drives and outreach campaigns. - Improved access to government schemes and services.
Mandate	Their contribution aims to strengthen community participation and inclusive governance at the village level.

SPARSH Pension System (System for Pension Administration – Raksha)



Why in News

- The **System for Pension Administration – Raksha (SPARSH)** recently achieved a significant milestone by resolving approximately **5.60 lakh out of 6.43 lakh legacy discrepancies** (about 87% of the total pending cases).
- This high rate of resolution has not only protected the entitlements of defence pensioners but has also strengthened the grievance redressal mechanism, significantly reducing the average disposal time for complaints.

About SPARSH Pension System

Feature	Description
Full Form	System for Pension Administration – Raksha (SPARSH)
Parent Ministry	Ministry of Defence, Government of India.
Objective	To be the world's largest pension system for defence personnel, providing a comprehensive, integrated, and digital solution for the sanction and disbursement of pensions for the Army, Navy, Air Force, and Defence Civilians.
Nodal Agency	Administered by the Defence Accounts Department (DAD) through the Principal Controller of Defence Accounts (Pensions), Prayagraj.
Core Function	Handles the entire pension cycle—from initiation and sanction to disbursement, revision, and grievance management— without relying on a third-party bank or intermediary for disbursement.
Current Status	A major digital governance model, with over 31 lakh defence pensioners currently onboarded.

Key Features and Benefits

- Direct Disbursement Model:** The web-based system directly handles pension claims and deposits pension payments into the pensioners' bank accounts, eliminating dependency on commercial banks for monthly disbursement and reducing errors.
- Centralised and Transparent:** It is a centralized system that offers the pensioner a **completely transparent view** of their pension account and captures a complete history of their entitlements and events, from the start to the cessation of pension.
- Digital Identification:** It uses a digital process for pensioner identification (like the annual life certificate), which removes the requirement of multiple physical visits by pensioners to pension offices.
- Comprehensive Cycle Coverage:** The system caters to the entire pension lifecycle:
 - o **Initiation and Sanction**
 - o **Disbursement**
 - o **Revision**
 - o **Service and Grievance Request Management**
- Service Centres:** The Nodal Agency partners with offices of the DAD, various bank branches, and

Common Service Centres (CSCs) across the country, which act as **SPARSH Service Centres** to provide last-mile connectivity and assistance to pensioners, especially in remote areas.

Combined Operational Review and Evaluation (CORE) Programme



Why In News :

The **Combined Operational Review and Evaluation (CORE) Programme** is being organised by **Headquarters Integrated Defence Staff (HQ IDS)** in New Delhi to strengthen civil-military engagement and strategic leadership among senior officers.

About Combined Operational Review and Evaluation Programme

Feature	Description
What it is	A unique platform and professional engagement programme for civil-military engagement on national and regional security.
Organised by	Headquarters Integrated Defence Staff (HQ IDS) , New Delhi.
Organisations Involved	Senior officers from the Indian Armed Forces (Army, Navy, Air Force) along with officers from the Ministries of Defence, External Affairs, and Home Affairs .
Objective	To enhance strategic awareness , equip officers with fresh perspectives, and enable them to make pragmatic, well-informed, and balanced decisions in future leadership roles.
Aim	To strengthen inter-service jointness and synergy between civil and military stakeholders in addressing complex, multidimensional threats.
Themes	Evolving regional and global security challenges, the impact of technological transformation on warfare , the importance of strategic communication, and civil-military coordination.

Features of CORE Programme

- **Comprehensive Exposure:** It provides extensive exposure to contemporary national and regional security issues through insightful interactions with distinguished subject matter experts and professionals.
- **Focus on Leadership Development:** The programme is specifically designed to prepare senior officers for future leadership roles by developing skills in **strategic planning** and anticipating future threats and conflicts.
- **Fosters Jointness and Integration:** By bringing together senior personnel from the three services and key civilian ministries, CORE encourages **joint problem-solving** and a detailed understanding of the integrated operational environment, which aligns with India's goal of establishing Integrated Theatre Commands.



Crus of The Hindu & Indian Express

Indian Society & Social Justice

UDISE+ Report 2024-25



- Recently, **Ministry of Education** released a **detailed report on Unified District Information System for Education Plus (UDISE+) 2024-25** on school education of India.

What is UDISE+?

- **Unified District Information System for Education Plus (UDISE+)** is an **integrated data collection and monitoring system** for school education.
- It covers data from **pre-primary to higher secondary levels** in all recognized schools of India (govt., govt-aided, and private).
- Provides critical input for:
 - o Policy formulation
 - o Resource allocation
 - o Monitoring of schemes (**like Samagra Shiksha**)
 - o Assessing progress in **NEP 2020 implementation**

Key Highlights of UDISE+ 2024–25

1. Total Number of Teachers Crosses 1 Crore

- **First time in UDISE+ history** that teacher numbers have **exceeded 1 crore**.
- **2024–25:** 1,01,22,420 teachers
 - o Up from 98.07 lakh (2023–24) and 94.83 lakh (2022–23)
- **YoY Growth (2022–25):** ~6.7%
- **Implication:**
 - o Improved student-teacher ratio
 - o Addressing teacher shortage, especially in rural/remote areas
 - o Aligns with NEP 2020 goals

2. Improved Pupil Teacher Ratio (PTR)

Level	2022–23	2023–24	2024–25	NEP Target
Foundational	11	10	10	30
Preparatory	14	13	13	30
Middle	18	18	17	30
Secondary	23	21	21	30

- **Analysis:** Significant progress, enabling more personalized teaching and better outcomes.

3. Reduced Dropout Rates

Level	2022–23	2023–24	2024–25
Preparatory	8.7%	3.7%	2.3%
Middle	8.1%	5.2%	3.5%
Secondary	13.8%	10.9%	8.2%

- **Major Achievement:** Systemic interventions showing tangible impact.
- **Policy Factors:**
 - o Samagra Shiksha
 - o PM POSHAN
 - o Scholarships & Conditional Cash Transfers
 - o Community-based tracking of students

4. Improved Retention Rates

Level	2022–23	2023–24	2024–25
Foundational	92.1%	98.0%	98.9%
Preparatory	90.9%	85.4%	92.4%
Middle	75.8%	78.0%	82.8%
Secondary	44.1%	45.6%	47.2%

- **Interpretation:** Expansion of school facilities and awareness drives have reduced student attrition.

5. Improved Gross Enrolment Ratio (GER)

Level	2022–23	2023–24	2024–25
Middle	90.0%	89.5%	90.3%
Secondary	67.6%	66.5%	68.5%

- **Significance:** Reflects better access and participation.
- **Linked with:** NEP target of 100% GER in school education by 2030.

6. Improved Transition Rates

Transition	2022–23	2023–24	2024–25
Foundational → Preparatory	92.2%	98.1%	98.6%
Preparatory → Middle	87.9%	88.8%	92.2%
Middle → Secondary	86.7%	83.3%	86.6%

- **Positive Indicator:** Fewer students dropping out during critical academic transitions.

7. Reduction in Zero Enrolment & Single Teacher Schools

Indicator	2022–23	2023–24	2024–25
Single Teacher Schools	1,18,190	1,10,971	1,04,125
Zero Enrolment Schools	10,294	12,954	7,993

- **Decline in Single-Teacher Schools:** ~6%
- **Decline in Zero Enrolment Schools:** ~38%
- **Impact:** Better teacher deployment and school rationalization policies in place.

8. Digital Infrastructure Growth

Indicator	2022–23	2023–24	2024–25
Schools with Computers	47.7%	57.2%	64.7%
Schools with Internet	49.7%	53.9%	63.5%

- **Implication:** Strengthening digital literacy and NEP's vision for tech-integrated education.

9. Basic Infrastructure Facilities

Facility	2022–23	2023–24	2024–25
Electricity	91.7%	91.8%	93.6%
Drinking Water	98.4%	98.3%	99.3%
Girls' Toilets	97.0%	97.2%	97.3%
Boys' Toilets	95.6%	95.7%	96.2%
Handwash Facility	94.1%	94.7%	95.9%
Playground	82.0%	82.4%	83.0%
Library	88.3%	89.0%	89.5%
Rainwater Harvesting	28.0%	28.4%	29.4%

Accessibility:

- **Ramps with handrails:** Increased to **54.9%**, promoting inclusive education

Gender Equity in Education

Indicator	2022–23	2023–24	2024–25
Female Teachers (%)	52.3	53.3	54.2
Girls' Enrolment (%)	48.0	48.1	48.3

- **Trend:** Progressive move towards gender balance.
- **Impact:** More role models for girl students, improved safety and inclusion.

NIRF 2025 Rankings: DU, JNU, and Jamia Among India's Top 5 Universities

Top performers

As per NIRF 2025 rankings, Delhi-based institutions continue to hold top positions in the country's higher education landscape



COLLEGE CATEGORY

Name	RANK
Hindu College	1
Miranda House	2
Hansraj College	3
Kirori Mal College	4
St. Stephen's College	5

OVERALL CATEGORY

Name	RANK
IIT Delhi	4
AIIMS, Delhi	8
JNU	9
JMI	13
DU	15

Date of Release: September 5, 2025

Released by : Ministry of Education, Government of India

Report: National Institutional Ranking Framework (NIRF) 2025

About NIRF

- **Launched:** 2015 by the Ministry of Education
- **Purpose:** To rank Higher Education Institutions (HEIs) in India

Ranking Parameters (5):

1. Teaching, Learning & Resources (TLR)
2. Research & Professional Practice (RP)
3. Graduation Outcomes (GO)
4. Outreach & Inclusivity (OI)
5. Perception (PR)

Key Changes in NIRF 2025

- **New Category Added:** Sustainable Development Goals (SDGs)
- **Negative Marking:** For retracted publications
- **Self-Citations Elimination:** Continued from 2024
- **Total Categories:** 16 (including Overall, Universities, Colleges, Engineering, Medical, Law, Research, SDGs, etc.)

Top Universities – 2025

THE TOPPERS

OVERALL

	2025	2024
1	IIT Madras	IIT Madras
2	IISc Bangalore	IISc Bangalore
3	IIT Bombay	IIT Bombay
4	IIT Delhi	IIT Delhi
5	IIT Kanpur	IIT Kanpur

ENGINEERING

	2025	2024
1	IIT Madras	IIT Madras
2	IIT Delhi	IIT Delhi
3	IIT Bombay	IIT Bombay
4	IIT Kanpur	IIT Kanpur
5	IIT Kharagpur	IIT Kharagpur

MANAGEMENT

	2025	2024
1	IIM Ahmedabad	IIM Ahmedabad
2	IIM Bangalore	IIM Bangalore
3	IIM Kozhikode	IIM Kozhikode
4	IIT Delhi	IIT Delhi
5	IIM Lucknow	IIM Calcutta

UNIVERSITIES

	2025	2024
1	IISc Bangalore	IISc Bangalore
2	JNU	JNU
3	Manipal Academy of Higher Education	Jamia Millia Islamia
4	Jamia Millia Islamia	Manipal Academy of Higher Education
5	Delhi University	Banaras Hindu University

COLLEGES

	2025	2024
1	Hindu College	Hindu College
2	Miranda House	Miranda House
3	Hans Raj College	St. Stephen's College
4	Kirori Mal College	Ramakrishna Mission Vivekananda Centenary College, West Bengal
5	St. Stephen's College	Atma Ram Sanatan Dharma College, Delhi

Source: NIRF 2025 report

1. IISc Bengaluru – Rank 1

- o Retains top spot (2022–2025)
- o Best university for the 10th consecutive year

2. Jawaharlal Nehru University (JNU), Delhi – Rank 2

- o Retained 2nd place
- o Perception score declined: 70.39 (2024) '! 67.89 (2025)

3. Manipal Academy of Higher Education (MAHE) – Rank 3

- o Climbed from 4th in 2024
- o First private university in Top 3

4. Jamia Millia Islamia (JMI), Delhi – Rank 4

- o Slipped from 3rd (2024)
- o TLR improved: 71.29 '! 73.81
- o Strong performance in SDGs (3rd rank)
- o Ranked 13th in Overall category

5. University of Delhi (DU) – Rank 5

- o Climbed from 6th (2024)
- o Best-ever rank in Universities category
- o Ranked 15th in Overall category
- o DU colleges: Top 5 spots + 10 out of Top 20 in Colleges category

6. BITS Pilani – Rank 7

- VIT – Dropped out of Top 10 (was 10th in 2024)

Overall Category (All Institutions)

- IIT Madras – Rank 1 (7th consecutive year)
- IIT Delhi – Rank 4
- JNU – Rank 9
- Jamia – Rank 13
- DU – Rank 15

Delhi Universities – Performance Overview

University	Rank 2024	Rank 2025	Notes
JNU	2	2	Retained position; minor drop in perception
Jamia	3	4	TLR improved; strong SDG performance
DU	6	5	Best-ever ranking; DU colleges performing well

University of Delhi (DU) – Score Comparison (2024 '! 2025)

- **Teaching, Learning & Resources (TLR):** 56.75 '! 60.65
- **Research & Professional Practice (RP):** 56.42 '! 58.51
- **Graduation Outcomes (GO):** 98.54 '! 96.94 (slight drop)
- **Outreach & Inclusivity (OI):** 67.57 '! 70.15
- **Perception (PR):** 54.75 '! 52.38 (decline)

Significance of NIRF Rankings

For Students:

- Helps in making informed decisions about higher education institutions.

For Policy Makers:

- Promotes transparency, accountability, and competition among HEIs.

Role of Private Universities:

- MAHE, BITS, Amrita, VIT continue to gain prominence.

Delhi-Based Universities:

- JNU, Jamia, and DU all feature in the Top 5 university rankings.

Research Integrity:

- Negative marking for retracted papers encourages academic ethics and quality research.

Alignment with NEP 2020:

- Reinforces focus on research, inclusivity, and sustainable development.

Mizoram Gets First Rail Link: Bairabi–Sairang Railway Line Inaugurated



WHY IN NEWS?

- On 14th September 2025, Prime Minister Narendra Modi inaugurated Mizoram's first railway line — the Bairabi–Sairang broad-

gauge project, linking the state capital Aizawl to the national railway network for the **first time**.

- Built at a cost of ₹ 8,070 crore, the project is considered one of the **most challenging railway constructions** in India.
- PM also **flagged off three new long-distance trains** including the **Sairang–Delhi Rajdhani Express**.

PROJECT OVERVIEW

Particulars	Details
Project Name	Bairabi–Sairang Broad-Gauge Railway Line
Length	51.38 km
Total Cost	₹8,070 crore
Inauguration Date	14 September 2025
Launched by	PM Narendra Modi
Executing Agency	Indian Railways (Northeast Frontier Railway)
Sanctioned in	2008–09
Construction Started	2015
Stations Added	Hortoki, Kawnpui, Mualkhang, Sairang
Capital Linked	Aizawl (4th NE capital to get rail link)

ENGINEERING MARVEL: CHALLENGES & FEATURES

Complex Engineering

- 45 Tunnels, 55 Major Bridges, 87 Minor Bridges
- 10 Road Over/Underpasses
- 54% of the route passes through tunnels and bridges

Notable Structure

- Bridge No. 144 near Sairang
 - Height: **114 metres**
 - Taller than **Qutub Minar**
 - **Tallest pier railway bridge in India**

Terrain Challenges

- **Difficult Himalayan geology**, landslides, and loose soils
- Special technique used: **solidifying sand into rock** for tunnel excavation

RAILWAY CONNECTIVITY BOOST

First Rail Link to Mizoram's Capital

- Connects **Bairabi (on Assam–Mizoram border)** to **Sairang**, 20 km from **Aizawl**
- Aizawl becomes **4th NE capital** with railway access after:
 - Guwahati (Assam)
 - Agartala (Tripura)
 - Itanagar (Arunachal Pradesh)

NEW TRAINS FLAGGED OFF

Train	Frequency	Route
Sairang–Delhi Rajdhani Express	Weekly	Sairang → Anand Vihar Terminal (via Guwahati)
Sairang–Guwahati Express	Daily	Sairang ↔ Guwahati
Sairang–Kolkata Express	Thrice Weekly	Sairang ↔ Kolkata

Regular Rajdhani departs **every Friday** from Sairang and returns from Delhi **every Sunday night**.

ADDITIONAL INFRASTRUCTURE PROJECTS ANNOUNCED

Alongside the rail project, PM Modi launched **₹ 9,000 crore worth of road, connectivity, and development works** in Mizoram.

Major Projects:

Project	Scheme
Aizawl Bypass (45 km)	PM-DevINE
Thenzawl–Sialsuk Road	NESIDS
Khankawn–Rongura Road	NESIDS
Chhimtuipui Bridge	Kaladan Multimodal Project
LPG Bottling Plant at Mualkhang	Oil & Gas Infrastructure
Sports Infrastructure	PM Development Initiatives
Residential Schools	PMJVK & Eklavya Model

VALUE ADDITION: USEFUL TERMS

Term	Description
Act East Policy	India's strategy to enhance connectivity and relations with Southeast Asia
PM-DevINE	PM's Development Initiative for North-East
NESIDS	North East Special Infrastructure Development Scheme
Kaladan Multimodal Project	India–Myanmar–Mizoram transport corridor
Tallest Pier Bridge	Bridge No. 144 in Mizoram – 114 metres
Northeast Frontier Railway	Indian Railways zone responsible for NE connectivity

IMPACT AND SIGNIFICANCE

Strategic & National Integration

- Part of **Act East Policy**
- Enhances connectivity with **Myanmar**, Southeast Asia (via Kaladan Multimodal Transit)
- Boosts **border management** and **defense logistics**

Economic & Social Impact

- **Improved Market Access** for:
 - Ginger processors
 - Dragon fruit farmers
 - Horticulture & Paddy cultivators
- Boost to **tourism, trade, and cross-border commerce**

Employment & Livelihood

- Direct and indirect **job creation**
- Enhanced logistics reduces **cost of essential commodities**

STRATEGIC LOCATION & GEO-POLITICAL SIGNIFICANCE

Aspect	Importance
Proximity to Myanmar Border	Supports Act East trade
Kaladan Corridor Linkage	India–Myanmar–Mizoram route becomes more viable
All-weather Access	Chhimtuipui bridge and new roads support year-round movement
Logistics Hub Potential	Aizawl and Sairang could emerge as key NE transit points

CONCLUSION :

The Bairabi–Sairang railway line is more than a transport corridor—it symbolizes India’s commitment to **inclusive development**, **border area empowerment**, and **strategic connectivity**. As India accelerates its **Act East Policy**, this historic milestone in Mizoram’s history is expected to catalyze **economic transformation**, **national integration**, and **regional peace** in the North-East.

NITI Aayog Launches ‘AI for Viksit Bharat Roadmap’ & ‘Frontier Tech Repository’



Why In News :

- On **15 September 2025**, NITI Aayog launched two transformative tech initiatives under its **Frontier Tech Hub**:
 - AI for Viksit Bharat Roadmap**
 - NITI Frontier Tech Repository**
- Vision Year**
 - Viksit Bharat by **2047**
- New Initiatives**
 - Frontier 50 Initiative, Frontier Tech Impact Awards

Launched by:

- Smt. Nirmala Sitharaman** (Finance & Corporate Affairs Minister)
- Shri Ashwini Vaishnaw** (Railways, I&B, Electronics & IT Minister)
- Senior NITI Aayog officials including Vice Chairperson **Suman Bery** and CEO **B.V.R. Subrahmanyam**

About the Initiatives

1. AI for Viksit Bharat Roadmap

- A **sector-specific action plan** to leverage AI for **accelerated economic growth**.
- Key Objectives**:
 - Accelerate AI adoption** across industries to boost productivity.
 - Leverage **Generative AI** in R&D to leapfrog innovation.
 - Build inclusive, tech-driven ecosystems in **all districts**.
- Encourages **public-private collaboration** in deploying AI.

2. Frontier Tech Repository

- A **digital knowledge base** showcasing **200+ real-world use cases** of frontier tech from across India.
- Covers 4 critical sectors:
 - Agriculture**
 - Healthcare**
 - Education**
 - National Security**
- Highlights **state and startup-led innovations** transforming lives at the grassroots.

Supporting Initiatives Announced

Frontier 50 Initiative:

- Support to **50 Aspirational Districts/Blocks** to **select and deploy** relevant technologies from the Repository.
- Focus on achieving **saturation** of key development indicators.

NITI Frontier Tech Impact Awards:

- Annual awards for **three top-performing states** using tech for:
 - Good governance
 - Healthcare
 - Education
 - Livelihoods
- Winners to receive assistance to **scale innovations** across districts.

Significance of the Launch

For India's Development:

- Pushes India toward the **Viksit Bharat 2047** vision.
- Democratizes access to **cutting-edge technologies**.
- Promotes **tech-based inclusive governance**.
- Supports **startup ecosystems** and public sector innovation.

For the Economy:

- AI seen as a **key enabler** for:
 - Achieving sustained **8% GDP growth**
 - Enhancing **productivity and efficiency**
 - Driving **future job creation**

For Governance:

- Creates a **collaborative innovation ecosystem** among:
 - Government
 - Industry
 - Academia
 - Startups
- Positions India to lead in **global tech standard-setting**.

Mumbai–Ahmedabad Bullet Train Project: Undersea Tunnel Breakthrough



Why in News

- On **September 20, 2025**, a major breakthrough was achieved in the excavation of a **4.8 km undersea tunnel** beneath the **Mumbai-Thane Creek**.
- This is a significant milestone in the construction of India's first bullet train corridor under the **Mumbai–Ahmedabad High-Speed Rail (MAHSR) Project**.
- **Project Executing Agency:** National High Speed Rail Corporation Limited (**NHSRCL**)
- **Tunnel Location:** Undersea section between **Ghansoli** and **Shilphata** on Mumbai-Thane Creek
- **Total Length of Planned Undersea Tunnel:** 21 km

Key Features of the Tunnel

- **India's first undersea rail tunnel**
- Constructed using the **New Austrian Tunnelling Method (NATM)**
- Includes safety systems:
 - **Ground settlement markers**
 - **Piezometers**
 - **Inclinometers**
 - **Strain gauges**
- Built as a **single tunnel** to accommodate **two bullet trains simultaneously**

Project Status & Timeline

- **Total Project Cost:** ₹ 1.08 lakh crore
- **Viaduct Constructed:** 320 km completed
- **First Operational Section:**
 - **Surat to Bilimora by 2027**
 - Extended to **Thane by 2028**
 - Reaches **Bandra Kurla Complex (Mumbai) by 2029**
- **Current Travel Time (Mumbai-Ahmedabad):** ~9 hours
- **Planned Bullet Train Time:** 2 hours 7 minutes
- **Average Speed:** 320 kmph

International Collaboration

- Project is backed by **Japan**, under a high-level partnership
- **E10 Shinkansen** – Japan’s next-gen bullet train – to be introduced in India
- **Training for Indian Loco Pilots and Maintenance Staff** ongoing in Japan using simulators
- Separate platform from **Vande Bharat Trains**

Operational Plans

- **Initial Frequency:** Every **30 minutes** during peak hour
- **Future Frequency:** Reduced to **20 minutes**, eventually to **10 minutes**
- **Fare:** Will be “**reasonable**” and **affordable to middle class** (exact structure not yet declared)

Challenges & Issues

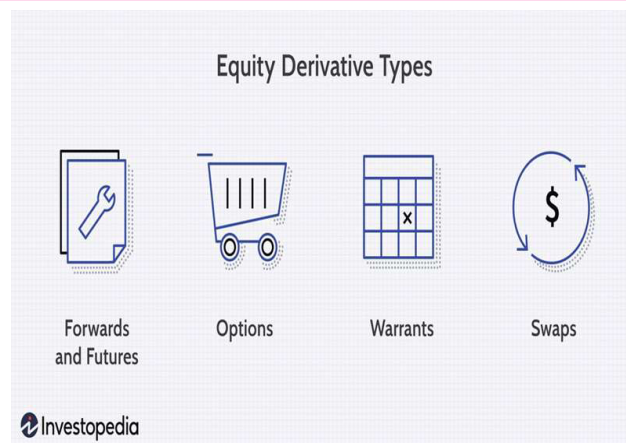
- **Delays:**
 - **~2.5 years** delay due to lack of permissions under previous Maharashtra government
 - **Cost escalation** under discussion with Japanese authorities
- **Cracks in Houses:**
 - **78 houses** along the corridor developed cracks
 - **IIT Bombay** survey underway
 - **Precaution guidelines** being prepared and will be released post-state government approvals

Strategic & Economic Importance

- Will connect major commercial centres:
 - **Mumbai, Thane, Vapi, Surat, Anand, Vadodara, Ahmedabad**
- Expected to:
 - **Integrate regional economies**
 - Create a **multiplier effect**, similar to Japan’s **Tokyo–Osaka corridor**
 - Promote **high-speed rail manufacturing, urban development, and employment**



EQUITY DERIVATIVES



Why in News

The **Securities and Exchange Board of India (SEBI)** recently introduced a new framework for monitoring **intraday positions in equity index derivatives**. The move is aimed at strengthening risk management, preventing market stability risks from **outsized exposures** by large entities, particularly on options expiry days, and ensuring **orderly trading**.

Key Features of SEBI’s New Framework (Applicable to Index Options):

Position Type	Limit (Future Equivalent - FutEq Basis)	Objective
Intraday Net Position	₹5,000 Crore per entity	Allows flexibility for dynamic intraday trading (higher than the end-of-day limit of ₹1,500 Cr).
Intraday Gross Position	₹10,000 Crore per entity	Puts a hard cap on total exposure (long and short counted separately).
Monitoring	At least four random snapshots during the trading day, including one during the peak activity window of 2:45 p.m. to 3:30 p.m.	Ensures real-time surveillance and curbs aggressive position-building near expiry.

What are Derivatives?

Derivatives are **financial contracts** whose value is **derived** from the performance of an underlying asset.

- **Underlying Assets:** Can include stocks, stock indices, commodities, currencies, interest rates, or even weather data.

- **Function:** They allow traders to speculate on the **direction of the price change** of the underlying asset without owning it directly, enabling risk management, speculation, and portfolio enhancement.

About Equity Derivatives

Equity derivatives are financial instruments whose value is derived from the price movements of an **individual stock** or a **stock index** (like the Nifty or Sensex).

- **Purpose:** They are primarily used for **risk management (hedging)**, **speculation** on price movements, and **portfolio optimisation**.

Equity Derivative Types

Type	Description	Obligation	
Futures Contracts	An agreement to buy or sell the underlying equity asset or index at a predetermined price on a specified future date .	Obligation for both the buyer and the seller to execute the transaction.	Star and stoc excl
Options Contracts	Gives the holder the right , but not the obligation, to buy (Call Option) or sell (Put Option) the underlying asset at a specified price (strike price) on or before a specific expiration date.	Right, not obligation , for the holder; obligation for the writer/seller.	Star and stoc excl
Forwards	Similar to futures but are customised contracts.	Obligation for both parties.	Nor star and Ove Cou
Swaps	An agreement to exchange cash flows based on the return of an underlying equity asset or index (e.g., exchanging a fixed rate for the return of an index).	Obligation to exchange cash flows.	Nor star and OTC

Advantages of Equity Derivatives

1. **Leverage:** Derivatives require a **smaller upfront investment (margin)** than buying the underlying assets directly, allowing investors to control a larger position and magnify potential gains (or losses).
2. **Hedging:** They are the primary tools to **mitigate risk** by protecting against adverse price volatility or movements in an existing stock portfolio.

3. **Cost Efficiency:** Trading equity derivatives typically involves **lower transaction costs** and brokerage fees compared to direct stock market investment.
4. **Arbitrage:** They facilitate the exploitation of **price discrepancies** between the derivatives market and the cash (spot) market.
5. **Flexibility and Liquidity:** The derivatives market offers diverse strategies, high **liquidity**, and ease of entry/exit, ensuring efficient price discovery.
6. **Income Generation:** Strategies like **option writing** (selling) allow investors to generate premium income from their existing equity positions.

WET AND DRY LEASE OF AIRCRAFTS



DRY LEASING ADVANTAGES

- Flexibility
- Reduced financial risk
- Lower cost
- Maintenance by the lessor in some leases.
- No residual value risk

DRY LEASING DISADVANTAGES

- Limited control
- No equity for the lessee
- Strict payment schedules
- No tax benefits for the lessee
- Accountability for damages and maintenance costs

Why in News

Wet and Dry Leases are being increasingly adopted by airlines globally to address the severe **shortage of new aircraft** deliveries. This shortage has been exacerbated by **supply chain challenges** following the pandemic, making leasing a quicker solution for fleet expansion and maintenance cover.

Types of Aircraft Leases

Aircraft leases are agreements where an airline (the **lessee**) rents an aircraft from an owner (the **lessor**). They are primarily categorised by which party is responsible for the operational costs.

Lease Type	Lessor Provides	Lessee Provides	Duration & Use	Operational Control
Wet Lease	ACMI: Aircraft, full Crew (Pilots/Cabin), Maintenance, Insurance.	Commercial Operations (routes, schedules, fuel, airport fees).	Short-Term (e.g., seasonal spikes, new route testing, grounded aircraft cover).	Lessor (Operates under the lessor's Air Operator Certificate/AOC).
Damp Lease	Aircraft, Cockpit Crew, Maintenance, Insurance.	Cabin Crew, Commercial Operations.	Short-to-Medium Term (A partial wet lease, often used to maintain brand service standards).	Lessor (Generally).
Dry Lease	Only the Aircraft itself.	Crew, Maintenance, Insurance, and Commercial Operations.	Long-Term (e.g., fleet expansion, modernisation).	Lessee (Operates under the lessee's AOC).

Key Regulatory Aspects in India

The **Directorate General of Civil Aviation (DGCA)** plays a pivotal role in governing aircraft leasing in India through a robust legal framework (like the Aircraft Act and Rules).

- **Dry Leases:** These are well-suited for long-term fleet strategies as the lessee manages all operational components in accordance with **DGCA regulations**, including employing Indian-approved crews and arranging DGCA-approved maintenance.
- **Wet Leases (Discouraged):** Operations of an aircraft on a wet lease are generally **not encouraged by the DGCA** for extended periods.
 - o **Reason:** The primary concern is **safety oversight** and regulatory control. Since the crew and maintenance are provided by the foreign lessor, they are often **not approved by Indian authorities (DGCA)**, making it difficult for the DGCA to ensure full regulatory compliance, especially regarding crew licensing and training.
 - o Wet leases are typically only approved for short-term exigencies (emergency, seasonal demand) to ensure regulatory and safety standards are not compromised by a foreign operator's full control.

All India Debt and Investment Survey (AIDIS) & Situation Assessment Survey



सत्यमेव जयते

Ministry of Statistics and Programme Implementation
Government of India

Why in News

- The **All India Debt and Investment Survey (AIDIS)** and the **Situation Assessment Survey (SAS)** of Agricultural Households are scheduled to be conducted from **July 2026 to June 2027**.

About All India Debt and Investment Survey (AIDIS)

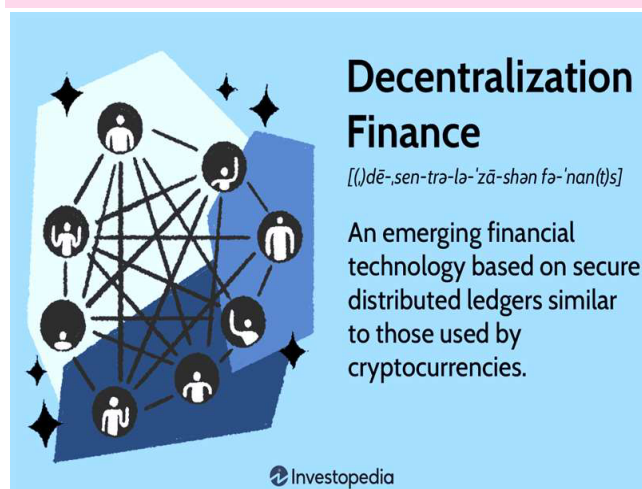
- **Core Focus:** One of India's most significant surveys on **household finance**.
- **Conducted by:** The **National Statistics Office (NSO)**, under the Ministry of Statistics and Programme Implementation (MoSPI).
- **Key Data:** Provides critical data on household **indebtedness** (debt) and **asset ownership** (investment) across both **rural and urban areas**.
- **History:** Its origins trace back to the All India Rural Credit Survey (1951-52), expanding to cover both debt and investment in 1961-62. It's conducted roughly once every **decade**, with the last round being the 77th Round (2019).
- **Significance:** Findings are instrumental in shaping **national accounts**, assessing **inequality in asset distribution**, understanding **credit markets**, and informing policies of the RBI, MoSPI, and other government institutions.

About Situation Assessment Survey (SAS) of Agricultural Households

- **Core Focus:** Designed to assess the **economic conditions and livelihoods of farming communities**.

- **Launch:** First launched in 2003 and expanded in 2013 to cover all agricultural households.
- **Comprehensive Coverage:** The survey covers:
 - o Household **income and expenditure**.
 - o Indebtedness and access to credit.
 - o Land and livestock ownership.
 - o Crop and livestock production, and use of technology.
 - o Access to government schemes and crop insurance.
- **Significance:** The Ministry of Agriculture and Farmers Welfare, NITI Aayog, researchers, and financial institutions utilize the survey findings to shape policies and programmes aimed at **agriculture and rural development**.

Decentralised Finance (DeFi)



Why in News

- There is concern regarding the **misuse of Decentralised Finance (DeFi)** platforms for illicit activities, specifically by **terrorist groups** looking to raise funds, develop infrastructure, or expand their networks.

About Decentralised Finance (DeFi)

- **Definition:** DeFi refers to an evolving financial ecosystem that leverages **blockchain technology** and **cryptocurrencies** to facilitate direct, peer-to-peer financial transactions.
- **Mechanism:** It operates on existing blockchains using **smart contracts**, open protocols, and

Decentralised Applications (D-Apps). These tools automate the execution of transactions, eliminating the need for traditional middlemen.

- **Goal:** To offer financial products and services—including saving, investing, lending, remittance, and insurance—**without the intermediation** of conventional financial institutions like banks, exchanges, or brokerage firms.
- **Key Features:**
 - o **Reduced Costs and Speed:** By cutting out intermediaries, DeFi aims to lower transaction costs and significantly accelerate processing times.
 - o **Uncensored Access:** Unlike traditional finance, DeFi systems offer uncensored access to everyone, requiring only a digital wallet.
 - o **Digital Wallet Integration:** A digital wallet serves as the gateway to DeFi services, bypassing the banking network.
 - o **Anonymity:** Users can often register with just a password and create multiple crypto wallets without needing identity verification (**KYC**), address, phone number, or email.
 - o **User Control:** Users retain direct control over their money, which can be stored and transferred rapidly.

Comparison with Traditional Finance (TradFi)

Feature	Decentralised Finance (DeFi)	Traditional Finance (TradFi)
Intermediaries	Eliminated (transactions via smart contracts/D-Apps)	Essential (Banks, Brokers, Clearing Houses)
Regulation/KYC	Generally Uncensored/No KYC required for access	Highly regulated; Mandatory KYC and account opening
Access	Global, open to anyone with a wallet	Restricted by geography, income, and account policies
Control of Funds	User holds direct control (via private keys)	Financial institution holds custody of funds
Speed	Transactions finalized in seconds or minutes	Transactions may take hours or days

Perpetual Bonds (Perps)



Why in News

- **Indian Renewable Energy Development Agency Ltd (IREDA)** recently announced that it successfully raised ₹ 453 crore at an annual interest rate of 7.70% through its second issuance of Perpetual Bonds. This move aims to bolster the agency's capital base for financing green energy projects.

About Perpetual Bonds

- **Definition:** A fixed-income financial security that, in theory, has **no maturity date** and pays interest (**coupon**) forever.
- **Other Names:** Also commonly referred to as “**perps**” or “**consol bonds**”.
- **Nature of Debt:** They represent a permanent source of capital for the issuer, as the issuer is under **no obligation to repay the principal amount** to investors at any fixed point in time. In this way, they resemble equity more than traditional term debt.
- **Investor Return:** Investors receive a steady stream of interest payments but generally do not get the principal back unless the issuer chooses to “**call**” (redeem) the bond.
- **Call Provision:** Most modern perpetual bonds include a clause that allows the issuer to redeem the bond (return the principal and stop interest payments) after a predetermined period, often **5 to 10 years** from the date of issuance. This gives the issuer flexibility to refinance.
- **Compensation for Risk:** To offset the risk associated with the indefinite tenure and the non-repayment of principal, perpetual bonds typically offer **higher interest rates** than comparable conventional bonds.

Key Properties and Uses

- **Accounting Treatment:** From an accounting perspective, these bonds often receive **equity-like treatment** on the balance sheet. This is attractive to organizations, especially banks, looking to boost their capital structure without diluting the ownership of existing shareholders.
- **Priority Tier:** In the event of the issuer's bankruptcy, perpetual bondholders stand in a **middle-priority tier**—they are paid after other senior creditors but before common shareholders.
- **Sensitivity:** Their market price is **highly sensitive** to changes in general interest rates due to their long duration (infinite maturity).
- **Primary Issuers in India:** **Banks** are the main entities in India that issue perpetual bonds, primarily to fulfill their capital adequacy requirements (e.g., as Additional Tier 1 or AT1 bonds).

Certificate of Deposit (CD)



Why in News

- The issuance of **Certificates of Deposit (CDs)** by banks has recently seen a sharp decline. This has prompted mutual funds, which rely heavily on these instruments, to shift their focus to alternative money market instruments like **Treasury Bills** and **Commercial Papers** for parking their funds.

About Certificate of Deposit (CD)

- **Definition:** A CD is a **fixed-income financial instrument** that represents a time-bound agreement between a depositor and a bank. The bank pays a fixed interest rate on the invested principal over a defined tenure.

- **Regulation:** The issuance and governance of CDs in India are regulated by the **Reserve Bank of India (RBI)**.
- **Form:** CDs are compulsorily issued in a **dematerialized (electronic)** form.
- **Minimum Value:** A CD in India can be issued for a minimum deposit of **₹ 1 lakh** or in subsequent multiples thereof.

Key Features and Criteria

Feature	Details
Eligible Issuers	Scheduled Commercial Banks (SCBs) and select All-India Financial Institutions . Cooperative Banks and Regional Rural Banks (RRBs) are not eligible to issue CDs.
Eligible Investors	Issued to individuals, corporations, companies, funds, and others. Can be issued to Non-Resident Indians (NRIs) but only on a non-repatriable basis .
Maturity Period	Commercial Banks: 7 days to 1 year. Financial Institutions: 1 year to 3 years.
Interest Rate	Typically offered at discounted rates or floating rates. Generally offers a higher return than standard savings accounts.
Transferability	CDs in demat form are transferable through endorsement or delivery, which enhances their liquidity.
Lock-in Period	CDs do not have a lock-in period, providing flexibility; however, banks cannot buy back their own CDs before maturity.
Collateral/Trading	CDs cannot be used as collateral and are not publicly traded .
Statutory Requirements	Banks are required to maintain the Statutory Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR) on the funds raised via CDs.
Taxation	The interest earned on a CD is fully taxable under the Income Tax Act.

PLI Scheme for White Goods



Why in News

- The government recently **re-opened the application window** for the **Production-Linked Incentive (PLI) Scheme for White Goods**.

About the PLI Scheme for White Goods

- **Nodal Ministry:** Implemented by the **Department for Promotion of Industry and Internal Trade (DPIIT)**, which falls under the **Ministry of Commerce and Industry**.
- **Duration:** The scheme is slated for implementation over a period of seven years, from **FY 2021-22 to FY 2028-29**.
- **Geographical Scope:** It is designed as a **pan-India scheme**, meaning it is not restricted to any specific location, area, or segment of the population.
- **Sectoral Focus:** The scheme targets the manufacturing value chain of **Air Conditioners (ACs)** and **LED Lights**.

Objectives and Incentives

- **Primary Goals:**
 - o To attract **large investments** and boost **domestic manufacturing** in the white goods sector.
 - o To create a complete and robust **component ecosystem** within India.
 - o To remove existing sectoral disabilities and foster economies of scale.
 - o To enhance exports and integrate India into **global supply chains**.
 - o To generate substantial **employment**.

- **Incentive Structure:** The scheme offers a financial incentive ranging from **4% to 6%** on the **incremental turnover** of eligible goods sold in India and exported globally. This incentive is provided to eligible companies for a period of **5 years**.
- **Base Year:** The incremental turnover is calculated over the **Base Year** of **2019-20**.

Eligibility Criteria

- **Applicant Status:** Any company must be formally **incorporated in India** under the provisions of the Company Act, 2013.
- **Performance Metric:** Eligibility for incentives depends on achieving specific financial thresholds, including:
 - o Net incremental sales of Eligible Products for the respective financial year over the base year.
 - o Cumulative incremental investment made in the preceding financial year.
- **Exclusion:** An entity that is already availing benefits under any other PLI Scheme of the Government of India is **not eligible** for benefits under this scheme for the **same products**.

Bureau of Indian Standards (BIS)



Why in News

- In recent years, the **Bureau of Indian Standards (BIS)** has issued a substantial number of **Quality Control Orders (QCOs)**, totaling **84**, based on recommendations received from various government ministries and departments.

About the Bureau of Indian Standards

- **Status:** BIS is the **National Standard Body of India**, established under the **BIS Act, 2016**.
- **Nodal Ministry:** It functions under the administrative control of the **Ministry of Consumer Affairs, Food and Public Distribution**.
- **Headquarters:** Headquartered in **New Delhi**, with an extensive network of regional and branch offices across the country.
- **Precursor:** It is the successor institution to the **Indian Standards Institution (ISI)**, which was originally established in 1947.
- **Objective:** Its core mission is the harmonious development of activities related to **standardization, marking, and quality certification of goods** to ensure both consumer safety and competitive efficiency.
- **International Representation:** BIS officially represents India in key global organizations, including the **International Organization for Standardization (ISO)** and the **International Electrotechnical Commission (IEC)**.

