

OFFICERS IAS ACADEMY™

# OFFICERS' PULSE

DECEMBER 2025 (Digest)

CURRENT AFFAIRS  
MONTHLY

The **PULSE** of UPSC at your fingertips.

# Foreword

**Officers Pulse Digest** is a comprehensive monthly current affairs magazine that serves as a complete resource for UPSC CSE Prelims. It includes significant topics from sources like **The Hindu, Indian Express, Business Standard, Yojana, Kurukshetra, Down to Earth**, and more.

Although “**Officers Pulse- Digest**” is primarily oriented towards Prelims, reading “Officers Pulse- In depth” along with it is crucial for effectively tackling the Prelims examination.

## CONTENT

<b>POLITY .....</b>	<b>3</b>	25) KANPUR ZOOLOGICAL PARK.....	21
1) VB-G RAM G ACT, 2025.....	3	26) CbMRV (COMMUNITY-BASED ENVIRONMENTAL MRV).....	22
2) PESA MAHOTSAV 2025.....	3	27) CIRCULAR ECONOMY OF BATTERIES .....	22
3) RIGHT TO DISCONNECT BILL, 2025.5		28) SNOW LEOPARD POPULATION ASSESSMENT IN INDIA (SPAI).....	23
4) IMPEACHMENT MOTION AGAINST HIGH COURT JUDGE.....	5	29) UNITED NATIONS ENVIRONMENT ASSEMBLY (UNEA-7).....	24
5) FORCED NARCO ANALYSIS.....	6	30) ARAVALLI RANGE .....	24
6) MERCY PETITION .....	7	31) SULPHUR CAVES.....	25
7) PREDICATE OFFENCE.....	9	<b>SPECIES IN NEWS .....</b>	<b>26</b>
8) PARLIAMENTARY PRIVILEGES .....	9	32) GREAT NICOBAR WOLF SNAKE .....	26
9) SHANTI Bill, 2025 .....	10	33) GREAT NICOBAR CRAKE.....	26
<b>ECONOMY .....</b>	<b>13</b>	34) DUGONG.....	27
10) MASALA BONDS .....	13	<b>AGRICULTURE.....</b>	<b>28</b>
11) SEBI - PaRRVA.....	13	35) AGMARKNET PORTAL.....	28
12) CUSTOM DUTY REFORMS.....	14	36) e-NATIONAL AGRICULTURE MARKET (e-NAM).....	28
13) NEW LOGO FOR RRB.....	14	37) NATIONAL MISSION ON NATURAL FARMING (NMNF).....	29
14) FULLY ACCESSIBLE ROUTE (FAR) BONDS .....	15	38) ESCROW ACCOUNT .....	30
15) VOSTRO ACCOUNT .....	16	<b>SCIENCE &amp; TECHNOLOGY.....</b>	<b>31</b>
16) REPO RATE.....	16	39) DHRUV64 .....	31
<b>GEOGRAPHY.....</b>	<b>17</b>	40) KAVACH .....	31
17) SUBANSIRI LOWER HYDROELECTRIC PROJECT.....	17	41) NANOBOTS.....	32
18) SHARKS FOUND IN UNDERWATER ACTIVE VOLCANO .....	17	42) URBAN MALARIA .....	33
19) 3-D HEAT MODEL UNDER GREENLAND'S ICE.....	18	43) NASA-ISRO Synthetic Aperture Radar (NISAR).....	33
20) DEEP SEA MINING: RARE EARTH RICH MUD .....	18	44) GANNON'S SOLAR STORM.....	34
21) CHILLAI KALAN .....	19	45) BLUEBIRD BLOCK-2 MISSION.....	35
22) AFAR REGION- EARTH'S NEXT OCEAN BASIN.....	19	46) ANTARIKSH PRAYOGSHALA .....	35
23) SUDDEN STRATOSPHERIC WARMING EVENT.....	20	47) GEMINID METEOR SHOWER.....	36
<b>ENVIRONMENT.....</b>	<b>21</b>	<b>DEFENCE .....</b>	<b>37</b>
24) DULHASTI HYDEL POWER PROJECT .....	21	48) INS TARAGIRI .....	37
		49) BUREAU OF PORT SECURITY (BoPS) .....	37

50) ANTI TERRORISM CONFERENCE 2025 .....	37	67) INTERNATIONALISATION OF HIGHER EDUCATION IN INDIA .....	52
51) RESERVATION OF AGNIVEERS .....	38	68) CORPORATE BOND MARKET .....	53
52) SHYOK TUNNEL .....	39	<b>SCHEMES &amp; INITIATIVES.....</b>	<b>54</b>
53) NOTABLE EXERCISE .....	39	69) PRADHAN MANTRI JANJATIYA UNNAT GRAM ABHIYAN (PMJUGA) .....	54
<b>INTERNATIONAL RELATIONS .....</b>	<b>41</b>	70) JAN SHIKSHAN SANSTHAN SCHEME .....	54
54) 23RD INDIA-RUSSIA ANNUAL SUMMIT .....	41	71) PAHAL SCHEME .....	55
55) INDIA-NEW ZEALAND FREE TRADE AGREEMENT.....	42	72) Wi-Fi Access Network Interface (PM- WANI) Scheme .....	56
56) INDIA-OMAN CEPA.....	42	73) SVAMITVA .....	56
57) INDIA – JORDAN RELATIONS.....	43	74) GYAN BHARATAM INITIATIVE.....	56
58) INDIA – ETHIOPIA RELATIONS.....	44	75) YOUR MONEY, YOUR RIGHT INITIATIVE.....	57
<b>PLACES IN NEWS.....</b>	<b>46</b>	76) SAHAKAR SARATHI.....	57
59) BLACK SEA .....	46	77) SABHASAAR INITIATIVE .....	57
60) AFAR REGION .....	46	<b>ART &amp; CULTURE .....</b>	<b>59</b>
61) YELLOW LINE.....	46	78) KASHI TAMIL SANGAMAM.....	59
<b>ORGANISATIONS .....</b>	<b>48</b>	79) KHIAMNIUNGAN TRIBE.....	59
62) INTERNATIONAL ORGANIZATION FOR MARINE AIDS TO NAVIGATION (IALA) .....	48	80) AMBASAMUDRAM CHOPPU SAMAN .....	60
63) INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)..	48	81) RAMAPPA TEMPLE.....	60
64) UNITED NATIONS ALLIANCE OF CIVILIZATIONS (UNAOC).....	49	82) DEEPAVALI .....	61
<b>REPORTS AND INDICES.....</b>	<b>51</b>	83) NATYASASTRA .....	61
65) INDIA EMPLOYMENT PROSPECTS REPORT 2025.....	51	84) THANJAVUR PAINTING.....	62
66) WORLD INEQUALITY REPORT 2026 .....	51		

## POLITY

### 1) VB-G RAM G ACT, 2025

#### Why in News?

The **Viksit Bharat Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025** (VB-G RAM G Act) received Presidential assent on **December 21, 2025**. This Act repeals and replaces the **MGNREGA, 2005**.

#### Key Provisions of VB-G RAM G Act, 2025

- **Enhanced Guarantee:** Increases guaranteed wage employment from 100 days to **125 days** per financial year for rural households.
- **Supply-Driven Model:** Unlike MGNREGA (which was demand-driven), the new scheme operates on a "**Supply-Driven**" or allocation-based framework.
  - **Budget Cap:** Funds are capped based on "normative allocations" determined by the Centre using objective parameters (Section 4(5)).
- **Notified Areas:** Employment is provided only in "**notified rural areas**" as specified by the Centre (Section 5(1)), unlike the universal coverage of MGNREGA.
- **Agricultural Pause (Blackout Period):** The Act allows the government to pause the scheme for an aggregate of **60 days** during peak agricultural seasons (sowing/harvesting) to facilitate the availability of farm labour.
- **Integrated Planning:** Works must originate from **Viksit Gram Panchayat Plans (VGPPs)**, which are digitally integrated with the **PM Gati Shakti** platform.

#### New Funding Pattern (Centre: State)

- A major shift from the previous Centre-heavy model to a shared responsibility model.

Category of States	MGNREGA (Old)	VB-G RAM G (New)
General States	Approx. 90:10 (Centre bore 100% wages + 75% material)	60:40 (Centre : State)
NE & Himalayan States	90:10	90:10
UTs (without Legislature)	100% Centre	100% Centre

#### Constitutional Linkage

- **Article 41 (DPSP):** Directs the State to secure the **Right to Work** and public assistance in cases of unemployment within the limits of its economic capacity.
- **Article 43 (DPSP):** The State shall endeavour to secure a **living wage** and decent standard of life.
- **Article 21:** Interpreted by the Supreme Court (e.g., *Olga Tellis case*) to include the **Right to Livelihood** as part of the Right to Life.

### 2) PESA MAHOTSAV 2025

#### Why in News?

The Ministry of Panchayati Raj organized a two-day **PESA Mahotsav: Utsav Lok Sanskriti Ka** on December 23–24, 2025, in Visakhapatnam, Andhra Pradesh.

The event marks the 30<sup>th</sup> anniversary of the enactment of the **PESA Act, 1996** (December 24 is celebrated as PESA Day).

### The PESA Act, 1996

- **Full Title:** The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996.
- **Constitutional Basis:** Enacted under **Article 243M(4)(b)** to extend the provisions of **Part IX** (Panchayats) to the **Fifth Schedule Areas**, with certain modifications and exceptions.
- **Objective:** To provide self-rule for the bulk of the tribal population and to have village governance with participatory democracy by making the **Gram Sabha** the nucleus of all activities.
- **Applicability:** Currently applies to **10 States** having Fifth Schedule Areas: Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana.

### Key Powers of Gram Sabha under PESA

The Act empowers the **Gram Sabha** (and not just the Gram Panchayat) with specific mandatory powers:

- **Consultation:** Before land acquisition for development projects and before resettling or rehabilitating persons affected by such projects.
- **Ownership:** Ownership of **Minor Forest Produce (MFP)**.
- **Regulation:** Power to enforce prohibition or regulate the sale/consumption of **intoxicants**.
- **Market Management:** Power to manage village markets.
- **Money Lending:** Power to exercise control over money lending to Scheduled Tribes.
- **Social Audit:** Power to issue utilization certificates for funds spent by the Gram Panchayat.

### PESA Mahotsav Highlights

- **Theme:** "Utsav Lok Sanskriti Ka" (Festival of Folk Culture).
- **Traditional Sports Showcased:** The event highlighted indigenous tribal sports to preserve cultural heritage:
  - **Chakki Khel**
  - **Uppanna Barelu**
  - **Cholo and Puli Meka** (Tiger and Goat game)
  - **Mallakhamba** (Traditional pole gymnastics)
  - **Pithool and Gedi Doud.**

### Comparative: PESA vs. Normal Panchayats (73rd Amendment)

Feature	Normal Panchayats (Part IX)	PESA Areas (Scheduled Areas)
Applicability	General Rural India.	<b>Fifth Schedule Areas</b> (10 States).
Land Acquisition	No mandatory consultation.	<b>Mandatory Consultation</b> with Gram Sabha.
Minor Forest Produce	No specific ownership.	<b>Gram Sabha has Ownership</b> of MFP.
Mineral Concessions	No specific power.	<b>Mandatory Recommendation</b> of Gram Sabha required for prospecting licenses/mining leases for <b>minor minerals</b> .

### 3) RIGHT TO DISCONNECT BILL, 2025

#### Why in News?

NCP (SP) MP **Supriya Sule** introduced a **Private Member's Bill** titled the "**Right to Disconnect Bill, 2025**" in the Lok Sabha. The Bill seeks to give employees the legal right to ignore work-related calls and emails outside office hours.



#### Static Linkage

- **Article 21 (Right to Life):** The Supreme Court has interpreted the "Right to Life" to include the **Right to Leisure, Right to Health, and Right to Live with Dignity** (*Francis Coralie Mullin case, Olga Tellis case*). Constant digital connectivity can violate these facets.
- **Private Member's Bill vs. Government Bill:**
  - **Introduced by:** Any MP who is **not a Minister** (Private Member) vs. A Minister (Govt Bill).
  - **Notice Period:** Requires **1 Month** notice vs. **7 Days** for Govt Bill.
  - **Rejection:** Rejection of a Private Member's Bill does **not** impact the government's stability, whereas rejection of a Govt Bill amounts to a "No Confidence" vote.
  - **Admissibility:** Decided by the **Speaker** (Lok Sabha) or **Chairman** (Rajya Sabha).

**Note:** No Private Member's Bill has been passed in India since **1970** (The last one was

the Supreme Court (Enlargement of Criminal Appellate Jurisdiction) Bill).

#### Key Provisions of the Proposed Bill

- **Right to Refuse:** Employees cannot be compelled to answer calls/emails outside work hours or on holidays. They have the right to "disconnect" without facing disciplinary action.
- **Welfare Authority:** Proposes setting up an **Employees' Welfare Authority** to oversee compliance and publish studies on the impact of digital tools.
- **Mandatory Negotiations:** Companies with more than **10 employees** must negotiate terms of "out-of-hours" contact with staff.
- **Penalties:** If an employer violates the provisions, they may face a penalty of **1% of the total employee remuneration**.
  - **Overtime Pay:** Work done outside hours must be mutually agreed upon and compensated at the **overtime wage rate**.
  - **Digital Detox:** Suggests setting up "Digital Detox Centres" by the government for counselling.

#### Global Examples

- **France (2017):** First country to legalize the Right to Disconnect (El Khomri Law).
- **Australia (2024):** Recently enacted "Right to Disconnect" laws preventing unreasonable after-hours contact.
- **Other Nations:** Belgium, Portugal, Ireland, Spain, and Italy also have similar laws/codes.

### 4) IMPEACHMENT MOTION AGAINST HIGH COURT JUDGE

#### Why in News?

MPs of the **INDIA bloc** recently submitted a letter to the Lok Sabha Speaker to move an impeachment motion against **Justice G.R. Swaminathan** of the Madras High Court .

## Constitutional Provisions

- **Article 217(1)(b):** A High Court Judge may be removed from office by the President in the manner provided in **Article 124(4)** for the removal of a Supreme Court Judge.
- **Grounds for Removal:** The Constitution specifies **only two grounds**:
  1. **Proved Misbehaviour**
  2. **Incapacity.**

## Procedure for Removal (Judges Inquiry Act, 1968)

Since the Constitution only gives the "manner," the detailed procedure is laid out in the **Judges (Inquiry) Act, 1968**.

### Step 1: Initiation

- A removal motion must be signed by **100 members** (Lok Sabha) or **50 members** (Rajya Sabha).
- It is submitted to the **Speaker/Chairman**.

### Step 2: Admission (Discretionary)

- The Speaker/Chairman may **admit** or **refuse** to admit the motion. It is not mandatory for them to accept it even if 100 MPs sign it.

### Step 3: Inquiry Committee

- If admitted, the Speaker/Chairman constitutes a **3-member committee** to investigate the charges.
- **Composition:**
  - Chief Justice of India (or a Supreme Court Judge).
  - Chief Justice of a High Court.
  - A Distinguished Jurist.

### Step 4: Parliamentary Vote

- If the committee finds the judge guilty, the House takes up the motion for consideration.
- It must be passed by a **Special Majority in both Houses:**

### Step 5: Presidential Order

- The President issues the order for removal after the motion is passed by Parliament in the **same session**.

**Success Rate: No judge** has ever been successfully removed in India.

- *Justice V. Ramaswami (1993):* Motion failed in Lok Sabha due to abstention by Congress MPs.
- *Justice Soumitra Sen (2011):* Resigned after Rajya Sabha passed the motion but before Lok Sabha could vote.

**Judicial Review:** The decision of the Speaker to admit/reject the motion is subject to **Judicial Review** (*Krishna Swami v. Union of India*).

## 5) FORCED NARCO ANALYSIS

### Why in News?

In the recent case of *Amlesh Kumar v. State of Bihar (2025)*, the Supreme Court set aside a Patna High Court order that had permitted a compulsory narco-analysis test on an accused.

The Apex Court reiterated that **forced** narco tests differ fundamentally from taking physical samples (like DNA or fingerprints) and violate the **"Right to Silence"**.



### Constitutional Linkage

- **Article 20(3):** "No person accused of any offence shall be compelled to be a **witness against himself**." (Right against Self-Incrimination).

- **Interpretation:** This protects an accused from giving "**testimonial evidence**" based on personal knowledge but **does not** protect against giving "**physical evidence**" (like thumb impressions, DNA, or hair samples) (*State of Bombay v. Kathi Kalu Oghad, 1961*).
- **Article 21:** The **involuntary** administration of these tests is an intrusion into a person's "**mental privacy**" and violates the standard of "**Substantive Due Process**".

### Key Highlights of the Ruling (2025)

- **Reaffirming Selvi (2010):** The SC upheld the landmark **Selvi v. State of Karnataka (2010)** judgment, which held that Narco-analysis, Polygraph, and Brain Mapping (BEAP) tests cannot be conducted without the **voluntary consent** of the accused.
- **Procedure for Consent:** Consent must be recorded before a **Judicial Magistrate**, and the accused must be legally represented during this process.
- **No "Absolute Right" for Accused:** The Court clarified that while the State cannot *force* a test, the accused also does **not** have an absolute or indefeasible right to **demand** a narco test to prove their innocence. The Court has the discretion to refuse such a request based on the circumstances (*Amlesh Kumar case*).

### Narco vs. Polygraph vs. BEAP

- **Narco Analysis:** Uses **Sodium Pentothal** (Truth Serum) to induce a hypnotic state (neutralizes the imagination).
- **Polygraph:** Measures **physiological responses** (blood pressure, pulse, respiration, sweat) to questions.
- **Brain Electrical Activation Profile (BEAP):** Measures **brain waves (P300)** in response to visual/auditory stimuli to detect "experiential knowledge".

### Admissibility of Narco Results (Evidence Act)

Aspect	Status
<b>Test Results</b>	<b>Inadmissible</b> in court as substantive evidence (because the statements are made in a semi-conscious state without full control).
<b>Subsequent Discovery</b>	<b>Admissible</b> under <b>Section 27</b> of the Indian Evidence Act. <i>(Example: If an accused reveals the location of a murder weapon during the test, and the police subsequently find the weapon there, the <b>finding of the weapon</b> is admissible evidence, though the statement itself is not.)</i>

#### Note:

**Physical vs. Mental:** Compelling an accused to give a **fingerprint/DNA** is **NOT** a violation of Article 20(3). Compelling them to undergo a **Narco test** is a violation.

## 6) MERCY PETITION

### Why in News?

President Droupadi Murmu has rejected the mercy petition of Basant Sampat Dupare, a convict on death row for the brutal rape and murder of a four-year-old girl in Maharashtra in 2008. This is the third mercy petition rejected by President Murmu since she assumed office.

The decision was made based on the recommendation of the **Ministry of Home Affairs (MHA)**, following the procedure established by the Constitution and new criminal laws.

### Constitutional Pardoning Powers

- **Article 72 (President):**
  - **Powers:** Pardon, Reprieve, Respite, Remission, and Commutation.

#### Jurisdiction:

1. Offences under **Union Law**.
  2. Sentences by a **Court Martial** (Military Court).
  3. **Death Sentences** (in ALL cases, whether under Union or State law).
- **Article 161 (Governor):**  
**Powers:** Similar to the President but for offences under **State Law**.  
**Exceptions:**
    1. Cannot pardon a **Death Sentence** (can only commute/remit/suspend it).
    2. Cannot deal with **Court Martial** sentences.

**Note:** A death row convict *must* appeal to the Governor first (under Article 161). If rejected, they can approach the President (under Article 72). However, only the President has the power to grant a "**Pardon**" (complete absolvment) for death sentences.

#### Procedure Under BNSS, 2023

The **Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023** has codified the timeline and procedure for mercy petitions (Section 472), which was earlier just a convention:

- **Timeline for Filing:** A convict must file a mercy petition within **30 days** of the jail superintendent informing them about the dismissal of their appeal by the Supreme Court.
- **Multiple Convicts:** If there are multiple convicts in the same case, they must file petitions within **60 days**. The President shall decide all petitions **together**.
- **Centre's Role:** The Centre must seek comments from the State Government and make a recommendation to the President within **60 days**.
- **Communication:** The Centre must inform the State/Jail authorities of the President's decision within **48 hours**.

#### Judicial Review of Mercy Power

- **Nature:** The power under Article 72 is an **executive Power** exercised on the aid and advice of the Council of Ministers (*Maru Ram Case, 1980*).
- **Grounds for Review:** In the **Epuru Sudhakar Case (2006)**, the Supreme Court ruled that the President's decision is subject to **Judicial Review** on limited grounds:
  1. Order passed without application of mind.
  2. Mala fide intention.
  3. Based on extraneous or wholly irrelevant considerations.
  4. Arbitrariness.
- **Delay as Ground:** In *Shatrughan Chauhan vs. Union of India (2014)*, the SC held that **inordinate delay** by the President in deciding a mercy petition is a valid ground for commuting a death sentence to life imprisonment (violation of Article 21).

#### Key Terms

Term	Meaning
<b>Pardon</b>	Complete forgiveness; removes both the sentence and the conviction.
<b>Commutation</b>	Substituting one form of punishment for a lighter form (e.g., Death to Life Imprisonment).
<b>Remission</b>	Reducing the <b>period</b> of sentence without changing its <b>character</b> (e.g., 10 years Rigorous to 5 years Rigorous).
<b>Respite</b>	Awarding a lesser sentence due to <b>special facts</b> (e.g., pregnancy of a woman offender, physical disability).
<b>Reprieve</b>	Temporary stay on the execution of a sentence

(usually death) to allow time for mercy appeals.
--

## 7) PREDICATE OFFENCE

### Why in News?

A Special PMLA Court in Delhi recently dismissed the Enforcement Directorate's (ED) complaint against Congress leaders in the National Herald case.

The Court ruled that the ED cannot initiate a money laundering probe based solely on a **Private Complaint** without a prior **FIR** registered by a Law Enforcement Agency (like Police or CBI) regarding a "Scheduled Offence".

### PMLA & Predicate Offence

- **The "Twin" Requirement:** The Prevention of Money Laundering Act (PMLA), 2002, does not define money laundering as a standalone crime. It is a **derivative** crime.
  1. **Predicate Offence (Scheduled Offence):** There must be a primary crime (e.g., Cheating, Corruption) listed in the **Schedule** of PMLA.
  2. **Proceeds of Crime:** Money/Asset generated *from* that primary crime must be laundered.
- **The Ruling's Logic:** The Court held that a **Private Complaint** (filed directly to a Magistrate under CrPC/BNSS) does **not** equal an **FIR**. Since no agency (CBI/Police) had registered an FIR for the predicate offence when ED started its probe, the PMLA case had no "jurisdictional foundation".

### Private Complaint vs. FIR

Feature	FIR (First Information Report)	Private Complaint
Filed With	Police (under Sec	Magistrate (under Sec

	154 CrPC / Sec 173 BNSS).	200 CrPC / Sec 223 BNSS).
<b>PMLA Trigger</b>	<b>Yes.</b> An FIR triggers ED jurisdiction.	<b>No.</b> A private complaint alone cannot trigger ED jurisdiction
<b>Investigation</b>	Police investigate immediately.	Magistrate conducts enquiry or orders police investigation.

### Note

- The ED cannot register an FIR. Instead, the ED registers an **ECIR (Enforcement Case Information Report)**, which is an internal document, not equivalent to a police FIR. The ED *cannot* register an FIR for a predicate offence (like theft or murder); it only investigates the money trail.
- **"Standalone" Money Laundering:**
  - **Global Standard (FATF):** Promoting money laundering as a standalone offence.
  - **Indian Law:** Money laundering is **NOT** a standalone offence yet. It survives only if the predicate offence exists.

## 8) PARLIAMENTARY PRIVILEGES

### Why in News?

Lok Sabha Speaker **Om Birla** is examining a **Breach of Privilege** notice submitted by BJP MP Nishikant Dubey against **eight Congress members**.

### What is Parliamentary Privilege?

- **Definition:** Special rights, immunities, and exemptions enjoyed by the two Houses of Parliament, their committees, and their members to function effectively and independently.

- **Constitutional Basis:**
  - **Article 105:** For Parliament (MPs).
  - **Article 194:** For State Legislatures (MLAs).
- **Source:** Since Parliament has **not yet codified** these privileges by law, they are the same as those enjoyed by the **British House of Commons** as of January 26, 1950.

### Breach of Privilege vs. Contempt of House

- **Breach of Privilege:** When an individual/authority disregards or attacks the specific rights of MPs (e.g., arresting an MP during a session without informing the Speaker).
- **Contempt of the House:** Any act/omission that obstructs the House or its member in the performance of their functions, or lowers the dignity of the House.
- *Note:* A breach of privilege is *always* contempt, but contempt (e.g., disobedience to Speaker's order) may be wider than a specific breach.

### Procedure for Privilege Motion

Governed by **Rule 222** (Lok Sabha) and **Rule 187** (Rajya Sabha).

#### Step 1: Notice

- A member must give notice in writing to the **Secretary-General**.

#### Step 2: Speaker/Chairman's Consent

- The Speaker is the **first level of scrutiny**. He/She can either **decide** on the admissibility himself or refer it to the **Committee of Privileges**.

#### Step 3: Committee of Privileges

- **Composition:**
  - **Lok Sabha: 15 members** nominated by the Speaker.
  - **Rajya Sabha: 10 members** nominated by the Chairman.
- **Function:** Investigates the facts and recommends punishment

(Admonition, Reprimand, Suspension, or even Expulsion).

#### Step 4: House Decision

- The House considers the report and passes a motion to award the punishment.

### Judicial Review of Privileges

- **Raja Ram Pal Case (2007):** The Supreme Court ruled that the power of expulsion is a valid parliamentary privilege but is **subject to judicial review** if it violates fundamental rights or is arbitrary/mala fide.
- **Searchlight Case (1959):** In case of conflict between **Article 19(1)(a)** (Freedom of Speech of Citizens) and **Article 105** (Privileges), privileges generally prevail.

#### Note:

There is no specific law defining the Parliamentary Privileges. They are based on the Constitution (Art 105/194), Rules of the House, and Conventions.

#### Arrest Immunity:

- An MP cannot be arrested in **Civil Cases** during the session and **40 days before/after** it.
- **Trap:** This immunity does **NOT** apply to **Criminal Cases** or **Preventive Detention**.

## 9) SHANTI Bill, 2025

### Why in News?

The Parliament passed the **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025**.

This legislation **repeals** the Atomic Energy Act, 1962, and the Civil Liability for Nuclear Damage Act, 2010, creating a unified framework to allow **private sector participation** in nuclear energy.

## Historical Context

- **Atomic Energy Act, 1962:** Previously, nuclear power generation was the exclusive monopoly of the Central Government and its PSUs (like NPCIL and BHAVINI). Private players were barred from operating reactors.
- **Civil Liability for Nuclear Damage (CLND) Act, 2010:** Introduced a "Supplier Liability" clause (Section 17(b)) which was unique globally and discouraged foreign suppliers (like Westinghouse/GE) due to liability risks.

# SHANTI BILL 2025

A NEW ENERGY ERA FOR INDIA

**24/7 UNINTERRUPTED CLEAN POWER**

- Reliability: Provides consistent electricity.
- Zero Emissions: 100% clean energy generation.
- Future Ready: Supporting AI, Data Centers, and Smart Grids.

**Energy Scarcity to Energy Sovereignty**

**DIRECT BENEFITS TO CITIZENS DAILY LIVES**

- Healthcare: Advanced cancer therapies.
- Food Security: Improved agricultural yields and food preservation.
- Cost Savings: Stable pricing without sudden hikes.

**THE MODI REFORM MODEL TRUST & GROWTH**

- Unlocking Potential: Foundational for steady growth.
- High-Skill Jobs: High-salary roles for engineers, scientists, and researchers.
- Thriving Ecosystem: Unlocks India's massive human and intellectual potential.

**STRATEGIC CONTROL & SAFETY**

- National Interest: Full government control over nuclear fuel and infrastructure.
- Independent Oversight: A strengthened regulatory board for world-class safety.
- Private Innovation: Private capital brings the speed and efficiency for global scale.

FEATURE	STAGNANT APPROACH (CONGRESS)	FUTURE-FORWARD APPROACH (SHANTI BILL)
Philosophy	Fear-driven policy with low trust in Indian industry.	Trust-based reforms treating Indian industry as a partner.
Execution	Sector locked in government silos and monopolies.	Opened to private capital and innovation with strategic control.
Capacity Growth	Stagnant capacity.	Scaled growth through collaboration in sectors such as space and defence.
Resource Use	Domestic resources underutilised for decades.	Unlocks thorium to reduce import dependence.
Regulation	Closed system with limited transparency.	Independent oversight with global safety standards.

THE PARADIGM SHIFT IN INDIA'S NUCLEAR SECTOR

## Key Provisions of SHANTI Bill, 2025

- **Private Sector Entry:**
  - Allows **private companies** (Indian and foreign) to **Build, Own, and Operate** nuclear power plants.
  - Permitted activities include **plant operations, equipment manufacturing, and fuel fabrication.**

- **FDI:** Permits up to **49% Foreign Direct Investment (FDI)** in nuclear power projects.
- **Bharat Small Reactors (BSRs):**
  - Defines a framework for deploying **Small Modular Reactors (SMRs)** (capacity < 300 MW) for captive use by industries (e.g., steel, cement, data centers).
  - **Target:** Operationalize **5 indigenous SMRs by 2033.**
- **Liability Reform:**
  - **Repeals** the 2010 CLND Act.
  - **Removes Supplier Liability:** Shifts liability entirely to the **Operator**, aligning with international norms (Convention on Supplementary Compensation).
  - **Capped Liability:** Caps the operator's liability at **₹1,500 crore** per incident (or based on plant capacity). The Government covers damages beyond this cap.
- **Regulatory Overhaul:**
  - Grants **Statutory Status** to the **Atomic Energy Regulatory Board (AERB)**, making it an independent body answerable to Parliament (previously it was under the Department of Atomic Energy).

## Strategic Controls Retained

Despite privatization, the government retains strict control over "sensitive" areas:

- **Fuel Enrichment:** Private players are **barred** from uranium enrichment and reprocessing of spent fuel.
- **Heavy Water:** Production of heavy water remains a government monopoly.

## Points to Note

- **Ownership vs. Operations:** While the Bill allows private companies to *operate* plants, earlier models (like the NPCIL-

NTPC JV) kept ownership with PSUs. The SHANTI Bill, however, allows private players to **own** and **operate** plants.

- **Liability Fund:** The Bill proposes a **Nuclear Liability Fund** to handle claims beyond the operator's cap, funded by a levy on operators.
- **BSR vs BSMR:**
  - **Bharat Small Reactor (BSR):** Based on existing **PHWR** technology (220 MW).
  - **Bharat Small Modular Reactor (BSMR):** A new **Light Water Reactor (LWR)** design under development.