Functions and Economic Benefits

BIS provides crucial traceability and tangibility benefits to the national economy through its core functions:

- **Product Certification:** It operates various product certification schemes, granting licenses to manufacturers across virtually every industrial discipline (from agriculture and textiles to electronics) after rigorous testing and quality assessment.
- **Quality Assurance:** Ensures the availability of **safe, reliable, and high-quality goods** to consumers, while minimizing health hazards.
- **Standardization:** Controls the proliferation of varieties in products and processes through standardization.
- **Trade Promotion:** Promotes both **exports** and the development of **import substitutes** by ensuring domestically produced goods meet international quality standards.
- **Testing:** Provides testing services to support its certification and standardization activities.

Pradhan Mantri Mudra Yojana (PMMY)



- **Launch and Aim:** The **Pradhan Mantri Mudra Yojana (PMMY)** is a flagship initiative launched by the Government of India in **April 2015** to provide **collateral-free, affordable credit** to micro and small enterprises.
- **Objective:** The scheme is designed to “**fund the unfunded**,” integrating non-corporate, non-farm micro and small enterprises (MSEs) into the formal financial system by offering them easy access to institutional credit.
- **Loan Providers:** Loans are disbursed by various financial institutions, including Public Sector Banks (PSBs), Regional Rural Banks (RRBs), Cooperative Banks, Private Sector Banks, Foreign Banks, Micro Finance Institutions (MFIs), and Non-Banking Financial Companies (NBFCs).

Loan Details and Categories

- **Loan Amount:** The maximum loan amount under PMMY has been **increased from ₹ 10 lakh to ₹ 20 lakh** (effective from October 2024 onwards, as per recent announcements) for non-farm income-generating activities in sectors like manufacturing, processing, trading, and services.
- **Eligibility:** Any Indian citizen with a viable business plan for a non-farm sector income-generating activity requiring credit can apply.
- **Categories of Loans:** The loans are segmented to signify the stage of growth and funding needs of the enterprises: | Category | Loan Amount | Target Enterprise | **Shishu** | Up to **₹ 50,000** | New and micro enterprises (start-up phase) | | **Kishore** | From **₹ 50,000 to ₹ 5 lakh** | Businesses in the growth phase | | **Tarun** | From **₹ 5 lakh to ₹ 10 lakh** | Established businesses looking to expand | | **Tarun Plus** | From

₹ 10 lakh to ₹ 20 lakh | For successful Tarun borrowers seeking further scale |

- **Subsidy:** There is **no direct subsidy** under PMMY. However, if a loan is linked to another government scheme that provides capital subsidies, the loan can be availed under PMMY with the associated benefits.

Impact of MUDRA 1.0 (Since Launch)

- **Loan Disbursement:** Over **₹ 33.65 lakh crore** has been sanctioned through more than **52 crore** MUDRA loan accounts, significantly boosting the grassroots economy.
- **Inclusivity and Equity:** The scheme has strongly promoted financial inclusion for marginalized and vulnerable sections:
 - **Women Entrepreneurs:** Approximately **68-70%** of MUDRA loan accounts are held by women.
 - **Social Equity:** Around **50-51%** of the loan accounts belong to entrepreneurs from **SC/ST and OBC** communities.
- **Job Creation:** PMMY has been instrumental in encouraging **self-employment** and creating millions of jobs, particularly in rural and semi-urban areas.

Vision for MUDRA 2.0

MUDRA 2.0 is an anticipated phase aimed at building on the successes of PMMY while addressing its challenges, such as regional disparities and high Non-Performing Assets (NPAs) in the *Shishu* and *Kishore* categories.

Focus Area	Recommendation
Outreach & Support	Expanded Scope: Widen outreach, especially in rural and semi-urban areas, and provide comprehensive services like mentorship and business support.
Risk Mitigation	Enhanced Credit Guarantee Scheme (ECGS): Introduce a robust credit guarantee to reduce risk for financial institutions and encourage more lending to MSEs.
Borrower Skill	Financial Literacy Programmes: Launch nationwide initiatives covering budgeting, savings, credit management , and digital literacy to reduce default rates.
Governance	Robust Monitoring Framework: Implement a framework leveraging technology for real-time tracking of loan disbursements, utilisation, and repayments to ensure transparency and efficiency.
Evaluation	Impact Assessments: Include beneficiary impact assessments to measure socio-economic outcomes and guide continuous policy enhancements.

Industrial Park Rating System (IPRS) 3.0

INDUSTRIAL PARK RATING SYSTEM 3.0



FEDERATION OF INDIAN MICRO
AND SMALL & MEDIUM ENTERPRISES



Why in News?

The **Union Minister of Commerce and Industry** recently launched the **Industrial Park Rating System (IPRS) 3.0** in New Delhi. This upgraded system aims to significantly enhance the competitiveness and quality of industrial infrastructure across India as part of the ongoing efforts to boost the 'Make in India' initiative.

About IPRS 3.0

- **Developer:** It is a flagship initiative of the **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce and Industry, developed with support from the **Asian Development Bank (ADB)**.
- **Objective:** To further strengthen India's industrial ecosystem by providing a transparent framework to **assess and benchmark** the facilities, infrastructure, and overall competitiveness of industrial parks nationwide.
- **Evolution:** IPRS was first started as a pilot in **2018**, followed by the launch of **IPRS 2.0 in 2021**, with the latest version being a major expansion.

Features of IPRS 3.0

IPRS 3.0 introduces an expanded and more comprehensive evaluation framework compared to its predecessors.

Parameter Category	Key Focus Areas Introduced/Enhanced
Sustainability	Green Infrastructure , Waste Management, and Promotion of Eco-friendly Practices.
Connectivity	Logistics Connectivity and Proximity to Multimodal Transport (ports, highways, etc.).
Digitalization	Integration of Smart Services , IoT-enabled infrastructure, and Online Single-Window Clearance.
Ecosystem	Skill Linkages (integration with ITIs/skilling programs).
Feedback	Enhanced Tenant Feedback mechanisms for continuous service improvement.

Categorization

Under IPRS 3.0, industrial parks will be rigorously benchmarked and categorized into three groups based on their performance across key indicators:

1. **Leaders:** Parks with exemplary performance and world-class infrastructure.
2. **Challengers:** Parks performing well but requiring improvements in certain areas.
3. **Aspirers:** Emerging parks focusing on foundational growth and development.

Significance of IPRS 3.0

- **For Investors:** It provides **transparent and credible information**, helping domestic and global companies make informed, data-driven decisions on where to invest.
- **For States & UTs:** It fosters **healthy competition** among regions, guiding them to identify

infrastructure gaps, implement targeted interventions, and ultimately attract more investments and **generate employment**.

- **For Policymakers:** It acts as a **strategic planning tool** to design interventions that support the creation of world-class, **sustainable, and smart industrial infrastructure**, thereby boosting the ‘Make in India’ programme and India’s global competitiveness.

Paradip Port



Why In News

The Paradip Port Authority (PPA) continues to be in the news for both its record-breaking performance and ongoing challenges. Recently, a decomposed body was discovered in a coal wagon at the port’s coal handling plant, marking the second such incident in a short period.

In terms of performance, the PPA has achieved new records in cargo handling:

- It recorded an impressive **150.41 MMT cargo throughput in FY 2024-25**, making it the **No. 1 major port** in India for cargo handling for the second consecutive year and joining the exclusive **150 MMT club**.
- It became the **fastest major port** in India to handle **75 MMT** of cargo in the first half of FY 2025-26.

About Paradip Port

Paradip Port is a crucial, natural deep-water **major port of India** and the **only major port in the State of Odisha**.

Feature	Details
Location	Situated on the East Coast of India, on the Bay of Bengal at the confluence of the Mahanadi River delta. It is located 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam.
Hinterland	Strategically serves a vast hinterland, including the mineral-rich states of Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Bihar, and West Bengal .
Administration	It functions as an autonomous body, now known as the Paradip Port Authority (PPA) , under the Ministry of Ports, Shipping & Waterways . It was historically established under the repealed <i>Major Port Trusts Act, 1963</i> , and is now governed by the newer Major Port Authorities Act, 2021 . It is administered by a Board of Trustees headed by the Chairman.
Key Advantage	The port enjoys the advantage of soft underwater soil , allowing for dredging to any required depth to accommodate large, deep-draft vessels.
Infrastructure	Equipped with 16 berths, 3 Single Point Moorings (SPM), 1 Ro-Ro Jetty, and well-maintained Approach and Entrance Channels with a minimum depth of 17.1 Mtrs . The total rated capacity is currently around 289 MMT per annum , with plans to exceed 300 MMT with new projects like the Western Dock.
Cargo Handled	A wide variety of bulk and liquid cargo, including Crude Oil, POL products, Iron Ore, Thermal Coal, Coking Coal, Chrome Ore, Limestone, Fertilizer, and Containers .
Recent Achievements	Topped the list of major ports in cargo handling in India for two consecutive years (FY 2023-24 and 2024-25).

FINANCIAL INTELLIGENCE UNIT-INDIA (FIU-IND)



Why In News

Recently, the Department of Telecommunications (DoT) and the **Financial Intelligence Unit-India (FIU-IND)** signed a comprehensive **Memorandum of Understanding (MoU)** to enhance data sharing and inter-agency coordination.

About Financial Intelligence Unit-India (FIU-IND)

The FIU-IND serves as India's central national agency responsible for combating money laundering and the financing of terrorism by gathering and analyzing crucial financial data.

- **Establishment:** It was set up by the Government of India in **2004**.
- **Role:** It is the central national agency responsible for receiving, processing, analyzing, and disseminating information related to **suspect financial transactions**.
- **Reporting Authority:** FIU-IND is an **independent body** that reports directly to the **Economic Intelligence Council (EIC)**, which is headed by the Union Finance Minister.

Key Functions of Financial Intelligence Unit-India

The functions of the FIU-IND are structured around a cycle of intelligence to uncover, prevent, and prosecute financial crimes.

1. Information Collection and Central Repository

FIU-IND acts as the central reception point for various mandatory reports from financial and non-financial reporting entities, including:

- **Cash Transaction Reports (CTRs)**
- **Suspicious Transaction Reports (STRs)**
- **Non-Profit Organisation Transaction Reports (NTRs)**
- **Cross Border Wire Transfer Reports (CBWTRs)**
- **Reports on Purchase or Sale of Immovable Property (IPRs)**
- **Central Repository:** It establishes and maintains a national database based on these received reports.

2. Analysis and Dissemination

- **Analysis of Information:** It analyzes the received information to uncover patterns of transactions that suggest **money laundering** and other related financial crimes.
- **Sharing of Information:** It shares financial intelligence with:
 - o National intelligence and law enforcement agencies.
 - o National regulatory authorities.
 - o Foreign Financial Intelligence Units (FIUs).

3. Coordination and Research

- **Coordination:** It coordinates and strengthens the collection and sharing of financial intelligence through effective national, regional, and global networks to combat money laundering and related crimes.
- **Research and Analysis:** It monitors and identifies strategic key areas, including emerging **money laundering trends, typologies, and developments**, to advise on policy changes and enforcement strategies.



Crux of The Hindu & Indian Express



UK-India Infrastructure Financing Bridge (UKIIFB)



Why in News?

- On **September 8, 2025**, the **UK-India Infrastructure Financing Bridge (UKIIFB)**

marked its **first anniversary** by releasing a **report in London**.

- Despite initial momentum, **no projects are currently in the pipeline**.
- The UKIIFB now focuses on **policy recommendations** aimed at **de-risking investments** in Indian infrastructure.
- The initiative is jointly led by **NITI Aayog** (India) and the **City of London Corporation** (UK).

What is the UKIIFB?

- Launched in **September 2024** by the **Governments of India and the UK**.
- Objective: **Facilitate UK investments** into Indian infrastructure sectors.
- Aimed at mobilizing part of the **\$2 trillion** investment needed in Indian infrastructure by **2030**.
- Acts as a **public-private platform** to overcome structural and regulatory barriers.

Highlights from the 2025 Report

- No active projects remain from initial shortlist.
- Focus shifted to **eight key policy recommendations**.
- Emphasis on making Indian infrastructure **more investible** for international investors.

Key Policy Recommendations

1. **Align Indian procurement process** with international models like the **UK's Five Case Model**.
2. Improve alignment with **global ESG (Environmental, Social, Governance) standards**.
3. Address **operational risks** and perception of **unpredictability in project execution**.
4. Broaden the market by **supporting mid-sized infrastructure firms**, currently underrepresented.
5. Reform **tax policies**:
 - o Reduce **withholding taxes** on foreign exchange lending.
 - o Treat **foreign funds more equitably** with domestic funds.

6. Enhance **revenue protection mechanisms** for investors.
7. Simplify **repatriation of capital** for foreign investors.
8. Create **clearer investment frameworks** to boost investor confidence.

Challenges Identified

1. Lack of Mid-sized Firms

- India's infrastructure sector is **dominated by large players**.
- Very few mid-sized firms (only ~60,000 firms with 100–200 employees).
- Creates an **hourglass structure** instead of a healthy **pyramid**, limiting competition and innovation.

2. Regulatory Complexity

- Although India is reforming, many **regulatory bottlenecks remain**.
- Investors perceive the environment as **opaque and unpredictable**.

3. Revenue and Capital Repatriation

- Concerns about **foreign exchange regulations**, and the ease of **returning profits** to home countries.

4. Taxation Issues

- **Withholding taxes** on offshore lending make certain funding routes less attractive.
- Offshore subsidiaries of UK banks face **disincentives under current tax rules**.

Statements of Key Stakeholders

B.V.R. Subrahmanyam (CEO, NITI Aayog):

- Recognised the **structural issue** of a weak middle in India's corporate structure.
- Emphasised India's **young workforce** and **growth momentum**.
- Suggested that **bilateral investment treaties** (BITs) are helpful but not essential:
 - o **Capital can still flow** through countries like **Singapore** and **South Korea** which already have treaties with India.

Chris Hayward (City of London Corporation):

- Described the report as a “**compelling case for change.**”
- Praised India’s reforms but noted that **further work is needed.**

Strategic Importance of UKIIFB

For India:

- Leverages **UK’s financial expertise** to bridge India’s **infrastructure funding gap.**
- Supports **Make in India, Smart Cities, Gati Shakti,** and **National Infrastructure Pipeline.**
- Focus on **renewable energy** aligns with India’s climate commitments (Net Zero by 2070).

For the UK:

- Positions London as a **global financial hub** for infrastructure investment in emerging markets.
- Strengthens **post-Brexit economic ties** with India, a major Commonwealth partner.

Implications for India–UK Relations

- Strengthens the **India–UK Comprehensive Strategic Partnership.**
- Complements **ongoing FTA (Free Trade Agreement) negotiations** and potential **Bilateral Investment Treaty (BIT).**
- Reinforces shared commitment to:
 - **Climate finance**
 - **Sustainable development**
 - **Open, rules-based investment environments**

Way Forward

1. **Implement policy recommendations** from the UKIIFB report.
2. Accelerate **reforms in procurement,** tax treatment, and investor protection.
3. Develop the **mid-tier business ecosystem** to support innovation and execution.
4. Leverage **India’s demographic dividend** for green infrastructure expansion.
5. Ensure that **future projects under UKIIFB** are clearly defined and executed.

Mission Amrit Sarovar: Over 68,000 Ponds Created Nationwide



WHY IN NEWS?

- The **Government of India** recently announced that **over 68,000 Amrit Sarovars (ponds)** have been constructed or rejuvenated under the **Mission Amrit Sarovar** as of **March 2025.**
- A **national workshop** was conducted in New Delhi (April 2025) by the **Ministry of Rural Development** to evaluate progress, reinforce technical standards, and plan future community-driven innovations.
- This initiative is now seen as a **flagship mission for water conservation and community empowerment,** under the larger umbrella of **Azadi Ka Amrit Mahotsav.**

LAUNCH DETAILS

Scheme	Mission Amrit Sarovar
Launch Date	24th April 2022
Launched By	PM Narendra Modi
Occasion	National Panchayati Raj Day
Location of Launch	Palli Gram Panchayat, Samba District, Jammu & Kashmir
Implementing Ministry	Ministry of Rural Development (MoRD)
Supported by	7 Ministries + BISAG-N + NIC
Target (Phase I)	50,000 Sarovars by 15 August 2023 (Achieved)
Current Total (as of March 2025)	68,000+ Amrit Sarovars Completed

OBJECTIVES OF THE MISSION

1. **Construct/Rejuvenate 75 ponds in every district** of India.
2. **Revive traditional water bodies** and **promote water conservation**.
3. Enhance **groundwater recharge** and ensure **climate resilience**.
4. Promote **community participation (Jan Bhagidari)** and local governance.
5. Create **productive rural assets** using convergence of multiple schemes.
6. Serve as **socio-cultural hubs**—many Sarovars named after **freedom fighters, martyrs**, or **Padma awardees**.

KEY TERMS :

Term	Meaning
Jan Bhagidari	Public participation in planning and execution
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
BISAG-N	Bhaskaracharya National Institute for Space Applications and Geo-informatics
VWSC	Village Water and Sanitation Committee
Aquaculture	Cultivation of aquatic organisms like fish, water chestnut
Geo-tagging	Location-based tracking using GIS

KEY FEATURES

Each Amrit Sarovar:

- Minimum **area**: 1 acre (~0.4 hectare)
- Water **holding capacity**: ~10,000 cubic metres
- **Tree plantation** mandatory (Neem, Peepal, Bargadh, native species)
- **Signage board** with scheme details and community contributions

Monitoring:

- Centralized digital platform: **amritsarovar.gov.in**

- Real-time tracking using **remote sensing and geospatial tech**
- Over **79,000 Panchayat Pratinidhi** and **92,000 Panchayat Officers** engaged

Institutional Convergence:

- **MGNREGS** (46,000+ Sarovars under it)
- **15th Finance Commission Grants**
- **PM Krishi Sinchayee Yojana (WDC, Har Khet Ko Pani)**
- **State schemes, CSR, and public donations**

ACHIEVEMENTS

As of March 2025:

Metric	Number
Total Sarovars Completed	68,000+
User Groups Formed	65,285
Trees Planted	23.5 lakh+
Top State: Uttar Pradesh	16,630 Sarovars
Top 5 States	UP, MP, Karnataka, Rajasthan, Maharashtra

Breakdown of Trees Planted

- **Neem**: 5.32 lakh
- **Peepal**: 3.65 lakh
- **Bargadh**: 3.24 lakh
- **Other native species**: 11.28 lakh

IMPACT & SIGNIFICANCE

Water Resource Management

- **Groundwater Recharge**:
 - o 2017: 13.98 BCM '! 2024: 25.34 BCM
 - o Reflects impact of ponds, tanks, and water harvesting
- Boosts **irrigation, livestock use, aquaculture, and climate resilience**

Livelihoods & Employment

- Employment via **MGNREGA** and related rural development schemes
- Sarovars linked to **aquaculture, duck farming, water chestnut cultivation**, etc.

Community Participation

- **User Groups** formed:
 - SHGs, VWSCs, Fisherfolk, Lotus/ Makhana cultivators, Duck rearers, Water users
- **National Flag hoisting** at each Sarovar on Republic/Independence Day
- Laying foundation stones by **freedom fighters / martyrs' families / Padma awardees**

MISSION PHASES

Phase I (April 2022 – August 2023)

- **Target:** 50,000 Sarovars '! **Achieved early** (May 2023: 59,492 completed)

Phase II (September 2023 – Ongoing)

- **Focus:** Water sustainability, Jan Bhagidari, ecological balance
- **Sites identified:** 3,182 (as of April 2025)

CONCLUSION :

Mission Amrit Sarovar represents a transformative step toward sustainable rural development and ecological restoration. It blends traditional wisdom with modern technology, and community participation with institutional convergence. By reviving India's water heritage, the mission ensures **climate resilience, livelihood generation, and grassroots empowerment**, making it a powerful template for sustainable development in the 21st century.

Pink Tax: Gender-Based Price Discrimination



Why in News?

- **Growing awareness** around the “**Pink Tax**” has reignited public discourse on **gender-based price discrimination**, especially after consumer forums and activists highlighted pricing discrepancies in products and services for women.
- Recent surveys show that while many Indian consumers are unaware of the Pink Tax, it has a **real economic impact**, especially for women with lower incomes or in single-income households.
- The **National Consumer Disputes Redressal Commission (NCDRC)** has emphasized that **gender-based pricing is unfair**, pushing for fair pricing policies.

What is Pink Tax?

- **Pink Tax** is a term used to describe the **extra amount women are charged** for certain products or services **marketed specifically to them**, compared to similar items for men.
- It is **not an actual tax** levied by the government, but rather a **pricing strategy** adopted by brands and businesses.

Example:

- A **women's razor** costing ₹ 100 while a men's version with similar features is ₹ 70.
- A **basic haircut** for a woman costing ₹ 500, while the same for a man is ₹ 200.

Pink Tax: Economic and Social Implications

Aspect	Impact
Financial Burden	Women end up paying more for basic necessities and grooming items over their lifetime.
Gender Pay Gap Amplified	Since women already earn less on average , paying more adds an additional economic disadvantage .
Household Savings	Higher costs for women's products affect family budgets, especially in single-income or women-headed households .
Consumer Rights	Violates the principles of fair pricing and non-discrimination .

Global Scenario

United States

- Term “Pink Tax” is believed to have originated in **California (1994)**.
- A government-backed study found:
 - Women’s personal care products were **13% costlier**.
 - Women’s clothing and accessories were **7-8% more expensive**.
 - **Dry cleaning** for women’s shirts was up to **90% costlier** than men’s.
 - Over their lifetime, women paid **thousands of dollars more** than men for similar products.

United Kingdom

- Analysis found:
 - Women’s deodorant: **8.9% costlier**.
 - Women’s facial moisturiser: **34.28% costlier**.

United Nations

- In **2017**, the UN called on member nations to **end gender-based pricing discrimination** and promote **equal economic participation**.

Pink Tax in India

Status:

- Still a **largely unrecognized issue** in India.
- A 2021 survey by the **International Finance Students Association (IFSA)** found that **67% of Indians** had **never heard of the Pink Tax**.

Key Developments:

- **2018**: The Government of India **removed 12% GST on sanitary napkins and tampons**, following public pressure and legal activism.
- This was a significant step towards acknowledging **gendered pricing in essential items**.

NCDRC Ruling:

- The **National Consumer Disputes Redressal Commission (NCDRC)** stated that: Companies must ensure **fair pricing** and avoid **gender-based price discrimination**.
- This ruling, while not law, strengthens the position of consumers against unfair practices.

Common Products Affected by Pink Tax

Category	Examples
Personal Care	Razors, shampoos, conditioners, deodorants, moisturisers, skincare products
Clothing	T-shirts, jeans, undergarments
Toys	Pink dolls, "girl-focused" games, stationery
Services	Haircuts, dry cleaning, salon treatments
Healthcare & Hygiene	Sanitary products (prior to GST exemption)

Challenges in Addressing the Pink Tax

Challenge	Explanation
Lack of Legal Framework	No specific Indian law directly bans gender-based pricing.
Low Public Awareness	Most consumers do not recognize the price disparity.
Marketing Tactics	Gender-targeted advertising and packaging create artificial demand and justify higher prices.
Cultural Acceptance	Gender roles and social expectations normalize such disparities.
Weak Consumer Advocacy	Lack of active campaigns or regulatory pushback on the issue.

How to Outsmart or Avoid the Pink Tax?

Strategy	Action
Buy Gender-Neutral Products	Choose unisex or men's products with similar quality.
Compare Price Per Unit	Check price per gram or ml rather than package price.
Use Unisex Services	Opt for salons or dry cleaners with transparent, gender-neutral pricing.
Research Ethical Brands	Support startups and brands that commit to gender-neutral pricing.
Raise Consumer Awareness	Share price comparisons on social media, educate peers.
Advocate Policy Reform	Demand consumer protection laws addressing unfair gender-based pricing.

Foundation of India's First PM MITRA Park



I. Context and Significance

- On **September 17, 2025**, **Prime Minister Narendra Modi** laid the foundation stone of the first **Pradhan Mantri Mega Integrated Textile Region and Apparel (PM MITRA) Park** in **Dhar district, Madhya Pradesh**.
- The launch coincided with the PM's **75th birthday** and marks his **second birthday visit to Madhya Pradesh** after 2022.
- This event also witnessed the launch of two major social initiatives:
 - '**Swasth Nari Sashakt Parivar**' – a women's health campaign
 - '**Rashtriya Poshan Maah**' (8th Edition) – a national nutrition initiative

- The PM MITRA Park initiative is a step toward **boosting India's textile manufacturing capabilities**, creating **sustainable livelihoods**, and promoting **Make in India** and **Atmanirbhar Bharat** goals.

II. About PM MITRA Scheme

- Full Form:** Pradhan Mantri Mega Integrated Textile Region and Apparel
- Launched by:** Ministry of Textiles, Govt. of India (2021)
- Objective:** To integrate the **entire textile value chain** (fibre 'I' fabric 'I' fashion) in one location
- Number of Parks:** 7
- States Selected:**
 - Madhya Pradesh** (Dhar)
 - Telangana**
 - Gujarat**
 - Karnataka**
 - Uttar Pradesh**
 - Maharashtra**
 - Tamil Nadu**

III. Features of the Dhar PM MITRA Park

Parameter	Details
Location	Bhainsola village, Dhar district, MP
Land Area	Approx. 2,158 acres
Facilities Planned	20 MLD Common Effluent Treatment Plant 10 MVA Solar Power Plant 81 Plug-and-Play Units Modern Road & Utility Infrastructure Continuous Water & Electricity Supply Housing for Workers & Social Amenities for Women
Key Beneficiaries	Cotton farmers, textile manufacturers, local workforce, women employees
Investment Proposals Received :	₹ 2,1346 crore

The park aims to become a **self-sustained industrial township**, offering not just factories but **livable, worker-friendly infrastructure**.

IV. Economic and Strategic Importance

- **Boost to Cotton Economy:** Enhances value addition for local cotton producers
- **Employment:** Generates **direct and indirect jobs** across the value chain
- **Export Competitiveness:** Reduces logistics and manufacturing costs
- **Green Industry:** Incorporates **solar power** and **effluent treatment** for sustainability
- **Plug-and-Play Model:** Attracts MSMEs and large-scale textile companies
- **Integrated Development:** Encourages **urbanisation around industrial clusters**

V. Social Campaigns Launched Alongside

1. Swasth Nari Sashakt Parivar Campaign

- Focus: **Women's health and well-being**
- Duration: Till **October 2, 2025**
- Delivered through: **Ayushman Arogya Mandirs**
- Core Themes:
 - **Mental health awareness**
 - **Gender equity in healthcare**
 - **Adolescent anaemia & PCOS screening**
 - **Encouraging active lifestyle and self-care**

"Men must extend support, and women should dedicate at least an hour daily to self-care without guilt." – Dr Saloni Sidana, NHM Director

2. Rashtriya Poshan Maah – 8th Edition

- Focus Areas:
 - **Reduced sugar and oil intake**
 - **Early Childhood Care and Education (ECCE)**
 - **Promotion of local, nutritious food resources**
- Objective: **Behavioural change in dietary habits** and strengthening **community-based nutrition awareness**

Conclusion

The **PM MITRA Park in Dhar** is a **flagship industrial and social development project**. It reflects a **holistic development model** by combining **world-class textile infrastructure, green technology, women-centric social policies, and rural empowerment**. The integration of schemes like **Swasth Nari Sashakt Parivar** and **Poshan Maah** alongside an industrial project illustrates the government's commitment to **inclusive growth**. This initiative has strong implications for India's ambitions in **manufacturing, exports, employment generation, and women's empowerment**, aligned with the broader vision of **Viksit Bharat @2047**.

GST 2.0 Rollout: Major Tax Rate Cuts and Its Impact on Consumption & Inflation



Effective from: **Midnight, September 22, 2025**

Announced after: **56th GST Council Meeting (September 3, 2025)**

Why in News?

- The Government of India launched a **massive GST rate restructuring**, known as **GST 2.0**, affecting **375+ common-use goods** and several services.
- Key consumer products now fall under **lower GST slabs** — aimed at **boosting household budgets, reducing inflation, and stimulating demand**.
- PM Modi has called this a **"GST Savings Festival"**, encouraging full benefit pass-through to consumers.

WHAT'S CHEAPER AND BY HOW MUCH

Nil GST:

	Old Price (Rs)	New Price (Rs)	% change
Mother Dairy tetrapack toned milk (1L)	77	75	-3
Amul milk Gold (1L)	83	80	-4
Mother Dairy paneer (200gm)	95	92	-3
Amul paneer (200g)	95	92	-3
Amul butter khakra (200g)	100	95	-5
Amul cheese onion paratha (500g)	240	200	-17

GST cut to 5% from 12%

	Old Price (Rs)	New Price (Rs)	% change
Mother Dairy milkshake (180ml)	30	28	-7
Amul butter (100g)	62	58	-6
Kissan ketchup (850gm)	100	93	-7
Mother Dairy cheese spread (180gm)	120	110	-8
Safal mixed fruit jam (1kg)	125	115	-8
Pringles Original (107g)	125	110	-12
Safal pickle (400g)	130	120	-8
B Natural Mixed Fruit juice (750ml)	158	148	-6
Mother Dairy cheese slices (200gm)	170	160	-6
B Natural Mixed Fruit juice (750ml)	158	148	-6
Mother Dairy cheese slices (200gm)	170	160	-6
ITC Master Chef Veggie Pizza Pocket (340g)	195	180	-8
Mother Dairy butter (500g)	305	285	-7
ITC Master Chef Crunchy Chicken Nuggets (1kg)	650	605	-7
Himalaya Adult Diapers	650	609	-6
Amul pure ghee (1L)	650	610	-6
Mother Dairy ghee carton (1L)	675	645	-4
Aashirvaad Svasti Pure Cow Ghee (1L)	1080	1010	-6

GST cut to 5% from 18%

	Old Price (Rs)	New Price (Rs)	% change
Mother Dairy vanilla cup (50ml)	10	9	-10
Mother Dairy Butterscotch cone(100ml)	35	30	-14
Dove serum bar soap (75gm)	45	40	-11
Gillette Regular Shaving Cream (93g)	80	71	-11
Amul butter cookies (200g)	85	75	-12
Head & Shoulders Smooth and Silky Shampoo (72ml)	89	79	-11
Shower to Shower Prickly Heat Powder (150g)	145	135	-7
Close-Up toothpaste (150gm)	145	129	-11
Sunfeast Marie Light (956g)	170	150	-12
L'Oreal Total Repair 5 shampoo (200ml)	219	190	-13
Vivel Aloe Vera Soap (150gx4)	280	248	-11
Himalaya Baby Hair Oil (200ml)	300	267	-11
Old Spice After Shave lotion (150ml)	349	310	-11
Dark Fantasy Choco Fills (460g)	370	328	-11
Clinic Plus Strong & Long shampoo (355ml)	393	340	-13
Kellogg's original cornflakes (900g)	399	355	-11
L'Oreal Absolut Repair Shampoo (300ml)	845	750	-11

GST cut to 18% from 28%

Whirlpool AC (1tn)	Rs 4,509-5,259 cheaper		
Whirlpool dishwashers	Rs 3,282-4,336 cheaper		
JKCement (50 kg bag)	510-630	465-575	-9

Key Features of GST 2.0 Reform

Category	Previous GST Rate	Revised GST Rate
Essential food items (Paneer, Butter, Cheese, etc.)	5%–18%	0%–5%
Processed food (Cornflakes, Biscuits, Ice Cream)	12%–18%	5%
Household essentials (Shampoo, Toothpaste, Soap)	18%	5%
Cement	28%	18%
Insurance (Health & Life)	18%	0%
Small Cars	28% + Cess	18% (No Cess)
Large Cars	Up to 50% (including cess)	40% Flat
Durables (ACs, Dishwashers)	18%	12%–15% (varies by item)

Impact on Household Items

FMCG & Dairy Products

Product	Old Price	New Price	% Drop
Amul Paneer (200g)	₹95	₹92	↓3%
UHT Milk (1L – Amul/Mother Dairy)	₹83/77	₹80/75	↓3–4%
Butter Khakhra (200g)	₹100	₹95	↓5%
Cheese Onion Paratha	₹240	₹200	↓17%

Packaged Foods & Snacks

Product	% Price Reduction
Pringles (107g)	↓ 12%
Kellogg's Corn Flakes (900g)	↓ 11%
Sunfeast Marie Light Biscuits (1kg)	↓ 12%
Ice Cream (50ml cup)	₹10 → ₹9 (↓ 10%)
Butterscotch Cone (100ml)	₹35 → ₹30 (↓ 14%)

Personal Care Products

Product	Price Drop
Shampoos, Soaps, Toothpastes	↓ 11–13%
Brands: L'Oréal, Dove, Himalaya, Close-Up	Lower MRP announced

Impact on Construction & Housing

- **Cement:** GST reduced from **28% →! 18%**
 - **Key for infrastructure, MSMEs, and rural housing**
 - Major producers (JK Cement, UltraTech) have confirmed full pass-through.
- **Expected Price Drop:** 8–10% per 50 kg bag

Impact on Automobile Sector

Vehicle Type	Tax Before	Tax Now	Price Cut
Small Cars	28% + Cess	18%	₹46,000 – ₹1.29 lakh
Bigger Cars	50%	40%	₹1.5 – ₹3 lakh (varies)
Issues	Dealers facing ₹2,500 crore loss on unsold older inventory		

Maruti Suzuki, India's largest carmaker, has announced full rate cut pass-through across its portfolio.

Impact on Insurance

Policy Type	Old GST	New GST	Savings
Health & Life Insurance	18%	0% (Exempt)	↓ Up to 15% on annual premiums

Encourages greater insurance penetration, especially among the middle class and informal sector.

Impact on Consumer Durables

Product	Price Reduction
1 Ton Air Conditioners	₹4,509 – ₹5,259
Dishwashers	₹3,282 – ₹4,336
Refrigerator, Washing Machine	Expected cuts in next wave

Brands like **Whirlpool** already announced revised price lists.

Economic & Fiscal Implications

Boost to Consumption

- FMCG and consumer durable sectors likely to see **double-digit volume growth** in Q3 & Q4 FY26
- May add **0.2–0.3% to GDP growth** due to demand revival

Lower Retail Inflation

- Especially in **food & housing components** of CPI
- Gives **monetary policy space** to RBI for rate decisions

Fiscal Impact

- Short-term dip in GST collections may be offset by **higher consumption volumes**
- Strengthens GST's **pro-poor, pro-consumer**



Science & Technology

PRATUSH Telescope



Why in News

Scientists at the **Raman Research Institute (RRI)** have proposed a pioneering mission called PRATUSH (Probing Reionization of the Universe using Signal from Hydrogen) designed to **unlock the Cosmic Dawn**—the period when the first stars and galaxies formed.

About PRATUSH Telescope

- **Full Form:** Probing Reionization of the Universe using Signal from Hydrogen.
- **Nature:** It is a **radio telescope** and future radiometer mission.
- **Location & Orbit:**
 - o It is planned to be sited on the **Moon's far side** as this location is naturally shielded from Earth's terrestrial radio noise, making it the most radio-quiet place in the inner Solar System, ideal for low-frequency radio astronomy.
 - o The preferred placement will be in a **circumlunar orbit** to enable the measurement of the radio sky spectrum from the Moon's far side.
- **Developers:** Built by the **Raman Research Institute (RRI)** in Bengaluru with active collaboration from the **Indian Space Research Organisation (ISRO)**.
- **Mission Objective:** To detect the faint **21-cm radio signal** from neutral hydrogen gas, which carries the imprint of the **Cosmic Dawn** and the subsequent **Epoch of Reionization** (when the intergalactic medium became ionized).
- **Key Technical Features:**
 - o **Antenna:** Wideband frequency-independent antenna operating over the range of **30-250 MHz**.
 - o **Resolution:** Records detailed radio spectra with a high spectral resolution of **100 kHz**.
 - o **Lifetime:** Nominal two years, aimed at achieving a high signal-to-noise ratio.
- **Master Controller:** At the core is an innovative, compact **single-board computer (SBC)** (initially prototyped using a Raspberry Pi), designed for low-power and low-weight in space. The SBC manages the entire radiometer system, including:

- o The antenna and analog receiver.
- o The **Field Programmable Gate Array (FPGA)** for converting signals into digital fingerprints (sky brightness mapping).
- o High-speed data recording and preliminary data processing.

VIKRAM 3201



Why in News

The **Vikram 3201** was recently unveiled at the **Semicon India 2025** conference as **India's first fully indigenous 32-bit microprocessor**. This development marks a major step toward self-reliance (*Atmanirbharata*) in high-reliability electronics for critical space applications.

About Vikram 3201

- **Nature:** India's first fully indigenous **32-bit microprocessor** designed for **launch vehicle avionics** (rockets and satellites).
- **Developers:** Jointly designed by the **Vikram Sarabhai Space Center (VSSC)** and fabricated by the **Indian Space Research Organisation's (ISRO) Semiconductor Laboratory (SCL)** in Chandigarh.
- **Application:** Unlike commercial processors (found in smartphones or laptops), the Vikram 3201 is engineered for mission-critical space environments.
- **Legacy:** It represents a significant upgrade to the **Vikram 1601**, a 16-bit processor that has successfully powered ISRO's launch vehicles since 2009.

- **Significance:** The chip represents the first time India has indigenously designed and fabricated a processor of this scale and specification, ensuring **strategic autonomy** over its space technology hardware.

Key Role and Features

The chip's function is to serve as the brain for the rocket's mission management.

Feature	Specification and Rationale
Primary Role	Handles navigation, control, and mission management in launch vehicles, performing the precise, split-second calculations necessary to keep rockets stable and on course.
Space-Grade Ruggedness	Manufactured to military-grade standards and rigorously tested to ensure functionality in harsh space environments, specifically resisting extreme heat, cold, vibration, and radiation .
Temperature Tolerance	Built to operate reliably across an extreme thermal range, from -55 degrees Celsius to +125 degrees Celsius .
Advanced Arithmetic	Supports 64-bit floating-point operations , which are crucial for the high precision needed in trajectory and guidance calculations.
Communication	Features on-chip 1553B bus interfaces , which is a military-standard data bus used for reliable communication between avionics sub-systems during missions.
Programming	Compatible with the Ada programming language , which is widely favored in safety-critical aerospace and defense systems due to its emphasis on reliability.

JAROSITE



Why in News

Researchers recently confirmed the presence of **Jarosite** in **Matanomadh** in **Kutch, Gujarat**. This discovery is highly significant because the same mineral was discovered on **Mars** by NASA's Opportunity rover two decades ago.

About Jarosite

Feature	Description
Composition	A yellow-brown mineral with the chemical formula $KFe_3(SO_4)_2(OH)_6$. It is rich in Potassium (K), Iron (Fe), and Sulphate (SO4) .
Formation (Earth)	Forms under extreme geochemical conditions when minerals rich in oxygen, iron, sulphur, and potassium react in the prolonged presence of water and acidic, oxidising environments . It is typically associated with volcanic activity and the weathering of iron-sulphide minerals (like pyrite).
Formation in Kutch	The Jarosite in Matanomadh is approximately 55 million years old (Paleocene period), formed when volcanic ash (from Deccan Traps) mixed with marine water during a period of marine regression.
Occurrence in India	Confirmed in Matanomadh (Kutch, Gujarat) and along the Varkala cliffs in Kerala .
Global Significance	Similar deposits have been found in Mexico, Canada, Japan, Spain, and in Utah and California in the US, which serve as Mars analogue sites .

Connection to Mars and Significance

The discovery of Jarosite on Earth in environments analogous to Mars holds crucial implications for planetary science and India's space missions.

Martian Link	Significance for Future Research
Past Water Indicator	NASA's Opportunity rover (2004) first detected traces of Jarosite on Mars' Meridiani Planum. This was considered one of the strongest pieces of evidence of past liquid water on the planet, as its formation requires water.
Astrobiology Potential	Sulphates like Jarosite have the ability to trap and preserve organic molecules and elements that support life within their structure. Studying Kutch samples aids the search for signs of past life.
Mars Analogue Site	The arid, sparsely populated terrain and the mineralogy of Matanomadh make it an ideal terrestrial clone or analogue site for the Martian surface.
ISRO's Test Bed	Kutch is being considered by ISRO for testing rovers, drilling systems, and geochemical instruments for its future missions, including Mangalyaan-2 , without leaving Earth.
Decoding Geology	The research helps scientists decode the palaeo-evolution of Martian geology and the past chemical interactions on the red planet.
Geological Clock	Recent studies indicate that Jarosite can act as a natural luminescent clock due to its ability to store energy from radiation, potentially helping to date ancient Martian events like dust storms or floods up to 25,000 years ago.

Solar Orbiter Mission



Why in News (Context)

The European Space Agency's (ESA) **Solar Orbiter Mission** is a recurring topic in space news, most recently for a new study that:

- **Traced the Origin of Solar Energetic Electrons (SEEs):** The study, which observed over 300 bursts of SEEs between November 2020 and December 2022, is the first to clearly link these energetic particles in space back to their specific source events on the Sun.
- **Identified Two Distinct Sources:** It revealed two types of SEEs: 'impulsive' events tied to **intense solar flares** (explosive bursts from smaller patches) and 'gradual' events linked to **Coronal Mass Ejections (CMEs)** (vast eruptions of plasma).
- **Significance for Space Weather:** This ability to distinguish between the two types of electron events is crucial, as the higher-energy, gradual events from CMEs pose a greater threat to satellites and astronauts. The findings deepen the understanding of **space weather** and will improve forecasting accuracy, helping to **protect high-tech infrastructure and human space exploration**.