## ECONOMY

### 10) MASALA BONDS

#### Why in News?

The Enforcement Directorate (ED) has recently issued notices to the Kerala Chief Minister in connection with the Kerala Infrastructure and Investment Fund Board (KIIFB) Masala Bond case.

#### About

- Masala Bonds are **rupee-denominated debt instruments** issued **outside India** by Indian entities.
- The **International Finance Corporation (IFC)**, a member of the **World Bank Group**, issued the **first Masala Bond in October 2013** under its **USD 2-billion offshore rupee programme**.
- These bonds enable Indian issuers to **raise funds in Indian currency from overseas investors**.
- Since the bonds are denominated in rupees, the **exchange rate risk is borne by the foreign investor**, not by the Indian issuer.
- This structure helps Indian companies **reduce exposure to currency volatility**.
- To compensate investors for the currency risk, Masala Bonds generally offer **higher interest rates** compared to similar instruments available in the investors' domestic markets.
- Both **government entities and private sector organisations** are permitted to issue Masala Bonds.

#### Who Can Invest?

- **Non-resident investors** seeking exposure to Indian assets are eligible to invest in Masala Bonds.
- Investors must belong to countries that are members of the **Financial Action Task Force (FATF)**.

- Eligible subscribers include **individuals, institutional investors, and financial entities** from jurisdictions adhering to international regulatory standards, such as those set by **IOSCO (International Organization of Securities Commissions)**.
- **Multilateral and regional financial institutions**, of which India is a member, are also permitted to invest.

#### Maturity Period

- The tenure of Masala Bonds varies with the issue size.
- Bonds issued up to **USD 50 million** generally have a **minimum maturity of three years**.
- **For issuances exceeding this limit, the maturity period can extend up to five years, offering greater flexibility to investors.**

### 11) SEBI - PaRRVA

#### Why in News?

SEBI has launched a **Past Risk and Return Verification Agency (PaRRVA)** to curb **mis-selling of investment products**, enhance **regulatory supervision**, and ensure **standardised disclosure of returns and risks**.

#### About

- **PaRRVA (Past Risk and Return Verification Agency)** is a SEBI-initiated **verification framework**.
- It will **verify historical risk and return claims** made by investment products and intermediaries.
- Aims to bring **uniformity, transparency, and credibility** to performance reporting.

## Objectives

- **Prevent mis-selling** based on exaggerated or misleading return claims on investments.
- **Protect investors**, especially retail investors.
- Ensure **standardised reporting formats**.
- Strengthen **market supervision** using **digital audit trails**.

## Key Features

- Verification of **past performance data** before it is presented to investors
- Creation of **digital audit trails** for regulatory scrutiny
- **Uniform risk-return disclosure norms** across products
- Increased accountability of **asset managers, distributors, and advisors**

## 12) CUSTOM DUTY REFORMS

### Why in News?

The Government of India has undertaken **customs duty reforms** to **rationalise tariff structures**, reduce **inverted duty anomalies**, promote **domestic manufacturing**, and improve **ease of doing business**, in line with **Make in India** and **Atmanirbhar Bharat** objectives.

### About

- Custom duty is a tax levied on goods imported into or exported out of a country. In India, it is governed by the **Customs Act, 1962** and the **Customs Tariff Act, 1975**.
- The primary purposes of customs duties are to **protect domestic industries**, **generate revenue for the government**, and **regulate trade** by controlling imports and exports.
- The key objectives of customs duty reforms are to promote **domestic manufacturing under the Make in India initiative**, reduce the cost of exports to

boost competitiveness, and simplify the tariff structure for ease of doing business.

- The reforms also aim to **support strategic and priority sectors such as electronics, healthcare, and renewable energy** while aligning India's duties with global trade agreements and WTO rules.

### Key Features of Reforms

- The reforms include **tariff rationalization**, where the multiple duty slabs have been reduced to **eight major rates**, making the system simpler and more predictable.
- The reforms have significant sectoral implications. In **healthcare and pharmaceuticals**, life-saving drugs and medical equipment benefit from duty exemptions.
- In **renewable energy**, solar panels and capital goods have lower duties to promote clean energy manufacturing.
- **Electronics and auto components** face higher duties on finished goods to incentivize domestic production, while **precious metals and jewellery** enjoy reduced duties to boost local manufacturing.
- Procedural reforms have also been implemented, including **faceless assessment** and online filing through the **ICEGATE portal**, which ensure faster clearance, reduced compliance burden, and transparency.
- Furthermore, customs duties have been aligned with India's **Free Trade Agreements (FTAs)**, including India-UAE, India-Australia, and India-EFTA, to encourage trade under preferential rates.

## 13) NEW LOGO FOR RRB

### Why in News?

The **Government of India** has unveiled a new **common logo** for all **Regional Rural Banks**

(RRBs) as part of a broader effort to strengthen their **brand identity** and visibility across the country.

#### About

- The move follows the **amalgamation of RRBs** under the “**One State One RRB**” principle, creating **28 RRBs across 26 States and 2 Union territories**, effective **May 1, 2025**.
- The new logo symbolizes **growth, nurture, and empowerment**, reflecting RRBs’ mission of **financial inclusion and rural development**.
- It incorporates symbolic elements such as an **upward arrow** (signifying growth and development), **hands** (representing care and support), and a **flame** (denoting knowledge and empowerment).
- The colour scheme uses **dark blue** to **signify finance and trust**, and **green** to **represent life and growth**, highlighting RRBs’ focus on serving rural India.



#### Regional Rural Banks (RRBs)

- **Regional Rural Banks (RRBs)** are government-owned banks established to provide **banking and credit facilities in rural and semi-urban areas**, primarily to support agriculture, small businesses, and rural development.
- They were first set up in **1975** under the **Regional Rural Banks Act, 1976**, following recommendations of the **Narasimham Committee**.

- The ownership structure of RRBs is shared among the **Central Government (50%)**, the **Sponsor Bank (35%)**, and the **State Government (15%)**.
- Their primary objective is to promote **financial inclusion**, offering deposit accounts, agricultural loans, small enterprise financing, and disbursing government schemes like **PM-Kisan**.
- RRBs are regulated by the **Reserve Bank of India (RBI)** and receive refinance support from **NABARD**, while Sponsor Banks provide technical and management assistance.

#### 14) FULLY ACCESSIBLE ROUTE (FAR) BONDS

##### Why in News?

Foreign Portfolio Investment (FPI) via the Fully Accessible Route (FAR) eligible bonds reached Rs 5,760 crore, spotlighting dynamics in India's debt market and drivers of FPI inflows.

##### About

- **Fully Accessible Route (FAR) Bonds** are a type of **external commercial borrowing (ECB)** instrument that allows **foreign investors and Non-Resident Indians (NRIs)** to invest directly in Indian debt markets without requiring prior approval from the **Reserve Bank of India (RBI)** or the government.
- FAR bonds aim to **attract foreign capital** into India, diversify funding sources for Indian corporates, and support **infrastructure and corporate financing**.
- They provide a convenient avenue for overseas investors to invest in **Rupee-denominated debt instruments** and contribute to the development of India’s financial markets.

- These bonds offer **open access** for eligible investors and are generally **medium- to long-term instruments** (3–10 years).
- They are issued by **Indian corporates, banks, or government entities**, and the interest can be **fixed or floating**, typically linked to prevailing market rates.
- Issuance limits are defined under RBI guidelines, ensuring a structured yet flexible investment environment.
- FAR bonds are governed by **RBI's ECB framework** and are subject to **SEBI regulations** if listed in the Indian secondary market.
- Compared to traditional ECB routes, FAR bonds **reduce procedural hurdles** and approvals, making foreign investment simpler and faster.
- FAR bonds facilitate **easier foreign investment**, boost liquidity in Indian debt markets, and reduce dependence on traditional ECB routes.
- They help **corporates and government entities** raise funds for strategic sectors such as **infrastructure, renewable energy, and development projects**, while offering attractive investment options for overseas investors seeking Rupee-denominated returns.

## 15) VOSTRO ACCOUNT

### About

- A **Vostro Account** is an account maintained by a **foreign bank with an Indian bank**, denominated in **Indian Rupees (INR)**, meaning "*your account with us*".
- It is used for **settlement of international trade transactions**, remittances, and payments between India and partner countries.
- The **RBI permits Special Rupee Vostro Accounts (SRVAs)** to promote **INR-based**

**trade settlements** and reduce dependence on the US dollar.

- Vostro accounts help in **de-dollarisation**, lowering transaction costs and reducing exchange rate risks in bilateral trade.
- They are regulated by the **Reserve Bank of India (RBI)** and play a key role in the **internationalisation of the Indian Rupee**.

## 16) REPO RATE

### Why in News?

The **Reserve Bank of India (RBI)** cut the **repo rate by 25 basis points to 5.25%**.

### Significance

- **Inflation under control:** Retail inflation remained **within RBI's target range (2–6%)**, giving room for monetary easing.
- **Support economic growth:** Rate cuts aimed at **boosting demand, investment, and overall economic activity** amid growth concerns.
- **Improve credit flow:** Lower repo rate reduces banks' borrowing costs, encouraging **higher lending to businesses, MSMEs, and consumers**.
- **Reduce EMIs:** Expected to lead to **lower lending rates and EMIs**, especially for home and auto loans, boosting consumption.
- **Global uncertainty:** Ongoing **global slowdown and financial volatility** required domestic policy support to sustain growth.
- **Policy stance:** RBI maintained a **neutral stance**, indicating flexibility in future rate decisions.

## GEOGRAPHY

### 17) SUBANSIRI LOWER HYDROELECTRIC PROJECT

#### Why in News?

Shri Manohar Lal, Union Minister of Power, Housing & Urban Affairs, inaugurated the commercial operation of Unit-2 (250 MW) of the 2000 MW (8×250 MW) Subansiri Lower Hydroelectric Project through virtual mode.

#### About

- **River:** Subansiri River (largest tributary of the Brahmaputra - originates in Tibet, flows through Arunachal Pradesh and Assam in India, and is known as **the Gold River** due to gold dust)
- **Location:** Gerukamukh, on the **Assam-Arunachal Pradesh border**
- **Type:** **Run-of-the-river** hydropower project
- **Installed Capacity:** **2,000 MW**
- **Developer:** **NHPC Limited**

#### Significance

- The project features the largest dam in North-East India, a 116-metre-high **concrete gravity dam**, which not only strengthens regional infrastructure and grid resilience but also enhances flood moderation and water management in the Subansiri River basin.

#### *Run-of-the-river hydropower project*

*A type of hydroelectric system that generates electricity by using the natural flow of a river with little or no large-scale water storage.*

*No large reservoir is created, unlike conventional dam-based projects.*

*Causes less submergence and displacement compared to storage dams. So, considered more environment-friendly, though not impact-free.*

- The **first cascaded dam** on the Subansiri River.
- The dam represents a series of landmark achievements in India's hydroelectric sector, including the installation of the **heaviest hydro generator rotors**, the **largest stators and inlet valves** in the country, and the **first-ever use of the Rotec Tower Belt system** for dam concreting.
- Apart from supplying electricity to **16** beneficiary states across India, the Subansiri Lower H.E. Project will provide free power allocations to Arunachal Pradesh and Assam, while the North-East

*A concrete gravity dam is a massive, solid structure using its own immense weight and strong foundations to hold back water, relying on gravity, not arch action, for stability, typically built across wide valleys with strong rock*

region will receive 1,000 MW from the project, significantly strengthening regional energy availability.

### 18) SHARKS FOUND IN UNDERWATER ACTIVE VOLCANO

#### Why in news?

Scientists have discovered **sharks living inside an active underwater volcano**, challenging earlier assumptions about the limits of marine life in extreme environments.

#### About

The discovery was made in the **Kavachi submarine volcano** located near the **Solomon Islands in the South Pacific Ocean**. Researchers observed species such as **scalloped hammerhead sharks, silky sharks and a stingray** swimming within the

volcano's submerged crater, an area characterized by **high temperatures, acidic waters, and frequent volcanic activity.**

The sharks are believed to move in and out of the crater unfazed rather than reside there permanently.



### Kavachi volcano

- An **active submarine volcano** located near the **Solomon Islands in the South Pacific Ocean.**
- It rises from the ocean floor and frequently erupts, sometimes forming a **temporary island** above sea level before erosion submerges it again.
- Kavachi Volcano in the Solomon Islands is one of the most active submarine volcanoes in the Pacific and is a part of the Pacific ring of fire.
- Structure: **Volcanic caldera** (crater like depression)

## 19) 3-D HEAT MODEL UNDER GREENLAND'S ICE

### Why in news?

A new **high-resolution three-dimensional (3D) temperature model** of the Earth's subsurface beneath the **Greenland Ice Sheet** has been developed by researchers.

### About

Researchers combined **satellite data, ground measurements, seismic velocity information, gravity anomalies, and geophysical data** to construct the 3D model.

### Key Findings

- The model maps temperature variations deep beneath the Greenland Ice Sheet, showing that **subsurface heat distribution is not uniform** caused by **geological features**, including Greenland's ancient passage over a **volcanic hotspot.**
- **Basal rock temperature** (underground warmth) affects the **movement and melting** of the ice sheet.
- The Greenland Ice Sheet's response to **climate change** is influenced not only by **atmospheric warming** but also by **subsurface heat dynamics beneath the ice sheet.**
- Helps reduce **uncertainties in future sea-level rise projections**, which is crucial for **climate policy and mitigation strategies.**

## 20) DEEP SEA MINING: RARE EARTH RICH MUD

### Why in news?

Japan to conduct test mining of rare-earth-rich mud from the deep seabed off Minamitori Island, 1900 kms to the southeast of Tokyo.

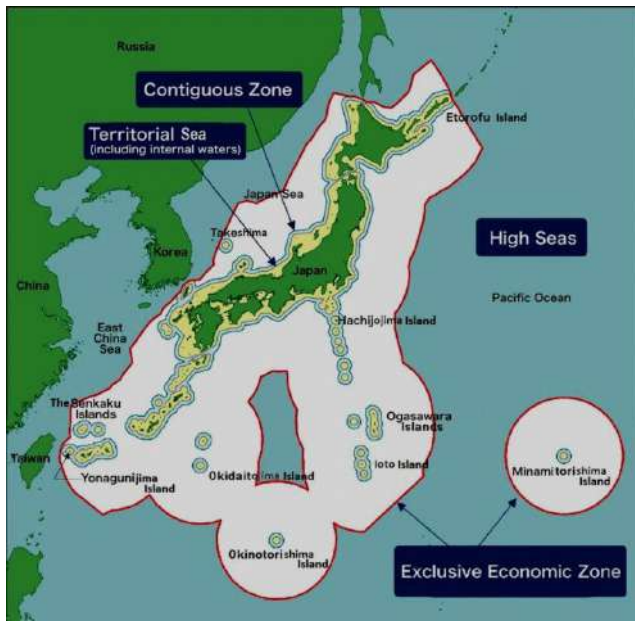
### About

- Rare-earth mud (or rare-earth-rich deep-sea mud) is a **marine sediment**, found deep on the ocean floor, containing concentrated deposits of valuable rare-earth elements (REEs) from plankton remains.
- Offers a **cleaner, potentially easier-to-extract alternative** to land-based mining like coal extraction.
- **Composition: Pelagic mud** (deep-sea

### Minamitori Island

*Minami-Torishima Island, also known as **Marcus Island**, is an isolated Japanese coral atoll in the northwestern Pacific Ocean.*

sediment) rich in **rare-earth elements** (REEs), including **neodymium**, **dysprosium**, and others vital for green tech.