About Solar Orbiter Mission

Solar Orbiter is an international space mission that provides an unprecedented view of our star and its surroundings.

Feature	Description
Partnership	A joint project between the European Space Agency (ESA) and NASA .
Launch	Launched in 2020 .
Primary Objective	To determine how the Sun creates and controls the heliosphere (the vast bubble of plasma and magnetic fields surrounding the Solar System). This involves: 1. Exploring the Sun and heliosphere from close up. 2. Obtaining the first-ever clear images of the Sun's polar regions and high solar latitudes.
Orbit	Highly elliptical orbit with a minimum close approach (perihelion) of just 0.28 AU (Astronomical Units) from the Sun, making it one of the closest satellites to the Sun. The orbit is gradually tilted to provide out-of-ecliptic views.
Payload	Carries ten instruments in total: Six remote-sensing instruments (to observe the Sun, solar corona, etc., e.g., EUI, PHI) and four in-situ instruments (to measure the environment around the spacecraft, e.g., EPD, MAG, SWA, RPW). The instruments work together to link activity on the Sun's surface to the resulting space environment.

What are Solar Energetic Electrons (SEE)?

Solar Energetic Electrons (SEEs) are high-energy particles (electrons) accelerated by the Sun and flung out into space.

- **Role:** These particles fill the Solar System and play a key role in shaping the cosmic environment, but their high energy also poses a major radiation threat.
- **SEEs and Space Weather:** Events associated with SEEs, particularly those from Coronal Mass Ejections (CMEs), are responsible for **geomagnetic and ionospheric storms** that can disrupt power grids, radio communications, and satellites (including GPS). Improving the ability to predict the arrival and intensity of these electrons is critical for technological safety on Earth and in space.
- **New Discovery:** Solar Orbiter's recent finding confirms that SEEs are ejected through two distinct mechanisms:

1. **Impulsive:** Fast, sudden bursts tied to solar flares.
2. **Gradual:** Broader swells of particles released more slowly, associated with larger CMEs.

P-47 Protein



Why in News?

Researchers at the **S. N. Bose National Centre for Basic Sciences (SNBNCBS)** recently highlighted the **P-47 protein's unexpected ability to act as a "mechanical chaperone"**, redefining its role in cellular function.

1. About P-47 Protein

- **Type:** P-47 is a **cofactor protein** (helper protein).
- **Known Role:** It is typically known as a helper for the cellular machine **P97** (a powerful machine involved in moving and degrading proteins).
- **Previous Understanding:** It was primarily understood to be a passive assistant involved in **protein trafficking, degradation, and membrane fusion**.

2. Key Highlights of the Study

The study reveals a new, crucial role for P-47, identifying it as the first known **"mechanical chaperone"**.

A. Novel Function as a Mechanical Chaperone

- **Enhanced Efficiency:** P-47 can **enhance the mechanical efficiency of protein extraction** from the endoplasmic reticulum (ER) lumen into the cytoplasm.
- **Stabilization:** It **stabilizes polypeptides under stress** (force) and **guides them through narrow pores**.
- **Risk Reduction:** This stabilization and guidance significantly **reduces the risk of misfolding** and improves the success of the process known as **protein translocation**.
- **Redefined Role:** The finding provides the **first direct, single-molecule evidence** that cofactors like P-47 possess an **autonomous, force-dependent chaperone-like activity**, showing it is not just a passive helper for P97.

B. Therapeutic Significance

- The findings suggest that targeting **mechanical cofactors like P-47** could lead to **novel therapeutic strategies** for diseases linked to **protein instability** (such as neurodegenerative disorders).

International Earth Sciences Olympiad (IESO)



Why in News?

The Union Minister of State (Independent Charge) for Science & Technology recently **felicitated the Indian**

student team that won at the 18th “International Earth Science Olympiad” (IESO-2025), which was held at Jining, China.

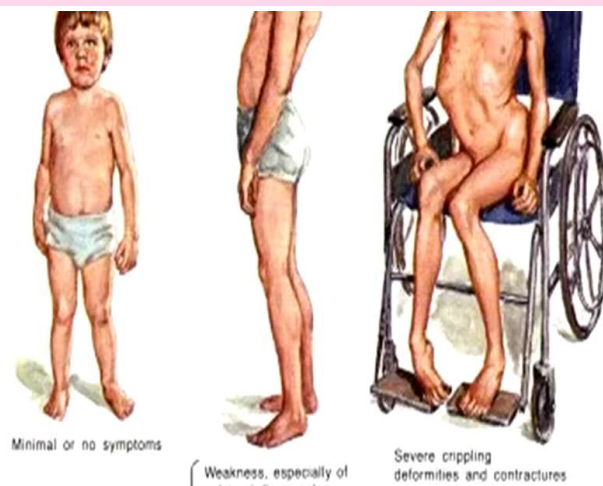
1. About the International Earth Sciences Olympiad (IESO)

- **Nature:** It is an **annual competition** for secondary school students (Class IX–XII) worldwide.
- **Establishment:** Established in **2003** by the **International Geoscience Education Organization (IGEO)**.
- **Objective:** To generate **awareness of Earth Sciences** through teamwork, collaboration, exchanging ideas, and competition among young students.
- **Subjects Assessed:** The competition covers four main branches of Earth Sciences:
 1. **Geology**
 2. **Meteorology**
 3. **Oceanography**
 4. **Environmental sciences**
- **India’s Participation:** India has been participating in the IESO since **2007** and hosted the 10th edition in **Mysore in 2013**.

2. Government of India’s Initiatives (Indian National Earth Science Olympiad - INESO)

- **Nodal Ministry and Scheme:** The **Ministry of Earth Sciences (MoES)** encourages Indian student participation through the **REACHOUT scheme** under the larger **PRITHVI (PRITHvi Vigyan)** scheme.
- **The INESO:**
 - o **Function:** The **Indian National Earth Science Olympiad (INESO)** is a national-level prelude to the IESO, designed for students in grades 9 to 12.
 - o **Facilitation:** It is facilitated annually by the **Geological Society of India** in collaboration with the **MoES** and select educational bodies.

Duchenne Muscular Dystrophy (DMD)



Why in News:

The **Department of Empowerment of Persons with Disabilities (DEPwD)** under the **Ministry of Social Justice & Empowerment, Government of India**, observes **World Duchenne Muscular Dystrophy Day** every year on **September 7th**. This observance is not just a reporting of current events, but a mechanism to:

1. **Foster Global Solidarity and Awareness:** The observance aligns with the **United Nations General Assembly’s** designation of September 7th as World Duchenne Awareness Day (starting in 2024), highlighting the need for global focus on this rare disease.
2. **Promote Early Intervention and Care:** The organized events focus on disseminating knowledge about **early detection** (diagnosis delay is a major issue), **timely intervention**, access to **specialized medical care**, and **social inclusion** to improve the quality of life for affected individuals.
3. **Support Families:** Activities often focus on the theme of the day (e.g., “Family: The Heart of Care”), emphasizing the vital role of families and the need for comprehensive support systems.

About Duchenne Muscular Dystrophy (DMD)

- **Nature:** It is a **rare, severe, X-linked recessive genetic disorder** characterized by **progressive muscle degeneration and weakness**.

- **Cause (The Dystrophin Gene):** DMD is caused by a mutation in the **DMD gene** located on the X-chromosome. This mutation results in little to **no production of functional dystrophin protein**.
- **The Role of Dystrophin:** Dystrophin is a crucial structural protein in muscle cells. It functions as a **cytoskeletal stabilization protein**, anchoring the muscle fiber's internal framework (actin cytoskeleton) to the cell membrane and the extracellular matrix. Without it, muscle fibers are **mechanically vulnerable** and easily tear during contraction, leading to chronic damage, necrosis, and eventual replacement by **fat and fibrous connective tissue (pseudohypertrophy)**.
- **Inheritance:** Since the gene is on the X-chromosome, it **primarily affects males (XY)**, while females (XX) are typically **asymptomatic carriers**, although a small percentage may become symptomatic.
- **Discovery:** It was first formally described by the French neurologist **Guillaume Benjamin Amand Duchenne in 1860**.
- **Classification:** DMD is part of a spectrum of diseases called **dystrophinopathies**. A milder form, **Becker Muscular Dystrophy (BMD)**, is also caused by mutations in the same gene, but these mutations are "in-frame" and allow for the production of a **shorter, partially functional dystrophin protein**, leading to a later onset and slower progression than DMD.

Symptoms and Progression

- **Onset:** Symptoms can begin as early as **age 2 or 3**.
- **Initial Weakness:** Muscle weakness first affects the **proximal muscles** (hips, thighs, and shoulder girdle) and then spreads to the **distal limb muscles**.

- **Signs:**
 - o Difficulty jumping, running, and climbing stairs.
 - o **Gower's maneuver** (using hands to push on legs to stand up).
 - o A **waddling gait** and walking on tip-toe.
 - o Enlargement of the calves (**pseudohypertrophy**) and **lumbar lordosis** (inward curve of the spine).
- **Long-Term Implications:** The disease is multi-systemic, leading to:
 - o Loss of ambulation (typically by age 12).
 - o **Cardiomyopathy** (heart muscle weakening), which is a major cause of mortality.
 - o **Respiratory failure** due to weakening of the breathing muscles.
 - o **Scoliosis** and joint contractures.
 - o Cognitive and behavioral challenges (due to dystrophin's role in the brain).

Treatments and Research

There is currently **no cure** for DMD, but treatments aim to slow progression and manage symptoms:

- **Standard of Care: Corticosteroids** (like prednisone and vamorolone) are used to help preserve muscle strength and function, and to delay secondary complications.
- **Dystrophin-Targeted Therapies (Disease Modifying):**
 - o **Exon Skipping:** Uses **antisense oligonucleotides** to mask a mutated exon in the **DMD gene's mRNA**, allowing the cell to "skip" it and produce a shorter, but **partially functional dystrophin protein**.
 - o **Stop Codon Read-through:** Aims to help the ribosome bypass a premature stop codon, allowing it to "read-

through” and produce a near-full-length protein.

- o **Gene Therapy:** Uses a viral vector (e.g., AAV) to deliver a genetic blueprint for a miniaturized, functional version of the protein, known as **micro-dystrophin**, into muscle cells to restore some function.
- **Other Targets:** Research also focuses on therapies to address downstream effects like inflammation, fibrosis, and promoting muscle regeneration.

National Botanical Research Institute (NBRI)



Why in News

- The **National Botanical Research Institute (NBRI)** achieved a notable success by cultivating the exotic flower **Eustoma** in **Odisha**.
- This breakthrough follows the institute’s initial successful cultivation of the species, native to Mexico and America, at its main campus in **Lucknow**.

About National Botanical Research Institute

- **Affiliation:** It is a constituent research institute operating under the **Council of Scientific and Industrial Research (CSIR)**.
- **Location:** Situated in **Lucknow, Uttar Pradesh**.
- **Role:** NBRI is an internationally renowned, multi-disciplinary plant research center focusing on both basic and applied Research

and Development (R&D) in strategically important areas of plant sciences.

History:

- o Originally founded by the U.P. State Government as the **National Botanic Gardens (NBG)**.
- o It was taken over by the CSIR in **1953**.
- o It was subsequently renamed the **National Botanical Research Institute (NBRI)** in **1978** to reflect its expanding focus on applied and developmental research in plant sciences.

Key Objectives and Functions

The Institute’s primary objectives focus on advancing plant science and conservation:

- **Research:** Conducting fundamental and applied research on **plant diversity**, plant-environment interactions, and utilizing **biotechnological approaches** for plant improvement.
- **Technological Development:** Creating technologies for new plant and microbial sources that hold **commercial importance**.
- **Conservation:** Building and maintaining a **germplasm repository** for both indigenous and exotic plants, with a special focus on **rare, endangered, and threatened species**.
- **Expertise and Support:** Offering specialized services for the **identification, supply, and exchange of plant materials**, as well as for garden layout and landscaping.
- **Knowledge Dissemination:** Spreading scientific knowledge and technologies regarding plant and microbial resources through training, publications, and extension activities.

Infrastructure and Recognition

- **Botanical Garden:** NBRI maintains a meticulously designed Botanic Garden, spanning **25 hectares**, which houses documented collections of approximately **5,000** plant species and varieties.

- **Herbarium:** It holds an extensive herbarium with over **250,000 reference collections** of flowering and non-flowering plants from India.
- **National Role:** NBRI is recognized by the Government of India as one of the **National Repositories for Indian flora** under the National Biodiversity Authority (as per the Biological Diversity Act, 2002).
- **Global Engagement:** It serves as a referral center for the Government of India and the United Nations on matters related to the **Convention on Biological Diversity (CBD)**, Traditional Knowledge, and Intellectual Property Rights (IPR).

Japanese Encephalitis



Why In News

- Researchers have recently found that **waning immunity** against past infections or vaccinations of the **Japanese Encephalitis Virus (JEV)** may **predispose individuals to more severe dengue** illness when they subsequently contract the dengue virus.
- This is thought to occur through **Antibody-Dependent Enhancement (ADE)**, where partially effective cross-reactive antibodies from JEV inadvertently help the dengue virus enter and infect immune cells more easily.

About Japanese Encephalitis (JE)

- **Nature:** It is a **viral zoonotic disease** caused by the **Japanese Encephalitis (B) virus (JEV)**.

- **Classification:** JEV is a **flavivirus** belonging to the genus *Orthoflavivirus*, making it genetically related to other viruses like **dengue, yellow fever, and West Nile viruses**.
- **Prevalence:** It is most common in **rural areas of Asia**, particularly during **monsoon seasons** when mosquito breeding is high.

Transmission of Japanese Encephalitis

- **Vector:** The virus is transmitted to humans by the bite of the infected **Culex mosquito** of the *Vishnui* group (e.g., *Culex tritaeniorhynchus*).
- **Reservoirs:** The virus is maintained in a cycle primarily involving mosquitoes and **vertebrate hosts** like **pigs and wading birds**.
- **Human-to-Human Spread:** There is **no human-to-human transmission** of the virus; humans are considered **dead-end hosts**.

Symptoms of Japanese Encephalitis

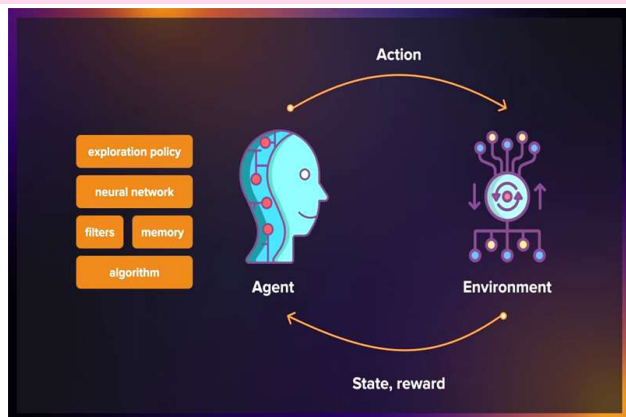
- **Mild/Asymptomatic:** Most infected individuals show **mild or no symptoms**.
- **Severe Cases:** A small percentage develop **encephalitis** (inflammation of the brain), leading to:
 - **Initial:** Fever, headache, vomiting.
 - **Neurological Signs:** Confusion, **seizures** (especially in children), paralysis, and eventually coma.
- **Outcome:** Severe cases can lead to **permanent brain damage or death**.

Prevention and Treatment

- **Prevention:**
 - **Vaccination** is the most effective prevention strategy in endemic regions.
 - The Government of India's guidelines include two doses of the vaccine in the **Universal Immunisation Programme (UIP) since 2013**.
 - General measures like **avoiding mosquito bites** are also essential.

- **Treatment:**
 - o There is **no antiviral treatment** for JE.
 - o Treatment is **supportive** and includes stabilization and relief of symptoms.

Reinforcement Learning (RL)



Why in News

- The DeepSeek-AI team recently introduced their model, **R1**, which demonstrated the ability to develop **new forms of reasoning** using an innovative **Reinforcement Learning (RL)-only** training approach.
- This breakthrough is significant because R1 learns sophisticated reasoning behaviors, such as **self-reflection and verification**, purely through **trial and error guided by rewards** for correct answers, moving beyond traditional methods that heavily rely on supervised fine-tuning.

About Reinforcement Learning (RL)

- **Definition:** RL is a sub-field of **machine learning (ML)** that trains an **autonomous agent** to take a sequence of actions in a **dynamic environment** using a **trial-and-error** method.
- **Goal:** The agent's sole objective is to **maximize the expected cumulative reward** (long-term gain) based on the **reward-and-punishment** feedback it receives from the environment for each action.
- **Learning Process (Feedback Loop):** The agent learns by repeating a cycle of interaction:

1. The **Agent** observes the environment's **State**.
2. It selects an **Action** based on its learned strategy (Policy).
3. The **Environment** transitions to a new state and provides a **Reward** signal (or punishment).
4. The agent uses this feedback to update its strategy, encouraging actions that led to a higher long-term reward.

- **Application:** RL is particularly well-suited for **sequential decision-making problems** in uncertain environments, making it a critical area in modern Artificial Intelligence development (e.g., self-driving cars, robotics, and game-playing AI like AlphaGo).

Key Elements of an RL System

The learning process is fundamentally driven by four key components:

1. **Agent:** The learner and **decision-maker** in the system.
2. **Environment:** The external world with which the agent **interacts**.
3. **Actions:** The set of choices the agent can make at each step.
4. **Rewards:** The **scalar feedback** (positive, negative, or zero) the agent receives after taking an action, which guides its long-term strategy.

Direct Broadcast Network (DBNet)



Why in News

- The **National Centre for Medium Range Weather Forecasting (NCMRWF)**, under the Ministry of Earth Sciences (MoES), recently signed a Memorandum of Understanding (MoU) with **New Space India Limited (NSIL)**, the commercial arm of the Department of Space (DoS).
- This partnership is for the establishment of two new **Direct Broadcast Network (DBNet) stations** in the **Delhi/NCR** and **Chennai** regions, as part of the government's **Mission Mausam** project.

About Direct Broadcast Network

Feature	Description
Nature	A global operational framework for the real-time acquisition of satellite data.
Function	Receives direct broadcast signals from Low Earth Orbit (LEO) satellites as they pass overhead, minimizing data latency.
Critical Role	Plays a crucial role in Numerical Weather Prediction (NWP) models.
Applications	Supports a wide range of services including weather forecasting, cyclone monitoring , climate research, and disaster risk reduction.
Satellite Coverage	The proposed stations will receive direct broadcast data from various existing Indian and international Earth Observing System (EOS) satellites , including Oceansat, NOAA, and MetOp .

Key Benefits and Impact

- **Timeliness for NWP:** The system ensures the **near real-time availability** of LEO satellite data, which is essential for generating high-resolution, short- to medium-range weather forecasts.
- **Reduced Data Latency:** By capturing data **directly** from the satellite, DBNet overcomes the delay (latency) associated with traditional methods where data is stored on-board and later transmitted to central ground stations.
- **Rapid Processing:** NCMRWF aims to complete the full data processing chain and ingest the datasets into NWP models within **5 minutes** of a satellite overpass, enabling faster, across-scale forecasting.

- **Global Contribution:** In line with the **World Meteorological Organization (WMO)** core satellite data policy, the processed data will be disseminated globally via the **WMO Information System – 2.0 (WIS 2.0)**, enhancing international availability of EOS satellite data within **30 minutes** and strengthening India's role in global weather prediction.



EDITORIALS

Crux of The Hindu & Indian Express

Science & Technology

Cabinet approves Rs 1,500 crore scheme to promote recycling of e-waste, extract critical minerals

CABINET DECISION
03-09-2025

Incentive Scheme to Promote Critical Mineral Recycling

Cabinet approves ₹ 1,500 crore Incentive Scheme to promote Critical Mineral Recycling in the country.

- The scheme will have a tenure of six years, from FY 2025–26 to FY 2030–31.
- It incentivises the development of capacity to recycle battery waste and e-waste for the extraction of critical minerals.
- The scheme will be applicable to investments in new units as well as in the expansion, modernization, or diversification of existing units.
- The total incentive (Capex plus Opex subsidy) per entity will be subject to an overall ceiling of ₹ 50 crore for large entities and ₹ 25 crore for small entities.
- The scheme is expected to bring about ₹ 8,000 crore in investments and create close to 70,000 direct and indirect jobs.

WHY IN NEWS

- On **3rd September 2025**, the **Union Cabinet** approved a **₹ 1,500 crore incentive scheme** to promote **recycling of critical minerals** from battery waste and e-waste.
- The scheme is part of the **National Critical Mineral Mission (NCMM)** and aims to reduce India's dependence on imports by developing **domestic recycling capacity** for key minerals.

What is E-Waste Recycling?

E-waste recycling is the process of **recovering valuable materials** and safely disposing of hazardous components from **discarded electronic devices** like:

- Mobile phones
- Computers
- Televisions
- Refrigerators
- Batteries
- LED lights

These devices contain **precious metals, rare earth elements, and toxic substances**.

What Are Critical Minerals?

Critical minerals are **strategic raw materials** essential for:

- Modern electronics
- Renewable energy (solar panels, wind turbines)
- Batteries (especially for EVs)
- Defence technologies

They include:

- **Lithium**
- **Cobalt**
- **Nickel**
- **Rare Earth Elements (REEs)**
- **Tantalum**
- **Gold, Silver, Palladium**
- **Indium, Tellurium, etc.**

India currently **imports most of these minerals**, making them **economically and geopolitically critical**.

E-Waste Recycling to Extract Critical Minerals : How It Works:

When e-waste is recycled:

1. Devices are **collected and dismantled**.
2. Components are **shredded or smelted**.
3. **Metals and critical minerals** are **extracted** through:
 - o **Hydrometallurgy** (using acids)
 - o **Pyrometallurgy** (using heat)
 - o **Bioleaching** (using bacteria)
4. These processes help recover **valuable materials** and **reduce mining dependency**.

CRITICAL MINERAL RECYCLING INCENTIVE SCHEME (2025)

Feature	Details
Name	Critical Mineral Recycling Incentive Scheme
Approved by	Union Cabinet (Chaired by PM Narendra Modi)
Date of Approval	3rd September 2025
Scheme Outlay	₹1,500 crore
Duration	6 years (FY 2025–26 to FY 2030–31)
Under	National Critical Mineral Mission (NCMM)
Target	Develop recycling capacity & extract critical minerals from secondary sources

ELIGIBLE FEEDSTOCK (SECONDARY SOURCES)

- **E-waste**
- **Lithium-ion battery (LIB) scrap**
- **Other scrap:** e.g., catalytic converters from end-of-life vehicles

ELIGIBLE BENEFICIARIES :

- **Large, established recyclers**
- **Small recyclers and start-ups**
1/3rd of total scheme outlay reserved for small/new recyclers

COVERAGE & APPLICATION :

- Applicable to:
 - o **New units**
 - o **Expansion / modernization / diversification** of existing units
- Incentives available only to **entities engaged in mineral extraction**, not just **black mass production**

SCHEME INCENTIVES :

1. Capital Expenditure (Capex) Subsidy

- **20% subsidy** on eligible:
 - o Plant & machinery
 - o Equipment
 - o Associated utilities

- **Reduced subsidy** if production starts beyond the specified time

2. Operating Expenditure (Opex) Subsidy

- Applicable from FY 2026–27 to FY 2030–31
- Linked to **incremental sales** over base year (FY 2025–26)
- Disbursed in 2 stages:
 - **40% in 2nd year**
 - **60% in 5th year**

Subsidy Ceilings per Entity

Entity Type	Capex + Opex Ceiling	Opex Ceiling Only
Large Entities	₹50 crore	₹10 crore
Small Entities	₹25 crore	₹5 crore

EXPECTED OUTCOMES

Parameter	Expected Impact
Recycling Capacity	270 Kilo Tonnes (KT) annually
Critical Mineral Output	40 KT annually
Total Investment	~₹8,000 crore
Jobs Generated	~70,000 (direct & indirect)

CONSULTATIVE PROCESS

- Several **rounds of stakeholder consultations** held:
 - Industry meeting
 - Seminar sessions
 - Inter-ministerial reviews

Proposal to Declare Cancer a Notifiable Disease in India



Context

- Recently, A **Parliamentary Committee on Petitions (Rajya Sabha)**, headed by **Narain Dass Gupta**, has recommended that **cancer be declared a notifiable disease** across all states and Union Territories in India.
- The move is aimed at enhancing surveillance, data collection, and policy planning to combat the growing cancer burden in the country.

What Is a Notifiable Disease?

- A **notifiable disease** is a condition **legally required to be reported** to government health authorities by doctors, hospitals, and laboratories.
- The aim is to **enable early detection, monitoring, and timely public health intervention**.
- Common notifiable diseases include **tuberculosis, cholera, and dengue**.

Other notifiable diseases in India

■ Dengue	■ Measles
■ Chikungunya	■ Plague
■ Malaria	■ Mumps
■ Amoebic dysentery	■ Pertussis
■ Dysentery	■ Rubella
■ Fever syndromes more than six days	■ Rabies
■ Cholera	■ Syphilis
■ Diphtheria	■ Tetanus
■ Gonorrhea	■ Ebola
■ Hepatitis A, B, C (acute)	■ Yellow fever
■ HIV	■ Tuberculosis
■ Influenza	■ Botulism

Why Is This Proposal Important for Cancer?

Current Challenges	Expected Improvements
Cancer is non-communicable , so currently not mandated for notification in most states	Mandatory reporting will lead to robust national cancer data
Fragmented data collection across states	Enables centralised tracking and monitoring
NCRP (National Cancer Registry Programme) currently covers only 16–18% of India's population	Will expand surveillance coverage to the entire population
Lack of region-specific, real-time data impedes targeted prevention policies	Helps design region-specific interventions (e.g., for oral, breast, cervical cancers)

Statements by Experts

- Welcomed the proposal as a **“turning point”** in India’s fight against cancer.
- Stated that it would **improve data accuracy**, drive **targeted prevention**, ensure **fairer resource allocation**, and improve **treatment outcomes**.
- Stressed that **mandatory reporting** will build a **comprehensive cancer database**, essential for public health planning.

Benefits of Declaring Cancer Notifiable :

1. Improved Surveillance & Early Detection:

- o Real-time tracking of **cancer incidence trends**, including emerging patterns like rising oral cancers in young adults.
- o Helps detect regional or demographic variations in cancer occurrence.

2. Data-Driven Policy Making:

- o Empowers policymakers with **evidence-based data** for focused programs:
 - * Tobacco control
 - * HPV vaccination
 - * Region-specific screenings
 - * Anti-pollution measures

3. Efficient Resource Allocation:

- o Enables equitable distribution of **infrastructure, specialists, and cancer care facilities**.

4. Better Health Outcomes:

- o Early detection and timely intervention lead to **higher survival rates** and **lower treatment costs**.

Addressing Concerns :

Concern	Clarification
Cancer is non-communicable , so doesn’t qualify as “notifiable”	Can be classified as a “documentable disease” – requiring reporting for statistical and planning purposes
Risk of privacy violation or stigma	Data collection must be designed to protect patient confidentiality , avoid discrimination , and ensure dignity

Current Scenario in India

- Some Indian states have **individually declared cancer notifiable**, but there is **no national mandate**.
- The **NCRP (National Cancer Registry Programme)**, managed by **ICMR-NCDIR**, lacks full coverage and legal authority to enforce reporting.
- Without legal backing, cancer case reporting remains **voluntary and inconsistent**.

Conclusion

Declaring cancer a notifiable disease is a **proactive public health measure**. It acknowledges that even **non-communicable diseases require structured surveillance** to enable timely and efficient policy responses. The move can transform **India’s cancer control strategy**, ensure **data integrity**, and ultimately **save lives** through better awareness, prevention, and treatment access.

iDEX-DIO & EdCIL Sign MoU under ASPIRE Program



Why in News?

- **iDEX-DIO** and **EdCIL (India) Ltd** have signed an MoU to co-develop **dual-use technologies** (civilian + defence) under a new initiative called **ASPIRE** (Accelerating Strategic Progress in Research and Education).
- The initiative aims to **merge defence innovation with educational technology** to boost **Aatmanirbhar Bharat**.

Key Stakeholders

Organisation	Details
IDEX-DIO	Innovations for Defence Excellence – Defence Innovation Organisation; under Ministry of Defence
EdCIL (India) Ltd	Mini Ratna Category-I CPSE; under Ministry of Education ; expertise in EdTech & project consultancy

ASPIRE Program – Key Highlights

Feature	Details
Full Form	Accelerating Strategic Progress in Research and Education
Objective	Develop dual-use, scalable, and indigenous technologies via collaboration between defence and ed-tech sectors
Scope	Civilian + defence sectors; innovation spillover from defence to education
Strategy	Leverage India's start-up ecosystem and link defence innovation to civilian applications

About IDEX-DIO (Defence Innovation Organisation)

Feature	Details
Launch Year	2018 by PM Narendra Modi
Objective	Promote innovation, R&D, and start-up participation in defence sector

Achievements

- Over **650 start-ups and MSMEs** engaged
- Procurement clearances** worth ₹ 3,250+ crore (50 products)
- Procurement orders** worth ₹ 1,652 crore placed (36 products)

Significance | Acts as **bridge between military needs & civilian innovation** |

About EdCIL (India) Ltd

Feature	Details
Type	Mini Ratna Category-I Central Public Sector Enterprise (CPSE)
Parent Ministry	Ministry of Education
Functions	Project management, consultancy, ed-tech services in India & abroad
Growth	Revenue grew from ₹74 crore (FY 2014-15) to ₹655 crore (FY 2023-24) with a CAGR of 24%

Significance of MoU

- Promotes **dual-use technology development** (defence + civilian).
- Extends the **IDEX innovation model** to **non-defence sectors**, especially **education**.
- Utilises India's vibrant **start-up ecosystem** to solve critical **national challenges**.
- Supports **Aatmanirbhar Bharat** by encouraging **indigenous R&D** and reducing import dependence.

HANLE DARK SKY RESERVE (HDSR)

Why In News

The **Hanle Dark Sky Reserve (HDSR)** in Ladakh recently hosted its third annual Star Party.

About Hanle Dark Sky Reserve (HDSR)

The Hanle Dark Sky Reserve (HDSR) is a significant initiative that marks a convergence of science, conservation, and local development in the high-altitude region of Ladakh.

- Designation:** It was notified in **December 2022** by the Government of Ladakh.
- Significance:** It is **India's first International Dark Sky Reserve**.
- Centre:** The reserve is centred around the **Indian Astronomical Observatory (IAO)** at Hanle, which is managed by the **Indian Institute of Astrophysics (IIA)** under the Department of Science and Technology (DST).

- **Location and Altitude:** It is part of the **Changthang Wildlife Sanctuary**, located at an altitude of **4,500 metres** (<“14,764 feet).
- **Sky Quality:** The area offers **Bortle-1 dark skies**, which represents the darkest category of night sky quality, ideal for astronomical observation.

Dual Pillars of the Project

The HDSR is built on a two-pronged strategy:

1. **Curtailing Light Pollution:** Strict adherence to a Lighting Management Plan (LMP) to protect the dark skies for scientific research.
2. **Promoting Astro-tourism:** Leveraging the unique dark skies to generate local livelihood and socio-economic development.

Supporting Entities

The project and recent events are jointly supported by:

- The UT Ladakh Administration (funding astro-tourism and light management).
- The Indian Institute of Astrophysics (IIA).
- The Department of Wildlife Protection of UT Ladakh.
- The Bhabha Atomic Research Centre (BARC).

What is a Dark Sky Reserve?

A Dark Sky Reserve is an area defined and certified by the **International Dark Sky Association (IDSA)**. These are established to protect the quality of the night sky for scientific, cultural, natural, and public enjoyment.

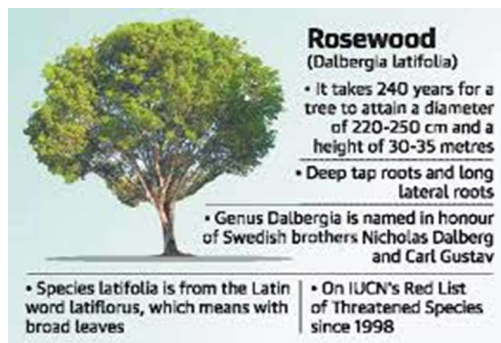
Mandatory Requirements:

- **Size:** Must be a large land area, typically at least **700 square kilometres** (<“270 square miles), with exceptionally dark skies.
- **Zoning:**
 - o **Core Area:** A central zone that is strictly protected and free from light pollution.
 - o **Buffer Area:** A surrounding zone designed to protect the core area’s darkness from light sources outside the reserve.
- **Lighting Management Plan (LMP):** Requires an active plan that covers and enforces light pollution curtailment for at least **80% of the population and area**.
- **Reporting:** Requires regular annual reporting to the IDSA to maintain the certification.



Ecology & Environment

Indian Rosewood (*Dalbergia latifolia*)



1. Context in News

- **Habitat Protection Gap:** According to recent habitat modelling by the **Institute of Wood Science and Technology (IWST), Bengaluru**, only **17.2%** of India’s most suitable habitat for ***Dalbergia latifolia*** lies within officially **Protected Areas (PAs)**.
- **Population Decline/Regeneration Failure:** Field studies across 12 States show a sharp decline, with populations dominated by **mature, ageing trees** and **almost no regeneration** (seedlings are rare or absent) in the wild.
- **State-Specific Concern (Example):** **Tamil Nadu** recorded the lowest rosewood density (2.85 trees per 0.1 hectare in a study) and recently allowed the lapse of the **Tamil Nadu Rosewood (Conservation) Act, 1995**, heightening concerns over legal felling.

2. Key Species Facts: *Dalbergia latifolia* (The Vulnerable Species)

Feature	Detail
Common Names	Indian Rosewood , East Indian Rosewood, Bombay Blackwood, Black Rosewood.
Native Range	Primarily Peninsular India (South-East India), especially the tropical monsoon forests of the Western Ghats (Nilgiris, Anamalai, Parambikulam ranges).
Tree Type	Tall, slow-growing, deciduous or semi-evergreen tree (up to 40 meters).
Wood Value	Premium timber known as the “ ivory of the forests .” Highly prized for its deep purplish-brown heartwood, durability, strength, and natural resistance to rot and insects.
Uses	Luxury furniture, cabinetry, decorative veneers, and musical instruments (like guitars).
Legal/Trade Status	India has banned the export of its logs and sawn wood.

3. Conservation Status

Convention/Body	Status	Implication
IUCN Red List	Vulnerable (Since 2018)	Facing a high risk of extinction in the wild.
CITES	Appendix II	Regulates international trade through mandatory export/import permits to prevent over-exploitation. The entire Dalbergia genus is listed under Appendix II (with some exemptions for small finished products).

4. Ecological & Economic Significance

- **Keystone Species:** Acts as a keystone ecological species in its native dry and moist deciduous forests.
- **Soil Improvement:** Improves soil fertility through **Nitrogen Fixation** (being a legume in the Fabaceae family).
- **Carbon Sink:** Rosewood trees function as long-term **carbon sinks**.

Blue Sea Dragon



Why in News?

- Several beaches in **Spain** were recently forced to shut down following an unusual influx or “invasion” of **Blue Sea Dragons** (*Glaucus atlanticus*).
- This mass stranding brought attention to this small but potent marine creature.

About the Blue Sea Dragon (*Glaucus atlanticus*)

- **Classification & Names:** The Blue Dragon is a type of soft-bodied marine gastropod **mollusk**

known as a **nudibranch** (often called a sea slug). It is also commonly referred to as the blue sea slug, blue angel, or sea swallow. It is also **hermaphrodite**, meaning each individual possesses both male and female reproductive organs.

- **Distribution and Habitat:**

- o It has a wide, pelagic distribution, found drifting on the surface of the **Atlantic, Pacific, and Indian oceans** in temperate and tropical waters.
- o It floats upside down at the surface, buoyed by an air sac in its stomach, which helps it to drift along ocean currents.

- **Unique Diet and Defense Mechanism:**

- o The Blue Sea Dragon is a predator that feeds on other floating venomous siphonophores, most notably the **Portuguese man-o-war** and the **bluebottle**.
- o **Stolen Venom (Kleptocnidae):** The slug is **not venomous on its own**. However, through a complex biological process, it consumes the venomous prey but avoids digesting the stinging cells (**nematocysts**).
- o It transports these undigested, active nematocysts to the tips of its specialized, finger-like projections called **cerata** (found on its back and sides).
- o This concentration of stinging cells in its cerata provides the slug with a much more **potent form of defense** against predators than its prey originally possessed.

- **Effect on Humans:**

- o If touched, the blue dragon can sting a human using the highly concentrated, stored nematocysts.

- o The sting can be very painful and may cause symptoms, especially in children and the elderly, including **nausea, pain, vomiting, acute allergic contact dermatitis, and post-inflammatory hyperpigmentation.**

Killer Whales (Orcas)



Why in News

- A recent study indicates that **Killer Whales** may be exhibiting exploratory behavior toward humans, specifically by **offering whole prey** and then observing the subsequent human response. This behavior highlights the orcas' high intelligence and complex social interactions.

About Killer Whales

- **Nomenclature & Status:** Known scientifically as **Orcas**, they are recognized as the **ocean's top predator** (apex predator).
- **Classification:**
 - o **Order:** Cetacea (Whales, Dolphins, Porpoises)
 - o **Family:** Delphinidae (Oceanic Dolphins). The Killer Whale is the **largest member** of this dolphin family.
 - o **Note:** The Delphinidae family includes all dolphin species, as well as larger relatives whose common names

contain "whale" instead of "dolphin" (e.g., pilot whales). Orcas are the **most widely distributed of all cetaceans.**

- **Appearance:** They are highly recognizable marine mammals, noted for their distinctive **black and white bodies.**
- **Habitat & Distribution:** Found globally in a wide variety of habitats, including both **open seas and coastal waters.**
- **Behavior:**
 - o **Social Structure:** Highly social creatures that live in stable social groups called **pods**. These pods are typically composed of **maternally related individuals.**
 - o **Senses:** They rely heavily on **underwater sound** for essential activities like feeding, communication, and navigation (echolocation).

Threats and Conservation Status

- **Major Threats:**
 - o High risk of **entanglement in fishing gear** (bycatch).
 - o **Habitat loss** is a significant concern.
 - o *Related Information (Search Result Context):* Local populations also face threats from pollution (e.g., PCBs) and prey depletion.
- **Conservation Status:**
 - o **IUCN Red List: Data Deficient (DD).**
 - o **Reason for Status:** This designation is primarily due to the taxonomic complexity of the species. Experts suspect that the numerous distinct global populations (ecotypes) of orcas may represent different subspecies or even separate species, making a unified population assessment difficult.

Srivilliputhur–Meghamalai Tiger Reserve (SMTR)



Why in News?

Concerns have recently been raised regarding the ecological integrity of the **Srivilliputhur–Meghamalai Tiger Reserve (SMTR)** due to the **unauthorised construction and repair of three roads** within its boundaries in the **Theni district** of Tamil Nadu.

About Srivilliputhur–Meghamalai Tiger Reserve

- **Location:** Situated in the ecologically sensitive **Western Ghats region** in the state of **Tamil Nadu**.
- **Districts Covered:** Spread across three districts: **Theni, Virudhunagar, and Madurai**.
- **Formation:** Declared as a Tiger Reserve in **February 2021** (India's 51st and Tamil Nadu's 5th TR).
- **Constituent Sanctuaries:** It was formed by combining the existing **Grizzled Squirrel Wildlife Sanctuary** and the **Megamalai Wildlife Sanctuary**.
- **Ecological Significance (Corridor):** The SMTR is crucial as it functions as a **connecting link** or wildlife corridor between:
 - o Kerala's **Periyar Tiger Reserve** (to the Southwest).
 - o Tamil Nadu's Southern **Kalakkad-Mundanthurai Tiger Reserve** (to the South).

- **Rivers:** The area is ecologically vital, relying primarily on three **perennial rivers** that originate or flow through the reserve: **Vaigai, Suruliyaru, and Shanmuganathi**.

Flora and Fauna of SMTR

- **Vegetation Types (Flora):** The Reserve encompasses diverse forest types, including:
 - o Tropical Evergreen and Semi-Evergreen forests.
 - o Dry Deciduous and Moist Mixed Deciduous woods.
 - o Grasslands.
- **Key Fauna:** SMTR is rich in biodiversity and provides habitat for several species, including endemic ones:
 - o **Mammals:** Tiger, Leopard, Elephant, Gaur, Sambar Deer, Spotted Deer, Wild Boar, Porcupine, and endemic species like the **Nilgiri Tahr, Nilgiri Langur, and Lion-Tailed Macaque**.
 - o **Birds:** Red-Whiskered Bulbul, Common Iora, White-Browed Wagtail, Grey Wagtail, Pied Bush Chat, etc.
 - o **Reptiles:** Wood Snake, Monitor Lizard, Chameleon, etc.

PAINTED STORK



Why in News

The **Painted Stork** was recently in the news after the **National Zoological Park** (Delhi Zoo) intensified its surveillance and biosecurity measures. This action followed the discovery of a fresh carcass of a migratory Painted Stork near a pond and the detection of another sick stork in the water bird aviary, raising concerns.

About Painted Stork

- **Scientific Name:** *Mycteria leucocephala*.
- **Type:** A large **wading bird** belonging to the stork family (*Ciconiidae*).
- **Distribution:** Found across the plains of **tropical Asia**, primarily spanning the **Indian Subcontinent** and extending into **Southeast Asia**, south of the Himalayas. They are absent from dense forests, arid areas, and high hill regions.
- **Habitat:** Favors **freshwater wetlands**, where they forage in shallow waters. They also frequent irrigation canals and flooded agricultural fields, particularly rice fields during the monsoon season.
- **Movement:** They are largely **resident (non-migratory)** but undertake short, localized movements within their range in response to breeding, weather, or food availability.