### Significance

- The operation will mark the world's first attempt to continuously lift rare-earth mud from a depth of around 6,000 meters onto a vessel.
- The surrounding region is estimated to hold over 16 million tonnes of rare earth oxides rich in **dysprosium** and **terbium**.
- REEs from this mud are essential for magnets in electric vehicles (EVs), fuel cells, and catalysts, supporting low-carbon technologies.

## 21) CHILLAI KALAN

### Why in news?

Every year, the Kashmir Valley experiences **Chillai Kalan**, a period of extreme cold, beginning on **21st December**.

### About

Chillai Kalan is originated from the Persian term - **Major Cold (big cold)** and refers to a **40-day period of extreme winter**.

**Duration:** 21st December to 31st January, coinciding with the **winter solstice**.

### Climate Characteristics:

- Temperatures often fall **below freezing**.
- Heavy snowfall and frost are common.
- Rivers and water bodies may partially freeze.

**Related Cold Periods:** Followed by **Chillai Khurd (small cold)** and **Chillai Bachha (baby cold)** in February and early March.

### Significance

Heavy snowfall during Chillai Kalan **replenishes water reservoirs** in the higher reaches, sustaining rivers, streams and lakes during the summer months.

## 22) AFAR REGION- EARTH'S NEXT OCEAN BASIN

### Why in news

Scientists predict Africa's Afar region could become Earth's next ocean basin

### About

- Afar is in **northeastern Ethiopia**, where the **Red Sea, Gulf of Aden and East African Rift** meet.
- It includes the **Afar (Danakil) Depression**, one of the lowest and hottest places on Earth, characterized by desert, salt flats, volcanoes and tectonic activity



### Significance

The area is considered a natural laboratory for Earth sciences.

- The region lies at a unique **triple junction of tectonic plates**, making it one of the most **geologically active areas** in the world, prone to **earthquakes and volcanic eruptions** as the African continent slowly drifts apart.
- Timescale for ocean formation is **five to ten million years**. Slow tectonic processes over millions of years reshape continental landmasses. **Future oceans would separate eastern Africa from the rest of continent.**

### 23) SUDDEN STRATOSPHERIC WARMING EVENT

#### Why in news?

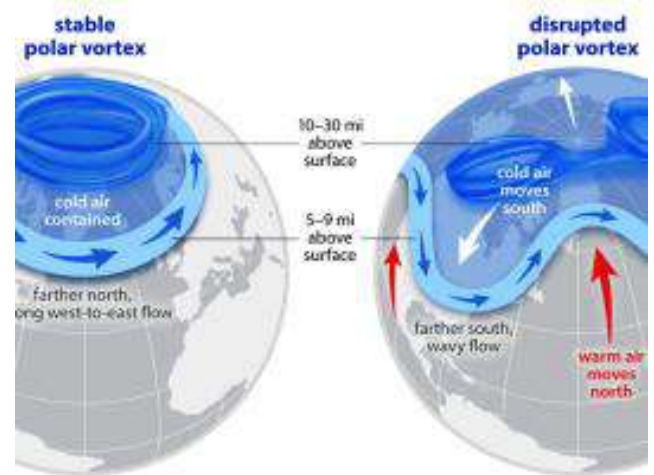
Recently, meteorological agencies reported a **Sudden Stratospheric Warming (SSW) event** over the **Arctic region**, raising concerns about its potential impact on **winter weather patterns** across the **Northern Hemisphere**, including **Europe, North America, and parts of Asia.**

#### About

Sudden Stratospheric Warming is a **rapid increase in stratospheric temperatures** (by up to **30–50°C within a few days**) occurring at altitudes of about **10–50 km** above the Earth's surface.

#### Mechanism

- Triggered by strong **planetary (Rossby) waves** originating in the troposphere.
- These waves **disrupt the polar vortex**, a cold-air mass typically stabilized over the Arctic region.
- The **polar vortex weakens, displaces, or splits**, reversing normal west-to-east winds in the stratosphere (westerly to easterly).
- Leads to cold air descending and warming rapidly. So, instead of cold air being locked above the polar region, it can push further south into the mid-latitudes.



#### Types:

- **Major SSW:** Complete reversal of stratospheric winds.
- **Minor SSW:** Significant warming without full wind reversal.

#### Significance

- Weakening of the polar vortex allows **cold Arctic air to spill southward**, leading to **cold waves, snowfall, and extreme winter conditions** in mid-latitudes.
- Alters **jet streams**, affecting **aviation routes and fuel efficiency.**
- Impacts **ozone distribution** in the stratosphere.

## ENVIRONMENT

### 24) DULHASTI HYDEL POWER PROJECT

#### Why in News?

The **Expert Appraisal Committee (EAC)** under the Ministry of Environment, Forest and Climate Change has approved the 260 megawatt Dulhasti Stage II hydropower project on the Chenab River in Kishtwar district of Jammu & Kashmir.



#### About

**Dulhasti Stage II** is planned as an **extension of the existing Dulhasti Stage I Hydro Electric Project (390 MW)** which has been operational since 2007.

*Dulhasti Stage I, located on the Chenab River in Jammu & Kashmir, is a 390 MW hydroelectric project developed as a run of the river scheme and commissioned in 2007.*

#### Key features

- The new phase will generate **260 MW** of electricity by diverting water through a separate tunnel and underground powerhouse.
- The project is set in the context of India's suspension of the Indus Waters Treaty (IWT) with Pakistan (effective 23 April 2025) which had governed water sharing of the Indus basin including the Chenab River.
- **Environmental Consideration:** Run of the river design reduces ecological disruption compared to large dams.

#### Design Features:

- Water diverted through **separate tunnels** to an **underground powerhouse**
- Utilizes **head and flow of Chenab River** without forming a large reservoir
- Focuses on **minimizing submergence and environmental impact**

**Type:** Run of the river hydropower project

**Installed Capacity:** 260 MW

**Estimated Cost:** ₹3,200 crore

#### Key terms to know

**Underground powerhouse:** Reduces land use and environmental impact

**Stage II extension:** Often used to augment existing hydro projects

### 25) KANPUR ZOOLOGICAL PARK

#### Why in News?

**Kanpur's Allen Forest Zoo** stands out as a sprawling urban green space, conserving biodiversity and promoting environmental education within a natural forest.

#### About

**Kanpur Zoological Park** also popularly known as **Allen Forest Zoo** is located in **Kanpur, Uttar Pradesh** (Nawabganj area).

It is developed **inside Allen Forest** - a natural forest making it unique compared to many other zoos built on cleared land.

#### Significance

- Allen Forest Zoo (Kanpur Zoological Park) is often highlighted as one of **India's largest urban zoological parks**, developed inside a natural forest (Allen Forest) which is rare among Indian zoos.
- The zoo functions as a **green lung** for the city, supporting biodiversity, environmental awareness, and urban ecology.

## 26) CbMRV (COMMUNITY-BASED ENVIRONMENTAL MRV)

### Why in News?

**Community based Environmental Monitoring, Reporting and Verification (CbMRV)** has gained attention as a model for decentralised climate governance aligned with global climate transparency frameworks under the Paris Agreement.

### About

- MRV stands for Monitoring, Reporting and Verification. A system to **track greenhouse gas emissions, adaptation progress, and climate finance**.
- **CbMRV integrates community generated environmental data** into formal climate governance systems, making local observations a **science ready input** for policy and planning.

It blends **traditional ecological knowledge** with **field based scientific monitoring** to produce systematic climate and environment data at the **village level**.

#### What does CbMRV Monitor?

*CbMRV monitors village-level environmental and livelihood indicators, including:*

- *Rainfall & temperature*
- *Soil & water health*
- *Biodiversity*
- *Fish catch & cropping patterns*
- *Carbon stocks and emissions*

### Pilot Ecological Sites:

1. *Aracode (Nilgiris)* – Mountain Forest ecosystem
2. *Vellode (Erode)* – Agriculture and wetlands
3. *Killai (Cuddalore)* – Mangroves and coastal fisheries.



**Community**

**Climate**

*Stewards are trained stakeholders including farmers, fishers, women, youth, and tribal elders who actively collect and interpret local environmental data under the CbMRV initiative.*

## 27) CIRCULAR ECONOMY OF BATTERIES

### Why in News?

India is implementing the Battery Waste Management Rules, 2022, which requires producers to meet collection and recycling targets under the Extended Producer Responsibility (EPR) framework.

### Battery Waste Management Rules, 2022

#### 1. Purpose & Coverage:

- Notified on **24th August 2022** by **MoEF&CC**.
- Ensures **environmentally sound management of waste batteries**.
- Applies to all battery types:
  - Electric Vehicle (EV) batteries
  - Portable batteries
  - Automotive batteries
  - Industrial batteries

#### 2. Extended Producer Responsibility (EPR):

- Producers/importers have **annual targets for collection, recycling, or refurbishment** of waste batteries.
- From **FY 2027-28** producers must use a **minimum percentage of domestically recycled materials** in new batteries.
- EPR certificates are **recognized only from registered recyclers**, encouraging **formalisation of informal sector**.

#### 3. Digital EPR Portal:

Centralized **online platform** for:

- Registration of producers and recyclers/refurbishers
- Exchange of EPR certificates
- Filing returns.

#### 4. Informal Sector Upgradation:

- To bring **informal battery recyclers into the formal system**, the government has started a **capacity-building project**.
- The project forms **recycling clusters** under the **MSME's Micro & Small Enterprises Cluster Development (MSE-CDP) scheme**.
- **Ministry of Electronics and Information Technology (MeitY)** is leading this effort to improve skills and infrastructure in the recycling sector.
- A **low cost lithium ion battery recycling technology**, developed by **CMET** (Centre for Materials for Electronics Technology) has been shared with recyclers and start-ups.
- This is aligned with **Mission LiFE's "Promote Circularity"** campaign, encouraging reuse and recycling.

#### 5. National Initiatives Supporting Battery Ecosystem:

- **PLI-ACC Scheme (2021):** National Programme on Advanced Chemistry Cell (ACC) Battery Storage.

*Target: 50 GWh ACC capacity*, encouraging domestic cell manufacturing.

- **Critical Mineral Recycling Incentive Scheme (Ministry of Mines):**  
Develop recycling capacity to extract **critical minerals** from e-waste and spent Li-ion batteries.

**6. Technology Collaboration :** MoUs have been signed between CSIR laboratories and recycling organisations to promote technology transfer and innovation in battery recycling.

## 28) SNOW LEOPARD POPULATION ASSESSMENT IN INDIA (SPAI)

### Why in News?

The **Ministry of Environment, Forest and Climate Change (MoEF&CC)** launched **SPAI 2.0 (Snow Leopard Population Assessment in India)** during **Wildlife Week 2025** to strengthen long term conservation of snow leopards.



### Survey Coverage & Methodology

- **Area covered: 1,20,000 km<sup>2</sup>**
- Covers **>70%** of India's potential snow leopard habitat
- **Two-stage scientific framework:**
  1. **Occupancy-based sampling** – spatial distribution
  2. **Camera-trap based estimation** – population abundance

### Policy & Conservation Framework

- **Species Recovery Programme** (A centrally sponsored scheme for the Development of Wildlife Habitats)
  - Snow leopard is **one of 24 priority species**
- National Snow Leopard Ecosystem Protection Priorities (**NSLEP**)
- Project Snow Leopard (**PSL**)
- SECURE Himalaya Initiative  
Focus: ecosystem protection, wildlife conservation, local livelihoods.

### Legal & Protection Status

- **Schedule I species** under **Wildlife Protection Act, 1972**
- Highest level of legal protection

## 29) UNITED NATIONS ENVIRONMENT ASSEMBLY (UNEA-7)

### Why in News?

The seventh session of the United Nations Environment Assembly (UNEA-7) took place from 8 to 12 December 2025 at the United Nations Environment Programme (UNEP) headquarters in Nairobi, Kenya.



### Highlights of the Resolution

- The theme was "**Advancing sustainable solutions for a resilient planet**".
- **India's resolution titled "Strengthening the Global Management of Wildfires" was adopted at the 7th Session.**
- Recognises **wildfires as a major global environmental challenge** intensified by:
  - Climate change
  - Rising temperatures
  - Prolonged droughts
  - Human activities
- Note that wildfires are no longer seasonal but **frequent and prolonged** events.

### Key Provisions of India's Resolution

The resolution aims to reinforce ongoing global activities under the Global Fire Management Hub and calls for:

- **Strengthened International Cooperation:** Development of early warning systems, risk assessment tools, and satellite and ground based ecosystem monitoring, besides promotion of community based alert mechanisms.
- **Enhanced Regional and Global Collaboration:** Mechanisms supporting

prevention, post response recovery, and ecosystem restoration.

- **Knowledge Sharing and Capacity Building** along with training
- **Support for National and Regional Action Plans:** Assistance to Member States in developing and implementing integrated fire management and wildfire resilience strategies.
- **Facilitating Access to International Finance:** Support to Member States in preparation of project proposals to access funding through multilateral mechanisms and results based schemes.

*The **Global Fire Management Hub**, established in 2023 by **Food and Agriculture Organization of the United Nations (FAO)** and **United Nations Environment Programme (UNEP)** was acknowledged as a key mechanism for supporting international efforts taken to coordinate international wildfire prevention and management.*

## 30) ARAVALLI RANGE

### Why in News?

The **Union Ministry of Environment, Forest and Climate Change (MoEF&CC)** has directed a **complete ban on new mining leases across the entire Aravalli Range** (from Delhi to Gujarat) to protect the ecosystem, prevent unregulated mining, and conserve biodiversity, groundwater, and soil.



### Role of ICFRE:

- **Indian Council of Forestry Research and Education (ICFRE)** is to identify additional areas where mining should be prohibited.
- Preparation of a comprehensive **Management Plan for Sustainable Mining (MPSM)** covering:
  - Cumulative environmental impact
  - Ecological carrying capacity
  - Identification of ecologically sensitive and conservation of critical areas
  - Measures for restoration and rehabilitation.
- The plan will be **science based** and **open for public consultation**.

### Existing Mines: rules involved

- States to ensure **strict compliance with environmental safeguards**.
- Ongoing mining activities to follow **Supreme Court orders** and **sustainable practices**.

## 31) SULPHUR CAVES

### Why in News?

Scientists recently discovered what is believed to be the **world's largest spider web** deep inside a **sulfur rich cave (Sulphur Cave)** located on the **border between Greece and Albania**.



### About

The structure is possibly the **largest known spider web on Earth**, covering a massive surface area of around 106 sq.m.

### Colonial web-building

- The web is built by **two species** *Tegenaria domestica* and *Prinerigone vagans* which are known from houses and forests.

### Unusual ecology

- The cave environment lacks sunlight and is rich in **hydrogen sulfide gas**, making it hostile to most life.
- The ecosystem is based on **chemoautotrophic bacteria** that oxidise sulfur, providing the base of a food web that sustains midges and spiders.( a food chain independent of sunlight.)

### Ecological Importance

#### 1. Chemoautotrophic Ecosystems

- In some extreme environments like lightless environment (e.g., deep caves or ocean vents), **microbial life gets energy from chemicals (like sulfur compounds)** instead of sunlight.

#### 2. Behavioural Adaptation in Species

- Two normally solitary spider species **coexisting and cooperating** in web building is a rare evolutionary behaviour, likely driven by **unique environmental pressures**

#### 3. Sulfur-Rich Environments

- Sulfur caves are named for **hydrogen sulfide gas**, which gives off a **rotten egg smell** and creates **toxic, low light habitats** where only specialised life thrives.

## SPECIES IN NEWS

### 32) GREAT NICOBAR WOLF SNAKE

#### Why in News?

A new species of wolf snake **Great Nicobar Wolf Snake (*Lycodon irwini*)** was recently discovered from Great Nicobar Island, highlighting the region's rich biodiversity and raising conservation concerns due to the proposed mega infrastructure project on the island.



#### About

*Lycodon irwini* is a **newly identified species of non-venomous wolf snake**, named after **Steve Irwin**, Australian wildlife conservationist.

Known from **only four recorded sightings**, this snake species indicates extreme rarity.

#### Key Features

- Belongs to the genus **Lycodon** (wolf snakes). Their genus name, *Lycodon*, comes from Greek words meaning "**wolf**" (lykos) and "**tooth**" (odon), directly referencing **these distinctive teeth**.
- Uniform glossy black colour skin
- Non-venomous and secretive in nature.
- Likely nocturnal and ground dwelling.
- Highly restricted distribution.

#### Habitat & Distribution

- **Endemic to Great Nicobar Island.**
- Found in **tropical evergreen rainforest** habitats.

- Associated with dense forest undergrowth and forest floor ecosystems.

#### Ecological Role

- Helps maintain **ecological balance** as a small predator.
- Indicator of **undisturbed forest ecosystems**.

#### Conservation Status

**IUCN Red List (proposed): Endangered**

### 33) GREAT NICOBAR CRAKE

#### Why in News?

A **potentially new species of crake**, tentatively named the **Great Nicobar Crake**, has been photographed only **three times in over a decade** on Great Nicobar Island, suggesting the presence of an undescribed bird species.



#### About

- Belongs to the **Rallidae family** (rails and crakes).
- Displays **distinct morphological features** not seen in known crake species.
- Small, elusive forest bird.
- Adapted to dense vegetation and forest undergrowth.
- Extremely shy and rarely sighted.

#### Habitat & Distribution

- Restricted to **Great Nicobar Island.**
- Inhabits **dense tropical rainforest floors**, wetlands, and thick undergrowth.

- Very narrow and poorly understood range.

### Ecological Role

- Part of the **forest floor bird community**.
- Contributes to insect control and ecosystem functioning.

### Conservation Status

- **Not yet assessed by IUCN** (species status under study).
- Major concerns:
  - Lack of data on population and biology
  - Habitat disturbance and loss

## 34) DUGONG

### Why in News?

Recent **fossil evidence from Al Maszhabiya, Qatar**, shows that **dugongs (sea cows)** have been shaping the **Persian Gulf ecosystem for over 20 million years**, highlighting their long term ecological role through “**sea cow engineering**”.



### About

- Dugong (*Dugong dugon*) is a **marine mammal**, commonly called the **sea cow**.
- It is the **only living species** of the family **Dugongidae**.
- Dugongs are **herbivorous**, feeding mainly on **seagrass meadows**.
- Fossils studied date back to the **early Miocene epoch**.

### Key Features

- Large, slow moving marine mammal with a **streamlined body**.
- Paddle like forelimbs and a **fluked tail**.

- Downturned snout adapted for grazing on seagrass.

- Long lifespan and low reproductive rate.

### Habitat & Distribution

- Shallow **coastal waters**, bays and lagoons.
- Strongly dependent on **seagrass ecosystems**.
- Present day distribution includes:
  - Indian Ocean
  - Western Pacific Ocean
  - Coastal waters of **India, Australia, Southeast Asia, and the Persian Gulf**

### Ecological Role

- Acts as an **ecosystem engineer** (“sea cow engineering”):
  - Grazing maintains healthy seagrass meadows
  - Prevents overgrowth and promotes nutrient cycling
- Seagrass beds support **carbon sequestration** and marine biodiversity.

### Fossil Findings Significance

- Dense beds of dugong bones suggest **repeated herd feeding** in the region.
- Indicates that the **Persian Gulf remained a dugong habitat across climatic changes**.
- Shows continuity of seagrass ecosystems even as dugong species evolved.

### Conservation Status

**IUCN Red List:** Vulnerable

**CITES:** Appendix I

**Wildlife Protection Act, 1972 (India):** Schedule I

## AGRICULTURE

### 35) AGMARKNET PORTAL

#### Why in News?

The Agmarknet Portal has been upgraded to Agmark net 2.0 in November 2025.

#### About

- **Agmarknet** is an online market information system developed under the **Marketing Research and Information Network (MRIN)** scheme, implemented since **2000** by the Government of India.
- *Administered by:* Ministry of Agriculture and Farmers Welfare
- Government has also launched the **Agmarknet 2.0 Mobile App** to improve farmer access to market data.

#### Key Features:

- Integrates **Agricultural Produce Market Committee (APMC) mandis** across the country.
- Provides **real time prices and arrival data** of agricultural commodities.
- Supports **transparent price discovery** for farmers.
- Continuous onboarding of new mandis (no fixed cap).

#### Agmarknet 2.0

Agmarknet 2.0 is the **upgraded digital version of the Agmarknet Portal**, designed to provide **accurate, real time, and field level mandi price and arrival data** to farmers and other stakeholders.

#### Salient Features of Agmarknet 2.0

##### 1. Real Time Data Collection

Price and arrival data entered **directly from mandis**.

- **On the spot data entry** reduces time lag and errors.

- Improves reliability of market information.

##### 2. Wider Mandi Coverage

- **4,367 mandis integrated** nationwide. Continuous integration of new mandis (dynamic expansion).

##### 3. Mobile Application (Agmarknet 2.0 App)

- Enables **field level data entry** by mandi officials.
- Farmers can:
  1. Check commodity wise prices
  2. View arrivals and trends
  3. Access data anytime via smartphones

##### 4. Commodity Coverage

- Covers **major agricultural commodities**, including:
  - Cereals
  - Pulses
  - Oilseeds
  - Fruits and vegetables
  - Spices

##### 5. Language & Accessibility

- Designed to be **farmer friendly**.
- Improves digital access in rural areas.
- Supports inclusive agricultural marketing

### 36) e-NATIONAL AGRICULTURE MARKET (e-NAM)

#### Why in News?

PIB reports that **1,522 mandis** have been onboarded on the **e-NAM platform** so far.

e-NAM continues to enhance **price transparency, online bidding, and e-payments** for farmers.



Free mobile based price information is available for **247 notified commodities**.

#### Key Characteristics:

1. Demand driven scheme (mandis onboarded based on State/UT proposals).
2. No fixed timeline or mandatory expansion target.
3. Enables online bidding for agricultural produce.
4. Facilitates e-payments directly to farmers.

#### Functional Features:

- Displays **real time mandi prices** of traded commodities.
- Allows farmers to:
  - Identify nearby e-NAM mandis
  - View prevailing prices
  - Access routes to mandis
- Provides **free mobile based price information** for **247 notified commodities**.

*e-NAM Mobile App:* Enables Price transparency, Market access information, Farmer friendly digital interface.

#### How Agmarknet 2.0 Complements e-NAM

- Agmarknet 2.0 - Market information system
- e-NAM - Market trading platform
- Agmarknet supports price discovery even in non-e-NAM mandis.
- e-NAM uses market data for online bidding and e-payments.

### 37) NATIONAL MISSION ON NATURAL FARMING (NMNF)

#### Why in News?

The Government of India is promoting sustainable, low cost, chemical free agriculture through the National Mission on Natural Farming (NMNF).

#### About

The mission aims to **scale up natural farming practices**, reduce dependence on chemical inputs, improve **soil health**, and support **farmer friendly certification and branding** of chemical free produce.

NMNF is part of India's broader push toward **eco-friendly, resource efficient, and resilient agricultural practices**.

#### Objectives of the Mission:

- To promote nature based sustainable systems of farming, enhancing usage of natural farming, bio inputs to reduce

dependency on externally purchased inputs and input cost reduction. To also improve soil health and have sustainable agriculture practices.

- To popularize **livestock** (preferably local breed of cow) **integrated agriculture** animal husbandry models.
- To strengthen on farm agro-ecological research and knowledge based extension capacities of ICAR institutions, Agricultural Universities, etc.
- To build **on-field experience** of practicing NF farmers and **scientific expertise** to thereby evolve & improvise location specific NF package of practices.
- To establish scientifically supported common standards and easy **farmer friendly certification procedures** for naturally grown chemical free produce.
- To create and promote a **single national brand** for naturally grown chemical free produce.

### 38) ESCROW ACCOUNT

#### Why in News?

From the Kharif 2025 season, States/UTs must deposit their part of crop insurance subsidies in **Escrow Accounts** before farmers can enrol in Pradhan Mantri Fasal Bima Yojana (PMFBY), ensuring **timely and transparent subsidy management**.

#### What are escrow accounts?

- A **special bank account** maintained by States/UTs to **deposit and manage their share of crop insurance premium subsidy** under PMFBY.
- Acts as a **holding account**, ensuring funds are released **only for intended purposes**.

#### Key Points

##### 1. Purpose of Escrow Account Mechanism

- States/UTs **commit their liabilities in advance** by depositing their **share of premium subsidy upfront**.
- Ensures **timely availability of funds** for crop insurance enrolment under PMFBY.
- Promotes **financial discipline, transparency, and accountability** in subsidy release.

##### 2. Operational Details

- **50% advance premium subsidy** to be deposited in the Escrow Account based on the previous season's premium.
- **Subsequent instalments** released according to seasonality guidelines.
- **Insurance companies** confirm receipt of deposit on the **National Crop Insurance Portal (NCIP)**.
- **NCIP enrolment** opens **only after confirmation** of advance premium deposit.

##### 3. Management & Banking

- Managed by **State/UT Agriculture and Horticulture Departments**.
- Accounts opened in **Scheduled Commercial Banks or Cooperative Banks**.
- Multi-party agreement between **State Department, Bank, and Insurance Companies** ensures smooth operations.

##### 4. Coverage Status so far

- **20 of 24 States/UTs onboarded**.
- **Andaman & Nicobar Islands, Manipur, Mizoram, and Sikkim** yet to open accounts

## SCIENCE & TECHNOLOGY

### 39) DHRUV64

#### Why in News?

The Ministry of Electronics and Information Technology (**MeitY**) announced the launch of **DHRUV64**.

#### About

- DHRUV64 is India's **first fully home-designed 1.0 GHz, 64-bit dual-core microprocessor**.
- It was developed by the **Centre for Development of Advanced Computing (C-DAC)** under the **Microprocessor Development Programme (MDP)**.
- It represents a major achievement in India's efforts to build **indigenous processor technology**.

#### Key features

- **64-bit architecture:** Handles large amounts of data efficiently.
- **Dual-core design:** Better performance and multitasking than single-core chips.
- Designed to integrate easily with various hardware systems.

Suitable for applications in:

- 5G networks
- Automotive systems
- Consumer electronics
- Industrial automation
- Internet of Things (IoT)

#### Significance

- India consumes nearly **20 % of the world's microprocessors**, and having homegrown chips helps secure **digital infrastructure** and critical systems.
- It provides a platform for **startups, academia, and industry** to design and test computing products without relying on foreign chips.
- DHRUV64 is part of the **Digital India RISC-V (DIR-V) Programme**, aimed at

making India a **global hub for electronics system design and manufacturing (ESDM)**.

- It is the **third chip** fabricated under DIR-V, following earlier designs like **THEJAS32** and **THEJAS64**.



### 40) KAVACH

#### Why in News?

Indian Railways accelerated the deployment of Kavach on major high-density and high-speed routes in recent months.

#### About

- Kavach is an **indigenous Automatic Train Protection (ATP) system** developed for Indian Railways.
- Its main purpose is to **prevent train collisions and over-speeding**, especially due to human error.
- Kavach was developed by **Indian Railways** in collaboration with **Indian industry and research organisations**.
- It is part of the **Atmanirbhar Bharat** initiative in railway technology.

#### Key features

- Prevents **head-on and rear-end collisions**.
- Automatically stops trains at **red signals** if the driver misses them.
- Controls **over-speeding**, even in poor visibility (fog, rain).
- Works with **radio communication and GPS-based location tracking**.

### How does Kavach work?

- Kavach continuously monitors:
  - Train speed
  - Signal status
  - Distance between trains
- If the driver fails to act, **Kavach automatically applies brakes** to avoid accidents.

### Significance

- Improves **railway safety** in one of the world's largest rail networks.
- Reduces accidents caused by **human error**, which is a major risk factor.
- Strengthens India's move towards **modern and intelligent rail systems**.



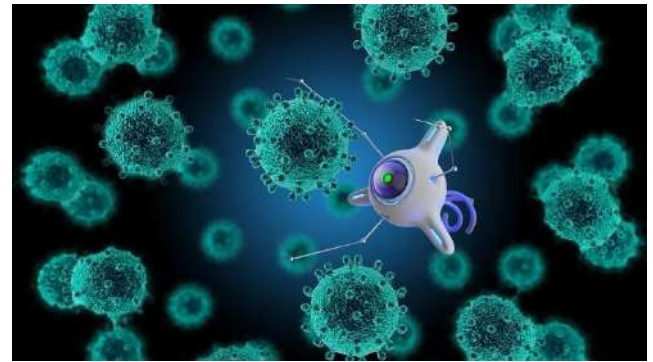
## 41) NANOBOTS

### Why in News?

Recent research shows the potential use of Nanobots in targeted cancer therapy and treatment of antibiotic-resistant infections.

### About

- Nanobots, also known as nanorobots or nanomachines, are **extremely small machines** that function at the nanoscale.
- Their **size is measured in nanometres**, where one nanometre is one-billionth of a metre.



### What are Nanobots made of?

Nanobots can be made using:

- Biocompatible **materials like Silica**
- **DNA-based structures**
- **Metals such as iron**, which help in magnetic control
- In some cases, made of living cells, (xenobots).

### How do they work?

They can be guided in different ways:

**Magnetic control:** External magnets are used to move or rotate the nanobots.

**Chemical reactions:**

- Nanobots move by reacting with chemicals around them
- Enzymes on their surface, help generate movement.

**Biological energy:**

- Some nanobots use Adenosine Tri-Phosphate(ATP), the energy used by living cells.
- DNA-based nanobots can move along fixed molecular paths.

**Sound or light energy:**

- Ultrasound or light pulses provide energy for movement.
- Tiny bubbles driven by ultrasound help push the nanobots.

### Applications

- **Targeted drug delivery:** Deliver medicines directly to diseased cells (such as cancer cells), reducing damage to healthy tissues.

- **Surgery and cell repair:** Perform micro-level surgical tasks like clearing clogged arteries, removing plaque, and repairing damaged cells (currently under experimental stage).
- **Diagnostics and medical imaging:** Act as biosensors to detect disease markers and help locate small or deep tumours during imaging tests like MRI.
- **Disease monitoring:** Continuously monitor internal body conditions, such as glucose levels in diabetic patients.
- **Environmental applications:** Remove pollutants and toxins from water at the molecular level.

## HEALTH

### 42) URBAN MALARIA

#### Why in News?

In December 2025, the **Malaria Elimination Technical Report, 2025** highlighted urban malaria as a **growing threat** to India's elimination goals.