Key Features

- **Beak and Face:** Has a long, heavy **yellow beak** with a distinctive **down-curved tip** (giving it an ibis-like appearance) and a bare yellow face.
- **Plumage:** Adults have mostly white plumage, a unique **black pectoral band** (chest band)—making it the only stork in the genus *Mycteria* with this feature—and a distinguishing **rose-colored** or pink wash near the tail feathers.
- **Urohidrosis:** The legs, naturally yellowish to red, often appear white due to the bird's habit of **urohidrosis** (defecating on its legs) as an **evaporative cooling mechanism**.
- **Size:** Stands approximately 93 to 102 cm (3-3.3 feet) tall.

- **Sexual Dimorphism:** Males and females are visually similar, though the male is usually slightly larger.
- **Foraging:** They are **tactile foragers**, wading in shallow water and sweeping their half-open beaks from side to side to sense and snap up small fish, frogs, and other aquatic prey. They also disturb the water with their feet to flush out prey.

Conservation Status

- **IUCN Red List: Near Threatened (NT).**
 - *Note: While the provided text states 'Least Concern', many updated conservation sources, including the IUCN Red List itself, list the species as 'Near Threatened' due to population decline from habitat loss, hunting, and pollution, especially outside the core Indian population.*
- **Indian Wildlife (Protection) Act, 1972:** Not explicitly listed in the provided text, but storks are generally protected under various schedules.

Senna Spectabilis



Why in News

Kerala has successfully executed **India's first science-based, community-driven eradication** of the invasive species *Senna spectabilis* in the **Wayanad Wildlife Sanctuary**. This landmark initiative aims to restore the degraded forest ecosystems of South India.

About Senna Spectabilis

Senna spectabilis is a fast-growing, medium to large tree species that belongs to the pea family (Fabaceae). Despite its ornamental appeal, it has become a major ecological threat in new environments.

Feature	Description
Origin	Native to tropical America .
Common Names	Popcorn Bush Cedar, Archibald's Cassia, Calceolaria Cassia, Golden Shower, Scented Shower, Fetid Cassia.
Characteristics	A tree with a very dense, spreading crown, growing 7 to 18 metres tall . It was often planted for fuelwood, as a shade tree in agroforestry, and as an ornamental.
Resemblance	It closely resembles Kerala's state flower, Cassia fistula (known locally as kanikkonna), which contributed to its initial acceptance and spread.
Conservation Status	Classified as Least Concern under the IUCN Red List.

Ecological Threat and Challenges

The tree's invasive nature causes significant harm to forest ecosystems:

- **Habitat Destruction:** It forms **dense, sterile thickets** that aggressively outcompete and choke out native plants.
- **Altered Ecosystem:** The thick canopy blocks sunlight, and the plant is known to **alter soil chemistry**, disrupting the natural regeneration cycle of the forest.
- **Impact on Wildlife:** It severely **deprives herbivores of food** by displacing native grasses and browse species. Wildlife, such as elephants and deer, do not typically feed on it, leading to food scarcity and increasing human-wildlife conflict.
- **Challenge:** Its main challenge is its **very aggressive growth rate** and ability to produce thousands of seeds, making long-term control of its spread extremely difficult.

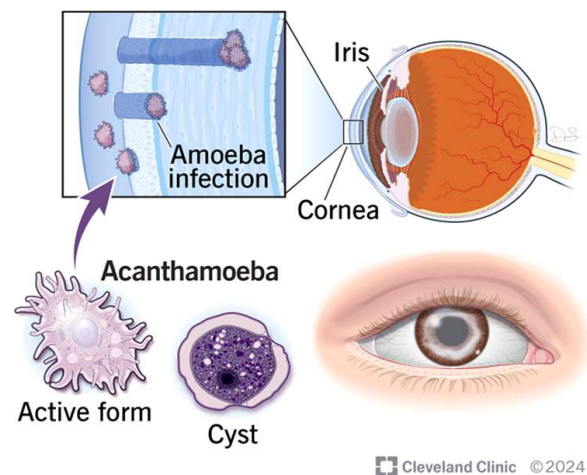
What are Invasive Species?

An **Invasive Species** is any **non-native** organism (plant, animal, or microbe) introduced to a new environment where it spreads rapidly and causes **ecological or economic harm**.

- **Introduction Pathways:** They can be introduced both intentionally (e.g., as ornamental plants, for erosion control) or accidentally (e.g., via the **ballast water of oceangoing ships**, released aquarium specimens, or contaminated trade goods).
- **Impacts:** Invasive species are one of the top drivers of global biodiversity loss. They are capable of causing the **extinction of native plants and animals**, reducing genetic diversity, competing with native organisms for limited resources, and altering entire habitats.

Acanthamoeba

Acanthamoeba keratitis



Why in News

Recent reports indicate that **Acanthamoeba**, a genus of free-living amoeba, is **more widespread** in **Kerala's water bodies** than previously recognized. This finding raises concerns about public health due to the amoeba's potential to cause serious and vision-threatening infections.

About Acanthamoeba :

Acanthamoeba is a microscopic, **free-living ameba**—a type of one-celled organism—that is commonly found in the environment. While most people are exposed to it without getting sick, it is an opportunistic pathogen that can cause severe infections, particularly in immunocompromised individuals or contact lens users.

- **Habitat:** It is ubiquitous (found everywhere) in nature, living in:
 - o Water (fresh, brackish, sea, tap water, swimming pools, hot tubs)
 - o Soil and dust
 - o Drinking water systems and humidifiers
 - o Heating, ventilation, and air conditioning (HVAC) systems
- **Infection Route:** The amoeba can enter the body through:
 - o **Eyes** (most commonly through contaminated contact lenses or solutions).
 - o **Cuts or skin wounds** (leading to skin infections).
 - o Inhalation into the **lungs or nostrils** (from contaminated water or dust).

Types of Infections Caused by Acanthamoeba

Acanthamoeba can cause a spectrum of rare but serious diseases in humans:

Infection Type	Target Area	Description	Risk Group	Prognosis
Acanthamoeba Keratitis (AK)	Eyes (Cornea)	A painful, sight-threatening infection of the cornea, characterized by corneal pain and ring-shaped infiltrates. It can cause permanent vision loss or blindness.	Predominantly contact lens users with poor hygiene.	Treatable if diagnosed early, but can lead to vision loss.
Granulomatous Amebic Encephalitis (GAE)	Brain and Central Nervous System (CNS)	A rare but devastating infection that spreads to the brain via the bloodstream, causing neurological symptoms like confusion and seizures.	Mostly immunocompromised individuals (e.g., HIV/AIDS, cancer, transplant recipients).	Almost always fatal (nearly 100% mortality).
Cutaneous Acanthamoebiasis	Skin	A skin infection characterized by reddish nodules, ulcers, or lesions.	Primarily immunocompromised individuals .	Can spread and become disseminated.
Acanthamoeba Rhinosinusitis	Nasal Cavity and Sinuses	An infection of the nasal passages that can sometimes precede or be associated with GAE.	Primarily immunocompromised individuals .	Can be a precursor to GAE.

Vulture Network Portal



Why in News?

An Assam-based foundation recently developed the **Vulture Network Portal**, a first-of-its-kind, comprehensive cloud-based platform for vulture conservation in India.

1. About the Vulture Network Portal

- **Nature:** It is a **cloud-based portal** designed to be a comprehensive **knowledge and awareness platform** focused on the vultures of India.
- **Significance:** It is the **first of its kind in India** developed to build a network of individuals and organizations engaged in saving these large scavenger birds.
- **Developer/Support:**
 - o Started by the **We Foundation India**.
 - o Supported by partners such as the **Assam Bird Monitoring Network** and other organizations.
- **Purpose:** The portal was developed to:
 - o Compile **scientific information**.
 - o Spread **awareness** among the public.
 - o Provide **freely downloadable outreach materials** for conservation campaigns.

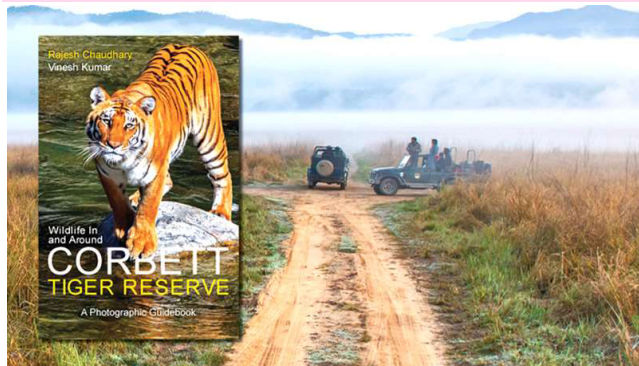
- **Focus Areas (Threats Addressed):** It focuses on mitigating threats driving vulture decline, including:
 - o **Carcass poisoning.**
 - o Harmful **veterinary drugs** such as **diclofenac**.
 - o Negative **social perceptions** about vultures.
- **Outreach:** It is disseminating information in **local languages**, initially starting with **Assamese**.

2. Vulture Species Found in India

India is home to several vulture species, including both resident and migratory types.

- **Critically Endangered/Key Species Mentioned:**
 - o **Slender-billed Vulture** (Only about 800 mature individuals left).
 - o **White-rumped Vulture.**
 - o **Red-headed Vulture.**
 - o **Indian Vulture.**
- **Other Species Mentioned:**
 - o Himalayan Griffon
 - o Cinereous Vulture
 - o Eurasian Griffon
 - o Egyptian Vulture
 - o Bearded Vulture

Corbett Tiger Reserve



Why in News?

A special annual survey by the Uttarakhand Forest Department in the **Ramnagar division, which adjoins**

the Corbett Tiger Reserve, showed a sharp jump in the tiger population over the last three years.

1. About Corbett Tiger Reserve

- **Location:** Located on the foothills of the Himalayas in the state of **Uttarakhand**.
- **Establishment & History:**
 - o Originally established as **Hailey National Park in 1936**.
 - o It holds the distinction of being the **first national park in India**.
 - o It was also the **first park in India to come under the Project Tiger initiative**.
- **Geographical Region:** The reserve is spread over the **Bhabar** and lower **Shivalik** regions.
- **Terrain and Hydrology:**
 - o **Terrain:** Undulating with several valleys.
 - o **Rivers:** The **Ramganga, Pallaen, and Sonanadi** rivers flow through the valleys.
 - o **Soil:** The tract is characterized by being **porous** with deposits of boulders and sand, leading to a deep-water table.

2. Flora and Fauna

A. Vegetation (Forest Types)

- **General Classification:** North Indian **tropical moist deciduous forests** and **tropical dry deciduous forests**.
- **Key Species:** The vegetation mainly comprises **sal** and **mixed forests**, interspersed with grasslands and riparian vegetation.
- **Grasslands (Chaur):** The grasslands are locally known as '**Chaur**', which are the outcome of abandoned settlements or past clearings.
- **Flora:**
 - o **Evergreen Sal** and its associated trees.
 - o **Sheesham** and **Kanju** are found extensively on the ridges.

B. Fauna

- **Key Species:** Tigers, elephants, leopards, sambar, hog deer, and spotted deer.

Himalayan Brown Bear



Why in News?

A rare sighting of a **Himalayan Brown Bear**, reportedly with its family, in the **Nelong and Jadung Valleys** sparked excitement within **Gangotri National Park, Uttarakhand**.

1. About the Himalayan Brown Bear

- **Scientific Name:** *Ursus arctos isabellinus*.
- **Size:** It is the **largest mammal** found in the high-altitude regions of the Himalayas.
- **Lineage:** Represents one of the most **ancient brown bear lineages**.
- **Other Names:** Also known as the “**Himalayan Red Bear**” and the “**Isabelline Bear**”. In Ladakhi, it is called **Denmo**.
- **Mythological Connection:** Its ability to walk upright is believed by some to have given rise to the legend of the **Yeti** or “**Abominable Snowman**.”

2. Distribution and Habitat

- **Global Distribution:** Found in the **northwestern and central Himalayas**, including **Pakistan, India, Nepal, the Tibetan Autonomous Region of China, and Bhutan**.
- **Habitat Altitude:** Found **above the timberline**, typically between **3,000 and 5,500 meters** (9,800 and 18,000 feet) above sea level.

- **Distribution in India:** Exists in small, isolated populations in the fragmented alpine and subalpine habitats of **Jammu and Kashmir, Himachal Pradesh, and Uttarakhand**.

3. Features and Ecology

- **Physical Features:**
 - **Fur:** Has thick fur, which is most often **sandy or reddish-brown** in colour.
 - **Size Dimorphism:** Males are larger than females (average length 1.9 m vs. 1.6 m; weight 135 kg vs. 70 kg).
- **Diet: Omnivorous**, eating grasses, roots, bulbs, other plants, insects, and small mammals (e.g., marmots, pikas, and voles).
- **Behavior:**
 - **Social:** They are generally **solitary**, interacting only to mate or fight over mates. The only exception is a mother and her cubs.
 - **Hibernation:** They **hibernate in dens during the winter**.
 - **Lifespan:** **20 to 30 years** in the wild.

4. Conservation Status

- **IUCN Red List:** **Critically Endangered**.
- **Wildlife (Protection) Act of 1972:** **Schedule I** (Highest level of protection).
- **CITES:** **Appendix I** (Highest level of protection against international trade).

Hilsa Fish



Bangladesh recently announced its decision to **export hilsa fish to India** ahead of the Durga Puja festive season as a gesture of “enduring Bangladesh-India friendship.”

1. About Hilsa Fish

- **Other Names:** Also called **Ilish**, Hilsa Herring, or Hilsa Shad.
- **Scientific Name:** *Tenualosa ilisha*
- **Family:** It is a species of fish belonging to the **Clupeidae** family, which includes herring and shad.
- **Status:** It is the **national fish of Bangladesh** and the **state fish of West Bengal**, India. It is often referred to as the “**Queen of Fish**” or “**King of Fish**” in Bengal.
- **Culinary Value:** Highly prized in the Bengal region for its delicate flavor, distinct taste, and silky texture, despite being known for its **many small bones**. It is also a rich source of **protein and Omega-3 fatty acids**.

2. Habitat, Distribution, and Migration

- **Distribution:** Found in rivers and estuaries in Bangladesh, India, Pakistan, Myanmar, and the Persian Gulf area.
- **Habitat Type:** It is an **anadromous** fish, meaning it lives in saltwater (the ocean/Bay of Bengal) but **migrates** to freshwater rivers to lay its eggs (spawning).
- **Migration Route:** It travels up major rivers like the **Padma** and **Meghna** in Bangladesh, and the **Ganges** and **Godavari** in India. The peak upstream migration typically coincides with the South-West monsoon (July-November).
- **Migration Barrier:** The **Farakka Barrage** in India acts as a physical barrier, significantly obstructing the upstream migration of Hilsa in the Ganges River.

3. Economic and Cultural Significance <0çÝ<0ÉÝ

- **Global Production:** Bangladesh is the largest producer, accounting for around **70% of the**

world’s Ilish catch, making it a subject of national pride.

- **Economic Impact:** The Hilsa fishery is Bangladesh’s largest single-species fishery. It contributes about **12% to the country’s total fish catch** and roughly **1% to the total GDP**, supporting an estimated 2 to 2.5 million people in the supply chain.
- **Cultural Importance:** It holds a revered status in the culinary and social practices of Bengal (both in Bangladesh and India), especially during festivals like **Durga Puja** and **Poila Boisakh** (Bengali New Year).

4. Conservation Status and Efforts

- **Conservation Status (IUCN Red List):** **Least Concern** (Global status), though the Persian Gulf population is listed as Near Threatened.
- **Threats:** Despite the global status, its population faced a near collapse due to **overfishing**, indiscriminate harvesting of juveniles (**jatka**), habitat loss (like the Farakka Barrage), siltation, and pollution.
- **Management:** Bangladesh has successfully revived its Hilsa stocks through extensive conservation measures, including:
 - **Bans** on catching juvenile and brood Hilsa during breeding seasons.
 - **Alternative livelihood support** for fishers during the ban periods.
 - Designation of **sanctuaries** for breeding.

National Forest Martyrs Day



Why in News

- The nation recently observed the **National Forest Martyrs Day**, with solemn tributes paid to the dedicated **Forest Department staff** and other conservationists who lost their lives protecting the country's forests and wildlife.

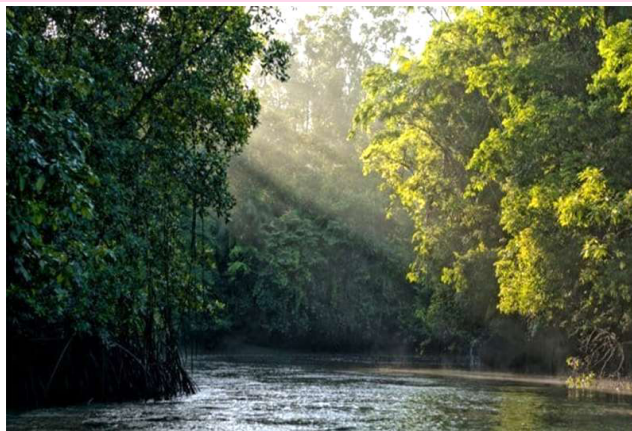
About the Day

- Date of Observance:** Annually on **September 11th**.
- Objective:** This day is dedicated to recognizing and honoring the profound **sacrifices** made by individuals, particularly the forest personnel (often referred to as 'Green Soldiers'), who fell in the line of duty while combating threats like **illegal logging, poaching**, and encroachment.
- Core Significance:** It serves as a reminder of the critical importance of conservation. It highlights that forests are not merely resources but **essential lifelines** that maintain ecological balance, purify air and water, and sustain vast **biodiversity**.

Historical Roots (The Khejarli Massacre)

- The Triggering Event:** The choice of September 11th commemorates the **Khejarli Massacre of 1730** in the Marwar region of Rajasthan.
- The Incident:** The then ruler, Maharaja Abhai Singh, ordered the felling of **Khejri trees** for a palace construction.
- The Resistance:** The local **Bishnoi community**, guided by strong ecological principles, stood against the order.
- The Ultimate Sacrifice:** Led by **Amrita Devi Bishnoi**, villagers famously protected the trees by **hugging them**. Tragically, she and approximately **363** other members of the community were martyred in their defense.
- Legacy:** This event is regarded as a precursor to modern ecological protests in India, notably inspiring the later **Chipko Movement**.
- Official Declaration:** The Government of India, through the **Ministry of Environment, Forest and Climate Change**, officially designated September 11th as the National Forest Martyrs Day in **2013**.

Biodiversity Heritage Sites (BHS)



Why in News

- The government recently designated **8.6 acres of green cover** at the **Cantonment Railway Colony** as a Biodiversity Heritage Site (BHS). This makes it the **second** such site in **Bengaluru**, after the Gandhi Krishi Vigyan Kendra (GKVK).

About Biodiversity Heritage Sites (BHS)

- Definition:** BHS are ecologically unique, **biodiversity-rich areas** that are crucial components of local ecosystems. They are typically conserved and managed with the active involvement of the local community.
- Legal Basis:** They are notified by the **State Government** under **Section-37** of the **Biological Diversity Act, 2002**, in consultation with local bodies.
- Scope:** BHS may span **terrestrial, aquatic, coastal, inland, and marine ecosystems**.
- First BHS in India:** **Nallur Tamarind Grove** in Bengaluru, Karnataka, was designated as India's first BHS in **2007**.
- Objective:** The primary goal is to conserve these sites in a way that simultaneously **enhances the quality of life** and prevailing practices of the local communities.

Criteria for Declaration

An area may be declared a BHS if it possesses rich biodiversity comprising one or more of the following unique biological components:

- **Species Richness:** A high variety of wild or domesticated species, or intra-specific categories.
- **Endemism:** A high concentration of species found only in that specific area.
- **Special Species:** Presence of **rare, threatened, keystone species**, or species of evolutionary importance.
- **Genetic Ancestry:** Hosting **wild ancestors** of domestic or cultivated species and their varieties.
- **Cultural Linkage:** Having **significant cultural, ethical, or aesthetic values** and a long history of human association, including past biological components represented by **fossil beds**.

Management and Community Involvement

- **Community Practices:** The declaration of an area as a BHS typically **does not impose any restriction** on the existing practices and usages of the local communities, other than those they **voluntarily decide** upon for conservation.
- **State Empowerment:** State Governments are empowered to formulate:
 - o **Schemes** to compensate or rehabilitate individuals or communities whose economic livelihoods are negatively affected by the BHS notification.
 - o **Rules** for the management and conservation of the BHS, in consultation with the Central Government.

Koala



Why in News

- **Australia** recently gave approval for the world's first **vaccine** specifically designed to protect **koalas** from the devastating effects of the bacterial disease **Chlamydia**.

About the Koala

- **Classification:** The koala (*Phascolarctos cinereus*) is an **arboreal** (tree-dwelling), **herbivorous marsupial** native to **Australia**.
- **Family:** It is the sole living representative of the family **Phascolarctidae**. Its closest relatives are the **wombats**.
- **Behavior:** Koalas are largely **asocial** animals, only gathering during the breeding season. They are highly specialized, spending most of their time eating and sleeping in eucalyptus trees.
- **Unique Feature:** Their paws feature **two opposing thumbs**, which are essential for grasping and climbing tree trunks effectively.
- **Distribution:** Found across eastern and southeastern Australia, including parts of Queensland, New South Wales, Victoria, and South Australia.
- **Habitat:** They inhabit a range of environments, from open forests and woodlands to different climates, including tropical and cool temperate zones.
- **Diet:** Koalas are folivorous (leaf-eaters), feeding almost exclusively on the leaves of the **eucalyptus tree**.
- **Conservation Status:** Listed as **Vulnerable** on the IUCN Red List.
- **Major Threats:** They face multiple, compounding threats, including **disease (Chlamydia)**, **habitat loss**, **climate change**, and **road collisions**.

Chlamydia in Koalas

- **Causative Agents:** Koalas are susceptible to two bacterial species: *Chlamydia pneumoniae* and *Chlamydia pecorum*.

- **Transmission:** The disease spreads in multiple ways, including during **mating**, through infected discharges, and from mother to offspring at birth.
- **Health Impact:** The infection can lead to severe health issues, such as **eye infections, blindness, urinary tract problems, and infertility**.
- **Ecosystem Impact:** Infected koalas become weak, dehydrated, and consequently more vulnerable to predators and natural disasters like bushfires.
- **Prevalence:** In some regions of Australia, the disease is highly prevalent, with up to **70%** of the wild koala population carrying the bacterium. The close proximity of their overlapping territories and mutual grooming habits contribute to its rapid spread.

National Tiger Conservation Authority (NTCA)



National Tiger Conservation Authority (NTCA)



Why in News

- The **Supreme Court** recently sought responses from the **Centre**, the **National Tiger Conservation Authority (NTCA)**, and other parties regarding a Public Interest Litigation (PIL).
- The PIL seeks a **CBI probe** into an alleged organised **tiger-poaching and illegal wildlife-**

trade racket operating across states, specifically naming **Maharashtra and Madhya Pradesh**.

About the National Tiger Conservation Authority

- **Status:** It is a **statutory body** established for strengthening tiger conservation.
- **Nodal Ministry:** It functions under the **Ministry of Environment, Forest, and Climate Change (MoEFCC)**.
- **Establishment:** It was constituted in **2006** under the enabling provisions of the **Wildlife (Protection) Act, 1972 (WPA 1972)**, as amended in 2006.

NTCA Objectives

The NTCA was created to ensure effective conservation of the national animal, the tiger, by:

- **Legal Authority:** Providing **statutory authority** to **Project Tiger** so that compliance with its directives becomes legally binding.
 - *Note: Project Tiger is a **Centrally Sponsored Scheme (CSS)** under MoEFCC that provides funding for *in-situ* conservation of tigers in designated reserves.*
- **Accountability:** Fostering **Center-State accountability** in the management of Tiger Reserves through mechanisms like Memoranda of Understanding (MoU) with States.
- **Parliamentary Oversight:** Providing for an **oversight by Parliament** regarding tiger conservation efforts.
- **Local Interests:** Addressing the **livelihood interests of local people** in areas surrounding Tiger Reserves.

NTCA Composition

The Authority comprises key officials and experts:

- **Chairperson:** Minister in charge of the **MoEFCC**.
- **Vice-Chairperson:** Minister of State in the **MoEFCC**.
- **Other Members:** Includes **three members of Parliament**, the **Secretary (MoEFCC)**, and other domain experts.

NTCA Powers and Functions

As prescribed under the WPA 1972 (as amended in 2006), the NTCA's major powers and functions include:

- **Approving Plans:** To **approve the tiger conservation plan** prepared by the State Governments.
- **Land Use Control:** To evaluate and assess sustainable ecology and **disallow any ecologically unsustainable land use**, such as mining or industry, within the tiger reserves.
- **Guidelines:** To lay down **normative standards for tourism activities** and **guidelines for Project Tiger** for conservation in the buffer and core areas.
- **Conflict Mitigation:** To provide management focus on addressing **conflicts of men and wild animals** and to emphasize co-existence in forest areas outside reserves.
- **Monitoring & Research:** To provide information on protection measures, conduct **estimation of the population of tigers and their prey**, disease surveillance, and **approve/coordinate research and monitoring**.
- **Diversion Veto:** To ensure that Tiger Reserves or connecting areas are **not diverted for ecologically unsustainable uses**, except with approval of the National Board for Wild Life and on the advice of the NTCA.
- **Support:** To ensure **critical support** (scientific, IT, legal) and facilitate **capacity building** for tiger reserve staff.
- **Directives:** The NTCA can **issue directions in writing** to any person, officer, or authority for the protection of tigers or tiger reserves, and compliance is mandatory.

The NTCA conducts the **Tiger Census** (All India Tiger Estimation) every four years.

Clean Plant Programme



Why in News

The **Clean Plant Programme (CPP)**, approved by the Union Cabinet with a substantial investment of ₹ 1,765.67 crore (including a \$98 million loan from the Asian Development Bank), is currently gaining **momentum in its implementation**. This includes:

- **Hazard Analysis (HA):** Completed for grapevine and in progress for apple and citrus crops. This critical step involves profiling viruses and virus-like agents to form the foundation for certification.
- **Clean Plant Centres (CPCs):** The bidding process for the design of India's first Clean Plant Centre is underway. The plan is to establish **nine world-class CPCs** nationwide.
- **On-Ground Assessment:** Teams from the National Horticulture Board (NHB) and the Asian Development Bank (ADB) have conducted nursery and lab visits to study cultivation practices, nursery ecosystems, and strengthen diagnostic capabilities.

About Clean Plant Programme

The CPP is a transformative national initiative aimed at revolutionizing the horticulture sector by improving

the quality and productivity of fruit crops. The core issue it addresses is the significant crop loss (up to 50% in some cases) caused by the widespread use of planting material infected with non-curable viruses and pathogens.

Feature	Details
Objective	To provide farmers with access to high-quality, virus-free planting material of key fruit crops, enhancing yields, crop quality, and climate resilience.
Conceptualized by	Ministry of Agriculture & Farmers Welfare in collaboration with the Asian Development Bank (ADB) .
Implemented by	National Horticulture Board (NHB) in association with the Indian Council of Agricultural Research (ICAR) .
Target Crops	Preliminary target crops include almond, apple , avocado, berries, citrus , grapes , guava , litchi, mango , pomegranate , and walnut.
Alignment	The programme aligns with national initiatives like the Mission for Integrated Development of Horticulture (MIDH) , Mission LiFE , and One Health .

Components of Clean Plant Programme

The CPP is structured around three key components to create a complete ecosystem for clean planting material production:

1. Establishment of Nine Clean Plant Centers (CPCs):

- o These will be **world-class, state-of-the-art facilities** equipped with advanced diagnostic, therapeutic, and tissue culture labs.
- o They will be strategically located to specialize in different fruit crops, e.g., Pune (Grapes), Nagpur & Bikaner (Citrus), Srinagar & Mukteshwar (Temperate Fruits).
- o CPCs will conduct **disease diagnostics and treatment** (like virus elimination), and serve as the **quarantine hub** for all domestic and imported planting materials intended for commercial use.

2. Infrastructure Development:

- o This involves providing financial support for the **setting up of large-**

scale, modern nurseries alongside CPCs.

- o The nurseries will efficiently **multiply the clean mother plants** produced by the CPCs and then distribute the certified disease-free seedlings to farmers.
- o The aim is to collectively produce **8 crore disease-free seedlings annually**.

3. Regulatory and Certification Framework:

- o A robust **certification system** will be implemented, backed by a regulatory framework under the **Seeds Act of 1966**.
- o This framework will ensure complete **accountability and traceability** in the production, inspection, and distribution of planting material, guaranteeing that farmers only receive certified clean stock.

Smog-Eating Photocatalytic Coatings

ROAD TO CLEANER AIR?

What is Photocatalytic Coating
 "Smog-eating" photocatalytic coatings are applied on roads, concrete and tiles to reduce nitrogen dioxide (NO₂) and harmful hydrocarbons. These coatings utilise a photocatalyst, predominantly titanium dioxide (TiO₂), which breaks down pollutants—mainly nitrogen oxides (NO_x) and some volatile organic compounds (VOCs)—when exposed to sunlight.

DELHI IS MULLING ITS USE, BUT IT'S NOT FIRST TO DO SO

The Netherlands Field trials with TiO ₂ -treated paving blocks in part of Hengelo city showed substantial NO _x reductions in test stretches	Italy Tests were conducted on building facades and pavements in Milan	Denmark A study was conducted on photocatalytic-treated asphalt roads in Copenhagen for urban NO _x removal
Mexico A hospital building facade was made with tiles coated with titanium dioxide	US Pavements with titanium dioxide coatings exist on some stretches	

JURY IS OUT ON ITS EFFICACY

- Street environments with variable wind, dust deposition, traffic, shading and humidity reduce effectiveness
- Photocatalysis targets gaseous pollutants; evidence of particulate matter reduction is weak
- Photocatalytic activity declines over time

Why In News

The **Delhi government** has announced a **time-bound feasibility study** on **"smog-eating" photocatalytic coatings** to combat the city's severe air pollution.

- The Environment Department will sign an **MoU with a scientific institution within 30 days** to conduct the study.
- **Field trials** will be conducted on surfaces like roads, pavements, and public spaces in busy areas.
- A **final report** is expected **six months** after the MoU is signed, evaluating the technology's effectiveness, safety, and cost-efficiency.
- If the trials are successful, the coatings will be considered for **citywide deployment** as a passive, continuous air purification method.

About Smog-Eating Photocatalytic Coatings

These coatings are an innovative technology designed to **neutralize harmful air pollutants** through a chemical reaction driven by light.

Feature	Details
Primary Function	To neutralize harmful gases like nitrogen dioxide (NO₂) and volatile hydrocarbons that contribute to toxic air and smog formation.
Main Component	Usually uses titanium dioxide (TiO₂) as a coating. TiO ₂ is favored for being low-cost , chemically stable , and compatible with traditional construction materials like concrete and asphalt.
Working Mechanism: Photocatalysis	When TiO ₂ is exposed to sunlight (specifically its UV component), it acts as a catalyst . This process, called photocatalysis , generates highly reactive species (like hydroxyl radicals). These species break down harmful substances and organic waste into less toxic or harmless matters, such as water-soluble nitrates and CO ₂ .
Environmental Impact	It is a passive, continuous pollution reduction solution that does not require external energy input, aiding in gaseous depollution and environmental cleaning.

What is Smog?

Smog is a type of air pollution originally used to refer to a combination of **smoke** and **fog**. Today, it encompasses a broad category of air pollutants.

Two distinct types of smog are recognized:

1. Sulfurous Smog (London Smog):

- o **Cause:** Results from a high concentration of **sulfur oxides** in the air, primarily caused by the use of

sulfur-bearing fossil fuels (especially coal).

- o **Occurrence:** Typically associated with cold, damp conditions (often in winter).

2. Photochemical Smog (Los Angeles Smog):

- o **Cause:** Occurs most prominently in urban areas with **large numbers of automobiles**. It is formed when **nitrogen oxides** and **volatile organic compounds (VOCs)** from vehicular and industrial emissions react in the atmosphere under the influence of **sunlight**.
- o **Components:** The reaction forms harmful secondary pollutants, most notably **ground-level ozone (O₃)** and Peroxyacyl Nitrates (PAN).
- o **Occurrence:** More prevalent during warm, sunny conditions (often in summer).

Tropical Forests Forever Facility (TFFF)



Why in News

Brazil has become the **first country** to announce a firm investment in the TFFF. President Luiz Inácio Lula da Silva announced a **\$1 billion** contribution to the planned multilateral fund at a United Nations event in September 2025. This commitment is intended to show leadership and encourage other potential partners to contribute ahead of the fund's expected official launch at **COP30** in Belém, Brazil, in November 2025.

About Tropical Forests Forever Facility

The TFFF is an **innovative multilateral global permanent fund** (or long-term investment facility) dedicated to supporting **tropical forest conservation** over the long-term.

Feature	Details
Origin & Leadership	A global initiative led by the Government of Brazil , first proposed at COP28 in Dubai in 2023.
Core Goal	To mobilize US\$125 billion in capital to create an endowment that provides predictable, performance-based payments to Tropical Forest Countries (TFCs) for maintaining and restoring standing forests.
Payout Mechanism	The fund will invest its capital into a diversified portfolio (e.g., in sovereign and green bonds) to generate a return that is higher than its cost of capital. The net profits from these investments will be used to pay TFCs an initial fixed amount of money per hectare of standing forest (e.g., US\$4/ha/year).
Incentive Structure	Payments are results-based and monitored via satellite. Deductions (penalties) are applied to the annual payment for any area deforested or degraded, incentivizing TFCs to maintain low or zero deforestation rates.

Financial Mechanism of Tropical Forests Forever Facility

The TFFF is a **blended finance structure** that leverages public “junior” capital to attract large-scale private “senior” capital. The target capitalization is **\$125 billion**, structured in two main tranches:

1. Sponsors (Junior Capital):

- o **Target:** \$25 billion (approx. **20%** of the total corpus).
- o **Sources:** ‘High income’ countries (as classified by the World Bank) and philanthropies.
- o **Role:** They provide the first layer of capital, which absorbs the initial investment risk (making them “junior” creditors). Their financial contribution is structured as **deposits, loans, or guarantees**, not outright grants, and

they are repaid over time with interest. This risk-mitigation is key to attracting private investors.

2. Market Investors (Senior Capital):

- o **Target:** \$100 billion (approx. **80%** of the total corpus).
- o **Sources:** Institutional investors, sovereign wealth funds, endowments, and private capital.
- o **Role:** They invest through **debt instruments** (such as high-rated bonds) issued by the facility. Because the sponsors’ capital acts as a financial cushion, the TFFF aims to issue these bonds with a **high credit rating** (e.g., AAA), making them safe and attractive for large-scale fixed-income investors.
- **Fund Management:** The pooled funds are managed by a Multilateral Development Bank (MDB), such as the **World Bank**, or a similar apolitical entity.
- **Social Safeguard:** Recipient TFCs are expected to allocate a minimum of **20%** of the funds received specifically to **Indigenous and Local Communities (IPs & LCs)**, who are recognized as the best forest custodians.

INDIA’S DUGONG CONSERVATION RESERVE



Why In News

Recently, the **International Union for Conservation of Nature (IUCN)** has adopted a motion recognising India's first **Dugong Conservation Reserve** in Palk Bay.

About India's Dugong Conservation Reserve

This reserve is a crucial step towards protecting the highly vulnerable Dugong population and their essential marine habitat in India.

- **Status:** It is **India's first Dugong Conservation Reserve**.
- **Establishment & Authority:** It was established on **September 21, 2022**, by the **Tamil Nadu government** and notified under the **Wildlife Protection Act, 1972**.
- **Location and Area:** It is located in **northern Palk Bay** and spans an area of **448.34 sq. km**.
- **Ecological Significance:** The reserve safeguards over **12,250 hectares of seagrass meadows**, which serve as the vital feeding grounds for dugongs and support a diverse array of other marine species.

Key Facts about Dugong (*Dugong dugon*)

The Dugong, often called the **sea cow**, is a unique marine mammal known for its slow life-history strategy, which makes its population highly susceptible to decline.

Appearance and Habitat

- **Dietary Classification:** Dugongs are the **only herbivorous mammals** found in India's marine ecosystems.
- **Appearance:** They resemble a cross between a seal and a whale and are distributed across the **Indo-Pacific region**.
- **Habitat:** They are restricted to **shallow waters** where they graze exclusively on seagrasses (such as *Cymodocea*, *Halophila*, *Thalassia*, and *Halodule*).
- **Distribution in India:** They are primarily found in warm waters around four key areas:
 - **Andaman and Nicobar Islands**

- **Gulf of Mannar**
- **Palk Bay**
- **Gulf of Kutch**

- **Lifespan:** Dugongs are long-lived, often reaching an age of up to **70 years**.

Reproduction

- **Slow Cycle:** Individuals reach reproductive maturity late (around nine or ten years) and give birth infrequently, with calving intervals of about three to five years.
- **Low Growth Rate:** Due to this extended time to maturity and infrequent breeding, a dugong population's maximum potential growth rate is estimated to be only about **5% per year**.

Conservation Status of Dugong

The Dugong is afforded the highest level of protection in India, reflecting its vulnerability.

Authority	Status	Significance
IUCN	Vulnerable	Faces a high risk of extinction in the wild.
CITES	Appendix I	Prohibits international commercial trade.
Wildlife Protection Act, 1972 (India)	Schedule I	Affords the highest degree of protection against hunting and commercial exploitation.

NEW RAMSAR SITES



Why In News

Recently, two wetlands from Bihar—**Gokul Jalashaya** in Buxar and **Udaipur Jheel** in West Champaran—have received the **Ramsar tag**, recognizing

them as Wetlands of International Importance.

About Gokul Jalashaya

Gokul Jalashaya is an important hydrological and ecological feature on the southern edge of the Ganges River, crucial for both local wildlife and human communities.

- **Location:** Buxar, Bihar.
- **Type:** It is an **oxbow lake** (a U-shaped body of water formed when a wide meander of a river is cut off).
- **Hydrology:** Its land use and water level are significantly influenced by the **flood pulses of the Ganga River**. It experiences increased inundation during the monsoons and exposes marsh and agricultural areas during dry months.
- **Function:** It acts as a **buffer for nearby villages** during flooding events, helping to mitigate the impact of high river water levels.
- **Biodiversity & Use:**
 - o It supports over 50 **bird species**, with exposed marshland providing crucial food and breeding habitats in the pre-monsoon season.
 - o Local communities rely on the wetland for essential resources like **fishing, farming, and irrigation**.

About Udaipur Jheel

Udaipur Jheel is a major biodiversity hotspot and a significant stopover for migratory birds, protected by a surrounding wildlife sanctuary.

- **Location:** West Champaran, Bihar.
- **Type:** It is also an **oxbow lake**, surrounded to the north and west by the dense forest of the **Udaipur Wildlife Sanctuary**.
- **Flora:** The wetland supports over 280 **plant species**, including *Alysicarpus roxburghianus*, a perennial herb that is **endemic to India**.
- **Fauna:** It serves as an **important wintering ground** for approximately 35 **migratory bird species**, including the **vulnerable common pochard** (*Aythya ferina*).

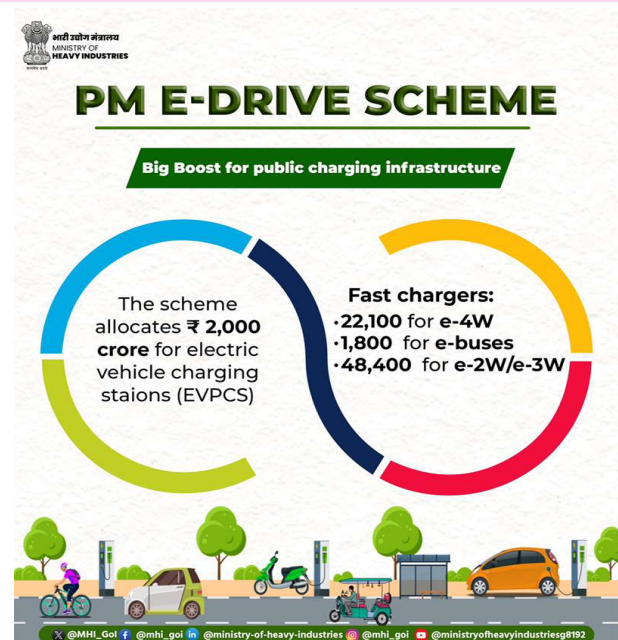
- **Threats:** Despite its protected status, the wetland faces significant environmental pressures from:

- o Illegal fishing.
- o Intensive agriculture, particularly the use of chemical fertilizers and pesticides in surrounding areas.

The Ramsar Tag (Wetlands of International Importance)

- **Convention:** The recognition is granted under the **Ramsar Convention**, an intergovernmental environmental treaty established in 1971 by UNESCO, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
- **Purpose:** The designation helps ensure the ecological character of the wetland is maintained through effective conservation and management practices, often opening avenues for international funding and expertise.

PM E-DRIVE SCHEME



Why in News

The Centre recently unveiled operational guidelines for the rollout of nearly **72,300 public electric vehicle (EV) charging stations** across the country, with an outlay

of ₹ 2,000 crore under the larger ₹ 10,900 crore PM E-DRIVE scheme.

About PM E-DRIVE Scheme

The **PM E-DRIVE (Electric Drive Revolution in Innovative Vehicle Enhancement)** scheme is a flagship initiative launched by the Government of India to accelerate EV adoption and build a robust domestic manufacturing ecosystem.