#### About

- Recently, **India's Malaria Elimination Technical Report, 2025** flagged a new concern: **malaria is no longer just a rural disease.**
- It is **increasingly spreading in urban areas**, especially due to a particular mosquito that thrives in cities.
- The mosquito *Anopheles stephensi* spreads malaria in urban areas by breeding **in clean water**, household and

construction related water containers, **unlike rural malaria vectors that breed in natural water bodies.**

## SPACE

### 43) NASA-ISRO Synthetic Aperture Radar (NISAR)

#### Why in News?

ISRO announced that NISAR has shifted from just being in orbit to actively collecting and calibrating data.



#### About

- NISAR stands for **NASA-ISRO Synthetic Aperture Radar** - a **joint Earth-observation satellite mission** developed by the Indian Space Research Organisation (ISRO) [built the satellite body, one radar system, and launched it] and the U.S. space agency NASA [built the other radar system and provided advanced scientific support].
- It is designed to use **radar imaging** to map and monitor Earth's surface with very high precision.

#### Key Features

1. Uses **dual-frequency Synthetic Aperture Radar (SAR)**
  - SAR is a **special type of radar** that produces **very clear images** of Earth.
  - It does **not depend on sunlight.**

NISAR uses **two different radar frequencies:**

#### L-band:

- Has longer wavelength
- Can **penetrate vegetation, forests, and soil**

- Useful for studying forests, land movement, earthquakes
- **L-band radar** : provided by NASA

#### **S-band:**

- Has shorter wavelength
- Gives **detailed surface information**.
- Useful for agriculture, soil moisture, and crops
- **S-band radar** : provided by ISRO

2. **Operates in Sun-synchronous orbit** at around 747 km altitude, covering Earth every ~12 days.
3. Radar penetrates clouds and works day & night

#### **Significance:**

- Works **at night**
- Works **during monsoon**
- Can see through **clouds, smoke, and fog**

#### **Mission Objectives**

##### **1. Earth Surface Deformation**

Measures tiny movements (down to centimetres) such as:

- Earthquakes
- Volcanoes
- Land subsidence or uplift

These help disaster risk assessment.

##### **2. Cryosphere Monitoring**

Tracks changes in ice sheets and glaciers in polar regions.

##### **3. Ecosystem & Agriculture monitoring**

##### **4. Water and Coastal Monitoring**

## **44) GANNON'S SOLAR STORM**

### **Why in News?**

Indian scientists published new scientific findings about the powerful solar storm of May 2024, known as **Gannon's Storm**, based on data from India's solar mission Aditya-L1.

### **About**

A solar storm is a **disturbance in space caused by intense activity on the Sun**.

It mainly involves:

- **Solar flares** : Sudden bursts of energy and radiation
- **Coronal Mass Ejections (CMEs)** : Huge clouds of charged particles and magnetic fields thrown out from the Sun

When these reach Earth, they **interact with Earth's magnetic field, causing disturbances called geomagnetic storms**.

### **Effects of Solar Storms**

- Satellite damage
- GPS and communication disruptions
- Intense auroras (Northern/Southern Lights)

### **Gannon's Solar Storm**

- Gannon's Solar Storm refers to an **extremely powerful geomagnetic storm** that struck Earth in May 2024.
- It was the **strongest solar storm in over 20 years**.
- It **occurred during the peak phase of Solar Cycle 25**, when the Sun is highly active.
- Gannon's Storm was caused by **multiple CMEs interacting with each other**.

### **CME-CME Interaction:**

Two massive coronal mass ejections were released from the Sun one after another.

They collided and merged, forming a much stronger and more complex storm system.

This process **dramatically amplified the storm's power**.

### **Findings of Aditya L-1**

- The storm was caused by **two coronal mass ejections (CMEs)** that collided on their way from the Sun to Earth.

- Inside the merged CMEs, *magnetic reconnection* took place. This means **magnetic field lines snapped and rejoined, releasing large amounts of energy and strengthening the storm.**
- Such magnetic reconnection inside a CME had never been mapped so clearly before.
- Aditya-L1's measurements **helped scientists see and map this process** in detail.
- The reconnection region was enormous; about **1.3 million km across, nearly 100 times the diameter of Earth.** This showed how large and complex the internal magnetic changes were.

#### 45) BLUEBIRD BLOCK-2 MISSION

##### Why in News?

BlueBird Block-2 was in the news after **ISRO's LVM3 successfully launched the heavy commercial satellite in December**, enabling direct space-based mobile connectivity and boosting India's commercial space credentials.



##### About

- BlueBird Block-2 is a **commercial communication satellite launched by ISRO** for the US company AST SpaceMobile.
- It was launched in December **using ISRO's heavy-lift rocket LVM3** from Sriharikota.
- The satellite is **placed in Low Earth Orbit (LEO)** and is among the **heaviest commercial satellites launched by India.**
- It operates without the need for ground towers, special antennas, or additional hardware.
- The mission **highlights India's growing capability in commercial satellite launches** and global space services.

##### Mission Details

##### Launch Vehicle: LVM3-M6

- LVM3 (Launch Vehicle Mark-III) is ISRO's **heavy-lift rocket**, capable of carrying very heavy satellites.
- The **M6** indicates its **sixth operational mission**, showing the rocket's reliability and maturity.

##### Client: AST SpaceMobile, USA

ISRO launched it as a **paid commercial service** through **NSIL**(NewSpace India Limited), India's space-commercial arm.

#### 46) ANTARIKSH PRAYOGSHALA

##### Why in News?

IN-SPACe released a Request for Proposal (RfP) in December to set up Antariksh Prayogshala (Space Labs) in selected academic institutions across India.

##### About

- Antariksh Prayogshala is an initiative to **establish advanced space laboratories** in Indian academic institutions.

- These labs will give **students hands-on practical training** in space science and space technology.
- It is launched by IN-SPACe (Indian National Space Promotion and Authorisation Centre).



### Key Features

- **First space lab initiative** in India's academic ecosystem.
- Focus on **practical learning**, not just theory.
- Labs can also be used by **Non-Government Entities (NGEs)** in the respective regions.

### Objectives

- To **create a skilled workforce** for India's expanding space sector.
- To **strengthen industry-academia collaboration** in space research and innovation.
- To support India's ambition of becoming a leading global space economy.

## 47) GEMINID METEOR SHOWER

### Why in News?

The Geminid meteor shower peaked in mid-December, making it one of the most visible astronomical events of the month.



### About

- The Geminid meteor shower is an **annual celestial event** during which many meteors appear to originate from the **constellation Gemini**.
- It occurs every year between **early to mid-December**, with peak activity around **December 13-14**.
- Geminids are caused when Earth passes through debris left by **asteroid 3200 Phaethon**.
- As these tiny particles enter Earth's atmosphere at high speed, they **burn up and create bright streaks of light**.
- Best seen from the **Northern Hemisphere**, including India.
- They appear **bright, slow-moving, and sometimes multicoloured**, making them easy to observe with the naked eye.

### Unique Feature

- Unlike most meteor showers that come from **comets**, Geminids originate from an **asteroid**.
- This makes Geminids **scientifically unique** among major meteor showers.

## DEFENCE

### 48) INS TARAGIRI

#### Why in News?

The Indian Navy received 'Taragiri', the **fourth Nilgiri-class (Project 17A)** frigate, on 28 November 2025. The delivery marks a major milestone in Aatmanirbhar Bharat and indigenous warship construction.

#### About



- The **ship is a versatile multi-mission, advanced stealth frigate**, designed to operate across air, surface, sub-surface and electronic warfare domains.
- It is a reincarnation of the erstwhile INS Taragiri, a Leander-class frigate that served the Indian Navy from 1980 to 2013.
- It is **fitted with BrahMos Surface-to-Surface Missiles (SSM)**.
- The ship is **equipped with** (Multi-Function Surveillance Track And Guidance) MF-STAR **Radar** and **Medium Range Surface-to-Air Missile defence system**.
- It carries a 76 mm Super Rapid Gun Mount (SRGM).

#### Project 17A (Nilgiri Class)

*The project represents a generational leap over earlier frigates in terms of stealth, survivability, automation and combat capability. It has an indigenisation content of about 75%.*

*(Refer August Pulse)*

### 49) BUREAU OF PORT SECURITY (BoPS)

#### Why in News?

Union Home Minister convened a meeting for the constitution of a dedicated body, BoPS for ensuring the security of vessels and port facilities.

#### About

- The Bureau of Port Security (BoPS) shall be constituted as a **statutory body, under Section 13 of the newly promulgated Merchant Shipping Act, 2025**.
- It shall function under the aegis of the **Ministry of Ports, Shipping and Waterways**.
- It shall be headed by a Director General, who will be an IPS officer of Pay Level-15.
- The Bureau is being **modelled on the lines of the Bureau of Civil Aviation Security**.

#### Functions

- It shall be responsible for **regulatory and oversight functions** related to the security of ships and port facilities.
- It shall ensure timely analysis, collection and exchange of security-related information.
- The Bureau will place special emphasis on cyber security, including the creation of a dedicated division to protect port IT infrastructure from digital threats.

### 50) ANTI TERRORISM CONFERENCE 2025

#### Why in News?

National Investigation Agency (NIA) under **Ministry of Home Affairs** has organised the Anti – Terrorism Conference.

## About

- The conference is an **annual platform** under the **vision of zero-tolerance against terrorism**.
- It aims to analyse terrorist incidents and strengthen India's counter-terrorism capabilities.

## New Initiatives were launched:

- The Organised Crime Network Database.
- The Lost/Looted and Recovered Weapon Database.
- Also, Updated crime manual prepared by the NIA.
- A **common Anti-Terrorism Squad (ATS) structure** for police forces across the country was emphasised as extremely essential.
- States' ATS units were **advised to use NIDAAN and NATGRID** to uncover hidden links in investigations.

### NIDAAN

*It is a **centralised database** for counter-terrorism, tracking criminals, terrorists, and organised crime networks. It identifies suspect links, enables proactive policing, and integrates Central/State data for threat anticipation, coordination, and uniform investigations.*

### NATGRID

*It is an **integrated intelligence platform** post-26/11 Mumbai attacks. It links telecom, banking, immigration, aviation, and railway databases for real-time access by authorised agencies.*

*NOTE: NATGRID provides authorized agencies **real-time access** to sectoral databases, while NIDAAN is a centralized **database** for tracking criminals, terrorists, and crime networks.*

## 51) RESERVATION OF AGNIVEERS

### Why in News?

The Union Ministry of Home Affairs (MHA) has **increased the reservation** for ex-Agniveers in constable recruitment in the Border Security Force (BSF) **from 10% to 50%**.

### About

- 50% of **direct recruitment** vacancies in **BSF constable posts** shall be reserved for ex-Agniveers in every recruitment year.
- Ex-Agniveers **will be exempted from the Physical Standard Test (PST) and Physical Efficiency Test (PET)** during recruitment. Still need to give written examination.
- Recruitment for the 50% vacancies reserved for ex-Agniveers will be conducted initially by the designated Nodal Force.
- Recruitment for the remaining vacancies, including unfilled ex-Agniveer posts, will be conducted by the Staff Selection Commission.

### AGNIPATH Scheme

- It is a short- term **recruitment scheme** for the **Indian Armed Forces**.
- It provides an opportunity for **young citizens (17.5 – 23 years)** to serve in the Army, Navy and Air Force as **Agniveers**.
- They will be recruited as personnel below officer (PBOR) rank, including six months of training.
- The scheme aims to create a more youthful, agile and technologically adept armed forces.
- Tenure of Service:
  - **Period of four years**, which includes training and active service.
  - After that, up to **25% of Agniveers may be selected for regular**

**service** in the armed forces based on organisational requirements and performance.

- On completion of the four-year tenure, Agniveers **will receive a Seva Nidhi package** (this amount is exempt from Income Tax).
- They are paid a customised monthly package during their four-year engagement.
- They are entitled to **risk and hardship allowances** as applicable in the armed forces.

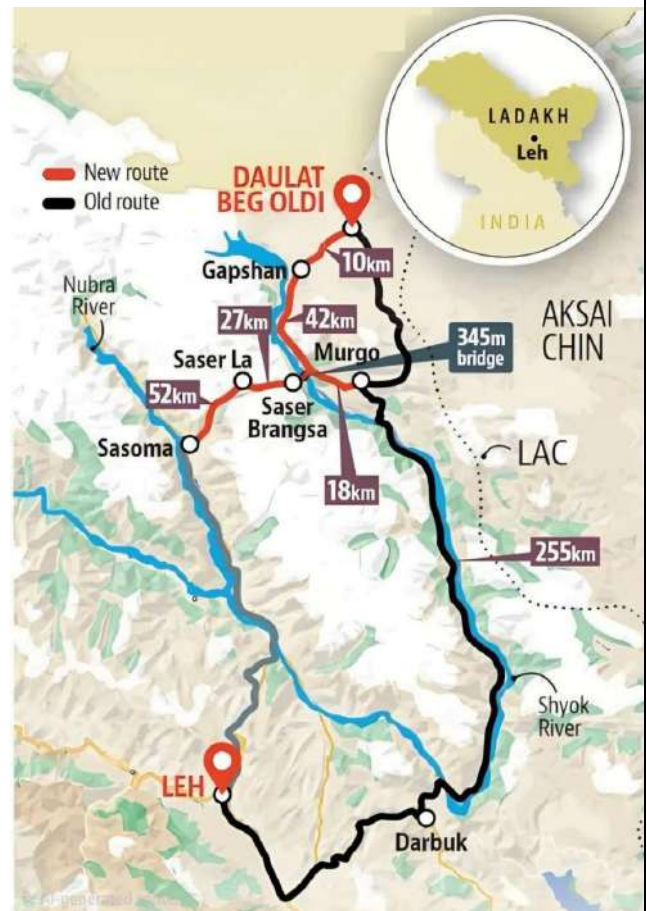
## 52) SHYOK TUNNEL

### Why in News?

Defence Minister has inaugurated Shyok tunnel, as part of Border Roads Organisation (BRO) Projects.

### About

- The tunnel aims to provide **all-weather connectivity to Daulat Beg Oldi (DBO)**, one of India's northernmost border outposts near the India–China Line of Actual Control (LAC).
- Strategic Context:
  - **Location:** Eastern Ladakh
  - **South:** Connected to the main Ladakh plateau and Leh.
  - **North:** Leads toward the DBO airstrip and forward border areas.
- It is intended to bypass stretches prone to flooding caused by the **Shyok River**.
- The project will **ensure uninterrupted movement** of troops, equipment and supplies.
- It will significantly **enhance operational logistics** for the Indian Armed Forces.
- The tunnel will **reduce travel time** and vulnerability during adverse weather conditions.



### Border Roads Organisation (BRO)

Established in 1960, under the Ministry of Defence. Builds and maintains roads, bridges, tunnels, and airstrips in India's border areas. It ensures strategic mobility for armed forces, all-weather connectivity in remote regions, and disaster relief support.

## 53) NOTABLE EXERCISE

### EXERCISE HARIMAU SHAKTI

- Fifth edition of Exercise "Harimau Shakti-2025" is a bilateral military training exercise **between India and Malaysia**.
- The exercise aims to jointly rehearse **Sub-Conventional Operations** under Chapter VII of the United Nations mandate.
- It seeks to **enhance synergised** responses during counter-terrorist operations.

### EXERCISE EKUVERIN

- 14th edition of the Exercise EKUVERIN 2025 is a bilateral military exercise between **India army and the Maldives National Defence force**.
- The term 'Ekuverin' in Dhivehi(Maldivian Language) means 'Friends'.
- The exercise aims to enhance **interoperability and operational synergy in Counter-Insurgency (CI) and Counter-Terrorism (CT) operations**.
- Training will be carried out across jungle, semi-urban and coastal terrains.