- **Launch Date:** October 2024.
- **Duration:** The scheme is in effect from **October 1, 2024, to March 31, 2026**.
- **Total Outlay:** ₹ 10,900 crore (Ten Thousand Nine Hundred Crore Rupees).
- **Primary Aim:** To speed up the transition to Electric Vehicles by providing upfront incentives for EV purchases, establishing a comprehensive charging infrastructure, and strengthening the domestic EV manufacturing sector.
- **Goal:** To reduce transportation-related environmental impacts, improve air quality, and promote an efficient and competitive EV industry in line with the **Aatmanirbhar Bharat** initiative.

Key Components and Implementation

The scheme is designed to boost both the demand side (through subsidies) and the supply side (through infrastructure and manufacturing support).

1. Core Components (The Three Pillars)

Component	Description
Subsidies (Demand Incentives)	Provided for the purchase of various Electric Vehicle categories, including e-2 wheelers (e-2W) , e-3 wheelers (e-3W) , e-ambulances , e-trucks , and other emerging EV segments.
Grants for Capital Assets	Funding allocated for the acquisition of electric buses (e-buses) , the establishment of a comprehensive network of charging stations (as per the latest news), and the upgrading of testing facilities under the Ministry of Heavy Industries (MHI).
Administration	Includes support for IEC (Information, Education & Communication) activities and fees for the Project Management Agency (PMA).

2. Manufacturing and Oversight

- **Manufacturing Strategy:** The scheme mandates a **Phased Manufacturing Program (PMP)** to boost domestic manufacturing and strengthen the entire EV supply chain, promoting indigenous components.
- **Oversight Body:** The scheme is overseen by an inter-ministerial body, the **Project Implementation and Sanctioning Committee (PISC)**, chaired by the **Secretary of Heavy Industries**. The PISC has the authority to monitor progress, revise incentives, and approve guidelines.
- **Eligibility:** To qualify for incentives, vehicles must be registered as **“Motor Vehicles”** under the Central Motor Vehicle Rules (CMVR) and equipped with **advanced battery technology**.

3. Nodal Agency and Digital Integration

- **Nodal Agency:** **Bharat Heavy Electricals Limited (BHEL)** is the nodal agency for two crucial tasks:
 1. Demand aggregation for charging infrastructure.
 2. Development of a **Unified EV Super App** for users across India.
- **Unified EV Super App:** This app will offer real-time charger availability, slot booking, payment integration, and deployment progress tracking to ensure **digital ease-of-use** for all EV stakeholders.
- **State Encouragement:** States are actively encouraged to offer supplementary fiscal and non-fiscal incentives, such as **road tax waivers**, **reduced toll/parking fees**, and permit exemptions.

Crux of The Hindu & Indian Express

Ecology & Environment

Air Pollution in India: How Toxic Air Is Cutting Our Lives Short



Based on the 2025 report by:

Air Quality Life Index (AQLI) – Energy Policy Institute, University of Chicago (EPIC)

What Did the Report Find?

- **Air pollution is the biggest health threat in India.**
- It is **reducing life expectancy more than any other health problem.**

How Much Life Are Indians Losing?

According to the report:

Health Problem	Life Expectancy Loss
Air Pollution	3.5 years (national average)
Malnutrition	1.6 years
Tobacco use	1.5 years
Unsafe water, sanitation	8.4 months

Conclusion: Breathing dirty air is the **#1 reason** Indians are living shorter lives.

What About Delhi-NCR?

Delhi-NCR has the worst air in the world.

- People in **Delhi-NCR** are losing:
 - **8.2 years of life (if we follow WHO air quality standard)**

- **4.74 years of life (even by India's own weaker standard)**

This means: Even **our national air quality rules** are not safe enough.

Other Affected States

State	Years of Life Lost
Bihar	5.6 years
Haryana	5.3 years
Uttar Pradesh	5.0 years

All of them are part of **North India**, the most polluted region on Earth.

What Is PM2.5?

- **PM2.5** = very tiny particles in the air.
- They go deep into our lungs and blood.
- They are mostly produced by:
 - Smoke from vehicles and factories
 - Burning coal, wood, and waste
 - Construction dust and firecrackers

How Bad Is the Air Across India?

- **ALL Indians** (1.4 billion people) breathe air **worse than WHO's safe limit** (5 micrograms per cubic meter).
- **46% of Indians** breathe air that is **even worse than India's own national safety limit** (40 µg/m³).

What Could Happen If Air Got Cleaner?

If we meet...	Indians would live...
India's national air standard (40 µg/m ³)	+1.5 years longer
WHO's safe air limit (5 µg/m ³)	+9.4 months even in cleaner areas
WHO's safe air limit (Delhi-NCR)	+8.2 years longer

Yes. After a small improvement in 2022, pollution rose again:

- **PM2.5 levels increased by 2.8% in 2023.**
- **South Asia (India, Pakistan, Bangladesh)** now has the **worst air in the world.**
- **Average life loss in South Asia:** 3 years
- In highly polluted places like Delhi: Over **8 years**

Why Is This Serious?

Air pollution causes:

- Asthma, lung disease, heart problems
- Premature death
- Poor brain development in children
- Long-term suffering for the elderly and sick

You're being harmed even if you don't feel it. Every breath counts.

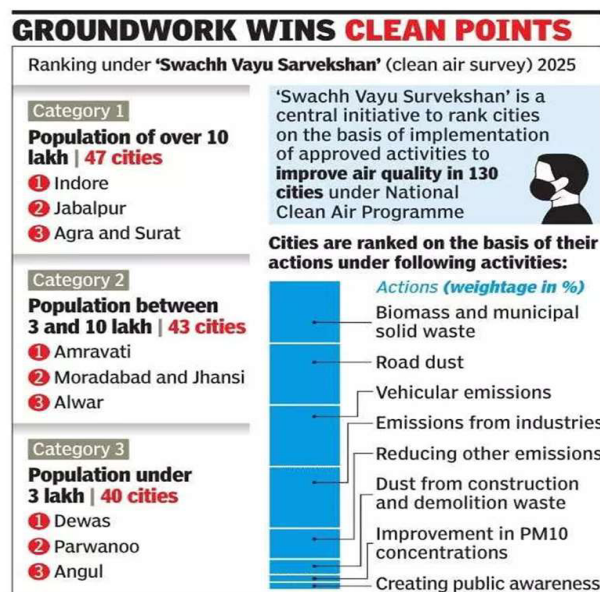
What Does the Report Say We Should Do?

"Without urgent action to reduce pollution, millions of Indians will lose healthy years of life just by breathing."

Suggested actions:

- Control vehicle and industrial emissions
- Use clean energy (solar, wind, electric vehicles)
- Stop open burning of waste
- Improve construction site dust control
- Stricter government regulation and enforcement

Swachh Vayu Sarvekshan & Wetland Cities Recognition 2025



Why in News?

- On **9th September 2025**, the **Ministry of Environment, Forest and Climate Change (MoEFCC)** organized the **Swachh Vayu Sarvekshan Awards & Wetland Cities Recognition Ceremony 2025** in New Delhi.
- Union Minister **Shri Bhupender Yadav** felicitated **11 best-performing cities** under the **National Clean Air Programme (NCAP)** and awarded **Indore and Udaipur** the **Ramsar "Wetland City"** recognition.

About Swachh Vayu Sarvekshan (SVS) :

Feature	Details
Launched by	Ministry of Environment, Forest and Climate Change (MoEFCC)
First edition	2022
Purpose	To rank cities based on their implementation of air pollution mitigation measures
Part of	National Clean Air Programme (NCAP)
Frequency	Annual
Categories	1. Million-plus cities 2. Cities with 3–10 lakh population 3. Cities with less than 3 lakh population

Awarded Cities (SVS 2025) :

Category 1: Cities with population > 10 lakh

Rank	City	Score	Award (₹)	Highlights
1	Indore	200/200	1.5 Cr	16 lakh trees planted, Guinness Record; 120 e-buses, 150 CNG buses
2	Jabalpur	199/200	1 Cr	11 MW waste-to-energy plant; increased greenery
3	Agra & Surat	196/200 each	₹25 lakh each	Agra: Legacy waste remediation, Miyawaki plantation; Surat: EV policy, 38% green cover

Category 2: Cities with population 3–10 lakh

Rank	City	Score	Award (₹)	Highlights
1	Amravati	200/200	75 lakh	340 km pavement, 19 acres turned into forest
2	Jhansi, Moradabad	198.5/200	25 lakh each	Greening, Miyawaki forests, C&D waste mgmt
3	Alwar	197.6/200	25 lakh	Legacy waste dump remediation

Category 3: Cities with population < 3 lakh

Rank	City	Score	Award (₹)	Highlights
1	Dewas	193/200	37.5 lakh	Shifted industries to cleaner fuels
2	Parwanoo	191.5/200	25 lakh	Road pavement work
3	Angul	191/200	12.5 lakh	Public outreach; road infra development

What is NCAP ?

- Ministry of Environment, Forest and Climate Change (MoEFCC) launched National Clean Air Programme (NCAP) in January, 2019.
- Aim : To improve air quality in 131 cities (non-attainment cities and Million Plus Cities) in 24 States/UTs by engaging all stakeholders.
- The programme envisages to achieve **reductions up to 40% or achievement of National Ambient Air Quality Standards for Particulate Matter₁₀ (PM₁₀)** concentrations by 2025-26 with 2017 as base year

What is PM₁₀?

- PM₁₀ (Particulate Matter d"10 microns)** refers to **tiny solid or liquid particles in the air** that are smaller than 10 micrometres in diameter.
- These particles can:
 - Be inhaled deep into the lungs
 - Cause **respiratory diseases**, cardiovascular issues, and premature death
- Sources include** vehicle exhaust, construction dust, industrial emissions, and road dust.

What is NAAQS?

- Full Form:** National Ambient Air Quality Standards
- Defined by:** CPCB (Central Pollution Control Board)
- For PM₁₀:** Acceptable annual average = **60 µg/m³**

PM₁₀ Trends in Major Cities (2024–25 vs 2017–18)

City	PM ₁₀ in 2024–25 (µg/m ³)	% Change since 2017–18	Status
Indore	83	▲ +1.2%	Above limit
Mumbai	90	▼ -44%	Above limit
Kolkata	92	▼ -37%	Above limit
Hyderabad	81	▼ -26%	Above limit
Bengaluru	68	▼ -26%	Above limit
Delhi	203	▼ -15%	Way above limit
Chennai	58	▼ -12%	☑ Within NAAQS

Air Quality Progress under NCAP (2017–2025)

- 103 out of 130 cities** showed improvement in **PM₁₀ levels**
- 64 cities** achieved **>20% reduction**
- 25 cities** achieved **>40% reduction**
- Key sectors addressed:
 - Road dust
 - Vehicle & industrial emissions
 - Construction & demolition (C&D) waste
 - Solid waste management

Recognition: Wetland Cities under Ramsar Convention

- Indore and Udaipur** awarded **“Wetland City Accreditation”** under the Ramsar Convention.
- Recognized for **urban wetland conservation** efforts.
- Only **cities globally** demonstrating **exceptional protection of wetlands** qualify.

Funding for Clean Air & Infrastructure

- Total mobilized: **₹ 1.55 lakh crore** (2019–2025)
 - ₹ 20,130 crore allocated under **NCAP** to 130 cities
 - ₹ 13,237 crore as **Air Quality Performance-linked grants**
 - ₹ 73,350 crore via Central Government schemes:

- * **Swachh Bharat Mission (Urban)**
- * **AMRUT, Smart Cities Mission**
- * **FAME-II, SATAT, Nagar Van Yojana**

o ₹ 82,000 crore by **State Govts. & ULBs**

Other Key Developments

- **Ward-level SVS Guidelines released:**
 - o Clean air evaluation to expand to **ward level**
 - o Aimed at grassroots awareness and accountability
- **Compendium of Best Practices** launched:
 - o Highlights innovative clean air actions by cities
 - o Acts as a model for replication
- **PRANA Portal:**
 - o Tracks city progress in real time
 - o Ensures transparency

Green & Sustainable Initiatives

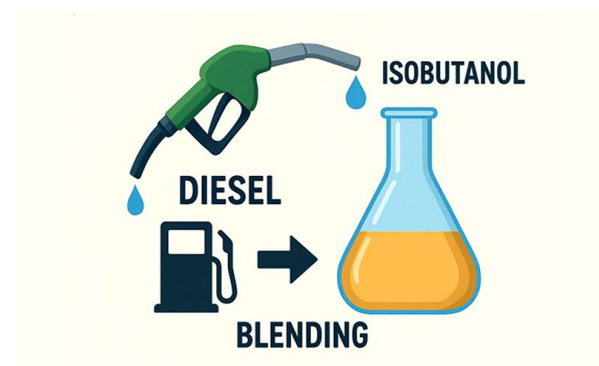
- Under **“Ek Ped Maa Ke Naam”** campaign:
 - o Target: **75 crore trees** from Sept 17 – Oct 2, 2025
 - o **75 Nagar Vans** to be developed under **Nagar Van Yojana**
- **Circular Economy approach** promoted:
 - o Shift from **“Take-Make-Dispose”** to **Recycle-Reuse**

Wetlands & Water Conservation Initiatives

- **Ramsar Sites in India:**
 - o **91 wetlands** (from 25 in 2014) – **250% growth**
 - o Total area: **1.36 million hectares**
 - o India: **highest in Asia, 3rd globally**
- **Mission Amrit Sarovar:** Water body rejuvenation in each district
- **Mission LiFE:** 7 lifestyle themes including **“Save Water”**
- India has **4.7% of land area as lakes**, two-thirds outside forests

- o Act as **“kidneys” of the environment** – filtering pollutants, preventing floods

ISOBUTANOL-DIESEL BLENDING



WHY IN NEWS?

- On **11 September 2025**, Union Transport Minister **Nitin Gadkari** announced that the **Automotive Research Association of India (ARAI)** is exploring the blending of **10% isobutanol with diesel**, after failed trials of ethanol blending with diesel.
- This was stated during the **India Sugar and Bio-Energy Manufacturers Association (ISMA)** conclave.
- Comes amid:
 - o Backlash over **20% ethanol blending with petrol**.
 - o Government push for **alternative clean fuels**.
 - o Need to support **farmers and sugar mills** via biofuel-related income.

WHAT IS ISOBUTANOL?

- **Type:** Alcoholic compound ($C_4H_{10}O$).
- **Properties:**
 - o Flammable.
 - o Used industrially as a solvent in **paints, coatings, and plastics**.
- **As Fuel:**
 - o Higher energy content than ethanol.
 - o Can be blended with gasoline or diesel.
 - o Less corrosive and better miscibility with diesel than ethanol.

- o Lower water absorption '!' better storage and engine compatibility.

RATIONALE FOR EXPLORING ISOBUTANOL-DIESEL BLENDING

Ethanol-Diesel Blend Trials Failed

- Ethanol has **low miscibility with diesel** '!' causes separation, poor combustion.
- Performance issues in engine trials.

Why Isobutanol?

- **Better blending compatibility** with diesel.
- Can be used as:
 - o **10% blend with diesel**, or
 - o **Standalone fuel**, or
 - o In **flex fuel combinations** (e.g., CNG + isobutanol).

Industry Interest

- **Tractor and agricultural equipment manufacturers** showing interest in using **CNG + isobutanol** combinations for farm vehicles.

IMPACT ON FARMERS AND RURAL ECONOMY

Ethanol Blending Success with Corn

- Helped increase **corn prices**: ₹ 1,200 '!' ₹ 2,600–2,800 per quintal.
- Farmers earned **₹ 42,000 crore+** from ethanol-linked corn production.
- Created **alternative revenue streams** for farmers.

Sugarcane Farmers & Mills

- **96% dues** for current season cleared.
- Cane dues at **all-time low**.
- Blending policy ensures **viability of sugar mills** and timely farmer payments.
- **40% increase in sugarcane production** over 11 years.
- Sugar production up **58%**, with 2025-26 production projected at **34.9 million tonnes**.

POLICY & INDUSTRY DEMANDS

From ISMA (India Sugar and Bio-Energy Manufacturers Association)

- **Align FRP (Fair & Remunerative Price)** with rising input costs.
- Revise **Minimum Support Price (MSP)** for sugar (unchanged since 2019).
- Increase **sugar export quota** by 2 million tonnes in 2025–26.

From Government

- Push for **biofuel producers** to:
 - o Scale up production.
 - o Target **global ethanol exports**.
 - o Invest in **2nd and 3rd generation biofuels**:
 - o Sources: **bamboo, agricultural residue**.
 - o Diversify single distilleries into **multi-product units**.
 - o Focus on **sustainable innovation**, tech upgrades, and job creation.

CONCLUSION

The shift toward **isobutanol-diesel blending** reflects India's commitment to **energy diversification, farmer welfare, and biofuel innovation**. While ethanol blending has seen success with petrol, diesel alternatives need **new chemistry and tech**. Isobutanol offers promise, but its success depends on **rigorous trials, cost-effectiveness, engine compatibility, and scaling bio-production capacity**.

Floods in Punjab 2025: Beas River Inflow & Dam Management Issues



Context:

- Punjab faced severe flooding in July–September 2025 due to **unprecedented inflows into the Beas River**, especially from its catchment area in Himachal Pradesh.
- The **Bhakra Beas Management Board (BBMB)** was forced to release water downstream, triggering a political and administrative debate on flood management and inter-state coordination.

Key Facts and Data

Category	Details
Rivers Affected	- Beas River (main cause of flooding) - Sutlej River (also saw high inflow but less critical)
Dams Involved	- Pong Dam (on Beas River) - Bhakra Dam (on Sutlej River)
Beas River Inflow (2025)	▲ 11.70 BCM (<i>Highest ever recorded inflow</i>)
Pong Dam Storage Capacity	5.5 BCM only Could not handle 11.7 BCM inflow, hence water had to be released downstream
Previous Beas Inflow (for comparison)	- 2023: 9.52 BCM - 1988: 7.94 BCM - 2019: 5.00 BCM Shows how extreme the 2025 situation was
Bhakra Dam Inflow (2025)	◆ 9.11 BCM (High but not unprecedented — in 1988 and 2023, it was 9.52 and 9.45 BCM respectively)
Silt Accumulation (Bhakra)	25% of dam's storage blocked by silt ➤ Reduces effective water-holding capacity

What Made the 2025 Punjab Floods So Severe?

1. Unprecedented Rainfall

- The **catchment areas in Himachal Pradesh** (which feed the Beas and Sutlej rivers) received **exceptionally high rainfall**, far above seasonal norms.
- This led to the **highest-ever inflow in the Beas River** — a record-breaking **11.70 BCM** between July and early September.

2. Overwhelmed Dam Infrastructure

- The **Pong Dam**, with a capacity of only **5.5 BCM**, was overwhelmed by the sudden inflow.
- The **Bhakra Dam** on Sutlej also received high inflow (9.11 BCM), though not unprecedented.
- With **no room to store excess water**, BBMB was **forced to release it downstream**, triggering floods in Punjab and parts of Himachal.

3. Reduced Storage Due to Silt

- Around **25% of Bhakra Dam's capacity** is now occupied by silt due to **years of delayed desilting**.
- **Silt accumulation** has significantly **reduced the effective capacity** of both dams, compromising their flood-control function.
- BBMB cited **lack of coordination** with partner states as the main obstacle to planned desilting.

4. Inadequate Flood Preparedness

- BBMB claimed it **issued early warnings** to partner states about water releases.
- However, **state governments reportedly failed to reinforce embankments or improve local drainage**, worsening the flood impact.

Political & Inter-State Issues

Allegations Against BBMB:

- Accused by Punjab and Himachal Pradesh political parties for releasing excess water without proper planning.

BBMB's Defense:

- Claimed releases were **forecast-based** and **states were notified**.
- Emphasized dams **prevented early flooding in June**.

Punjab vs. Haryana Water Dispute:

- Pre-monsoon: Punjab refused to share water from Bhakra, citing Haryana had used its share.
- BBMB clarified: Even if Punjab had released water earlier, it would have **only reduced dam level by 3 feet**, which was **not significant**.

Desilting Challenges

- **Problem:** Dam capacities reduced due to silt.
- **Obstacle:** Desilting requires dams to be emptied.
- **State Inaction:** Himachal Pradesh's **mining department objected** to dam emptying earlier.
- **Recent Development:** Himachal has now agreed to cooperate.

BBMB & CISF Deployment Controversy

Issue	Details
CISF Deployment	Approved in 2021 by all partner states; Punjab now objects
Punjab's Claim	Bears 60% cost of BBMB
BBMB Response	Actual share is only 39% ; CISF is a national force , more capable than Punjab Police

Forecast Ahead (as of Sept 2025)

- **No severe rainfall** predicted in Beas or Sutlej catchment areas (Himachal Pradesh) after Sept 7.
- Weather expected to remain **dry**, reducing risk of further flooding.

Suggestions for Improvement

Recommendation	Explanation
Create a National Dam Desiltation Policy	To ensure consistent action across states
Review BBMB Protocols	Include third-party audits and public transparency reports
Strengthen River Embankments	States must identify vulnerable areas and act before monsoon
Use Satellite Monitoring	For real-time silt and inflow tracking
Public Awareness & Evacuation Plans	Must be standardized in flood-prone districts



Geography

Bordeaux Mixture



Why in News

- Planters in Karnataka's Chikkamagaluru and Hassan districts are using Bordeaux mixture for the third or fourth time this year to combat crop damage caused by unseasonal rainfall.

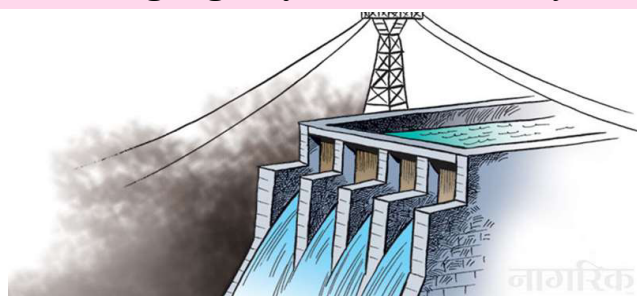
About Bordeaux Mixture

- **Composition:** A bactericide and fungicide made by mixing **copper sulfate** and **lime (calcium hydroxide)** with water.
- **Origin:** Discovered in the late 19th century in the **Bordeaux region of France**.
- **Purpose:** Effective in controlling fungal and bacterial diseases, especially in organic farming.
- **Crops:** Used on various crops, including fruits, vegetables, and plantation crops.

Key Properties and Uses

- **Solubility and Volatility:** It has low aqueous solubility and is non-volatile.
- **Durability:** It persists through rainy weather, offering long-lasting protection.
- **Application Timing:** Typically applied after harvest and before the rainy season starts.
- **Pest Resistance Management:** Contains copper, giving it a **multi-site mode of action**, which makes it useful in programs designed to manage pesticide resistance.
- **Caution:** Can cause injury to new growth if applied to newly growing leaves.

Dhauliganga Hydroelectric Project



1. Context in News (Latest)

The project recently featured in the news when **19 workers and officials** of the National Hydroelectric Power Corporation (NHPC) were successfully rescued after being trapped for approximately **22 hours** inside the power house tunnel. The tunnel entrance was blocked by a **landslide** caused by heavy monsoon rains.

2. Key Facts (Prelims)

Feature	Detail
Location	Dharchula area, Pithoragarh district, Uttarakhand .
River	Built on the Dhauliganga River .
Capacity	280 MW (4 units of 70 MW each).
Type	Run-of-River scheme (with small pondage).
Owner/Operator	NHPC (National Hydroelectric Power Corporation).
Commissioned	Commercial operation began in 2005 .
Dam Type	Concrete-faced Rock-fill Embankment Dam (Height: 56 m).

3. Geographic & River System Significance

- **River System:** The Dhauliganga is a prominent **tributary of the Alaknanda River**, which is one of the key source streams of the **Ganga River** system.

- **Confluence Point:** The Dhauliganga meets the Alaknanda River at **Vishnuprayag** in Uttarakhand, marking the first of the *Panch Prayag* (five confluences).
- **Origin:** The Dhauliganga River originates in the vicinity of the **Niti Pass** (Niti Valley) in the Garhwal region of Uttarakhand.
- **Associated Sites:** The famous hot spring site of **Tapovan** is located in the Dhauliganga river basin.

4. Environmental & Disaster Relevance (Mains)

The Dhauliganga project highlights the vulnerability of hydro-infrastructure in the fragile Himalayan region:

- **2013 Flash Floods:** The project was significantly damaged by unprecedented flash floods, leading to the complete submergence of its powerhouse.
- **2021 Uttarakhand Flood:** The project was completely **destroyed** again on February 7, 2021, by a sudden **flash flood** (likely triggered by a rock-ice avalanche) in the Dhauliganga and Rishiganga valleys, which also devastated the nearby Tapovan-Vishnugad project.
- The repetitive damage underscores the need for comprehensive **Disaster Management Plans** and revised geological and seismic risk assessments for Himalayan hydro projects.

Great Salt Lake



Why in News?

- As the **Great Salt Lake** continues to shrink due to persistent drought and water diversion, scientists have recently uncovered mysterious **groundwater-fed oases** hidden beneath its exposed lakebed.
- This discovery suggests a previously unknown underground water system that could play a greater role in the lake's water budget than previously estimated.

About the Great Salt Lake

- Overview and Location:** The Great Salt Lake is a **saline lake** located in northern **Utah, United States**. It is the largest inland body of salt water in the Western Hemisphere and is one of the world's most saline inland water bodies.
- Hydrology and Fluctuation:**
 - The lake is **endorheic**, meaning it has **no outlet**; water leaves only through evaporation. It is fed primarily by the **Bear, Weber, and Jordan rivers**.
 - This lack of an outlet, combined with an arid environment, causes salts and minerals to accumulate, resulting in a salinity far greater than that of the ocean. The salts are predominantly **sodium chloride**, along with sulfates, magnesium, and potassium.
 - Historically, the lake has fluctuated drastically in size. Its surface area has varied from a high of approximately 6,200 sq.km. to a recent low of about 2,300 sq.km. in 2022. It reaches an average depth of 4.9 m and a maximum depth of 10 m.
 - It is often compared to the **Dead Sea** due to its existence in an arid environment and its high salt content.

LAND SUBSIDENCE



Why in News

Uttarakhand, a state already prone to natural disasters (cloudbursts, flash floods, landslides), is now facing a new threat: widespread **land subsidence** in areas like **Chamoli's Nanda Nagar**. This phenomenon is destroying homes and triggering panic, similar to the earlier crisis in Joshimath.

About Land Subsidence

Land subsidence is a **gradual settling or sudden sinking** of the Earth's surface. It is a geotechnical phenomenon that occurs when the ground loses its structural ability to support the weight above it, resulting in a downward shift.

Causes of Land Subsidence

Subsidence can be classified based on its causes, which are often interrelated, especially in fragile ecological zones like the Himalayas:

Category	Primary Mechanisms/Examples
Anthropogenic (Human-induced)	Excessive Groundwater (GW) Abstraction/Overexploitation: The leading cause globally. The removal of water from porous formations (aquifers) causes the rock/sediment grains to compact, leading to a permanent reduction in volume and ground sinking.
	Mining and Subsurface Energy Extraction: Creation of underground voids (cavities) by extracting mineral resources, oil, or gas, which can collapse.
	Unregulated Construction & Development: The added weight of buildings, as well as construction/tunneling activities (e.g., for hydropower projects), can disturb the fragile geological balance in susceptible areas.
Natural Factors	Compaction of Loose Fine-Grained Deposits: Natural settling of unconsolidated sediments (e.g., in deltas, or old landslide debris in mountainous regions) over time.
	Tectonic or Seismic Activity: Earthquakes and the movement of the Earth's plates (especially in active seismic zones like the Himalayas) can destabilize the ground.
	Collapse of Subsurface Cavities: Natural formation of sinkholes in areas underlain by soluble rocks (like limestone).
	Geomorphic/Hydrological Processes (in Mountains): Heavy rainfall, floods, and changes in natural water flow can increase pore pressure and saturate the highly weathered/fractured rock, significantly reducing its load-bearing capacity and causing failure (landslide-subsidence).

Characteristics

- **Process:** It is generally a **gradual process**, developing over years to decades, though sudden sinking events can occur.
- **Vulnerable Regions:** Historically observed in low deltaic and coastal regions, it is now increasingly seen in large **inland areas** with high water demand (urban, industrial, agricultural zones) and in **fragile mountainous regions** (due to unique geological and construction pressures).
- **Global Extent:** The total global extent of land surface susceptible to subsidence is estimated to be **12 million sq.km**.

Impacts of Land Subsidence

Land subsidence presents serious socioeconomic, environmental, and infrastructure challenges:

Category	Key Impacts
Infrastructure & Economy	Damage to Buildings: Cracks in foundations, walls, and floors; tilting or collapse of structures.
	Damage to Utilities: Rupture of underground pipelines (water, sewage, gas) and cables.
	High Maintenance Costs: Significant financial stress for roads, railways, and utilities due to frequent repairs.
Environment & Hydrology	Increased Flood Risks: Reduction in land elevation and disturbance of natural drainage patterns lead to a higher frequency and duration of flooding.
	Saltwater Intrusion: In coastal and low-lying areas, reduced land elevation allows saltwater to encroach into freshwater aquifers.
	Aquifer Storage Loss: Compaction of the underground layers leads to a permanent reduction in the storage capacity of aquifers.
Social & Humanitarian	Displacement and Loss of Homes: Forcing families to relocate to safer areas.
	Panic and Trauma: Instability of the ground beneath habitation triggers a humanitarian crisis.

International Centre for Integrated Mountain Development (ICIMOD)



Why in News?

The **International Centre for Integrated Mountain Development (ICIMOD)** recently released a report stating that the **Hindu Kush Himalayas (HKH)** region is **utilizing only 6.1% of its vast renewable energy potential**, underscoring a significant untapped resource.

1. About the International Centre for Integrated Mountain Development (ICIMOD)

- **Nature:** It is an **intergovernmental knowledge and learning centre**.
- **Focus Area:** Works on behalf of the people of the **Hindu Kush Himalaya (HKH)** region.
- **Establishment:** Formally established and inaugurated on **December 5, 1983**.
- **Headquarters:** **Kathmandu, Nepal**.
- **Member Countries:** It includes all eight HKH countries: **Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan**.
- **Mission:** To build and share knowledge that drives **regional policy and action** to enable the HKH communities to transition to **greener, more inclusive, and climate-resilient development**.

Functions:

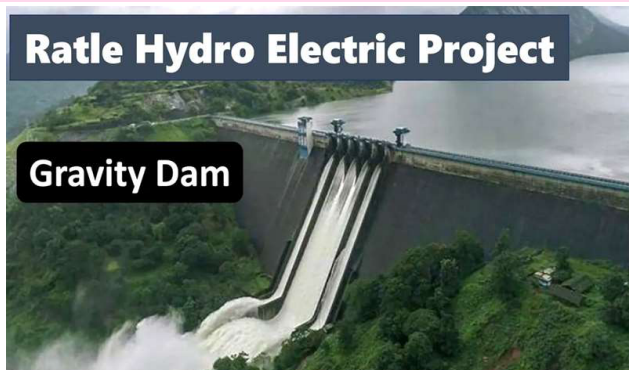
- **Knowledge Generation:** Serves the region by generating and sharing information and knowledge to find innovative solutions to critical mountain problems.
- **Bridging Gap:** It bridges the gap between **science with policies** and on-the-ground practices.

- **Regional Platform:** Provides a platform for experts, policymakers, and practitioners to exchange ideas toward achieving **sustainable mountain development**.

2. Key Facts about the Hindu Kush Himalaya (HKH) Region

- **Geographical Span:** It extends around **3,500 km** across **eight countries** (the same as ICIMOD member countries: Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan).
- **The “Third Pole”:** The HKH is critically important and is often referred to as the **Third Pole** (after the North and South Poles) due to its significant implications for the global climate.
- **Ice Cover and Biodiversity:**
 - o It forms the **largest area of permanent ice cover outside of the North and South Poles**.
 - o It is home to **4 global biodiversity hotspots**.
- **River Source:** It is the source of **ten large Asian river systems**: the Amu Darya, Indus, Ganges, Brahmaputra, Irrawaddy, Salween, Mekong, Yangtze, Yellow River, and Tarim.

Ratle Hydroelectric Project



Why in News?

The **Ratle Hydroelectric Project** was recently in the news after a **landslide struck the site in Kishtwar**, injuring five persons.

1. About the Ratle Hydroelectric Project

- **Location:** Kishtwar District, **Jammu and Kashmir**.

- **River:** Located on the **Chenab River** (one of the Western Rivers under the Indus Waters Treaty).
- **Type and Capacity:** An **850 MW run-of-river scheme** (meaning it utilizes the river’s natural flow without large storage reservoirs).
 - o It includes an installed capacity of **four 205 MW Francis turbine-generating units** and a **30 MW auxiliary turbine-generating unit**.
- **Expected Generation:** Expected to generate **3,137 GWh** of electricity.

Project Development

- **Developer:** **Ratle Hydroelectric Power Corporation (RHPCL)**.
- **Joint Venture (JV):** RHPCL was formed as a JV between:
 1. **National Hydroelectric Power Corporation (NHPC)** (India’s state-owned entity)
 2. **Jammu & Kashmir State Power Development Corporation (JKSPDC)**
- **Equity Ownership:** **NHPC holds 51%** equity, and **JKSPDC holds 49%** equity in RHPCL.

Key Structures

- **Dam:** A **133-meter-tall** and **194.8-meter-long concrete gravity dam**.
- **Powerhouse:** An **underground powerhouse** located on the right bank of the river.

2. Geopolitical and Treaty Context

- **Conflict with Pakistan:** Pakistan has **frequently alleged that the project violates the Indus Waters Treaty (IWT) of 1960**.
- **Indus Waters Treaty (IWT):** The IWT assigns the waters of the **Western Rivers (Indus, Jhelum, and Chenab)** for unrestricted use by **Pakistan**, with India permitted to construct “run-of-river” power projects on them under specified design constraints.

- **Pakistan's Concern:** Pakistan's objections usually stem from concerns that the design features (like the height of the dam or the pondage capacity) could allow India to potentially **manipulate water flow downstream**, thus affecting Pakistan's water security.

Evia Island (Euboea)



Why in News?

Evia Island was recently the epicenter of a **magnitude 5.2 earthquake** that shook central Greece and the nearby region of Athens.

1. About Evia Island

- **Location:** Located in **Central Greece**, in the **Aegean Sea**.
- **Size:** It is the **second largest island in Greece** (after Crete). It is also described as the **third largest in Europe** (after Cyprus).
- **Area:** A little more than **3,500 sq.km**.
- **Proximity to Mainland:** Often referred to as a **"mainland island"** due to its close proximity and numerous connection points to Athens.
- **Separation:** It is separated from the Greek mainland by the **Euboean Strait**.
- **Main City:** **Halkida**, which serves as the administrative and commercial heart of the island.

2. Geographical and Climatic Features

- **Unique Phenomenon:** Halkida is famously known for the unique tidal currents in the

narrow **Strait of Euripus**, which changes direction multiple times a day.

- **Geography:** Features a dramatic landscape, including:
 - **Alpine mountains.**
 - **Lush forests.**
 - **Coastal wetlands and hidden canyons.**
- **Highest Mountains:** **Dyrfi, Kandili, and Ohi.**
- **Climate:** **Mediterranean** climate, characterized by mild but rainy winters and hot, sunny summers.

Nilgiri Tea



Why in News?

Nilgiri tea growers, particularly small farmers, are currently facing a persistent **cost price crisis** for green tea leaves (GTL) due to market instability and other systemic issues.

1. About Nilgiri Tea

- **Location:** Grown in the southern portion of the **Western Ghats**, named after the **Nilgiri Hills** (Blue Mountains).
- **Geographical Spread:** Mainly cultivated in the **Nilgiri district of Tamil Nadu**, with a small portion in **Kerala and Karnataka**.
- **Key Characteristics:** Generally described as an **intensely aromatic, fragrant, and brisk** tea, known for its **delicate flavour** and notes of **floral and citrus**.
 - It retains clarity as it cools, making it a popular choice for **iced tea**.

- o It is often used in **blends** with other teas (like Assam) to create unique taste profiles.

- **GI Tag: Nilgiri Orthodox Tea** was recognized with a **Geographical Indication (GI) Tag** in 2008.

2. Climatic and Cultivation Conditions

Feature	Requirement / Description
Altitude	Grown at elevations ranging from 1,000 to 2,500 meters above sea level.
Rainfall	Annual rainfall of 150 to 230 cm .
Soil	Requires well-drained Laterite soil .
Monsoon/Growing Season	Unique to the region, it experiences two monsoons per year and is grown throughout the year , allowing for continuous plucking.

3. Major Issues Faced by Growers

The current crisis highlights several challenges for Nilgiri tea, especially for the small growers who form the majority of producers:

- **Pricing Issue: Dwindling prices** for Green Tea Leaves (GTL) are leading to a cost-price crisis.
- **Market Dependency: Over-reliance on Russian exports**, making the market vulnerable to geopolitical and economic shifts.
- **Quality and Adulteration:** Issues like **poor quality management** and **adulteration** of tea leaves harm the brand's reputation and realization price.
- **Local Market Negligence:** Insufficient focus on developing and marketing the tea within the domestic Indian market.

Phosphate Rock



The Union environment ministry's Expert Appraisal Committee (EAC) has approved an Environment Impact Assessment (EIA) study for the **Birmania Rock Phosphate mine** proposed in the potential **Great Indian Bustard (GIB) area** in Jaisalmer, **Rajasthan**.

1. About Phosphate Rock

- **Definition:** It is the **natural source of phosphorus (P)**, an essential element for plant and animal nutrition. The rock itself is primarily composed of **phosphate minerals**, most commonly those of the apatite family.
- **Formation:** It is a **non-detrital sedimentary rock** formed millions of years ago, largely by the accumulation of **organic matter** (skeletal particles, shells, etc.) on the **ocean floor**, often associated with marine upwelling.
- **Composition:** Commercial-grade phosphate rock is typically enriched to contain high concentrations of **phosphorus pentoxide (P₂O₅)**.

2. Geographical Distribution & Indian Deposits

- **Global Reserves:** The world's largest reserves are concentrated in **Morocco** (estimated to hold about 70% of global reserves), which is also a leading global producer and exporter. Other major deposits are in Africa, North America, Kazakhstan, the Middle East, and Oceania.
- **Indian Deposits & Production:** India has limited domestic production. Phosphate rocks are majorly produced from deposits in only two states:
 - o **Rajasthan:** The **Jhamarkotra** mine near Udaipur is one of the largest and most important rock phosphate mines in the country, contributing a significant majority of India's domestic production.
 - o **Madhya Pradesh (M.P.).**
- **Import Dependency:** India is approximately **90% dependent on imports** for this critical raw

material, either as rock phosphate or as processed phosphoric acid.

3. Uses of Phosphate Rock

- **Fertilizer Production (Primary Use):** Over 90% of phosphate rock mined globally is used to produce **phosphate fertilizers**, which supply essential nutrients to food crops.
 - It is the key raw material for manufacturing fertilizers like **Diammonium Phosphate (DAP)**, **Monoammonium Phosphate (MAP)**, **Single Super Phosphate (SSP)**, and **NPK** (Nitrogen-Phosphorus-Potassium) blends.
- **Role in Plants:** Phosphorus is an essential nutrient for all biological processes, playing a critical role in:
 - **Energy transfer** (as a component of **ATP**).
 - **DNA and RNA synthesis** (genetic material).
 - **Stimulated root development** and improved stalk/stem strength.
 - **Flower formation and seed production**.
- **Other Uses:**
 - **Animal Feed Supplements.**
 - **Industrial Chemicals:** Used to produce elemental phosphorus and phosphoric chemicals for applications in **detergents**, **insecticides**, pharmaceuticals, and water treatment.

Avalanche



Why In News

Three Army personnel, including two **Agniveers**, tragically lost their lives recently in a major avalanche that struck the Siachen base camp in Ladakh. The camp is situated at an altitude of around 12,000 feet, where the soldiers were trapped under the snow.

About Avalanche

- An **avalanche** is a large, rapid movement of **snow** down a slope. While the term can refer to the sliding of rocks or earth (often called landslides), it primarily denotes a snow mass movement. Avalanches pose a deadly risk as they can **bury or sweep away** anything in their path.

Factors Contributing to an Avalanche

- Many conditions must align for an avalanche to occur.
- It is more likely on slopes lacking **trees or large rocks**, as these structures help stabilize the snowpack.
- The presence of a **weak layer of snow** within the snowpack also significantly increases the probability.

Once conditions are suitable, several factors can **trigger** an avalanche:

- **Natural Causes:** Heavy snowfall, strong winds, or a rise in temperature that loosens the snowpack. Falling rocks or ice can also initiate a slide.
- **Human Triggers:** Even the movement of a skier, snowboarder, or snowmobile can trigger a slide.

Types of Snow Avalanches

There are two main categories of snow avalanches:

1. Sluff Avalanches:

- Occur when the weak layer of the snowpack is near the **top**.
- A smaller slide of **dry, powdery snow** that moves as a formless mass.
- They are generally **less dangerous** than slab avalanches.

2. Slab Avalanches:

- o Occur when a weak layer is positioned **lower down** in the snowpack, covered by **compressed snow layers (the slab)**.
- o When triggered, the weak layer fractures, causing the entire **giant block, or slab**, on top of it to slide down.
- o Slab avalanches are the most common cause of fatalities.

Dangers and Protection

Avalanches range in power from harmless slides to those capable of flattening villages. A significant danger occurs when an avalanche stops, as the snow can quickly become **solid like concrete**, making it impossible for buried victims to dig themselves out. People caught in avalanches face risks of death from **suffocation, trauma, or hypothermia**.

In mountainous regions, protection measures include:

- **Fences and barriers** to hold snow in place, stop sliding snow, or redirect its path.
- **Explosives** used in controlled settings to purposefully clear unstable snow from avalanche-prone areas.

Erra Matti Dibbalu (Red Sand Dunes)



Why in News

- The **Erra Matti Dibbalu** (Red Sand Dunes) of Andhra Pradesh have recently been included in the **UNESCO Tentative List of World Heritage Sites**, marking a significant recognition of their geological and historical importance.

About Erra Matti Dibbalu

- **Location:** Situated along the coast near **Visakhapatnam** in **Andhra Pradesh**.
- **Description:** The site consists of striking **Red Sand Dune** formations, which are considered rare coastal geomorphological features globally.
- **Composition and Color:** The dunes are made up of sand, silt, and clay. Their distinct **reddish hue** results from the **natural oxidation** of the sediments over thousands of years.
- **Discovery:** The formations were first scientifically documented by British geologist **William King** in 1886.

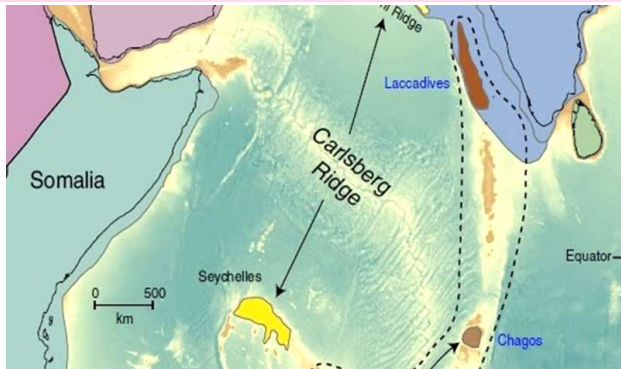
Key Features and Significance

- **Geological Importance:** The red sediments are crucial for understanding Earth's evolution, as they represent the **late Quaternary geologic age**. The site effectively depicts the real-time effects of **climate change**.
- **Geomorphic Landforms:** The landscape exhibits a **badland topography** and features diverse landforms, including deep **gullies**, sand dunes, paired terraces, and knick points.
- **Paleoclimatic Record:** The sediment layers and dendritic drainage patterns at the site record significant fluctuations in **sea level** and climatic changes throughout the late Quaternary period.
- **Archaeological Significance:** The site holds archaeological value. Studies of ancient artifacts found here point to an **Upper Palaeolithic horizon**, dated to the Late Pleistocene epoch (around **20,000 BC**).
- **Global Rarity:** Erra Matti Dibbalu is extremely rare; only **two other similar sites** are known to exist worldwide: one in **Sri Lanka** and the **Teri Sands** in **Tamil Nadu**.
- **National Status:** The **Geological Survey of India (GSI)** declared Erra Matti Dibbalu a **National Geo-heritage Monument** in **2016**.

Issues

- Experts have raised concerns that the fragile site currently faces threats from unregulated **tourism and filming activities**.

Carlsberg Ridge



Why in News

- The Indian government recently finalized a contract with the **International Seabed Authority (ISA)** to begin exploration activities for **polymetallic sulphide nodules** in the region of the **Carlsberg Ridge**.

About the Carlsberg Ridge

- **Nature:** It is a major **mid-oceanic ridge** segment in the Indian Ocean. Geologically, it represents a **divergent tectonic plate boundary**.
- **Location and Extent:**
 - It runs northwest from the **triple junction** where the African, Indian, and Australian tectonic plates meet (where it connects to the Mid-Indian Ridge).
 - It extends up to the **Gulf of Aden**.
 - It is the most prominent mid-ocean ridge segment found in the western Indian Ocean.
- **Separating Features:** The ridge effectively separates the **Arabian Sea** to its northeast from the **Somali Basin** to its southwest.
- **Tectonic Boundary:** Crucially, the Carlsberg Ridge marks the active boundary between the **Somali Plate** and the **Indian Plate**.
- **Connection:** The ridge turns westward near the island of **Socotra** and eventually links up with

the **East African Rift System** via the Gulf of Aden.

Physical Characteristics

- **Depth:** The mean depth of the seafloor in this region ranges between approximately **1,800 and 3,600 meters** (6,000 to 12,000 feet) below the sea surface.
- **Elevation:** The ridge itself rises to a mean elevation of about **2,100 meters** (7,000 feet) above the surrounding seafloor.
- **Seismic Activity:** As a major plate boundary, the ridge is associated with frequent tectonic activity and contains a number of **earthquake epicenters**.

Centre for Cellular and Molecular Biology (CCMB)



Why in News

- Scientists at the **CSIR-Centre for Cellular and Molecular Biology (CCMB)** recently achieved a breakthrough discovery, revealing the molecular mechanism by which **white blood cells** are able to adapt their internal skeletons to effectively **combat invading pathogens**.

About the Centre for Cellular and Molecular Biology

- **Status:** CCMB is recognized as India's premier research organization dedicated to the **frontier areas of modern biology**.
- **Location:** Situated in **Hyderabad, Telangana**.

- **Affiliation:** It is a constituent laboratory of the **Council of Scientific and Industrial Research (CSIR)**, which operates under the **Ministry of Science and Technology, Government of India**.
- **Establishment:** Established in **1977**. It is internationally known for its major contributions to understanding the molecular mechanisms that govern biological systems.
- **Core Objectives:**
 - o To conduct high-quality **basic research** and offer advanced training in frontier areas of modern biology.
 - o To promote and maintain **centralized national facilities** for new and modern interdisciplinary techniques in biology.

Research Focus and Contributions

- **Disciplines:** CCMB's work is multi-disciplinary, covering fields such as **genetics, biotechnology, bioinformatics, immunology, and molecular medicine**.
- **Areas of Research:** The institution is a leader in cutting-edge research across **molecular biology, genomics, proteomics, and fundamental cellular mechanisms**.
- **Nature of Research:** The research undertaken is both **fundamental** (exploring basic scientific principles) and **translational** (applying findings to solve real-world problems), with a focus on issues relevant to human medicine, disease management, agricultural improvement, and environmental sustainability.
- **Global Recognition:** CCMB has been designated a **"Center of Excellence"** by the Global Molecular and Cell Biology Network, which is affiliated with **UNESCO**.
- **Infrastructure:** It is equipped with state-of-the-art facilities, including advanced genomics and bioinformatics centers, and actively collaborates with both national and international institutions.

Almatti Dam



Why in News

- The **Karnataka Cabinet** recently approved the acquisition of **1,33,867 acres of land** to facilitate the implementation of the long-pending **Upper Krishna Project (UKP) phase III**. This land acquisition is necessary to increase the height of the **Almatti Dam** from the current **519.16 meters** to **524.256 meters**.

About Almatti Dam

- **River and Location:** It is a major **hydroelectric project** constructed across the **Krishna River** in **North Karnataka**.
- **Completion:** The dam was completed in **July 2005**.
- **Primary Role:** The dam serves as the **principal reservoir** for the **Upper Krishna Irrigation Project (UKP)**.
- **Key Objectives:** Its construction aimed at three core functions:
 1. Supplying **irrigation and potable water** to surrounding regions.
 2. Generating **hydroelectric energy**.
 3. Effectively managing **flood risks** in the area.
- **Dimensions:** The dam stands at a height of **52.5 meters** and stretches approximately **3.5 kilometers** in length.
- **Water Capacity:** It currently holds a gross water storage capacity of **123.08 TMC** (Thousand Million Cubic feet) at the current height of **519 meters MSL**.

Power Generation and Downstream Flow

- **Power Station:** The dam features a **290 MW power station** located on the right side of the structure.
- **Turbines:** The facility utilizes **vertical Kaplan turbines**, consisting of five 55 MW generators and one 15 MW generator.
- **Power Release:** After generating hydroelectric power, the water is released downstream into the **Narayanpur Reservoir** to ensure the irrigation requirements of the lower regions are met.
- **Tourism:** The area surrounding the dam includes nearly 77 acres developed into popular tourist spots, such as the Japanese Garden, Rock Garden, and Mughal Garden.

Penna River



Why in News

- Recently, eighteen people who were stranded in the **floodwaters** of the **Penna River** in the **Nellore district** of Andhra Pradesh were successfully rescued following an intensive seven-hour operation.

About the Penna River

- **Other Names:** The river is also known by the names **Pennar, Pinakini, or Penneru**.
- **Location:** It is a major river in southern India, flowing primarily through the states of **Karnataka** and **Andhra Pradesh**.
- **Length:** The river has a total length of approximately **597 km**.
- **Nature:** The Penna River is **seasonal**, typically

swelling into a torrent after heavy rains but reducing to a thin stream during prolonged dry periods. Its basin lies in the **rain shadow region** of the Eastern Ghats.

Course of the River

- **Origin:** The river rises in the **Nandi Hills**, an upland region on the Deccan plateau, located in the **Chikkaballapur district of Karnataka**.
- **Flow:**
 1. It initially flows **north** into Andhra Pradesh.
 2. It then turns **east** and subsequently **southeast**.
 3. After passing through a gap in the **Eastern Ghats** range, it bends eastward again toward the Coromandel Coast.
- **Mouth:** The Penna River finally empties into the **Bay of Bengal** near the **Nellore district** of Andhra Pradesh.

Significance and Tributaries

- **Tributaries:** Most of the Penna River's tributaries are seasonal. Major ones include the **Chitravati, Papagni, Cheyyeru, and Kunderu** rivers.
- **Importance:** The river is vital for agriculture, particularly in the drought-prone **Rayalaseema region** of Andhra Pradesh.
- **Projects:** Several crucial irrigation projects have been constructed on the Penna River to utilize its waters for farming and drinking, including the **Somasila, Mylavaram, and Gandikota projects**.

Aflatoxin



Why In News

- **Indonesia has suspended groundnut imports from India** due to the detection of **aflatoxin contamination**.
- Indian exporters are disputing the suspension, particularly citing the **delayed notification** by the Indonesian Quarantine Authority (IQA) regarding the presence of aflatoxins in groundnut shipments, sometimes months after they arrived.
- Exporters also question Indonesia's testing standards, claiming they may **not conform to World Trade Organisation (WTO) norms**, such as the use of a smaller sample size (1 kg) compared to India's standard (20 kg).

About Aflatoxin

- **Nature:** Aflatoxins are a family of **toxic chemicals** known as **mycotoxins**, which are produced by certain fungi.
- **Fungi Producers:** They are primarily produced by species of the mould-like fungi belonging to the genus ***Aspergillus***, mainly ***Aspergillus flavus*** and ***Aspergillus parasiticus***.
- **Occurrence:** These fungi thrive in **warm, humid conditions** and contaminate agricultural crops **before and after harvest** (including during storage and processing).
- **Contaminated Foods:** Aflatoxins can be found in various foods, including:
 - **Groundnuts** (peanuts) and **tree nuts** (like almonds, pistachios, cashews).
 - **Cereals** (maize/corn, rice, wheat).
 - **Spices**, figs and other dried foods, crude vegetable oils, and cocoa beans.
- **Most Potent Toxin: Aflatoxin B1 (AFB1)** is the most common and potent type, classified as a **Group 1 human carcinogen** by the International Agency for Research on Cancer (IARC). Another metabolite, **Aflatoxin M1 (AFM1)**, is found in milk from animals that consumed contaminated feed.

Health Impacts and Exposure

- **Health Risks:** Aflatoxins are extremely dangerous because they are:
 1. **Genotoxic:** They can damage the DNA and cause mutations.
 2. **Carcinogenic:** They are linked to an increased risk of developing cancer, particularly **Hepatocellular Carcinoma (liver cancer)**, especially in individuals co-infected with Hepatitis B.
- **Acute vs. Chronic Toxicity:**
 1. **Acute exposure** (high dose) can lead to severe **acute liver damage** (Aflatoxicosis), which may manifest as nausea, vomiting, abdominal pain, convulsions, and potentially death.
 2. **Chronic exposure** (low dose over time) can lead to impaired child growth, development delays, immune suppression, and liver cirrhosis/cancer.
- **Exposure Routes:**
 1. **Ingestion:** Eating contaminated plant products (e.g., peanuts, corn) directly.
 2. **Indirect Ingestion:** Consuming meat or dairy products (like milk containing AFM1) from animals that ate contaminated feed.
 3. **Inhalation:** Farmers and agricultural workers may be exposed by inhaling dust generated during the handling and processing of contaminated crops and feeds.

Iridogorgia Chewbacca



New coral species named after 'Star Wars' character

Why in News?

Scientists recently confirmed and formally described the unique deep-sea coral species, naming it **Iridogorgia chewbacca** after the *Star Wars* character, due to its distinctive hairy-looking branches. The formal description was published in the journal *Zootaxa*.

About Iridogorgia Chewbacca

- **Scientific Name:** Iridogorgia chewbacca
- **Classification:** It is a newly identified **deep-sea coral species** that belongs to the genus Iridogorgia.
- **Discovery Location:** The coral was discovered in the **tropical western Pacific Ocean**.
 - It was first spotted in waters off **Molokaʻi, Hawaiʻi, in 2006** and observed again near the **Mariana Trench in 2016**.
- **Nomenclature:** It is named after the tall, furry, fictional *Star Wars* character, **Chewbacca**, because the coral's long, flexible branches and upright stance give it a hairy, Wookiee-like appearance.

Features of Iridogorgia Chewbacca

- **Genus Characteristics:** It belongs to the genus Iridogorgia, a group of deep-sea corals known for their long, **spiraling structures** and often **shiny, iridescent surface**.
- **Appearance:** It is known for its **long, flexible branches** that can grow up to 15 inches long and give it a **furry** look as they sway in deep-sea currents.
- **Size:** The observed specimens have ranged from approximately **20 inches to about 4 feet** tall.
- **Ecology:** Despite its large size and striking appearance, **I. chewbacca usually occurs alone**, scattered across deep-sea rocky bottoms, which is typical for many deep-sea corals.
- **Colony:** Like all corals, it is a **colony** made up of thousands of tiny, genetically identical individual animals called **polyps**.

What is a Coral?

Corals are essential marine invertebrates that anchor themselves to the ocean floor.

- **Nature:** Corals are classified as **animals** that are **sessile**, meaning they permanently attach themselves to a substrate.
- **Structure:** Each individual animal is called a **polyp**. A large group of polyps forms a **colony**—the coral structure itself.
- **Feeding:** Polyps use their tiny, tentacle-like hands to catch and sweep food (plankton) from the water into their mouth.
- **Symbiosis:** Shallow-water corals often share a crucial **symbiotic relationship** with single-celled algae called **zooxanthellae**, which provide them with food through photosynthesis. Deep-sea corals, like I. chewbacca, live below the sunlit zone and rely on capturing food from the currents.

Venezuela



Why In News

- Recently, a **6.2-magnitude earthquake** jolted northwest Venezuela, according to the U.S. Geological Survey.

About Venezuela

Venezuela is located on the **northern coast of South America** and is known for its diverse geography and vast natural resources, particularly its massive oil reserves.

Location and Boundaries

- **Location:** Northern coast of South America.
- **Land Boundaries:** Bordered by **Guyana** to the east, **Brazil** to the south, and **Colombia** to the southwest and west.

- **Maritime Boundaries:** Shares a border with the **Caribbean Sea** and the **Atlantic Ocean** to the north.

Terrain and Geographical Features

- **Terrain:** Characterized by:
 - **Andes Mountains** and **Maracaibo Lowlands** in the northwest.
 - **Central plains (llanos).**
 - **Guiana Highlands** in the southeast.
- **Highest Point:** Pico Bolívar.
- **Waterfalls:** The world's highest waterfall, **Angel Falls (Salto Ángel)**, is located in the **Guiana Highlands** in Canaima National Park. It drops over the edge of the **Auyán-tepui** mountain.

Major Water Bodies

- **Major Rivers:**
 - **Orinoco River** (shared with Colombia)—One of the largest rivers in South America, forming a vast delta before emptying into the Atlantic Ocean.
 - **Rio Negro** (shared with Colombia and Brazil)—A tributary of the Amazon River system.
- **Major Lakes:**
 - **Lake Maracaibo**—The largest lake in South America, known for significant petroleum deposits.
 - **Lake Guri** (also known as the Guri Dam or Embalse de Guri)—One of the world's largest reservoirs, created by the Guri Dam on the Caroní River.

Islands and Archipelagos

- Venezuela administers a number of Caribbean islands and archipelagos, including: **Margarita Island, La Blanquilla, La Tortuga, Los Roques, and Los Monjes.**

Resources and Capital

- **Resources:** Home to the **world's largest oil reserves**, as well as huge quantities of **coal, iron ore, bauxite, and gold.**
- **Capital:** Caracas.

Varkala Cliff



Why In News

UNESCO has recently added the **Varkala Cliff** to its **Tentative List of World Heritage Sites** under the **Natural Heritage category**. This inclusion, announced in September 2025, acknowledges its profound geological, ecological, and cultural significance, and is a mandatory step toward achieving full World Heritage status. Varkala is one of seven new Indian sites added to the tentative list, bringing India's total to 69 properties. This global recognition has also sparked discussions and concern regarding the need for stricter **conservation measures** to counter the threats of **coastal erosion, unregulated tourism, and climate change.**

About Varkala Cliff

The Varkala Cliff is a striking and unique **natural rock formation** located in the coastal town of Varkala, in the Thiruvananthapuram district of Kerala, India. It is the **only place along the otherwise flat Kerala coastline** where cliffs rise directly against the Arabian Sea.

Geological Significance

- **Warkalli Formation:** The cliff exposes the Warkalli Formation of the **Mio-Pliocene age** (dating back millions of years, roughly 1.3 lakh to 2.5 crore years ago), making it a rare outdoor archive of Earth's evolution.
- **Composition:** It consists of laterite and sedimentary layers that contain **fossils** and traces of **ancient climates** (paleo-climatic evidence).

- **Monument Status:** It is recognized as a **National Geological Monument** (the 27th in India and the 2nd in Kerala after the Angadipuram Laterite).

Ecological and Environmental Importance

- **Water Source:** The cliff acts as a crucial **aquifer** and a natural **water harvesting system** for coastal communities, featuring numerous **natural springs** at its base.
- **Biodiversity:** Its microhabitat supports **unique biodiversity** and the nearby underwater reefs are essential for local fishing communities.

Cultural and Touristic Significance

- **Local Name:** It is locally known as **Sivagiri Thuruthu**.
- **Papanasam Beach:** Located at the base of the cliff, Papanasam Beach is revered for its natural springs, which are believed to have **therapeutic properties**. The beach is an important pilgrimage site, often called **Dakshin Kashi** due to the ancient **Janardana Swamy Temple** nearby and its use for performing rituals for ancestors.
- **Tourism:** Varkala has become a major **tourism hub**, with resorts, cafes, and yoga centers lining the cliff-top walkway, offering a beautiful destination for both relaxation and spiritual solace.

Conservation Challenges

Despite its recognition, the Varkala Cliff faces significant threats:

- **Erosion:** The laterite structure is naturally vulnerable and is being accelerated by **monsoon rains**, **sea surges** (due to climate change), and **wave action**.
- **Unregulated Development:** Unauthorised construction, poor waste management, and leaking septic tanks on the cliff-top contribute

to the instability of the fragile laterite and sedimentary structure, leading to landslides and cracks.

- **Tourism Pressure:** Overcrowding and a lack of a comprehensive carrying-capacity study risk destroying the very natural heritage that sustains the local economy.
- **Local Community Fears:** Fishing communities fear that increased “heritage” designation will lead to displacement due to intensified development.

Mahendragiri Hills



1. Why in News?

Mahendragiri Hills are currently in the news because **environmentalists have warned against unchecked and large-scale tourism and construction projects** being planned by the Odisha government. These projects are seen as a serious threat to the **fragile ecosystem** and **rich biodiversity** of the region, despite its status as a **Biodiversity Heritage Site (BHS)**.

- **Concern:** Large-scale infrastructure like tourist cottages, a Vanya Mandir complex, and temple corridors are being planned, which activists argue will increase human footprint and disrupt the habitats of endemic and threatened species.
- **Demand:** Environmental groups are urgently demanding that the hills be declared a **Biosphere Reserve** to ensure stronger legal protection and sustainable management, a recommendation previously made by the Wildlife Institute of India (WII) in the 1980s.

2. About Mahendragiri Hills

Feature	Details
Location	Gajapati district of Odisha , centrally located in the Eastern Ghats .
Elevation	1,501 metres (4,925 ft) above sea level; the second-highest peak in Odisha (after Deomali).
Significance	Biodiversity Heritage Site (BHS) : Declared in 2022 for its rich flora and fauna under the Biological Diversity Act, 2002.
Geographic Importance	Forms part of an almost unbroken chain of hills between the Mahanadi and the Godavari rivers. Acts as a transitional zone between the flora and fauna of the Himalayas and Southern India, making it an "ecological estuary of genetic diversity."
Biodiversity	Supports ~1,348 species of plants and ~388 species of animals, many of which are endemic and threatened (e.g., critical habitat for elephants, tigers, and numerous medicinal plants).
Vegetation	Tropical dry and wet deciduous forest range . Also contains the high-altitude Shola forest ecosystem.
Tribal Communities	Home to the Saora (Saura) and Kondh tribes, both of which are Particularly Vulnerable Tribal Groups (PVTGs) dependent on the forest.
River	The Mahendra Tanaya river originates from the hilltop of Mahendragiri.
Cultural Value	Known as Mahendra Parvata in Hindu epics like the <i>Ramayana</i> and <i>Mahabharata</i> . Believed to be the site of Lord Parashurama's penance. Attracts pilgrims to its Panchpandava temples .

3. Conservation Status

The Mahendragiri Hills are currently protected under the following status:

- **Biodiversity Heritage Site (BHS)**: Declared by the Odisha government in 2022 under Section-37 of the Biological Diversity Act, 2002.
- **Proposed Biosphere Reserve**: There is a long-standing proposal and feasibility report for declaring it a **Biosphere Reserve**, which is currently pending with the Union Ministry of Environment, Forest and Climate Change. This status would bring the region under UNESCO's Man and the Biosphere (MAB) Programme for enhanced conservation and sustainable development.

Pallikaranai Marshland



1. Why in News?

The **Pallikaranai Marshland** is in the news because the **National Green Tribunal (NGT)**, Southern Bench, recently ordered an **immediate halt to all construction activity within one kilometre** of the marshland.

- **Reason for Order**: The NGT acted against media reports of construction and landfilling activities in the hydrologically connected Perumbakkam wetland.
- **Directive**: The halt will remain in place until a **comprehensive scientific study** is completed to officially identify and demarcate the wetland's "**zone of influence**" and the **Integrated Management Plan (IMP)** is finalized.
- **Significance**: This order is crucial for protecting the fragile ecosystem and its vital role as an **aquatic buffer** against **urban flooding** in Chennai.

2. About Pallikaranai Marshland

Feature	Details
Location	Situated about 20 km south of Chennai, Tamil Nadu , on the Coromandel Coast.
Status	Declared a Ramsar Site (Wetland of International Importance) in 2022. It is also a Reserve Forest .
Nature	A freshwater marsh that is also partly saline due to the influence of the nearby Bay of Bengal.
Hydrological Role	Serves as an aquatic buffer for the flood-prone Chennai and Chengalpattu districts by absorbing excess stormwater runoff.
Drainage	Drains an area of ~250 km ² of South Chennai through two outlets: Okkiyam Madavu and the Kovalam Creek , which eventually fall into the Bay of Bengal.
Key Geographical Feature	Flanked by the Buckingham Canal on its eastern periphery.
Biodiversity	Supports a diverse ecosystem including ~115 bird species (many migratory), mammals, reptiles, and fish. Notable species include Russell's viper (<i>Daboia siamensis</i>), Glossy Ibis (<i>Plegadis falcinellus</i>), and Pheasant-tailed jacana (<i>Hydrophasianus chirurgus</i>).

3. Threats and Conservation Challenges

Despite its protected status, the Pallikaranai Marshland continues to face significant **anthropogenic pressures**:

- **Encroachments**: Large parcels of the marsh have been lost over the years due to **uncontrolled urbanization** and the establishment of residential areas, shrinking the marshland dramatically.
- **Pollution**: It is severely threatened by the discharge of **household sewage** and **urban wastewater**. It also historically housed the massive **Perungudi dumpyard**, leading to contamination from toxic waste and **leaching of heavy metals**.
- **Habitat Loss**: Construction of roads and other infrastructure has led to the **fragmentation** of the marsh, disrupting its natural water flow and ecological balance, which is directly linked to increased flood risk in surrounding areas.

National Geoscience Awards 2024



1. Why In News

The **National Geoscience Awards (NGA) 2024** were conferred by the **President of India, Smt. Droupadi Murmu**, on September 26, 2025, at the Rashtrapati Bhavan Cultural Centre in New Delhi.

- A total of **12 awards** (09 individual and 03 team awards) were presented to **20 eminent geoscientists** for their exceptional contributions.
- **Key Presidential Address Point**: The President emphasized the need for **India to achieve self-**

reliance in the production of Rare Earth Elements (REEs), describing them as the “backbone of modern technology.”

2. About the National Geoscience Awards

Feature	Details
Instituted	In 1966 by the Ministry of Mines , Government of India.
Former Name	National Mineral Awards (until 2009).
Objective	To honour individuals and teams for outstanding contributions in various fields of geosciences , including mineral discovery, mining technology, mineral beneficiation, and fundamental/applied geosciences.
Eligibility	Any citizen of India with significant contribution in any field of geosciences.
Award Money	The prize money varies by category, with the Lifetime Achievement Award being ₹5,00,000.

3. Major Award Categories and Key Winners (2024)

The awards are conferred annually under three main categories:

Category	Key 2024 Winner(s)	Contribution/Field
National Geoscience Award for Lifetime Achievement	Prof. Shyam Sundar Rai (Senior Scientist, INSA & Visiting Professor, IISER Pune)	Outstanding contributions to Solid Earth and Exploration Geophysics , including seismic research across Peninsular India and the Himalayas.
National Young Geoscientist Award	Shri Susobhan Neogi (Senior Geologist, GSI)	Pioneering work on the tectonic evolution of mobile and thrust belts (Meghalaya, Jharkhand), advancing knowledge of supercontinent assembly and mineral genesis .
National Geoscience Award	Dr. Ranjeet Kumar Singh (CSIR-NML)	Mineral Beneficiation and Sustainable Mineral Development.
	Dr. V.V.S.S. Sarma (CSIR-NIO) and Dr. Mekala Ram Mohan (CSIR-NGRI)	Basic Geosciences (Oceanography, Geophysics).
	Prof. Mukat Lal Sharma (IIT Roorkee)	Natural Hazard Investigation (Earthquake Engineering).

The **National Geoscience Award** sub-category recognizes achievements across various fields, including Mineral Discovery & Exploration, Mining Technology, Mineral Beneficiation, Basic Geosciences, and Applied Geosciences (like Geophysics and Natural Hazard Investigation).

Santorini and Kolumbo Volcanoes



The **Santorini** and **Kolumbo** volcanoes, located in the Aegean Sea, are part of the **South Aegean Volcanic Arc** and the **Christiana-Santorini-Kolumbo (CSK) volcanic field**. Recent research confirms they share an underground magma system, which significantly complicates eruption prediction and risk assessment in one of Europe's most active volcanic zones.

Santorini Volcano :

- **Location:** Southern Aegean Sea, approximately 200 km southeast of mainland Greece.
- **Structure:** Largest island of a small archipelago, forming the remnant of a **volcanic caldera**.
- **Historical Significance:** Famous for the **Minoan (Thera) eruption** around 1600 BCE, one of the largest eruptions in recorded history. This event contributed to the collapse of the Minoan civilization and may have triggered a **volcanic winter**.
 - **Volcanic Winter:** A severe, short-term global cooling effect caused by large quantities of sulfur dioxide released into the stratosphere, which converts to sulfuric acid aerosols. These aerosols reflect sunlight, reducing the Earth's surface temperature for several years.

Kolumbo Volcano

- **Location:** Submarine volcano situated about 7 km northeast of Santorini.
- **Last Major Eruption:** 1650 AD, which caused tsunamis and toxic gas emissions, leading to destruction on Santorini and nearby islands.

In News and Recent Findings

Shared Magma Reservoir :

- **Evidence:** An earthquake swarm of over **1,200 quakes** around Santorini, beginning in late 2024 and peaking in January 2025, revealed the magmatic connection.
- **Scientific Discovery:** This is the first definitive scientific evidence of a magmatic connection between the two distinct volcanic centers.
- **Activity:**
 - **Pre-Crisis (Mid-2024):** Seismic and GPS data initially showed **swelling (inflation)** of Santorini, indicating magma accumulation in a shallow reservoir.
 - **Crisis (Jan 2025):** The earthquake swarm and seismic activity shifted from Santorini toward Kolumbo. Both volcanoes then **simultaneously deflated**, proving a shared magma source was involved in the pressure changes.
 - A recent study suggests the crisis involved the **intrusion of a magma-filled dike** sourced from a mid-crustal reservoir beneath Kolumbo, indicating a deep link between the two.

Significance

- **Interconnected Systems:** The findings prove that interconnected volcanic systems exist in this region and can behave in a coordinated manner, similar to systems in Hawaii, Iceland, and Kamchatka.
- **Risk & Monitoring:** The linked nature of the systems complicates eruption prediction and risk assessment. There are urgent calls for **real-time, high-resolution monitoring** to improve forecasting and minimize risks associated with the Hellenic Volcanic Arc, which is one of Europe's most seismically and volcanically active zones, resulting from the subduction of the African plate beneath the Aegean Sea plate.

COFFEE BOARD OF INDIA



Why in News

Recently, the **Coffee Board of India** held capacity-building programmes to increase the number of growers registering on its mobile application for **European Union (EU) Deforestation Regulation** compliance.

About Coffee Board of India

The Coffee Board of India is a statutory organization that plays a vital role in supporting and regulating the coffee industry, from cultivation and research to promotion and trade.

- **Formation:** It is a **statutory organization** constituted under **Section (4) of the Coffee Act, 1942**.
- **Nodal Ministry:** It functions under the administrative control of the **Ministry of Commerce and Industry**, Government of India.
- **Headquarters:** The head office of the Coffee Board is located in **Bangalore**, Karnataka.
- **Composition:** The Board comprises **33 members** representing all sectors of the coffee industry. These members are nominated by the central government and hold office for a period of three years.
- **Core Functions:** The Board focuses its activities on:
 - **Research and Extension**

- **Development and Welfare** measures for growers
- **Market Intelligence**
- **External & Internal Promotion** (Trade and Quality)

Key Facts about Coffee Cultivation in India

Coffee is a key plantation crop in India, primarily grown in the Western and Eastern Ghats regions.

Cultivation Requirements

- **Plant Type:** It is a tropical plant generally grown under **shady trees** (shade-grown coffee).
- **Elevation:** Typically cultivated on hill slopes at elevations ranging from **600 to 1,600 metres** above sea level.
- **Major Species:** The vast majority of the world's coffee comprises two species:
 - *Coffea Arabica* (**Arabica**)
 - *Coffea Canephora* (**Robusta**)

Geographical Distribution

Coffee is largely cultivated in South India, with significant output from five states:

1. **Karnataka** (produces over 70% of the total output)
2. **Kerala**
3. **Tamil Nadu**
4. **Andhra Pradesh**
5. **Odisha**

Required Climatic Conditions

Parameter	Ideal Requirement
Climate	Hot and humid climate.
Temperature	Between 15°C and 28°C.
Rainfall	150 to 250 cm annually.
Soil	Well-drained, loamy soil containing a good deal of humus and minerals like iron and calcium.
Special Condition	Dry weather is essential at the time of the ripening of the berries.



WORLD COCONUT DAY 2025 & REVISED CDB SCHEMES



World Coconut Day

SEPTEMBER 2



WHY IN NEWS :

- On **World Coconut Day (September 2, 2025)**, the **Coconut Development Board (CDB)** launched **revised schemes** with significantly increased **financial assistance** for coconut farmers.
- The initiatives aim to promote **sustainable cultivation**, **value addition**, and **export competitiveness** in the coconut sector.

EVENT OVERVIEW :

Feature	Details
Date	September 2, 2025
Venue	Adlux Convention Centre, Angamaly, Kerala
Organizer	Coconut Development Board (CDB)
Focus Areas	Financial aid, diversification, sustainability, export promotion

ABOUT WORLD COCONUT DAY :

Aspect	Details
Observed On	2nd September every year
Established by	International Coconut Community (ICC) in 2009
ICC Founded	1969 under UN ESCAP
Purpose	Awareness of coconut's nutritional, economic, and ecological value
India's Role	Founding member of ICC; among top global producers
Key Producing States	Kerala, Tamil Nadu, Karnataka, Andhra Pradesh

ABOUT COCONUT DEVELOPMENT BOARD (CDB):

Feature	Description
Type	Statutory body under Ministry of Agriculture & Farmers Welfare
Established On	12th January 1981
Headquarters	Kochi, Kerala
Regional Offices	Bangalore (Karnataka), Chennai (Tamil Nadu), Guwahati (Assam), Patna (Bihar)

Functions of CDB

- Integrated development of coconut cultivation and utilization
- Increasing **productivity** and **product diversification**
- Technical advice** to farmers and industry stakeholders
- Financial assistance for **area expansion** and **technology adoption**
- Promotion of **modern processing techniques**
- Recommendation of **minimum support prices**, **marketing strategies**, and **trade regulations**
- Fixing **grades and quality standards** for coconut and its products

KEY SCHEME ANNOUNCEMENTS (2025)

Enhanced Financial Assistance

Component	Earlier Aid	Revised Aid
High-Quality Saplings	₹4/sapling	₹45/sapling
Replanting (per tree)	₹40/tree	₹350/tree
Area Expansion Programme	₹6,500/hectare	₹56,000/hectare
Seedling Production	₹8/seedling	₹45/seedling

Target: Distribute **2.5 lakh** high-quality coconut saplings in 2025

Coconut Technology Mission – Boosted

- Funding **increased sixfold**
- Support for:
 - **Post-harvest processing units**
 - **Value addition infrastructure**
 - **Tech for productivity enhancement**
- Focus products: Virgin coconut oil, coconut sugar, coir, activated carbon, shell products

Total Lunar Eclipse (Blood Moon) – September 7–8, 2025



Context:

- A **total lunar eclipse** occurred during the night of **September 7–8, 2025**, and was visible across most of **Asia, Europe, Australia, and Africa**.
- The Moon appeared **deep red**, leading to its popular description as a “**Blood Moon**.”
- This eclipse gained prominence because:
 - It was visible to approximately **77% of the global population**.
 - It coincided with the Moon nearing **perigee**, making it appear larger than usual.
 - It provided a rare astronomical event combining scientific relevance with public interest.

What is a Total Lunar Eclipse?

- A **lunar eclipse** occurs when the **Earth comes directly between the Sun and the Moon**, casting its shadow on the Moon.

- A **total lunar eclipse** happens when the **entire Moon passes through Earth’s umbral shadow**, blocking all direct sunlight.
- During this event, the Moon appears **reddish-orange** rather than going completely dark.
- This happens because some sunlight, especially in the **red part of the spectrum**, gets **bent and filtered by Earth’s atmosphere** and reaches the Moon.

Scientific Concepts Explained

1. Umbra

- The **umbra** is the **central, darkest part of Earth’s shadow**.
- During a **total lunar eclipse**, the Moon moves entirely into this region.
- No direct sunlight reaches the Moon in this zone, which is why it darkens and takes on a red hue.

2. Penumbra

- The **penumbra** is the **outer, lighter part of Earth’s shadow**.
- When the Moon enters the penumbra, it **dims slightly**, but does not turn red or experience total darkness.
- A **penumbral lunar eclipse** occurs when the Moon only passes through this lighter shadow.

3. Perigee

- The **Moon’s orbit around Earth is elliptical**, not perfectly circular.
- **Perigee** is the point in this orbit where the Moon is **closest to Earth**.
- A “**Supermoon**” occurs when a full moon coincides with or is near perigee, making it appear **larger and brighter** than usual.
- The September 2025 eclipse occurred **just 2.7 days before perigee**, so the Moon appeared slightly larger.

Key Features of the 2025 Eclipse

Feature	Details
Type	Total Lunar Eclipse
Date	Night of September 7–8, 2025
Peak Time (EDT)	5:11 PM EDT (2:41 AM IST on Sept 8)
Duration of Totality	82 minutes
Global Visibility	Visible in Asia, Europe, Australia, Africa
Population Coverage	Over 77% of the global population could witness the total phase
Orbital Position	Occurred just 2.7 days before perigee, making the Moon appear larger

Why Is It Called a “Blood Moon”?

- The term **“Blood Moon”** refers to the **reddish color** the Moon takes during totality.
- This happens because **Earth’s atmosphere filters out blue light and bends red light** into the umbral shadow, causing the Moon to glow red.
- The intensity of the color depends on **atmospheric conditions** such as dust, clouds, or pollution.

Why Is This Significant?

- **Safe to View:** Unlike solar eclipses, **lunar eclipses pose no danger to the eyes** and can be viewed with the **naked eye**.
- **Educational Opportunity:** Promotes awareness and interest in **astronomical phenomena**.
- **Cultural and Historical Value:** Eclipses have been significant in **various civilizations** for centuries.
- **Scientific Observation:** Allows study of **Earth’s atmosphere**, as the Moon’s color can reveal details about particles present in the air.

Conclusion

The **September 2025 Total Lunar Eclipse** was not just an astronomical event but also a reminder of the **predictable cycles of nature** and their intersection with

scientific observation, cultural interpretation, and public interest. Understanding these events enhances appreciation for Earth’s place in the cosmos and highlights the value of scientific literacy.

VEMBANAD LAKE



WHY IN NEWS?

- **Vembanad Lake**, Kerala’s largest wetland and a **Ramsar site**, is under severe ecological stress due to:
 - **Unregulated tourism**, particularly overcapacity of **houseboats**.
 - **Pollution, illegal encroachments, and land reclamation.**
- Recent reports (CWRDM, NIO) and local testimonies warn of the **lake’s shrinking size**, loss of biodiversity, and threats to local livelihoods.
- Scientists and activists say Vembanad may be **“scripting its own obituary”** unless urgent measures are taken.

BASICS & GEOGRAPHY :

- **Location:** Kerala (Alappuzha, Kottayam, Ernakulam districts).
- **Significance:**
 - **Longest lake** in India.
 - **Largest wetland** in Kerala.
 - **Designated Ramsar Site** (since 2002).

- **Connected Rivers:** Pamba, Meenachil, Achankovil, and Manimala.
- **Biodiversity hotspot:** Home to mangroves, migratory birds, and endemic aquatic species.

ECOLOGICAL & SOCIO-ECONOMIC IMPORTANCE

- **Flood Control:** Acts as a buffer against monsoon floods.
- **Agriculture:** Supports paddy cultivation, especially in **Kuttanad (Rice Bowl of Kerala)**.
- **Fisheries:** Livelihood for thousands of families.
- **Tourism:** Major revenue generator – houseboats, shikaras, and eco-tourism.

THREATS & ENVIRONMENTAL STRESSORS

1. Tourism Pressure

- **Unregulated expansion** of luxury houseboats:
 - Safe capacity: **461** | Actual: **954** houseboats.
 - Plus: **241 shikaras, 404 motorboats, 1,625 country boats.**
- **Consequences:**
 - Untreated sewage discharge '!' Water pollution.
 - Diesel engine use '!' Oil leaks, air & water pollution.
 - Churning wakes '!' Sediment disturbance, erosion of lake banks.

2. Encroachment & Urbanization

- Shrinking size:
 - From **130.68 sq km (1967)** to **3.29 sq km (2011)**.
 - Receding at **~0.3 sq km/year**.
- Causes:
 - Illegal land reclamation.
 - Gulf-funded resorts, apartments.
 - Blocked natural channels.
- Example: **Maradu Demolition (2019)** – 26,000+ violations revealed.

3. Livelihood Crisis

- Fisherfolk losing access to fish-rich zones.
- Fish migration disturbed by pollution, noise, and congestion.
- Traditional practices (like stake net fishing) disrupted.

4. Water Quality Degradation

- **Coliform levels** (Punnamada): Reached **8,000+** '!' indicates fecal contamination.
- STP (Kuttanad): Remains idle despite rising sewage load.

STUDIES & REPORTS

- **CWRDM Report** (Centre for Water Resources Development and Management):
 - Highlights overcapacity of boats.
 - Recommends waste management & zoning.
- **National Institute of Oceanography:**
 - Warns about irreversible ecological damage due to congestion.

RECOMMENDED SOLUTIONS

Institutional Recommendations:

- **Ban non-local boats** (from outside Alappuzha & Kottayam).
- **Mandatory waste treatment** facilities at all hubs.
- **Zoning:** Restrict access to ecologically sensitive zones.

Legal Measures:

- **Declare Vembanad a Fish Sanctuary** – proposed by KSSP (Kerala Sasthra Sahitya Parishad).

Policy Options:

- **Cap on houseboats;** enforce carrying capacity.
- Incentivize **eco-tourism** and **solar-powered boats**.
- Strengthen **monitoring** via satellite mapping, local participation.

CHALLENGES TO IMPLEMENTATION

- **Economic vs Environmental trade-off:**
 - Tourism is vital for Kerala's economy.
 - Political resistance to regulation.
- **Lack of enforcement** despite court orders (e.g., Nedyathuruthu villas).
- Public awareness among tourists and locals remains low.

CONCLUSION

Vembanad Lake's degradation is a **classic case of environmental overreach** driven by unchecked tourism, urbanisation, and weak governance. Timely interventions, community participation, and sustainable tourism models are essential to prevent Kerala's ecological jewel from turning into a cautionary tale.