### EXERCISE EKATHA

- 8th edition of Exercise Ekatha is an annual bilateral **maritime exercise** between the **Indian Navy and the Maldives National Defence Force (MNDF)**.
- Key activities included technical and combat diving, boarding operations, firing drills, demolition and explosive handling, asymmetric warfare tactics, and special helicopter-borne operation drills.

### EXERCISE DESERT CYCLONE II

- Second edition of Exercise DESERT CYCLONE-II, is between the **United Arab Emirates (UAE) and India**.
- The exercise aims to enhance interoperability between the Indian Army and the UAE Land Forces.
- It seeks to foster defence cooperation through joint training in an urban environment.

## INTERNATIONAL RELATIONS

### 54) 23RD INDIA-RUSSIA ANNUAL SUMMIT

#### Why in News?

The 23rd India-Russia Annual Summit was held in New Delhi on December 4–5, 2025. Prime Minister Narendra Modi and Russian President Vladimir Putin signed 16 agreements covering defence, trade, energy, and connectivity.

This year marks the **25th anniversary** of the "**Strategic Partnership**" declaration (signed in 2000).



#### Key Agreements & Outcomes

- **Economic Cooperation Programme 2030:** A strategic document adopted to diversify trade beyond energy and defense.
- **Visa Facilitation:** India announced a **free 30-day e-tourist visa** and **Group Tourist Visa** for Russian citizens to boost tourism.
- **International Big Cat Alliance (IBCA):** Russia formally adopted the Framework Agreement to join the **IBCA** (launched by India).
- **Kudankulam:** Reaffirmed cooperation for the **Kudankulam Nuclear Power Plant (KKNPP)** units and future high-tech nuclear applications.

#### Strategic Connectivity

- **Chennai-Vladivostok Maritime Corridor:**

- **Route:** Connects Chennai (East Coast of India) to Vladivostok (Russian Far East) via the **Strait of Malacca** and **South China Sea**.
- **Significance:** Reduces travel time to **24 days** (compared to 40 days via Suez Canal).

- **Northern Sea Route (NSR):**

- **Route:** Runs along Russia's Arctic coast from the Kara Sea to the Bering Strait.
- **Agreement:** India and Russia signed an MoU for training Indian seafarers in **polar navigation**, signalling India's entry into Arctic logistics.

- **INSTC (International North-South Transport Corridor):**

- **Route:** Multi-modal network connecting **India (Mumbai)** to **Iran (Bandar Abbas)** to **Azerbaijan** to **Russia (Moscow/St. Petersburg)**.
- **Status:** Agreements were signed to digitize cargo data to remove bottlenecks.

#### Institutional Framework

- **IRIGC (India Russia Inter-Governmental Commission)**

Two primary bodies drive cooperation:

1. **IRIGC-TEC:** For Trade, Economic, Scientific & Cultural cooperation (Co-chaired by External Affairs Minister).
2. **IRIGC-M&MTC:** For Military & Military-Technical Cooperation (Co-chaired by Defence Minister).

### Comparative: India's Nuclear Partners

- **Russia:** Only country currently building nuclear reactors in India (Kudankulam).
- **USA:** Civil Nuclear Deal signed in 2008, but **zero** commercial reactors built yet (Westinghouse project in Kovvada is stuck).
- **France:** Deal signed, but Jaitapur project (EDF) is still in negotiation phase.

### 55) INDIA-NEW ZEALAND FREE TRADE AGREEMENT

#### Why in News?

India and New Zealand have concluded negotiations for a comprehensive Free Trade Agreement (FTA).

#### Significance

It is India's first FTA with a "Five Eyes" intelligence alliance member and includes a unique **\$20 Billion investment commitment** from New Zealand.

**Goal:** To **double** bilateral trade within 5 years (Current: ~\$2.4 Billion).



#### Key Highlights: Goods & Tariffs

- **Zero Duty for India:** New Zealand has agreed to eliminate customs duties on **100%** of Indian exports (Textiles, Leather, Pharmaceuticals, Engineering goods) immediately upon entry into force.
- **India's Offer:** India will liberalize tariffs on **70%** of its tariff lines (covering 95% of bilateral trade).

- **The "Negative List" (Exclusions):** India has **completely excluded** its most sensitive sectors to protect domestic interests:
  - **Dairy:** Milk, cream, cheese, yogurt, and whey are **excluded** (No duty cuts).
  - **Agriculture:** Sugar, spices, edible oils, onions, and most animal products (except sheep meat).

#### Services & Mobility

- **Student Mobility:**
  - **No Numerical Caps** on Indian students.
  - **Post-Study Work Rights:** Increased to **3 years** for STEM graduates and **4 years** for PhDs.
- **Work Visas:**
  - **Temporary Employment Entry (TEE):** A dedicated quota of **5,000 visas** for Indian professionals (at any given time) in sectors like IT, Nursing, and Engineering.
  - **Cultural Visas:** Specific inclusion for **Yoga Instructors, Indian Chefs, and Ayush Practitioners.**
  - **Working Holiday Visa:** 1,000 visas annually for young Indians to travel and work.

#### Strategic Investment Pillar

- **The \$20 Billion Pledge:** Similar to the **India-EFTA deal**, New Zealand has committed to facilitate **\$20 billion** in investment into India over the next 15 years.
- **Rebalancing Mechanism:** India can suspend FTA benefits if this investment target is not met.

### 56) INDIA-OMAN CEPA

#### Why in News?

On December 18, 2025, India and Oman signed the Comprehensive Economic

Partnership Agreement (CEPA) in Muscat during Prime Minister Narendra Modi's visit.

### Significance

- This is India's **second** trade agreement with a Gulf Cooperation Council (GCC) country, following the **India-UAE CEPA (2022)**.
- Oman is a member of the GCC and had earlier signed a Free Trade Agreement with the United States in 2006. After nearly 20 years, Oman has chosen India as only the second country for such an



agreement.

### Key Highlights of CEPA

- **Duty-Free Access for India:** Oman has eliminated customs duties on **98% of its tariff lines**, covering **99.38%** of India's exports by value.
  - **Beneficiary Sectors:** Textiles, Gems & Jewellery, Leather, Automobiles, Pharmaceuticals, and Engineering goods (which previously faced 5% duty).
- **India's Concessions:** India offered duty concessions on **77.8% of its tariff lines**, covering ~95% of imports from Oman (mainly petrochemicals, dates, and marble).
- **The "Negative List" (Exclusions):** To protect domestic interests, India has **excluded** sensitive sectors from duty cuts:
  - **Dairy**, Tea, Coffee, Rubber, Tobacco.

- **Gold & Silver Bullion** (crucial difference from UAE CEPA where Gold got some concession).
- **Footwear and Sports Goods.**

### Services & Investment

- **100% FDI:** Oman has agreed to allow **100% Foreign Direct Investment (FDI)** by Indian companies in key service sectors like Computer Services, Education, and Health.
- **Mobility of Professionals (Mode 4):**
  - **Intra-Corporate Transferees:** Quota increased from 20% to **50%**.
  - **Contractual Service Suppliers:** Stay duration extended from 90 days to **2 years**.

### Oman's Strategic Position and Oil Alliance

- **OPEC Membership:** Oman is **not a full member of OPEC** but participates in the broader **OPEC+ alliance** of oil-producing countries.
- **Strait of Hormuz:** This vital waterway lies between **Oman's Musandam Peninsula and Iran**. Importantly, the tip of the peninsula that controls the strait is **Omani territory**, not part of the UAE.

## 57) INDIA - JORDAN RELATIONS

### Why in News?

Prime Minister Narendra Modi visited **Jordan** on December 15–16, 2025. This was his first "full-fledged" bilateral visit to the country (previous visit in 2018 was a transit to Palestine).



### Key Agreements signed

During the visit, **5 MoUs** were signed, with a focus on heritage and digital infra:

1. **Twinning Agreement:** Between the historic city of **Petra** (Jordan) and **Ellora Caves** (Maharashtra, India) to promote tourism and archaeological cooperation.
2. **Digital Solutions:** Letter of Intent to share India's "Population Scale Digital Solutions" (India Stack) with Jordan, including linking Jordan's payments with **UPI**.
3. **Water Resource Management:** Crucial for Jordan, which is one of the most water-scarce nations.
4. **Renewable Energy:** Technical cooperation in solar/wind energy.
5. **Cultural Exchange Programme:** Renewed for 2025–2029.

### Strategic Economic Pillar: Fertilizers

- **"Fertilizer Security":** Jordan is a critical partner for India's food security as it is a leading global supplier of **Phosphates** and **Potash**.
- **Joint Ventures:**
  - **JIFCO (Jordan India Fertiliser Company):** A JV between IFFCO (India) and JPMC (Jordan) to produce Phosphoric Acid.

- **Trade Status:** India is Jordan's **3rd largest** trading partner. Target set to reach **\$5 Billion** trade by 2030.

### Science & Tech

- **IJCOEIT:** The **India-Jordan Centre of Excellence in IT** is located in Amman.
- **Supercomputer:** It houses the Supercomputer **PARAM Shavak**, developed by C-DAC (India).

## 58) INDIA - ETHIOPIA RELATIONS

### Why in News?

Prime Minister Narendra Modi visited **Ethiopia** (Addis Ababa) on December 16, 2025. The bilateral relationship was formally elevated to a **"Strategic Partnership"**.

### Key Agreements & Outcomes



The visit resulted in **multiple outcomes** covering defense, economy, and healthcare:

- **Debt Restructuring (Crucial):** India signed an MoU on **Debt Restructuring** for Ethiopia under the **G20 Common Framework**.
- **Customs Cooperation:** Agreement signed for mutual administrative assistance in customs matters (to boost trade efficiency).
- **UN Peacekeeping:** An "Implementing Arrangement" was signed for cooperation in **UN Peacekeeping Operations (UNPKO)** training.
  - *Note:* Both India and Ethiopia are among the largest troop

contributors to UN missions in Africa.

- **Data Centre:** India will help establish a Data Centre at Ethiopia's **Ministry of Foreign Affairs**.
- **Healthcare:** India committed to augmenting the capacity of the **Mahatma Gandhi Hospital** in Addis Ababa (focus on Maternal & Neonatal care).

## PLACES IN NEWS

### 59) BLACK SEA

#### Why in News?

Oil spill was triggered by a storm which damaged oil tankers near **Kerch Strait** which released thousands of tons of **heavy fuel oil, known as mazut**, into the sea.

#### About



- It is a **large inland sea** located in the **southeastern part of Europe**.
- It is bordered by **Russia to the east, Ukraine to the north, Turkey to the south, Bulgaria and Romania to the west, and Georgia to the east**.
- The **Crimean Peninsula** projects into the sea from the northern side.
- The sea is connected to the **Aegean Sea and the Mediterranean** through a chain of narrow waterways viz, the **Bosphorus Strait, the Sea of Marmara, and the Dardanelles Strait** while the **Kerch Strait** provides a link to the **Sea of Azov**.

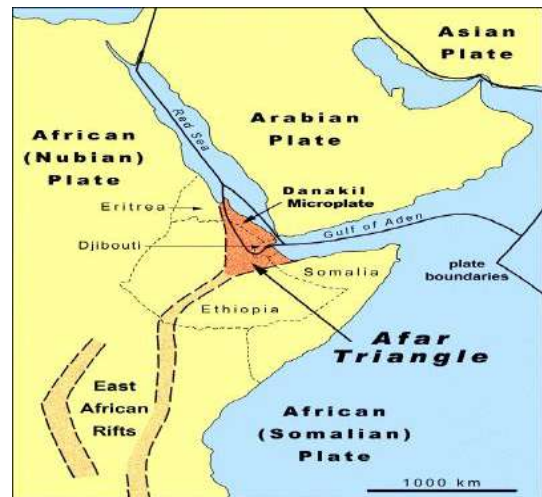
The sea exhibits **relatively low salinity** compared to the world's oceans, owing to its limited exchange with the Mediterranean and the inflow of several large rivers, notably the **Danube, Dnieper, Southern Bug, and Rioni**.

### 60) AFAR REGION

#### Why in News?

Ethiopia's Afar Region is featured for ground-breaking paleo-anthropological discoveries, like a 1.5-million-year-old fossil shedding light on early human migration.

#### About



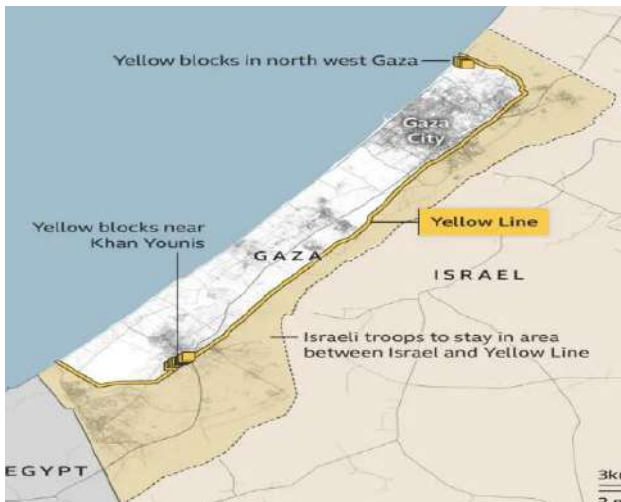
- The Afar Region forms part of a distinctive geological zone characterized predominantly by desert scrubland, interspersed with shallow saline lakes and extensive chains of volcanoes.
- The Awash River valley defines the southern extent of this area.
- Its terrain is shaped by **deep rift valleys, volcanic plateaus, and widespread fissures**, clearly illustrating the powerful tectonic forces actively modifying the Earth's crust.
- It holds immense paleo-anthropological significance, being renowned for **early hominid fossil discoveries**, most notably **'Lucy' (Australopithecus afarensis)**, unearthed in 1974.

### 61) YELLOW LINE

#### Why in News?

The Israeli military chief called the yellow line between Israel and Gaza as the new border.

## About



- The **Yellow Line** denotes the boundary up to which **Israeli forces have withdrawn** in accordance with the **U.S. backed ceasefire of 2025**.
- It effectively **bisects Gaza**, separating the **Israeli-controlled eastern zones** from the **Palestinian-administered western areas**.
- Rather than formally bisecting Gaza, the Yellow Line functions as a provisional ceasefire line, lacking legal recognition as a political border.

## ORGANISATIONS

### 62) INTERNATIONAL ORGANIZATION FOR MARINE AIDS TO NAVIGATION (IALA)

#### Why in News?

Recently, Sarbananda Sonowal inaugurated the 3rd Global IALA Council Session in Mumbai and launched a digital portal for lighthouse tourism to promote marine navigation and tourism.

#### About

- The **International Organization for Marine Aids to Navigation** (formerly IALA) aims to standardize marine navigation aids globally to promote safe, efficient, and environmentally sustainable vessel movement.
- It was **established in 1957** as a non-governmental, not for profit international technical association called the **International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)**.
- **Governance:** The IALA Council is the **key decision-making body** of the intergovernmental organization responsible for marine aids to navigation.
- Its work includes the development of standards, recommendations, guidelines, and model courses for marine aids to navigation and vessel traffic services.
- Key achievements include:
  - The IALA Maritime Buoyage System (IALA MBS)
  - Differential GPS System (DGPS)
    - o Automatic Identification System (AIS)
  - VHF Data Exchange System (VDES)
  - Development of Vessel Traffic Services (VTS)

- IALA has also assisted developing countries in establishing aids to navigation networks based on the risk level of waterways.
- IALA officially became an **Intergovernmental Organization (IGO) in 2024** following a convention ratified by 34 states.
- **Members:** It comprises 200 members, 80 of which are national authorities and 60 are commercial firms. (India has been a member of this organization since 1957).
- **Headquarters:** Saint-Germain-en-Laye, France.
- **Motto:** Successful Voyages, Sustainable Planet.