14th Sirarakhong Hathei Chilli Festival (2025)



Context :

- The **14th Sirarakhong Hathei Chilli Festival** was held on **16 September 2025** in **Sirarakhong village**, located in **Ukhrul District of Manipur**.
- This annual event celebrates the **Geographical Indication (GI)-tagged Hathei Chilli**, a unique and indigenous chilli variety cultivated by the **Tangkhul Naga tribe**.
- The festival was organised under the broader framework of the **Azadi Ka Amrit Mahotsav**, a nationwide initiative to commemorate 75 years of India's independence and promote local heritage.

- The event was **inaugurated by Thaithuilung Pamei (IAS)**, Commissioner of **Horticulture & Sericulture**, Government of Manipur. Other key attendees included **Sword Vashum**, President of **Tangkhul Naga Long**, **V. Wungkhayap Zimik**, Headman of Sirarakhong village, and **Ngamreiwung Luithui**, Sub-Divisional Officer (SDO), LM Block.
- This festival is not merely a cultural celebration but also a platform to promote **agro-entrepreneurship, GI-based branding, tribal empowerment, and national integration**.
- It highlights the importance of conserving indigenous crops as tools for **sustainable rural development and cultural preservation**.

About Hathei Chilli :

- **Hathei Chilli**, also known locally as **Sirarakhong Chilli**, is a distinct variety cultivated exclusively in the **microclimatic conditions** of Sirarakhong village in Manipur.
- The chilli is grown using **traditional jhum (shifting) cultivation** methods on the hill slopes by the **Tangkhul Naga community**.
- In **2021**, it received the **Geographical Indication (GI) tag**, which formally recognised its **unique place-based identity, quality, and reputation**.
- The chilli is known for being **mildly pungent yet highly aromatic**, and it has an **ASTA (American Spice Trade Association) value of 164**, indicating its **high extractable colour content and deep red pigment**, which is highly prized in both domestic and international spice markets.

Unique Features and Economic Significance

- The key distinguishing feature of Hathei Chilli is its **bright deep red colour**, which makes it suitable for **colour extraction, pickling, and culinary use**.
- Due to its **exclusive dependence on local climatic and soil conditions**, it cannot be replicated outside Sirarakhong.

- It also retains its **flavour and pigment longer** than most commercial chilli varieties, making it valuable in **niche agri-markets**.
- Economically, the chilli serves as the **primary livelihood source** for a majority of the village's population.
- Its rising **market demand** is helping transform it into a **GI-based rural brand**, boosting **agri-tourism, farmers' incomes, and rural entrepreneurship**.
- The chilli has become a **rural economic multiplier**, integrating traditional knowledge with modern market linkages.

Cultural Identity and Community Role

- Hathei Chilli is a significant part of the **Tangkhul Naga tribe's food culture, heritage, and rituals**.
- Its cultivation, preservation, and use in local cuisine are deeply tied to **tribal identity and pride**.
- Over the years, the chilli has come to symbolise **Manipur's broader agricultural and cultural heritage**, contributing to both community resilience and ecological sustainability.

Health and Nutritional Benefits

- Apart from its cultural and economic importance, Hathei Chilli offers several **health benefits**.
- It is rich in **antioxidants**, which help reduce oxidative stress.
- The chilli contains high levels of **calcium**, important for bone and muscle health, and **Vitamin C**, which supports immunity and enhances iron absorption.
- Though not extremely hot, it contains small quantities of **capsaicin**, known for its **anti-inflammatory** and pain-relieving properties.

Geographical Indication (GI) Tag – Summary

- A **Geographical Indication (GI)** is a form of **intellectual property right** that identifies

products originating in a specific location and possessing qualities or a reputation due to that origin.

- GI tags are governed under the **Geographical Indications of Goods (Registration & Protection) Act, 1999**.
- The **GI Registry**, under the **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce and Industry, grants the GI tag.
- Products eligible for GI recognition include **agricultural goods, foodstuffs, handicrafts, wines, and industrial products**.
- In the North-Eastern region, several products have received GI tags, such as **Bhut Jolokia** (Assam/Nagaland – one of the world's hottest chillies), **Chak-Hao** (black rice from Manipur, rich in anthocyanin), and **Mizo Chilli** (from Mizoram, known for its strong flavour).

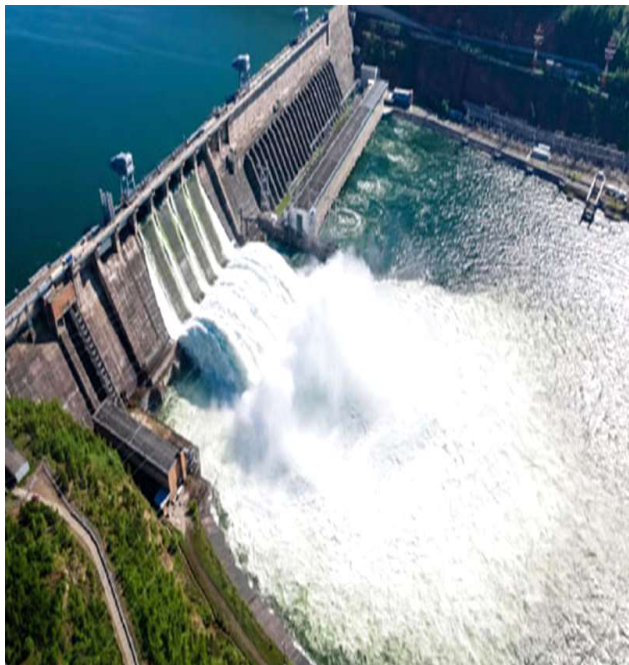
Key Highlights of the 14th Hathei Chilli Festival (2025)

- The 2025 edition of the festival included **cultural performances** showcasing **Tangkhul heritage**, a **Buyers–Sellers Meet** to connect farmers with markets, a **tree plantation drive** under the national campaign **"Ek Ped Maa Ke Naam"**, and a **photo exhibition** organised by the **Central Bureau of Communication (CBC)**, Imphal.
- The exhibition was themed around key national development goals such as **"Viksit Bharat @2047"**.
- The core message of the event was to **inspire youth** to preserve **traditional ecological knowledge** while adopting **modern innovations** for sustainable livelihood.
- The festival successfully blended themes of **agricultural pride, environmental stewardship, cultural sustainability, and inclusive development**.

Comparative Table for Enrichment

Crop	State	Unique Trait
Bhut Jolokia	Assam/Nagaland	Extremely pungent, one of the hottest chillies
Chak-Hao (Black Rice)	Manipur	Rich in antioxidants; GI-tagged
Mizo Chilli	Mizoram	High flavour profile; traditional usage
Bhiwapur Chilli	Maharashtra	Known for commercial value and pungency

Oju Hydroelectric Project Gets Environmental Clearance



Why in News?

- The **Expert Appraisal Committee (EAC)** of the **Union Ministry of Environment, Forest and Climate Change (MoEFCC)** has recommended **environmental clearance** for the **2,220 MW Oju Hydroelectric Project** in **Taksing, Arunachal Pradesh**, near the **India-China border**.
- This project is the **largest among the cascade of hydroelectric projects** proposed on the **Subansiri river basin**.

Project Overview

Feature	Details
Project Name	Oju Hydroelectric Project
Location	Subansiri River, ~5 km downstream of Redi village, Taksing block, Upper Subansiri district, Arunachal Pradesh
Developer	Oju Subansiri Hydro Power Corporation Pvt. Ltd.
Installed Capacity	Total: 2,220 MW – Main power plant: 2,100 MW – Dam-toe plant: 120 MW
River Basin	Subansiri River Basin
Public Hearing	Conducted in August 2024 at Redi village
Land Requirements	– Forest land diversion: 750 ha – Submergence area: 43 ha
Displacement	9 families to be displaced

Other Planned Hydropower Projects in Subansiri Basin

- **Upper Subansiri**
- **Lower Subansiri**
- **Niare**
- **Naba**
- **Nalo**
- **Dengser**

Oju is the **uppermost project** in the cascade and has the **largest capacity**

Environmental and Social Impact

Environmental Assessments

- **Environmental Impact Assessment (EIA)** conducted.
- **Glacial Lake Outburst Flood (GLOF) Assessment** and **Dam Break Analysis** completed.
- Dangerous glacial lakes identified.

Land & Forest Impact

- 750 ha of **forest land** to be diverted.
- Submergence of 43 ha, including ecologically sensitive areas.

Displacement & Rehabilitation

- 9 families to be displaced.
- Public hearing conducted at Redi village (Aug 2024).

Concerns Raised

By Environmentalist Bimal Gogoi (Assam-based activist):

- The **Cumulative Impact Assessment (CIA)** and **Carrying Capacity Study (CCS)** of the Subansiri basin were last done in **2014**, making the data **over a decade old**.
- Called for **updated studies** to reflect current ecological and hydrological conditions.

Government & EAC Response

- **EAC acknowledged** that the CIA and CCS were **outdated** (from 2014).
- However, after detailed discussions on **hydrology** and **ecological flow data**, the EAC accepted the project proponent's **justifications and additional data**.
- Emphasised that **design flood estimations** must factor in **glacial lake flood risks**.

Strategic Significance

- Located in **Upper Subansiri** near the **India-China Line of Actual Control (LAC)** — adds to **strategic infrastructure development** in a sensitive border region.
- Supports **India's hydropower ambitions** and **energy security** in the Northeast.
- Part of India's efforts to **enhance presence and connectivity** in the **Arunachal frontier**, seen in light of increasing Chinese infrastructure development across the border.

Way Forward

- **Update CIA and CCS studies** to reflect 2020s data and climate trends.
- Conduct **biodiversity assessments** with more granularity
- Implement strong **rehabilitation and resettlement (R&R)** packages for affected families.

- Ensure **glacial lake flood risk mitigation** infrastructure is robust and anticipates climate change impacts.
- Engage in **interstate consultations**, especially with **Assam**, which has concerns about downstream impacts of Subansiri projects.



Internal Security

Typhon Missile System



Why in News?

- The **Typhon intermediate-range missile system** is being temporarily deployed in **Japan** as part of a joint military exercise between the **United States and Japan**.
- This deployment is seen as a move to bolster **deterrence against regional threats** and enhance the precision-strike capabilities of allied forces in contested environments.

About Typhon Missile System

- **Alternative Name:** It is also referred to as the **Mid-Range Capability (MRC)** weapon system.
- **Type:** A highly flexible, **surface-to-surface** missile platform.
- **Manufacturer:** U.S. defense contractor **Lockheed Martin**.
- **Design and Mobility:** Typhon utilizes a **modular design** housed in **containerized, road-mobile** units. This makes the system highly survivable, allowing

U.S. forces to quickly disperse precision-strike assets across vast territories.

- **Operational Role:** Its dual capability makes it highly effective for both **sea denial missions** and **precision land attacks** against both land and maritime threats.

Key Specifications

The system's modularity enables it to launch two primary types of missiles:

Type	Primary Function / Capability	Maximum Range
Standard (5)	Primarily a multi-mission air defense missile, used by Typhon for extended-range surface engagement.	Beyond 320 kilometers
Block II missile	Provides a long-range, deep-strike capability against land and maritime targets.	Up to 1,500 kilometers

Full Battery: A complete Typhon Weapon System battery consists of four launchers, a command post, and the necessary reload and support vehicles, all mounted on trailers for mobility.

Graphite Spyware



Why in News

Recently, the **Trump administration unfroze** a \$2 million contract between the U.S. Immigration and Customs Enforcement (**ICE**), under the Department of Homeland Security, and **Paragon Solutions**.

- **Context:** The contract for the use of Paragon's **Graphite spyware** was initially awarded under the Biden administration in late 2024 but was placed under a "stop work order" for review.
- **Controversy:** The pause was implemented to determine if the contract complied with a 2023 Biden Executive Order that restricts U.S. government use of commercial spyware that poses significant counterintelligence or human rights risks.
- **Reactivation:** The recent decision to lift the stop-work order gives ICE access to the powerful surveillance tool, reigniting concerns among civil liberties groups about the potential for misuse against journalists, activists, or U.S. citizens.

About Graphite Spyware

Feature	Description
Developer	Paragon Solutions , an Israeli company now reportedly under U.S. private equity ownership (AE Industrial Partners).
Core Capability	Designed to gain remote access and essentially take control of a mobile phone (iOS and Android).
Working	It can exploit zero-click vulnerabilities (flaws that require no action from the target) in mobile operating systems or popular apps like WhatsApp to secretly install itself.
Data Extraction	The operator can: * Access photos, call logs, contacts, and track location (GPS). * Read and intercept encrypted messages sent on platforms like WhatsApp, Signal, and Telegram . * Covertly turn the phone into a listening device by manipulating its microphone/recorder.
Past Misuse Allegations	Despite Paragon's claims of ethical use, the software has been implicated in the targeting of journalists, activists, and civil society members in countries like Italy, leading Paragon to terminate its contracts there.

What are Spywares?

Spyware is a type of **malicious software (malware)** that secretly enters a user's computer or mobile device to gather personal data and activity from the device and transmit it to a third party without the user's knowledge or consent.

- **Objective:** To collect sensitive information for malicious actors, data collection firms, or advertisers, often for profit or for state-level surveillance.

- **Risk:** Spyware poses a profound threat to **privacy, civil liberties, and national security** by enabling unauthorized, highly intrusive surveillance.

Type of Spyware	Function
Adware	Monitors user activity to serve up targeted (and often malicious) advertisements; sells data to advertisers.
Infostealer	Specifically collects sensitive information such as usernames, passwords, credit card numbers, and instant messaging conversations from devices.
Keyloggers	Also known as keystroke loggers , they record everything a user types on their keyboard, capturing credentials and private messages before they can be encrypted.

Flamingo Missile (FP-5)



Why in News?

Ukraine recently unveiled a new long-range cruise missile named **Flamingo (FP-5)**, developed to significantly bolster its indigenous defense capabilities.

1. About the Flamingo Missile (FP-5)

- **Designation:** FP-5 “Flamingo” missile.
- **Type:** Long-range **cruise missile**.
- **Origin:** Developed by **Ukraine’s Fire Point defense company**.
- **Significance:** It is the **first indigenously produced “heavy” missile system** in Ukraine’s arsenal.

2. Key Features and Specifications

Feature	Specification	Significance
Range (Claimed)	3,000 kilometres	Among the world’s longest-range ground-launched cruise-missile systems.
Warhead	1,150 kilograms	Large warhead capacity.
Maximum Takeoff Weight	6,000 kg	Classified as a “heavy” missile system.
Wingspan	Approximately six meters	Large dimensions.
Engine	Employs a turbofan engine .	Provides long-range capability.
Speed	Up to 900 km/h .	High speed.
Guidance/Navigation	Based on an inertial system and GPS .	Standard modern guidance systems.
Destructive Power	High terminal velocity combined with heavy weight ensures deeper target penetration before explosion, significantly increasing destructive power.	Enhanced lethality.
Electronic Warfare (EW) Resistance	Designed to be resistant to electronic warfare systems , likely using a secure GPS module with CRPA antennas (Controlled Reception Pattern Antennas).	Improved operational reliability in contested environments.

Iskander-K Missile System



Why in News

Russia recently struck Ukraine’s **Cabinet building** in Kyiv with an **Iskander-K cruise missile**. The attack was noteworthy because the missile’s warhead reportedly **failed to detonate**, preventing massive structural damage.

About Iskander-K

The **Iskander-K** is a Russian-made, mobile, short-range **cruise missile launcher** system. It is constructed on an **8x8 military truck chassis**.

- It is often referred to by the NATO designation **SSC-8**.

- Its design is similar to the **Iskander-M** system, which launches ballistic missiles.
- The system was introduced into service with the Russian Armed Forces in **February 2017**.
- It is designed to carry out **tactical-operational strikes**.

Iskander-K Capabilities and Missiles

The mobile launcher vehicle features:

- Maximum road speed: **70 km/h**.
- Maximum cruising range: **1,000 km**.
- It can be fitted with two to six container launcher units.

The Iskander-K can launch two primary types of cruise missiles:

1. **9M728 (R-500 or SSC-X-7)**: Has a maximum firing range of **500 km**.
2. **9M729 (SSC-X-8)**: A new long-range missile designed to **destroy land targets**. It is capable of flying at a **low altitude** to avoid detection and evade countermeasures.

Border Wing Home Guards (BWHG)



Why in News

- The **Union Ministry of Home Affairs (MHA)** is currently considering a proposal to establish **Border Wing Home Guards (BWHG)** units along the **India-China border**. This plan follows the existing structure of BWHG units deployed along the India-Pakistan border.

About Border Wing Home Guards

- **Nature of Force**: The BWHG units function as **ancillary forces** to the Army and other primary

border security forces, especially during emergencies or hostilities.

- **Legal Basis**: The broader **Home Guards** organization is established under the specific **Home Guards Act and Rules** of the respective States or Union Territories.
- **Deployment Status**:
 - Historically, seven States were authorized to raise BWHG units (**Meghalaya, Tripura, Assam, West Bengal, Punjab, Rajasthan, and Gujarat**).
 - Currently, **Rajasthan** is the only State actively maintaining BWHG units.
- **Recruitment**: Personnel are recruited from all segments of the population and walks of life who volunteer their spare time to serve the community and the organization.
- **Service Details**: BWHG personnel typically take on responsibilities similar to a **Constable** and are usually enlisted for a service period of three to four years.
- **Funding**: The **Government of India** covers **25%** of the costs associated with the training and financial support for these units.

Key Roles of Home Guards

The core functions of the Home Guards force include:

- **Border Security**: Working alongside the Army to guard **vital installations, points, and vulnerable areas** during hostilities on the International Border.
- **Internal Security**: Serving as an **auxiliary force to the Police** for maintaining law and order during internal security challenges.
- **Community Support**: Assisting the community during various crises, including natural disasters (such as cyclones, earthquakes, and floods) and man-made emergencies (like air-raids or fires).
- **Civil Administration Aid**: Helping to maintain **essential services**, promoting **communal harmony**, and assisting the administration in protecting weaker sections of society.

STAR Missile



Why in News

- The successful indigenous development of the **Supersonic TARGET (STAR)** missile marks a significant step, ending India's reliance on **expensive imported target systems** traditionally used for missile training and evaluation.

About the STAR Missile

- Nature:** STAR is an indigenous, **high-speed target missile** designed to simulate realistic enemy threats for the rigorous training of India's armed forces.
- Developer:** It was developed by the **Defence Research and Development Organisation (DRDO)**.
- Purpose:** Unlike combat missiles, STAR does not carry a warhead to destroy targets. Its function is to **mimic the flight profile** and behavior of sophisticated enemy weapons, allowing Indian forces to practice **real-time interception and tracking**.
- Simulation Capability:** The missile is specifically engineered to replicate the characteristics of modern **supersonic anti-ship missiles and cruise missiles**.

Key Features and Specifications

Feature	Details
Max Speed	Between Mach 1.8 and Mach 2.5 (supersonic).
Propulsion	Two-Stage System: Solid booster rocket (for lift-off) and a Liquid Fuel Ramjet (LFRJ) (for sustained supersonic flight).
Range	Operational range spans 55 to 175 kilometers .
Altitude	Can operate across a wide range, from as low as 100 meters (mimicking sea-skimming) up to 10 kilometers .
Manoeuvrability	Capable of high manoeuvrability, simulating zig-zag, evasive enemy movement to test interceptors fully.
Mission End	Features either a safe recovery or a controlled detonation , depending on the mission requirements.

Variants and Deployment

To cater to diverse operational needs, DRDO is developing the STAR missile in two main variants:

1. Air-Launched STAR (ALSTAR):

- Platform:** Carried and launched by fighter aircraft, such as the **LCA Tejas**.
- Role:** Simulates air-to-air and air-to-ground strike threats, including specialized roles like **Anti-Radiation** and **Anti-AWACS** attacks.

2. Ground-Launched STAR (GLSTAR):

- Platform:** A **truck-mounted, mobile** system.
- Role:** Provides a versatile training option for the Navy and Army, as it can be deployed rapidly from shorelines or remote zones without requiring expensive, fixed launch infrastructure.

Zircon Missile (3M22 Tsirkon)



Why in News

- **Russia** recently announced that it conducted a test fire of its **Zircon (Tsirkon) hypersonic cruise missile** against a target located in the **Barents Sea**.

About the Zircon Missile

- **Classification:** The Zircon (NATO code-named SS-N-33) is a **scramjet-powered hypersonic cruise missile** developed and deployed by Russia.
- **Evolution of Role:** While initially designed primarily to target **naval assets** (warships), the missile's capabilities have been expanded to include **land-attack missions**, making it a versatile tool for precision strikes.
- **Service Status:** It officially entered service in **2022**, with its initial deployment taking place on the Russian Navy's **Project 22350 Admiral Gorshkov-class frigates**.

Key Features and Specifications

- **Speed:** The Zircon can reach estimated speeds of up to **Mach 9** (nine times the speed of sound), which makes it exceptionally challenging for current missile defense systems to track and intercept.
- **Propulsion System:** It utilizes an advanced **two-stage propulsion system**:
 1. **Booster Engine:** A solid-fuel booster rocket is used in the first stage to rapidly accelerate the missile to supersonic speeds.
 2. **Scramjet Engine:** Once sufficient speed is achieved, the liquid-fuel **scramjet engine** ignites, propelling the missile to its sustained hypersonic velocity.

- **Operational Range:** Its range is approximately **400–450 km** (low altitude), but it can extend up to **1,000 km** when flying in a semi-ballistic trajectory.
- **Warhead Capability:** The missile is designed to carry both **conventional** and **nuclear warheads**, giving it a multi-role capability in modern warfare.
- **Plasma Stealth:** A defining feature is its ability to generate a **plasma cloud** during hypersonic flight. This cloud acts as a shield by **absorbing radio waves**, making the missile extremely difficult to detect by conventional radar systems—a phenomenon known as **plasma stealth**.
- **Navigation:** The missile navigates toward its target using a combination of inertial navigation, radar homing, and plasma stealth to maintain its strike capability.

Directorate of Revenue Intelligence (DRI)



Why in News

- As part of its ongoing pan-India initiative, "**Operation Weed Out**", the **Directorate of Revenue Intelligence (DRI)** recently achieved a significant seizure of **39.2 kg of hydroponic weed** at the **Chhatrapati Shivaji Maharaj International Airport, Mumbai**.

About the Directorate of Revenue Intelligence

- **Status:** The DRI is the apex **anti-smuggling intelligence and investigation agency** of India.

- **Establishment:** It was formally constituted in **1957**.
- **Nodal Authority:** It functions under the **Central Board of Indirect Taxes & Customs (CBIC)**, which is part of the **Ministry of Finance, Government of India**.
- **Network:** It maintains a comprehensive, country-wide network comprising zonal, regional, and sub-regional units, along with dedicated intelligence cells.

Functions and Mandate

- **Core Enforcement:** The DRI enforces the provisions of the **Customs Act, 1962**, along with over fifty other allied Acts. These include crucial legislation such as:
 - o The **Narcotic Drugs and Psychotropic Substances (NDPS) Act**.
 - o The **Arms Act**.
 - o The **Wildlife Act**.
 - o The **COFEPOSA** (Conservation of Foreign Exchange and Prevention of Smuggling Activities Act).
- **Key Tasks:** Its primary responsibilities include:
 - o Detecting and curbing the **smuggling of contraband** (including drug trafficking and illegal international trade in wildlife and environmentally sensitive items).
 - o Combating **commercial frauds** related to international trade.
 - o Combating the **evasion of customs duty**.
- **Intelligence and Strategy:** The DRI collects, analyzes, and disseminates intelligence to field formations, maintains statistics on seizures to track smuggling trends, and suggests remedies to address loopholes in existing laws and procedures.
- **National Role:** The DRI has been designated as the **lead agency for S-CORD** (the national anti-smuggling coordination center).
- **International Collaboration:** It plays a leading role in international Customs cooperation, particularly through the **Customs Mutual Assistance Agreements of CBIC** with over 60 countries, focusing on information exchange and best practices.

Yuan Wang 5



Why in News

- China's sophisticated satellite and **missile tracking ship**, the Yuan Wang 5, has **re-entered the Indian Ocean** region, three years after its controversial docking at Sri Lanka's Hambantota Port.
- The ship's return is being closely monitored by India, particularly as it **coincides with speculation** that India is preparing for a **hypersonic long-range anti-ship missile test** over the Bay of Bengal, leading to heightened security and strategic concerns in New Delhi.

About Yuan Wang 5

The Yuan Wang 5 is a **specialized tracking ship** operated by the **People's Liberation Army (PLA) Strategic Support Force** of China, though it is officially designated as a "research vessel."

Feature	Details
Primary Role	Strategic space and missile monitoring (Telemetry, Tracking, and Command - TT&C). It is critical for validating the performance of China's intercontinental ballistic missiles (ICBMs) and hypersonic weapons .
Secondary Role	Intelligence gathering via Electronic Support Measures (ESM). It intercepts radar emissions and communications from foreign naval and air units, building an electronic signature library.
Operator	China's People's Liberation Army Strategic Support Force (PLASSF) .
Launch Year	2007 , making it a third-generation vessel in the Yuan Wang class.
Strategic Concern	Its dual-use nature and repeated presence in the Indian Ocean near India's coast are viewed as part of China's expanding military intelligence footprint in the region.

Yuan Wang 5 Key Features

The vessel is a highly capable platform designed for long-duration strategic missions:

- **Size:** Displaces about **25,000 tons**, with a length of over **222 meters**, and can accommodate around 400 personnel.
- **Propulsion & Endurance:** Driven by diesel engines, allowing it to remain on station for **weeks** at a time during key test windows or naval exercises.
- **Missile Tracking:** Equipped with a suite of **high-power phased-array radar systems** capable of detecting ballistic missile launches at distances exceeding **3,000 kilometers**. These radars collect crucial **telemetry data** on propulsion, warhead separation, and guidance accuracy.
- **Satellite Monitoring:** Features sophisticated **satellite-tracking antennas** to lock onto spacecraft in low-earth, geostationary, and deep-space orbits, operating in multiple frequency bands to track both civilian and military launches.

The vessel's ability to provide **near-real-time situational awareness** to the PLA Rocket Force and Navy makes it an invaluable asset for extending China's military and space reach far beyond its coastline.



Crux of The Hindu & Indian Express

Internal Security

INDIA - THAILAND JOINT MILITARY EXERCISE: MAITREE-XIV (2025)

INDIA - THAILAND JOINT MILITARY EXERCISE E MAITREE-XIV BEGINS IN MEGHALAYA

1st - 14th SEPTEMBER 2025

Royal Thai Army Contingent
53 personnel from the 1st Infantry Battalion, 14th Infantry Brigade

Focus Area
Counter-terrorist operations in semi-urban terrain

Final Event
48-hour validation exercise

- **Exercise Name:** Exercise MAITREE-XIV
- **Edition:** 14th
- **Location:** Joint Training Node (JTN), Umroi, Meghalaya, India
- **Dates:** 1st to 14th September 2025
- **Previous Edition (XIII):** Held in Fort Vachirapakan, Tak Province, Thailand

Objectives

- Enhance **military cooperation** and **interoperability**
- Improve **mutual understanding** between:
 - **Indian Army**
 - **Royal Thai Army**
- Conduct **counter-terrorist operations** under:
 - **Chapter VII of the UN Charter** (Peace Enforcement)

Participating Contingents

Country	Representation	Strength
India	Battalion of the Madras Regiment	120
Thailand	1st Infantry Battalion, 14th Inf. Brigade	53

Key Features of the Exercise :

- **Level:** Company-level joint operations
- **Terrain:** Semi-urban
- **Focus Areas:**
 - Tactical drills
 - Joint planning
 - Special arms skills
 - Physical fitness
 - Raiding and clearance operations
- **Validation Exercise:** 48-hour simulation of realistic combat scenarios

Strategic Significance

- Strengthens **bilateral defence ties**
- Promotes **regional peace and stability**

- Reinforces commitment towards **counter-terrorism cooperation**
- Part of **India's Act East Policy** and growing defence engagement with ASEAN.

Red Sea Undersea Cable Cuts Disrupt Internet in Asia and Middle East



Context

- On September 7, 2025, A series of **undersea cable cuts in the Red Sea** led to significant **internet disruptions** across several countries, including **India, Pakistan, UAE, Saudi Arabia, and Kuwait**.
- **Regions Affected:** India, Pakistan, Saudi Arabia, UAE, Kuwait, and parts of the Middle East and Asia
- The incident has raised concerns over the **security of critical global digital infrastructure**, especially amid **regional conflicts** involving **Yemen's Houthi rebels**.

What Happened?

- **Multiple undersea internet cables were severed** in the **Red Sea**, specifically near **Jeddah, Saudi Arabia**.
- Affected cable systems include:
 - **SMW-4** (South East Asia–Middle East–Western Europe 4) – operated by **Tata Communications** (India).

- **IMEWE** (India–Middle East–Western Europe) – managed by a consortium led by **Alcatel Submarine Networks**.
- **FALCON** (operated by GCX) – also affected near **Kuwait**.

- **Microsoft Azure** confirmed increased latency in the Middle East.
- **NetBlocks**, an internet monitoring group, reported widespread connectivity degradation.
- **Pakistan Telecommunications Co. Ltd.** and **Kuwaiti authorities** acknowledged the disruptions.
- **UAE** users on **Du** and **Etisalat** also experienced slower connections.

What Are Undersea Cables?

- Undersea (subsea) cables are **fiber-optic cables laid along the ocean floor** that carry over **95% of global internet and data traffic**.
- They are essential for **international communication, finance, cloud computing, and cybersecurity**.
- Typically, internet traffic is rerouted via **alternative cables** if one is damaged, but this causes **latency (delays)** and **slower speeds**.

Causes of Damage

Type	Description
Accidental	Ship anchors, earthquakes, natural wear
Intentional	Sabotage or targeting in geopolitical conflicts
Unknown	No official confirmation on cause in current incident

- The **Houthis** have **previously been accused** of plotting attacks on undersea cables, though they **denied responsibility**.
- In this case, a **dragged anchor** by a ship attacked earlier by Houthis may have caused the cuts.
- Yemen's internationally recognized government blamed the **Houthi militia** directly.

Geopolitical Context :

Red Sea as a Strategic Chokepoint



- The **Red Sea** connects the **Mediterranean** to the **Indian Ocean** via the **Suez Canal**—a vital route for **global trade and data**.
- From **late 2023 to 2024**, **Yemen's Houthi rebels** targeted over **100 ships** using missiles and drones in protest of **Israel's military campaign in Gaza**.
- The **U.S.**, **Israel**, and allies responded with **airstrikes**.
- The **Iran-backed Houthis** have sunk **four vessels** and killed at least **eight mariners** so far.

Potential Motivations

- Pressure tactics against **Israel** and **Western interests**
- Disruption of maritime and digital infrastructure as a **form of asymmetric warfare**
- Strain on **U.S.–Iran nuclear negotiations** and regional stability

Why It Matters

Sector	Impact
Cybersecurity	Exposed vulnerabilities in global internet infrastructure
Digital Economy	Slower internet and disruptions to services like cloud computing
Geopolitical Risk	Risk of escalation involving multiple actors (Houthis, U.S., Iran, Israel)
India's Interest	Indian networks and cloud services were directly affected; emphasizes need for diversified digital routing

Statements and Reactions

- **Yemeni Government (in exile)**: Blamed Houthi militia directly, calling for international protection of digital infrastructure.
- **Houthis (via al-Masirah TV)**: Acknowledged the cable cuts but denied responsibility.

Conclusion

The Red Sea cable disruption highlights the **growing interdependence between digital infrastructure and geopolitical stability**. For countries like India that are increasingly **digitally integrated**, the incident underscores the urgent need to: Strengthen **cyber-infrastructure security**, Diversify international **internet routing pathways**, Collaborate diplomatically to **protect shared digital commons**.

NEPAL GEN Z PROTESTS (2025)



Why in News?

- On **September 9, 2025**, violent protests led by **Nepal's Generation Z** erupted in **Kathmandu** and other cities.
- The protests turned **deadly** after the **killing of 19 young protesters** by police firing.
- Protesters attacked and set fire to **government buildings**, homes and offices of **senior politicians**, including **five former Prime Ministers**.
- **PM K P Sharma Oli resigned**, and the government effectively **collapsed**, creating a **constitutional crisis**.

- The **Nepali Army** assumed charge of security, while **India and other regional actors** expressed concern.

Background: Political Context in Nepal

- **Republic since 2008**, Nepal has witnessed **frequent political instability** with **frequent changes in government, factionalism, and rampant corruption**.
- No government has completed a full term since the formation of the republic.
- The democratic setup is seen by many young people as being hijacked by **corrupt elites**.

Who Are the Protesters?

- Protesters primarily belong to **Generation Z** (born between **1996–2012**).
- Mobilised initially through **social media platforms** such as **Next Generation Nepal**.
- Voiced anger against:
 - o Political corruption
 - o Nepotism (“Nepo Kids/Nepo Babies”)
 - o Unemployment and lack of opportunity
 - o Social inequality and elite privilege

Trigger Points of the Protest

1. **Banning of 26 social media platforms**, including **Facebook, Instagram, YouTube, X**, etc., which were the main tools of expression for youth.
2. **Police firing on peaceful protesters**, killing **19 young people** on September 8.
3. **Years of pent-up frustration** over systemic corruption and lack of political accountability.

Demands of the Protesters

- Immediate **restoration of banned social media** (partially fulfilled).
- Broad demands include:
 - o End to **corruption and nepotism**
 - o **Job creation**

- o **Political accountability**
- o **Transparent governance**

Scale of Violence and Targets

- **Residences and offices attacked:**
 - o Former PMs: **K P Sharma Oli, Pushpa Kamal Dahal (Prachanda), Madhav Kumar Nepal, Jhala Nath Khanal, Sher Bahadur Deuba**
 - o Ministers and MPs: **Finance Minister Bishnu Paudel, MP Eknath Dhakal** (stripped and paraded)
- **Nakkhu Jail** was set ablaze; **RSP leader Rabi Lamichhane** was freed by protesters.
- **Casualties:** At least **19 killed**, scores injured. **Rajyalaxmi Chitrakar** (wife of Khanal) died in the violence.

Current Political Situation

- **Prime Minister Oli resigned; President Poudel** is under army protection.
- **No functioning civilian government.**
- **Possible interim government** may be formed.
- **Demands for parliamentary dissolution and new elections** gaining ground.

Role of the Army

- **Nepal Army** is overseeing **security operations**.
- Has **not assumed direct political power**, but may act as a **mediator**.
- Army Chief **General Ashok Raj Sigdel** has called for **calm and national reconciliation**.

Opposition and New Leaders

- **Traditional opposition** discredited; many of their leaders were also targeted.
- **Emerging youth leaders:**
 - o **Balen Shah** (Kathmandu Mayor, rapper turned politician)
 - o **Rabi Lamichhane** (RSP, former journalist)

- **Rastriya Prajatantra Party (RPP)** considering mass resignation from Parliament.

Role of the Former King

- **Former King Gyanendra Shah** issued a **public message**, appealing for peace and national dialogue.
- May **re-emerge as a symbolic figure** if constitutional talks collapse.

India's Response

- India held a **high-level security meeting** led by PM Narendra Modi.
- Expressed **deep concern** about Nepal's instability.
- India has **historic ties** with:
 - **Nepali monarchy**
 - **Madhesi population**
 - Formerly with **Nepali Congress**, now perceived as allied with **Maoists** post-2006 peace accord.
- India faces a **diplomatic balancing act** in the current situation.

Implications for India :

Strategic:

- **Political vacuum** could create **space for foreign actors**, especially **China**.
- Rise in **cross-border instability**.

Humanitarian:

- Potential **refugee inflows** and **border security challenges**.

Diplomatic:

- India's **soft power influence** tested.
- Opportunity to support **youth-led democratic transformation**.

Potential Outcomes

- **Formation of an interim government**
- Possible **constitutional reform or complete overhaul**

- Rise of **new political players** representing the youth
- Growing demands for **transparent governance**

Exercise Siyom Prahar (2025) – Drone Integration in Tactical Operations



WHY IN NEWS?

- The **Indian Army successfully conducted Exercise Siyom Prahar** from **8th to 10th September 2025**, a major field training exercise focused on **integrating drones into tactical and operational combat roles**.
- The exercise marked a **significant advancement in India's military preparedness**, emphasizing the **use of unmanned aerial systems (UAS)** for surveillance, reconnaissance, target acquisition, and precision strikes.
- It reflects the Army's **future-oriented doctrine** to adapt to **technology-centric modern warfare**.

AIMS & OBJECTIVES

1. **Validate drone deployment** in actual battlefield conditions.
2. Develop and test new **Tactics, Techniques and Procedures (TTPs)** for:
 - Drone-based surveillance & targeting
 - Precision strike integration
 - Real-time intelligence fusion
3. Enhance **decision-making speed and accuracy** in high-tempo combat.
4. Strengthen **synergy between traditional combat arms and new tech enablers**.

KEY FEATURES & HIGHLIGHTS

1. Tactical Use of Drone Technology

Capability	Purpose
Persistent Surveillance	24/7 real-time monitoring of enemy activities
Battlefield Reconnaissance	High-resolution mapping, terrain assessment
Target Acquisition	Laser/GPS-guided marking for artillery and missile systems
Precision Strikes	Armed drones used to engage high-value enemy targets

2. Development of New TTPs

- **Fusion of real-time drone data** with conventional firepower
- **Refined joint targeting protocols** (coordination between UAVs, artillery, infantry)
- **AI-supported quick decision cycles**
- Drone use in both **offensive and defensive tactical scenarios**

3. Operational Themes

- Emphasis on **network-centric warfare**
- Integration with **satellite communication** and **GPS-based coordination**
- **Cybersecurity & EW considerations** during drone operations
- High-speed communication between **UAV teams, fire support units, and command posts**

STRATEGIC SIGNIFICANCE

1. Force Multiplication

- Reduced need for human reconnaissance teams in high-risk areas
- More efficient resource allocation

2. Enhanced Combat Readiness

- Real-time intel and drone-assisted precision enables **proactive strike capability**

3. Military Modernization

- Supports India’s shift toward **tech-driven, multi-domain warfare**
- Part of Indian Army’s **Integrated Battle Group (IBG)** concept and **future-ready doctrine**

INDIA’S DRONE WARFARE INITIATIVES

Initiative	Details
Loitering Munitions Acquisition	DRDO + Solar Industries
Swarm Drone Projects	Army using swarms from private Indian startups
Drone Policy & Doctrine	Integration under Army’s ‘Army Technology Perspective and Capability Roadmap (TPCR)’
Indigenous Production	Part of <i>Atmanirbhar Bharat</i> and <i>Make in India (Defence)</i> campaigns

Evolution of Drone Warfare

- **WWII & Korean War:** Initial UAV usage for training and limited strikes.
- **1991 Gulf War:** Modern military deployment began.
- **2020 Nagorno-Karabakh War:** Game-changing use by Azerbaijan with **Bayraktar TB2 & Harop drones**.
- Other conflicts:
 - **Yemen:** Houthi rebels used drone swarms.
 - **Gaza:** High-tech drones by Israel; grenades/observation by Hamas.
 - **Ukraine War:** Drones used for recon, attack (e.g., Shahed-136, FPVs, loitering munitions).

Drone Swarms: The New Threat

- Operate **autonomously or semi-autonomously** in coordination.
- Used for:
 - **Saturating defences**
 - **Gathering intelligence**
 - **Targeting high-value assets**
- More **resilient** than traditional drones — even if some are intercepted.

Key Challenges:

- **Low-cost drones** (\$1,000) can damage **high-cost targets** (\$200M aircraft).

- Defending against them is **expensive and complex**.
- Porous borders** make countries like India more vulnerable.

India's Defence & Counter-Drone Strategy :

Systems in Use

- Akashteer System**: Integrates radar and command network.
- Bhargavastra**: Fires 64 micro-rockets for swarm neutralisation.
- DRDO Anti-Drone System**:
 - 360° radar coverage.
 - Soft kill (jamming) + hard kill (laser).
 - Detects drones at 4 km; neutralises at 1 km.
- Indrajaal Grid**: AI-powered; protects up to 4,000 sq km. Combines spoofing, jamming, intelligence.

Global Drone & Anti-Drone Trends

- Global Military Drone Market**:
 - \$14.14B (2023) '!' \$47.16B (2032) (Fortune Business Insights)
- Emerging Technologies**:
 - AI-driven drone swarms**
 - Directed Energy Weapons (DEWs)**: Lasers & microwaves.
 - Electronic Warfare (EW)**: Jamming and spoofing.
 - Cyber Attacks**: Hijack drones via software exploits.
 - Interceptor drones & nets** for close-range defense.

Looking Ahead

- India has:
 - Over **550 drone-tech startups**.
 - Growing indigenous tech alongside global acquisitions.
- The future battlefield** will be unmanned, AI-driven, and **asymmetric**.
- Emphasis on **layered defence systems** integrating multiple interception methods (like **Iron Dome**, **M-SHORAD** in the US).

CONCLUSION

Exercise Siyom Prahar represents a major leap in India's journey toward **technology-led military modernization**. By integrating drones into frontline tactical operations, the Indian Army is not only enhancing its combat preparedness but also aligning with future warfare doctrines. The lessons from this exercise will inform **doctrinal evolution**, **procurement strategy**, and **force structure transformation** in the coming years.

Indian Navy Gets Anti-Submarine Warfare Ship 'Androth'



Why in News?

- On **September 13, 2025**, the Indian Navy took delivery of '**Androth**', the **second indigenously built Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)**.
- The vessel, built by **Garden Reach Shipbuilders and Engineers (GRSE)** in Kolkata, boosts India's **coastal defence and anti-submarine capabilities** amid rising **Chinese naval presence in the Indian Ocean Region (IOR)**.
- The induction aligns with the government's vision of '**Aatmanirbhar Bharat**' and promotes **self-reliance in defence manufacturing**.

What is ASW-SWC?

- ASW-SWC = Anti-Submarine Warfare Shallow Water Craft**.
- These are specialised naval vessels designed to **detect, track, and destroy enemy submarines**, especially in **littoral (shallow water) zones**.
- Useful for **coastal defence, port security, and naval base protection**.

About INS Androth

Feature	Details
Name	INS Androth
Type	ASW-SWC (Anti-Submarine Warfare – Shallow Water Craft)
Built by	Garden Reach Shipbuilders and Engineers (GRSE), Kolkata
Delivered on	September 13, 2025
Length	~77 metres
Propulsion	Diesel engine + Waterjet combination (first of its kind in such class for Indian Navy)
Weapons	- Indigenous ASW rockets - Lightweight torpedoes - Advanced sonar and surveillance systems
Indigenous Content	Over 80% , promoting 'Aatmanirbhar Bharat'
Named after	Androth Island in Lakshadweep , highlighting strategic maritime importance

Strategic Significance

1. Strengthens Coastal & Submarine Defence

- India's **2,500 km coastline** and vast **exclusive economic zone (EEZ)** are increasingly vulnerable to:
 - Chinese submarines and spy ships**
 - Non-state maritime threats** (e.g. smuggling, underwater mines)
- ASW-SWC ships like **Androth** enhance:
 - Submarine detection capabilities**
 - Surveillance in shallow waters**
 - Readiness of naval bases**

2. Counters China's Presence in IOR

- China has increased its **submarine patrols** and **dual-use port infrastructure** in:
 - Sri Lanka (Hambantota)
 - Pakistan (Gwadar)
 - Maldives
- The Indian Navy requires **flexible and agile ships** to counteract undersea threats in shallow and congested waterways.

3. Maritime Domain Awareness

- Enhances India's **Maritime Domain Awareness (MDA)** under the **Information Fusion Centre – Indian Ocean Region (IFC-IOR)**.
- Supports India's role as a **Net Security Provider** in the IOR.

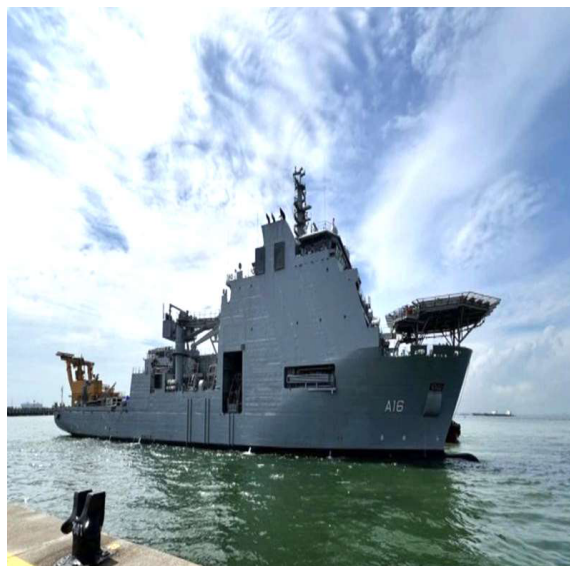
Indigenisation & Defence Manufacturing

- Built by **GRSE**, a leading PSU shipyard under the **Ministry of Defence**.
- The project reflects India's progress in:
 - Naval shipbuilding capacity**
 - Reduction of defence imports**
 - Boost to MSMEs and local defence suppliers**

Indigenous Technologies Used:

- Propulsion system (Diesel-Waterjet combo)
- ASW Rockets (DRDO-developed)
- Combat Management Systems (CMS)
- Integrated Bridge Systems and Navigation Aids

INS Nistar Joins Multinational Exercise Pacific Reach 2025 in Singapore



Why in News ?

- INS Nistar**, the Indian Navy's indigenously designed and built **Diving Support Vessel (DSV)**, is participating in **Exercise Pacific Reach 2025**.
- The exercise is being held in **Singapore** and involves **over 40 nations**.

- It is a **biennial multinational submarine rescue exercise**, focusing on cooperation and interoperability in submarine rescue operations.
- **Main Role of INS Nistar** : Mothership for Deep Submergence Rescue Vehicles (DSRVs)

What is INS Nistar?

- **INS Nistar: India's first indigenous Diving Support Vessel.**
- **Purpose:**
 - Submarine rescue operations
 - Deep-sea diving missions
 - Support to DSRVs
- **Significance:**
 - Enhances Indian Navy's **submarine rescue capability**
 - Fully **indigenously designed and built**
 - Strengthens India's **blue water naval operation**

About Exercise Pacific Reach

Objectives:

- Strengthen **regional collaboration** in submarine rescue.
- Test **interoperability** of submarine rescue assets.
- Share **best practices** and technical expertise.

Structure:

- **Harbour Phase:**
 - In-depth discussions on submarine rescue systems
 - **Subject Matter Expert Exchanges (SMEE)**
 - Medical symposium
 - Cross-deck visits
- **Sea Phase:**
 - Practical **submarine intervention and rescue exercises**
 - Coordinated multinational operations in the **South China Sea**
 - Active participation by **INS Nistar** and **Submarine Rescue Unit (E)**

Significance for India

Strategic Significance:

- Showcases India's **indigenous defence capabilities**.
- Enhances India's role as a **net security provider** in the Indo-Pacific.
- Strengthens ties with **ASEAN** and other Indo-Pacific nations.

Technological Importance:

- Validates the **operational readiness** of India's submarine rescue assets.
- Builds capacity for **multi-nation underwater rescue** interoperability.

Indian Army's 'Amogh Fury' Integrated Firepower Exercise



Why in News :

- The **Indian Army's Sapta Shakti Command** conducted a major **Integrated Firepower Exercise** named '**Amogh Fury**' at the **Mahajan Field Firing Ranges** in Rajasthan's Thar Desert on **September 20, 2025**.
- The exercise tested operational readiness and integration of modern warfare technologies in a multi-domain combat environment.

Objective of 'Amogh Fury'

- To **test and validate**:
 - **Combat power**
 - **Operational coordination**
 - **Readiness** for real-time **multi-domain warfare**
- Enhance **interoperability** among combat arms, support arms, and services during joint operations

Key Features

- **Integrated Firepower Drill** simulating real-time, high-intensity combat conditions
- Emphasis on **multi-domain operations** and **jointmanship**

Platforms Deployed

- **Battle Tanks**
- **Infantry Combat Vehicles (ICVs)**
- **Attack Helicopters**
- **Long-Range Artillery Systems**
- **Drones/UAVs**

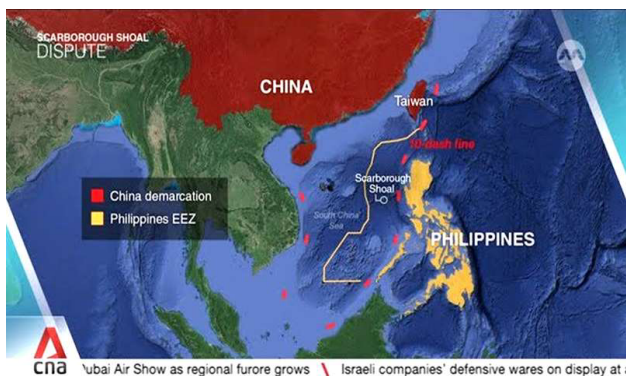
Modern Technologies Used

- **Network-centric warfare tools**, including:
 - **Real-time surveillance and targeting systems**
 - **Command and control architecture**
 - **Common Operating Picture (COP)** shared with all units
 - **Real-time communication systems**

Strategic Importance

- Demonstrates Indian Army's preparedness for:
 - **Contemporary threats** such as **drone warfare**, **hybrid warfare**, and **cyber-electronic threats**
- Validates the Army's transition toward **technology-enabled, digitized warfare**
- Reinforces focus on **joint operations**, **situational awareness**, and **rapid decision-making**.

Scarborough Shoal Dispute and China's Nature Reserve Plan



CONTEXT:

- China announced the creation of a **national nature reserve** at **Scarborough Shoal**.
- The **Philippines** strongly objected, calling it a violation of its **sovereign rights** and **environmental hypocrisy**.
- The move reignites tensions in the **South China Sea**, a strategic and resource-rich maritime region.

LOCATION & GEOSTRATEGIC SIGNIFICANCE:

- **Scarborough Shoal** (Philippines: *Panatag Shoal* / *Bajo de Masinloc*; China: *Huangyan Dao*)
- **~200 km west of the Philippines' Luzon Island**, lies **within its Exclusive Economic Zone (EEZ)**.
- Located near **key global shipping lanes**: over **\$3 trillion worth of annual trade** passes through the South China Sea.
- Important for:
 - **Fishing resources** (bountiful stocks),
 - **Safe harbor during storms**, and
 - **Potential military outpost** due to its central location.

WHAT IS CHINA PLANNING?

- **Creation of a 3,524-hectare marine nature reserve**.
- Claimed purpose: **Ecological protection** of coral reefs.
- Covers the **northeastern side** of the atoll — **near the only large-vessel entry point**.
- Seen by critics as a **pretext for stronger Chinese control** and potential future **militarisation**, like in the **Spratly Islands**.

WHO CLAIMS THE SHOAL?

- **Philippines & China** both lay claim; **sovereignty unresolved**.
- De facto **controlled by China** since **2012 standoff**.
- **2016 Permanent Court of Arbitration (PCA) ruling (UNCLOS)**:
 - Invalidated China's **"Nine-Dash Line"** claim,

- o Recognized Scarborough Shoal as a **traditional fishing ground**,
- o **Did NOT decide** on sovereignty over the shoal itself.
- China **ignored** the PCA ruling.

WHY IS THIS A FLASHPOINT?

- The shoal is a **symbol of Philippine sovereignty** and **China's assertiveness**.
- Increasing **military and coast guard presence**.
- Frequent incidents:
 - o **Water cannons, boat ramming,**
 - o **Aggressive manoeuvres, aircraft shadowing,**
 - o Accusations of **"maritime militia" activities** by China.

RISKS & IMPLICATIONS:

- High risk of **accidental escalation** '! Armed conflict possible.
- **Philippines under President Marcos Jr.** is taking a firmer stance but has **limited naval capacity**.
- **U.S. involvement:**
 - o **1951 Mutual Defence Treaty** now clarified to include attacks in **South China Sea**.
 - o Any attack on Philippine forces could **trigger U.S. military response**.
- Potential for **international arbitration** over **environmental degradation**.

INTERNATIONAL DIMENSIONS:

- Part of broader **China vs. ASEAN** maritime disputes.
- U.S., Japan, Australia, and EU have expressed **support for UNCLOS-based order**.
- Environmental damage and coercive actions may attract **global condemnation**.

EXPERT VIEWS:

- **China's perspective:**
 - o Claim to "improve governance", protect the environment.
 - o Accusations against Filipino fishermen of illegal fishing.
- **Philippine perspective (Jay Batongbacal):**
 - o Labelled the move as a **coercive tactic** to **criminalize Filipino fishers** and legitimize China's occupation.

Conclusion :

China's nature reserve plan at Scarborough Shoal is not just an environmental move — it represents a **strategic maneuver** in a contested maritime zone, challenging **Philippine sovereignty, international law, and regional stability**. This flashpoint continues to test the resolve of **ASEAN, U.S. alliances, and the global rules-based order**.



History, Art & Culture

Karma Puja (Karam Parab)



Why in News (Context)

Karma Puja consistently makes it to the news for the following primary reasons:

- **High-Level Recognition and Official Greetings:** The festival is regularly in the news when high-ranking officials, such as the **Prime Minister of India**, extend greetings to the tribal communities on the occasion. This official acknowledgment highlights its significance as a major cultural and religious event in the country.
- **A Festival of Cultural and Ecological Significance:** Media coverage focuses on Karma Puja as a celebration that underscores the **deep connection between indigenous communities and nature**. It reinforces the message of **environmental conservation and sustainable**

living through the worship of the Karam tree, a theme that resonates strongly in modern discourse.

- **Showcase of Tribal Identity and Heritage:** The festival is prominently featured as a vibrant display of the **rich cultural heritage** of India's tribal populations (like the Munda, Oraon, and Santhal). Reports cover the all-night-long traditional *Karma Naach* (dance) and music, emphasizing the **community spirit, youthfulness, and social bonding** (like the *Sahiya* friendship system) that the festival promotes.
- **Agricultural and Ritualistic Importance:** As a major **harvest festival**, it is in the news for its rituals that involve young women sowing grains in baskets (**Jawa festival**) and performing fasts for the prosperity of their brothers and a bountiful harvest. This linkage to the agricultural cycle and specific rituals makes it a recurring topic around the August-September time frame.

About Karma Puja

Karma Puja, also known as **Karam** or **Karam Parab**, is one of the most important tribal festivals in India, deeply rooted in nature worship and the agricultural cycle.

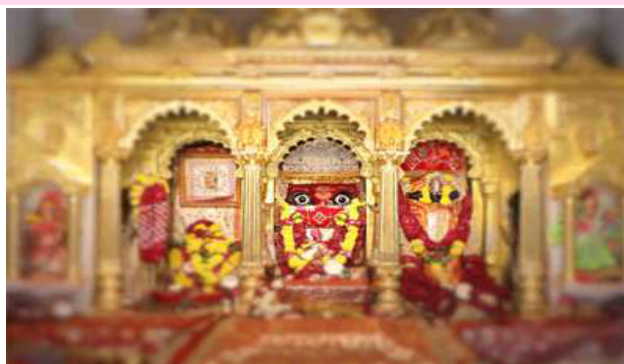
Feature	Description
Significance	It is related to the harvest and is a tribute to the Karam tree (<i>Nauclea parvifolia</i>), which symbolises fertility, prosperity, and everything auspicious . The main deity worshipped is Karam Devta , the god of youth and power, or Karam Rani , the Goddess of wealth and children.
When Celebrated	Traditionally celebrated on the Ekadashi tithi (eleventh day) of the lunar fortnight in the month of Bhado/Bhadra , which typically falls in August-September .
Region	Primarily celebrated in the tribal belts of Jharkhand, Chhattisgarh, Odisha, Bihar, West Bengal, and Assam .
Communities	Popular among various <i>Adivasi</i> groups, including the Munda, Ho, Oraon, Baiga, Kharia, and Santhal peoples.

How is it Celebrated?

The festival is a multi-day event with key rituals:

1. **Preparation (Jawa Festival):** About a week prior, young, unmarried women bring clear sand from the river and sow **seven types of grains** (like rice, wheat, maize) in a basket, which is called **Jawa**. The girls fast and nurture these germinating seeds for a few days, symbolising the fertility of the crops and a prayer for the well-being of their brothers.
2. **The Ritual:**
 - o Young villagers go to the forest to **cut one or more branches of the Karam tree** after worshipping it. The branch is usually carried back by unmarried girls.
 - o The branch is planted in the village courtyard or communal dancing ground (**Akhra**) and is worshipped with offerings, including flowers, rice, milk, and local liquor (*Handia*).
 - o The **Pahan** (village priest) performs the main worship and **recites the legend** or story behind the importance of the Karma Puja.
3. **Celebration:** The rituals are followed by **all-night singing and dancing (Karma Naach)** around the planted branch, accompanied by traditional tribal instruments like the *Madal* and *Nagara*.
4. **Conclusion:** The festival concludes the next morning with the **immersion (Visarjan) of the Karam branch** and the *Jawa* seedlings in a river or pond, signifying the end of the ceremony.

Pavagadh Kalika Mata Temple



Why in News?

Six people were tragically killed after the cable wire of a material transport ropeway snapped at the **Kalika Mata Temple** in the **Pavagadh area of Gujarat's Panchmahal district**, causing the cable car to crash.

1. About Pavagadh Kalika Mata Temple

- **Location:** Situated at the summit of **Pavagadh Hill** in **Panchmahal District, Gujarat**.
- **Deity:** The presiding deity is **Maa Kali (Kalika Mata)**, a powerful form of Goddess Durga/Shakti.
- **Religious Significance:** It is recognized as one of the **51 Shakti Peethas** in India.
- **Geography:**
 - Lies at an elevation of **762 meters above sea level**.
 - Located on a cliff surrounded by dense forest cover.
- **History:**
 - Believed to be over **1,000 years old**, with origins tracing back to the 10th–11th centuries.
 - The Mahakali idol was installed in the **12th century**.
 - Received patronage and renovations under the **Solanki Rajput dynasty**.
 - During the reign of Sultan **Mahmud Begada**, Pavagadh and Champaner were important religious and cultural centers.
- **Modern Status:** The temple is part of the **Champaner-Pavagadh Archaeological Park**, which was declared a **UNESCO World Heritage Site in 2004**.

2. Architecture and Features

- **Structure:** Built with **stone**, the architecture reflects **medieval Hindu temple architecture** featuring intricate carvings, domes, and an inner sanctum (garbhagriha).

- **Sanctum (Garbhagriha):** Houses the **black stone idol of Mahakali**.

- **Unique Feature:** Only the **upper part** of the idol is visible to devotees, while the **lower part remains underground**, symbolizing mystery and divine grounding.

- **Recent Renovations:** The temple has seen recent refurbishments, including improved ropeway connectivity (for pilgrims and materials) and enhanced facilities, while retaining its sacred ambiance.

Red Fort (Lal Qila)



Why in News

- A recent study has identified that a **'black crust'** is rapidly forming on the walls of the **Red Fort**, a deterioration attributed to the increasingly high levels of **air pollution** in the region.

About the Red Fort

- **Location:** Situated in **Delhi, India**, along the banks of the **River Yamuna**, which historically fed the defensive moats surrounding the structure.
- **Original Name:** Formerly known as **Quila-e-Mubarak** (the Blessed Fort).
- **Builder and Date:** It was constructed in **1639** by the fifth Mughal Emperor, **Shah Jahan**, to serve as the palace fort of his new capital city, **Shahjahanabad**.
- **Architects:** Designed by **Ustad Ahmad Lahauri** and **Ustad Hamid**.
- **Purpose:** The complex functioned as the principal residence for the Mughal Emperors for nearly **200 years**, concluding in 1857.

- **Global Recognition:** It was designated a **UNESCO World Heritage site** in **2007**.
- **National Symbolism:** Every year on **Independence Day (August 15th)**, the Prime Minister of India hoists the national flag from the fort and delivers an address to the nation.

Architecture and Design

- **Name Origin:** The fort is named for its massive enclosing walls, which are constructed primarily of **red sandstone**.
- **Complex Features:** The 23-meter-high walls enclose a vast complex featuring palaces, entertainment halls, baths, indoor canals, geometric gardens, and an ornate mosque.
- **Shape:** The fort has an **octagonal layout**, with the north-south axis being longer than the east-west axis.
- **Architectural Style:** The planning is rooted in Islamic prototypes, but the individual pavilions demonstrate a rich fusion of **Persian, Timurid, and Hindu traditions**, characteristic of the greater Mughal architectural style.
- **Key Structures:**
 - **Diwan-i-Am (Hall of Public Audience):** Distinguished by 60 red sandstone pillars supporting a flat roof.
 - **Diwan-i-Khas (Hall of Private Audience):** A smaller pavilion featuring exquisite **white marble**.
- **Entrances:** The fort has two principal gates: the **Lahore Darwaza** and the **Delhi Darwaza**, located on the western and southern sides, respectively.

Javari Temple



Why In News

- **Supreme Court Dismissal:** The **Supreme Court of India (SC)** recently dismissed a petition seeking the **restoration or replacement** of the seven-foot-tall **headless Vishnu idol** inside the Javari Temple's sanctum.
- **CJI's Remark:** The case gained headlines due to the Chief Justice's remark, which reportedly termed the plea a "publicity interest litigation" and suggested the petitioner "go and ask the deity himself to do something."
- **Jurisdiction:** The SC bench ruled that the matter falls under the jurisdiction of the **Archaeological Survey of India (ASI)**, emphasizing that the restoration of ancient monuments and idols must adhere to strict archaeological norms and conservation policy, which the court cannot simply override.

About Javari Temple

- **Location and Status:** It is a Hindu temple that is part of the **Khajuraho Group of Monuments**, a **UNESCO World Heritage Site** located in **Madhya Pradesh**.
- **Dedication and Dynasty:** Built during the rule of the **Chandella dynasty** between **1075 and 1100 AD**, the temple is dedicated to **Lord Vishnu**. Khajuraho's temples are famous globally for their **Nagara-style architectural symbolism** and their intricate sculptures, including erotic art.
- **Name Origin:** The name "Javari" is believed to be derived from a local source, possibly a past landowner or a variation of the local crop, *javara* (millet), as there is no Hindu deity with that name.

Javari Temple Architecture

- **Style and Components:** The temple is a fine example of the **Nagara style** of architecture. It

is a *nirandhara* temple, meaning it is built without a circumambulatory path (*pradakshinapatha*).

- o It stands on a **plinth** and includes a **sanctum** (*garbhagriha*), **vestibule** (*antarala*), **mandapa** (hall), and **portico** (*ardha-mandapa*).
- **Key Features:**
 - o It features an exquisitely carved **Makara Torana** (Capricorn Arch) at the entrance.
 - o It has a **slender shikhara** (spire) adorned with intricate carvings, a characteristic of later Chandella architecture.
- **Sculptures:** The exterior walls have three bands of carved sculptures depicting Hindu Gods, *navagrahas* (nine planets), and various secular scenes, including images of men and women. The sanctum, however, holds the broken and **headless four-armed idol of Lord Vishnu**.

Dada Saheb Phalke Award



Why in News?

The **Government of India** recently announced that the veteran actor, **Shri Mohanlal**, will be conferred with the prestigious **Dadasaheb Phalke Award for the year 2023**. This is India's highest award in cinema, recognizing the legendary Malayalam actor's iconic and lifetime contribution to the growth and development of Indian cinema over nearly five decades.

About the Dada Saheb Phalke Award

Feature	Details
Highest Honour	It is the highest award in the field of cinema in India.
Presented For	Given for lifetime contribution to the growth and development of Indian cinema.
Instituted	1969 , marking the birth centenary year of Dadasaheb Phalke.
Presenter	The President of India presents the award annually at the National Film Awards ceremony.
First Recipient	Devika Rani (1969), often titled "the first lady of Indian cinema".
Award Components	Includes a Swarna Kamal (Golden Lotus) medallion, a shawl, and a cash prize of ₹10 lakh .

Key Facts about Dhundiraj Govind Phalke

The award is named in commemoration of the visionary who pioneered the Indian film industry.

- **Full Name:** Dhundiraj Govind Phalke (1870–1944).
- **Title:** He is widely regarded as the **Father of Indian Cinema**.
- **Birth:** Born on April 30, **1870**, in Trimbak, Maharashtra.
- **Multifaceted Genius:** Before filmmaking, he was a painter, photographer, stage playwright, and a magician.
- **Pioneering Work:** He directed, produced, and distributed **India's first full-length feature film, *Raja Harishchandra*, in 1913**.
- **Legacy:** Phalke was responsible for making over 90 feature films and 27 short films in his career.

National Archives of India



Why in News

The **50th Golden Jubilee Meeting of the National Committee of Archivists (NCA)** was recently organized by the National Archives of India (NAI). The NCA is an all-India body of professional archivists from all states and Union Territories that meets to discuss and solve **professional and technical problems** faced by archival departments in the country, working to achieve uniformity in professional practices and accelerate archival development.

About National Archives of India

The National Archives of India (NAI) is the **custodian of the non-current records of enduring value** of the Government of India, making it the biggest archival repository in South Asia.

Feature	Details
Primary Role	Preserving, conserving, and managing government records for use by administrators and scholars.
Nodal Agency	Implements the Public Records Act, 1993 , and the Public Record Rules, 1997 .
Record Holdings	Records in a regular series starting from the year 1748 , spanning various categories like Public Records, Oriental Records (including Sanskrit, Persian, Odia), Manuscripts, and Private Papers. Classified documents are not received .
Head	Director General of Archives (previously Keeper of Records, before which G.W. Forrest was the first Officer-in-charge).
Nodal Ministry	Ministry of Culture .

History and Location

The NAI has a long and storied history, tracing back to the British colonial era.

- **Original Name:** Established as the **Imperial Record Department** on 11 March 1891 in **Kolkata (Calcutta)**.
- **Transfer to New Delhi:** The Department was transferred to **New Delhi** in **1911**.
- **Present Building:** The current building was constructed in 1926 and designed by Sir Edwin Lutyens, located at the intersection of Janpath and Kartavya Path (formerly King's Way).
- **Post-Independence:** The Department was **renamed** to the **National Archives of India** after India's independence in 1947.
- **Locations:** Headquarters in **New Delhi**, with one Regional Office at **Bhopal** and three Records Centers at **Bhubaneswar, Jaipur, and Puducherry**.
- **Online Access:** The NAI also manages **Abhilekh-Patal**, an online portal for accessing its digitized collections and reference media.

Sarcophagus



Why In News

The first-ever scientific dating of a **terracotta sarcophagus** found in **Kilnamandi village** in Tamil Nadu has revealed a date of **1692 BCE** (Late Harappan period). This discovery, based on AMS radiocarbon dating of charcoal, suggests that **Tamil Nadu had trade contact with North India** during the Late Harappan civilisation, evidenced by burial offerings like etched **carnelian beads** (available in Gujarat and Maharashtra) and pottery with **graffiti marks** that show similarities to those of the Indus Valley Civilisation.

About Sarcophagus

A sarcophagus is a **coffin** or container used to hold a coffin, primarily for leaders and wealthy residents in ancient civilizations.

Aspect	Details
Etymology	The word comes from ancient Greek: <i>sarx</i> (flesh) and <i>phagein</i> (to eat), literally meaning "flesh-eating."
Origin of Name	Named after a special type of limestone (found near Assos in ancient Greece/Turkey) that was believed to rapidly consume the flesh of bodies placed inside it, often within 40 days.
First Use	The earliest known stone sarcophagi were used by Egyptian pharaohs of the 3rd dynasty (c. 2686–2613 B.C.E.).
Usage	They were intended to be displayed above ground in tombs or burial chambers, carrying over into European society for high-status individuals (clergy, aristocracy).
Materials	Almost always made of stone (limestone, granite, sandstone, or marble), but also occasionally wood, metal, or terracotta, depending on the culture and era.
Features	Elaborately decorated with carvings, images, and writing, often depicting mythological scenes, battle narratives, or biographical events reflecting the deceased's life and status.

Archaeological Significance

Sarcophagi are crucial **historical artifacts** as they provide valuable insights into the **art, culture, and religious beliefs** of the societies that created them. The inscriptions and carvings often serve as a visual record of the deceased's life and the prevailing customs.

Tripura Sundari Temple (Matabari)

Why In News

- The Prime Minister of India recently inaugurated newly developed infrastructure and **beautification works** at the **Tripura Sundari Temple** complex in Udaipur, Tripura, as part of a modernization initiative, likely under the central government's **PRASAD** (Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive) scheme.

About Tripura Sundari Temple

Feature	Description
Location	Udaipur , Gomati District, in the state of Tripura . The name 'Tripura' is believed to derive from Goddess Tripura Sundari.
Built By	Established in 1501 A.D. by Maharaja Dhanya Manikya of the Tripura Kingdom.
Significance	It is one of the 51 Shakti Peethas of the subcontinent, marking the place where the right foot (or right foot's big toe) of Goddess Sati is believed to have fallen.
Other Names	It is fondly known as Matabari ("Mother's Abode") and is revered as Kurma Pith (or Koorma Pitha) because the hillock it is built upon is shaped like the hump of a tortoise (<i>Kurma</i> being the tortoise avatar of Lord Vishnu).
Syncretism	The temple is celebrated as a symbol of syncretism , unifying followers of Shaktism (worship of the Goddess) and Vaishnavism (worship of Vishnu). It also sees participation from Hindus, Muslims, and tribal groups in its rituals.

Architecture and Deities

- Architectural Style:** The temple's structure follows a **square plan** with a **sloping roof** (a three-tier roof with a finial) that echoes the style of **rural Bengal huts** and the Bengali *Ek-ratna* (single spire) style.
- Deities in the Sanctum:** The sanctum sanctorum houses two idols of the Goddess:
 - The **Principal Deity: Goddess Tripura Sundari** (also worshipped as an avatar of Goddess Kali known as **Soroshi**).
 - The **Smaller Idol:** Known as **Chhoto-Ma** (Little Mother) or **Goddess Chandi**.

- **Significance of Chhoto-Ma:** The smaller idol once held special significance for the Tripura kings, who carried it on **hunting expeditions** and **into battles**, believing it would bring them good fortune.
- **Kalyan Sagar:** A large sacred lake, **Kalyan Sagar**, lies to the east of the temple, which is home to many large **tortoises** revered by devotees.



EDITORIALS

Crux of The Hindu & Indian Express

History, Art & Culture

Kolhan's Manki-Munda System



Why in News?

- On **September 9, 2025**, members of the **Ho tribe** in **Jharkhand's West Singhbhum district** staged a protest against the **Deputy Commissioner (DC)**, alleging interference in their **traditional self-governance system** — the **Manki-Munda system** — by attempting to remove or regulate traditional village heads (Mundas).
- The administration denied the allegations, calling them **misunderstandings fueled by rumors**, but the incident has reignited concerns over the **erosion of tribal autonomy**, a **centuries-old governance model**, and the **tension between customary tribal laws and modern state administration**.

What is the Manki-Munda System?

Origin & Traditional Structure

- The **Manki-Munda system** is a **traditional, decentralised tribal self-governance system** practised by the **Ho tribe** in **Kolhan region** of **Jharkhand**.

Hierarchy and Functions

Role	Description
Munda	Village head. Handles local governance, resolves social disputes, and maintains order. Position is hereditary .
Manki	Head of a cluster of villages (called a Pir , comprising 8–15 villages). Deals with cases that Mundas cannot resolve.

- Traditionally, **no involvement in revenue collection or land administration**.
- No concept of **taxation** or **private property** prior to British intervention.

British Colonial Impact

Company Rule & Early Resistance

- **1757–1765:** Post **Battle of Plassey** and **Treaty of Allahabad**, the **East India Company** gained **diwani rights** (tax collection) over Bengal, Bihar, Odisha (includes present-day Jharkhand).
- **1793: Permanent Settlement Act** introduced — land ownership assigned to zamindars, who extracted revenue from tribals.
- In **Kolhan**, zamindars seized tribal lands 'led to revolts:
 - **Ho Rebellion (1821–22)**
 - **Kol Uprising (1831–32)**

Wilkinson's Rules (1837)

- After facing tribal resistance, the British adopted a **compromise approach**.
- **Captain Thomas Wilkinson**, Political Agent, issued **Wilkinson's Rules (1837)** to:
 - Recognize the **Manki-Munda system** officially.
 - Codify **customary tribal laws**.
 - Integrate Kolhan into British India **without direct suppression**.

Effects of the Rules

- Formalised Manki-Munda as **agents of colonial governance**.
- Introduced:
 - Infiltration of outsiders (Dikkus)**: non-tribals came in large numbers.
 - Private property rights**: community lands converted to individual ownership.
 - Raiyat system**: Ho people labelled as **tenants**, received **pattas** (land deeds)

Post-Independence Status

Continuation of Wilkinson's Rules

- After 1947, **Kolhan Government Estate (KGE)** was dissolved, but **Wilkinson's Rules remained in force**.
- Courts have **upheld their application**, despite calling them **customs** rather than formal laws (e.g. *Mora Ho vs State of Bihar*, 2000).

Jharkhand Government Initiatives

- In **Feb 2021**, the state recognised the **Nyaya Panch** (customary courts under Manki-Munda) for:
 - Revenue reporting
 - Law and order
 - Dispute resolution
 - Land sale registration

Current Conflict Explained

Stakeholder	Concern
Adivasi Protesters	Alleged that DC interfered in tribal governance by removing Mundas and undermining autonomy.
Administration	Claimed protests were due to misinterpretation of a 9-point directive issued after complaints from SC and OBC villagers .
Directive Content	Reminded Mundas of their responsibilities as per Hukuknama (Record of Rights) from 1837. No removal was ordered.
Vacant Posts	Out of 1,850 Manki-Munda positions in West Singhbhum, 200 are vacant . Efforts underway to fill them via Gram Sabhas .
Ho Community Divided	Some youth demand reforms : end to hereditary system , make it merit-based and democratic . Others seek preservation of traditional roles.

Challenges Facing the Manki-Munda System Today

Challenge	Explanation
Hereditary Nature	Roles passed from father to son — leads to unqualified, ill-equipped leaders in modern times.
Low Literacy	~80% of current Mankis & Mundas cannot fully understand the Wilkinson Rules .
Modern Governance Gap	Difficulty in navigating modern, documentation-heavy systems.
Exclusionary Practices	Instances of SC/OBC communities being restricted from economic activities in Ho villages.
Administrative Overlap	Confusion and mistrust when state officers intervene in customary matters.

Conclusion

The Manki-Munda system is a **living heritage of tribal self-rule**, but must evolve to meet the needs of a **modern, democratic India**. Balancing **tradition with reform** is key to empowering tribal communities while ensuring good governance.

Khoe-San Indigenous Peoples of Southern Africa



1. In News: Genetic Study on Khoe-San Ancestry

A recent genetic study, published in the Cell Press journal, reveals that **European colonization profoundly altered the genetic ancestry of the indigenous Khoe-San peoples** of southern Africa.

- Key Findings:**
 - Sex-Biased Migration**: European male settlers **displaced Khoe-San men**, leading to a noticeable shift in ancestry.

- o **Khoe-San Women's Contribution:** Khoe-San women contributed significantly to the present-day genetic lineages, a pattern consistent with interactions during colonial encounters.
- o **Impact of Slave Trade:** The Dutch East India Company slave trade introduced genetic diversity from **South Asia, Southeast Asia, Eastern Africa, and Madagascar** via enslaved women brought to the Cape, further reshaping the regional genetic landscape.

2. About Khoe-San Peoples

The term **Khoe-San** is a collective term for the indigenous peoples of southern Africa, divided into two main groups based historically on lifestyle:

Group	Lifestyle	Description
San (Bushmen)	Hunter-gatherers	Known for their deep connection to the land and ancient practices.
Khoekhoe (Khoi)	Pastoralists	Traditionally kept cattle, goat, and sheep .

- **Genetic Significance:** The Khoe-San represent **one of the earliest divergent human lineages** and possess **exceptionally high genetic diversity**, making them crucial for understanding human origins and migration.

3. Historical Interactions and Ancestry Shifts

The genetic and cultural makeup of the Khoe-San has been influenced by millennia of interaction and displacement:

- **Ancient Migrations (2,000 Years Ago):** The arrival of **Eastern African pastoralists** and **Bantu-speaking agro-pastoralists** led to significant influence on and displacement of many Khoe-San groups.

- **Bantu Expansion (1,500 Years Ago):** Bantu-speaking groups largely **replaced or assimilated** Khoe-San populations, particularly in eastern South Africa.
- **European Colonization (1652 Onwards):**
 - o The Dutch East India Company established **Cape Town in 1652**.
 - o Waves of European settlers over 250 years intensified pressure on indigenous groups.
 - o Indigenous Khoe-San were often **recruited as labourers**, leading to further integration and exploitation.
- **The Slave Trade (1652–1808):** The VOC enslaved approximately **63,000 people** from Africa and Asia. The large number of enslaved women brought to the Cape was a significant factor in the observed shifts in genetic ancestry.



Persons in News

International Politics & Diplomacy

Narendra Modi – Prime Minister of India



- Participated in the **25th Meeting of the Council of Heads of State of the Shanghai Cooperation Organization (SCO)**.
- The summit was held in **Tianjin, China**, from **August 31 to September 1, 2025**.
- Represented India on key issues of regional security, economic cooperation, and counter-terrorism.

Xi Jinping – President of China



- **Chaired the 25th SCO Heads of State Summit** in Tianjin.
- Delivered a keynote speech titled: *"Staying True to SCO Founding Mission And Ushering in a Better Future"*

- Emphasized the importance of multilateralism, regional peace, and connectivity among SCO nations.

Vladimir Putin – President of Russia



- Confirmed his **upcoming visit to India in December 2025**.
- Will attend the **annual bilateral summit** with Indian PM Narendra Modi.
- The visit holds significance for India-Russia strategic ties and defence cooperation.

Anutin Charnvirakul – Prime Minister of Thailand



- Elected as the **new Prime Minister of Thailand** by the Thai Parliament in September 2025.
- Succeeded **Paetongtarn Shinawatra**, making him the **third PM in two years**, reflecting political volatility.
- His election follows prolonged political unrest and instability.

David Lammy – Deputy Prime Minister of the UK



- Appointed **Deputy Prime Minister, Lord Chancellor, and Secretary of State for Justice**.
- Took over after the resignation of **Angela Rayner** due to a **tax scandal**.
- A significant reshuffle in the UK government; Lammy plays a key role in legal and constitutional affairs.

Mohamed Irfaan Ali – President of Guyana



H.E. DR. MOHAMED IRFAAN ALI
PRESIDENT
OF THE COOPERATIVE REPUBLIC OF GUYANA
COMMANDER-IN-CHIEF OF THE ARMED FORCES

- Re-elected for a second term following general elections held on September 1, 2025.
- His party, **People's Progressive Party/Civic (PPP/C)**, secured a clear majority.
- Election results were certified by the **Guyana Elections Commission (GECOM)** and announced on **September 7, 2025**.

Gyanendra Shah – Former King of Nepal



- Issued a **public statement on September 9**, appealing for peace and dialogue.
- The statement came in response to **youth-led anti-corruption protests**, triggered by:
 - A controversial **social media ban**.

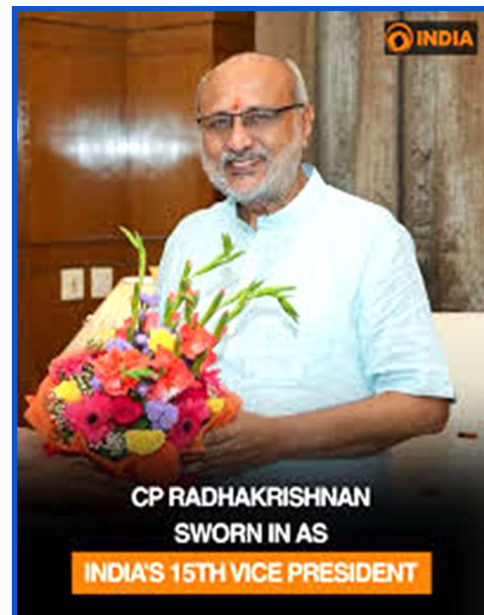
- Long-standing frustration with **corruption and government mismanagement**.

- The protests led to:

- **Resignation of Prime Minister K.P. Sharma Oli**
- **Violent government crackdown** on demonstrators.

Indian Government & Administration

C. P. Radhakrishnan – 15th Vice President of India



- Took oath as **Vice President** on **September 12, 2025** at **Rashtrapati Bhavan**, administered by President Droupadi Murmu.
- Also becomes **Chairman of the Rajya Sabha**.

Background:

- Previously served as the **Governor of Maharashtra** (July 2024 – September 2025).

Election Details:

- Nominated by the **National Democratic Alliance (NDA)** after the resignation of Jagdeep Dhankhar (due to health issues).
- **Elected on September 9**, defeating opposition candidate **B. Sudershan Reddy**:
 - Radhakrishnan: **452 votes**
 - Reddy: **300 votes**
- **Turnout: 98.2%** (767 out of 781 electors voted).

Air Marshal Sanjiv Ghuratia – Indian Air Force



- Appointed as **Air Officer-in-Charge Maintenance (AOM)** at IAF Headquarters, New Delhi.
- Assumed office on **September 1, 2025**.
- Succeeded **Air Marshal Vibhas Pande**.
- Responsible for maintenance and logistics support across IAF commands.

Vandana Gupta – Controller General of Communication Accounts (CGCA)



- Took charge as **CGCA** on **September 22, 2025**, in New Delhi.
- Promoted to the prestigious **Apex Grade** in the Department of Telecommunications.
- First woman in recent years to hold this senior-level technical and financial post in the ministry.

Sports

Mithun Manhas – President of BCCI



- Elected **unopposed** as **President of the Board of Control for Cricket in India (BCCI)** on **September 28, 2025**, during the BCCI AGM.

Background:

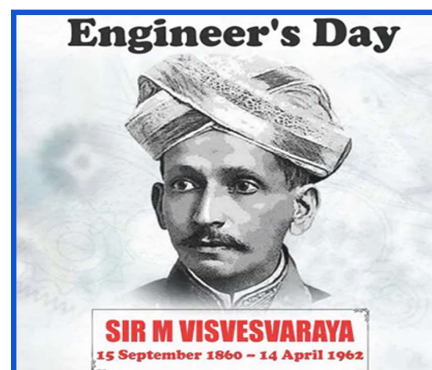
- Former **Delhi Ranji team captain** and Indian cricketer.
- Succeeds **Roger Binny**, who stepped down upon turning 70.

Significance:

- Becomes the **37th BCCI President**.
- Third consecutive **former cricketer** to hold the post (after **Sourav Ganguly** and **Roger Binny**).

Historical Commemorations

Sir M. Visvesvaraya – Engineer & Statesman (Historical)



- Birth anniversary commemorated on **September 15, 2025**, observed as **Engineers' Day** in India.
- Born in **1861**, Sir Mokshagundam Visvesvaraya was a pioneering civil engineer and statesman.
- Tributes paid by leaders including PM Narendra Modi.

Legacy:

- Played a pivotal role in building India's early **industrial and irrigation infrastructure**.
- Engineers' Day has been celebrated in his honour since **1968**.





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