### 63) INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)

#### Why in News?

Recently India highlighted its contributions to sustainable rural development and women's empowerment at the **IFAD-India Day** in Rome, celebrating its long-term collaboration with the International Fund for Agricultural Development (IFAD).

#### About

- IFAD is an **international financial institution** and a **specialized agency of the United Nations**, established in **1977** through a **UN General Assembly resolution**.
- Its main goal is to **eradicate poverty and hunger in rural areas** of developing countries by **empowering rural populations**, increasing food security, improving nutrition, and promoting sustainable livelihoods.

- It committed to **focus 30% of its climate finance** to support nature-based solutions in rural small-based agriculture by 2030.
- **Headquarters:** Rome, Italy.
- **Membership:** IFAD has **180 member states**, including India, which is a **founding member** and one of its largest contributors.
- **Reports:** Rural development report annually

### Governing Council

It is the highest decision making body and meets annually while reviewing IFAD's resources for three years(replenishment).

- **Programmes & Projects:** IFAD implements projects in **remote, environmentally fragile locations**, including **least developed countries and small island developing states**.
- Its work includes giving grants supporting **research, innovation, institutional change and pro-poor technologies**.
- There are two types of grants: **global/regional grants** and **country specific grants**.
- IFAD is a member of the **United Nations Sustainable Development Group (UNSDG)**.

### India-IFAD Partnership:

- India has a **long-standing partnership** with IFAD, jointly implementing **36 rural development projects** worth **US\$4.4 billion**, including **US\$1.5 billion** from IFAD.
- Current projects include improving **market access for rural enterprises, women's employability and income generation, climate resilience for small farmers** and **reducing rural migration**.
- India's model of **women's collectives** has become globally recognized for **community led development**.

- India plays a leading role in **South-South and Triangular Cooperation**, sharing expertise in **rural institution building, value chain development, and climate smart agriculture**.
- IFAD India collaboration emphasizes **inclusive, sustainable, and community driven growth**, enabling rural communities to lead their own development.

## 64) UNITED NATIONS ALLIANCE OF CIVILIZATIONS (UNAOC)

### Why in News?

Recently India reaffirmed the ideals of *Vasudhaiva Kutumbakam* and religious harmony at the 11th UNAOC Forum held in Riyadh, emphasizing dialogue, mutual respect, and global peace.

### About

- The **United Nations Alliance of Civilizations** was established in **2005** as a joint initiative of **Türkiye and Spain** with its **Secretariat based in New York, USA**.
- It was created to address growing polarization, intolerance, and misunderstandings among societies and cultures at the global level.
- The main aim of UNAOC is to **promote intercultural dialogue, mutual understanding, and cooperation among diverse societies**.
- It seeks to **reduce polarization, prevent conflict, counter extremism, and strengthen social cohesion** by encouraging inclusive and respectful engagement between different cultures and communities.

### Functions and Key Areas

- UNAOC works by building a **global network of partners** including governments, international and regional

organizations, civil society groups, foundations, and the private sector.

- Its initiatives focus on key areas such as **education, youth engagement, migration, media, and the role of women in peacebuilding** which are crucial for improving cross cultural relations and preventing conflict.

### **Significance**

- As the **premier UN platform for intercultural dialogue**, UNAOC plays an important role in fostering tolerance, cooperation, and peaceful coexistence in an increasingly interconnected and diverse world.

## REPORTS AND INDICES

### 65) INDIA EMPLOYMENT PROSPECTS REPORT 2025

#### Why in News?

The National Council of Applied Economic Research (NCAER) released a study titled “India’s Employment Prospects: Pathways to Jobs” on 11 December 2025.

#### NCAER

- The National Council of Applied Economic Research (NCAER) is **India’s oldest and largest independent economic policy research institute, established in 1956.**
- It conducts rigorous economic analysis combined with data collection capabilities through large scale surveys to inform government and private sector decisions.

#### Highlights of the Report

- Employment growth in India is mainly driven by a rise in **self-employment**, while the transition towards a **skilled workforce remains slow.**
- India’s self-employment dominance reflects **economic necessity rather than entrepreneurial dynamism**, with most small enterprises operating at **subsistence levels.**
- Strengthening employment opportunities in **labour intensive manufacturing and services sectors** can help sustain **GDP growth of around 8%** - consistent with the vision of **Viksit Bharat.**
- Enterprises adopting **digital technologies hire 78% more workers** compared to enterprises not using technology.
- Even a **1% increase in access to credit** increases the expected number of hired workers by **45%** - highlighting the importance of financial inclusion for job creation.

- The report recommends **reorienting Production Linked Incentive (PLI) schemes** towards labour intensive industries such as **textiles, garments, footwear and food processing.**

**Production Linked Incentive (PLI) Schemes:** A government initiative that provides financial incentives to domestic manufacturers based on incremental production to boost ‘Make in India’, attract investment, generate jobs, and enhance exports.

**Labour-intensive sectors** are industries or economic activities that primarily rely on human labour rather than capital or machinery for production.

**Viksit Bharat** is India’s vision to become a developed nation with strong economy, modern infrastructure, and improved citizen welfare.

### 66) WORLD INEQUALITY REPORT 2026

#### Why in News?

The **World Inequality Report 2026** is in the news as it has been **released by the World Inequality Lab.**

#### World Inequality Lab

- The **World Inequality Lab (WIL)** is an international research organization that studies economic and social inequalities both within and between countries.
- It manages the **World Inequality Database (WID)**- the most extensive open access, public database on the historical evolution of global inequality.

#### Highlights of the Report

- WIR 2026 expands the focus to new dimensions of inequality, including **climate and wealth, gender disparities, unequal access to human capital, global financial asymmetries, and territorial divides affecting democratic politics.**
- **Extreme wealth concentration:** The **wealthiest 0.001%** control **3 times**

**more wealth** than half of humanity combined.

- **Human Capital Gap:** Education spending per child in Sub-Saharan Africa is **40 times lower** than in North America (€220 vs €9,020), a disparity three times wider than the per capita GDP gap.
- The report highlights that **contributions to climate change are uneven**, with the wealthiest 10% of individuals responsible for 77% of emissions from private capital ownership and 47% of emissions from consumption.
- Gender inequality is **amplified when unpaid domestic and care labour is considered** as women earn only 32% of men's earnings per working hour, compared to 61% when unpaid labour is excluded.
- At the international level, the **global financial system reinforces inequality**, with wealthy nations benefiting from an "exorbitant privilege," causing around 1% of global GDP to flow from poorer to richer countries annually.

*Exorbitant privilege is the advantage a country enjoys by issuing the global reserve currency, borrowing and trading internationally at lower costs.*

*Human capital gap is the shortfall between workforce skills and education and those required for economic growth and development.*

*Climate responsibility gap refers to the disparity between countries' contributions to greenhouse gas emissions and their accountability in addressing climate change.*

The report emphasizes that addressing inequality requires **progressive taxation, investment in human capabilities, climate accountability tied to private capital, and inclusive political institutions** capable of rebuilding trust and solidarity.

## 67) INTERNATIONALISATION OF HIGHER EDUCATION IN INDIA

### Why in news?

Recently NITI Aayog released a report called the **"Internationalisation of Higher Education in India: Prospects, Potential, and Policy Recommendations"**.

### About

NITI Aayog serves as the **apex public policy think tank of the Government of India**, and the nodal agency tasked with catalysing economic development and fostering cooperative federalism through the involvement of State Governments in the economic policymaking process using a **bottom-up approach**.

### Key Highlights

- The report focuses on the concept of **"internationalisation at home"**, as envisioned in the **National Education Policy (NEP) 2020**.
- The report aims to transform India into a **global higher education hub by 2047** in alignment with the vision of **Viksit Bharat 2047**.
- As part of this vision, India aims to **host 1 lakh international students** in Central and State universities by the year 2030.
- It proposes measures to enhance **student and faculty mobility, international academic and research collaborations**, and the **establishment of branch campuses of foreign universities in India** as well as Indian universities abroad.
- The report identifies multiple benefits of internationalisation including improving the **quality of courses and curriculum**, reducing **forex outflow**, expanding **research partnerships**, and leveraging the **3.5 crore-strong Indian diaspora**.
- It emphasizes five thematic areas for development: **Strategy, Regulation, Finance, Branding & Communication, and Curriculum & Culture**.

- AICTE highlighted the need for India to **attract students from the Global South** to high-quality programs in engineering, technology, and management.
- Nearly **13 international universities** have already established campuses in India, serving as early examples of internationalisation.

***Internationalisation at Home** is the integration of global and intercultural perspectives into higher education curriculum and campus practices **without physical cross-border mobility**, to build global competencies.*

***Faculty Mobility** refers to the movement of teachers and researchers across institutions or countries **for teaching, research, or training**, either short-term or long-term.*

***Forex Outflow** refers to the **outward movement of foreign exchange from a country** due to imports, overseas education, foreign travel, debt servicing, or capital investment abroad.*

***The Global South** refers to developing and less-developed countries, mainly in Asia, Africa, Latin America, and parts of the Middle East, characterized by lower income levels, development challenges, and historical colonial experience.*

## 68) CORPORATE BOND MARKET

### Why in News?

Recently NITI Aayog released a report on **Deepening the Corporate Bond Market in India**.

### Key Highlights:

- **Corporate Bond Market:** A financial market where companies raise long-term funds by issuing debt securities (bonds) to investors, reducing dependence on bank financing
- A vibrant corporate bond market is **crucial** for complementing the banking system, **mitigating systemic risks**, and providing long-term funding

for **infrastructure, MSMEs, and climate initiatives**.

- **SEBI and RBI reforms** have improved market access, transparency, trading platforms, settlement systems, and introduced instruments like **InvITs, REITs, and green finance initiatives**, fostering long-term investment.
- With effective implementation, India's corporate bond market is projected to **exceed ₹100-120 trillion by 2030**, becoming a **key pillar of the financial stem**, mobilizing domestic and global capital, and supporting the country's long-term growth toward **Viksit Bharat 2047**.
- Fundraising through bonds has become comparable to bank credit, but the market is **dominated by private issuers** (98% of total issuances) and top-rated (AAA/AA) borrowers.
  - Participation from MSME, retail investors is less than 2% and Foreign Portfolio Investment is minimal.
- The bond market lacks liquidity as major investors hold securities until maturity, leading to very limited trading in the secondary market (a buy and hold approach by insurance and pension funds).
- **Future Potential:** With continued reforms and innovation, India's corporate bond market could exceed Rs 100-120 trillion by 2030, becoming a pillar of financial stability and growth.

## SCHEMES & INITIATIVES

### 69) PRADHAN MANTRI JANJATIYA UNNAT GRAM ABHIYAN (PMJUGA)

#### Why in News?

Ministry of Tourism under Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PMJUGA) a sub-scheme of Swadesh Darshan Scheme provides funding support for development & renovation of Tribal Homestays and village community requirements.

#### About

- The scheme envisages to **develop homestays in tribal areas to promote responsible tourism** and enhance livelihood opportunities for tribal communities.
- The scheme focuses on providing financial assistance of up to ₹5 lakh for village community requirements, up to ₹5 lakh for the construction of two new rooms for each household, and up to ₹3 lakh for the renovation of existing rooms for each household.

#### Development Action Plan for Scheduled Tribes (DAPST)

##### Goal-I: Developing Enabling Infrastructure:

- **Pucca house for eligible Households with other entitlements:** Eligible ST household shall have access to pucca housing under the PMAY (Gramin) with availability of tapped water (Jal Jeevan Mission) and electricity supply (RDSS).
- Eligible ST Household shall also have access to Ayushman Bharat Card (PMJAY).
- **Improving Village infrastructure:** Ensuring all weather road connectivity to ST majority villages (PMGSY), provide access to mobile connectivity (Bharat Net) and internet, infrastructure for improving

health, nutrition, and education (NHM, Samagra Shiksha and Poshan).

##### Goal-2: Promotion of Economic Empowerment:

- **Skill Development Entrepreneurship promotion and enhanced livelihood (self-employment)** - Providing access to training (Skill India Mission/ JSS) and ensuring that ST boys/girls get access to long-term skill courses after 10th/12th standard every year.
- Further, Marketing support through Tribal Multipurpose Marketing Centre (TMMC), Tourist Home Stays and Agriculture, Animal Husbandry and Fishery support for Forest Rights Act(FRA) Patta holders

##### Goal-3: Universalization of Access to Good Education:

- **Education** - To increase Gross Enrolment Ratio to the national levels in school and higher education and to make quality education affordable and accessible to ST students (Samagra Shiksha Abhiyan) by setting up tribal hostels in schools at district/block level.

##### Goal-4: Healthy lives and Dignified Ageing:

- **Health** - To ensure enhanced access to quality health facilities to ST households, reach towards the national standards in Infant Mortality Rate, Maternal Mortality Rate and coverage of immunisation through Mobile Medical Units in areas where a sub-centre is more than 10 km in plain areas and 5 kms in Hilly areas (National Health Mission).

### 70) JAN SHIKSHAN SANSTHAN SCHEME

#### Why in news?

The Union Cabinet has approved a restructuring of skilling initiatives, further



financial year, as per the Income Tax Act, 1961.

## 72) Wi-Fi Access Network Interface (PM-WANI) Scheme

### Why in news?

The government has updated Parliament on the rapid expansion of PM WANI network, with over 3.9 lakh Wi-Fi hotspots deployed across India as of November 2025.

### About

- The Prime Minister Wi-Fi Access Network Interface (PM-WANI) scheme was launched by the **Department of Telecommunication** in December 2020.
- The scheme aims to enhance the proliferation of public Wi-Fi hotspots to create robust digital communications infrastructure in the country, especially in rural areas.
- Through better access to public hotspots, the government aims to increase employment for small and micro-entrepreneurs and provide low-cost internet to the underserved urban poor and rural households.
- The scheme encourages local shops and establishments to provide Wi-Fi for last-mile internet delivery, which does not require a licence or charge a registration fee.

## 73) SVAMITVA

### Why in news?

Under SVAMITVA Scheme, nearly 3.44 lakh villages are targeted to be covered.

### About

- **SVAMITVA**, a Central Sector scheme of the Ministry of Panchayati Raj provides a '**Record of Rights**' to village household owners with the **issuance of legal ownership cards** (Property cards/Title

deeds) to the property owners by mapping land parcels using drone technology.

- The scheme is a reformative step towards the **establishment of clear ownership of property in rural inhabited (Abadi) areas**, by mapping of land parcels using drone technology and providing 'Record of Rights' to village household owners with the issuance of legal ownership cards (Property cards/Title deeds)

### Eligibility

- The applicant should have a property in rural inhabited (Abadi) area.

### Exclusion

- Agriculture lands are not covered under this scheme.

## 74) GYAN BHARATAM INITIATIVE

### Why in news?

The **Gyan Bharatam Mission** is in the process of signing MoUs with various institutes to accelerate the conservation and digitization of India's manuscripts.

### About

- The **Gyan Bharatam Mission** is a comprehensive national initiative under the **Ministry of Culture**, Government of India, dedicated to the systematic survey, documentation, conservation and digitisation of India's vast manuscript heritage.
- The initiative envisages **collaboration with academic institutions, museums, libraries and private collectors** to cover more than one crore manuscripts, while establishing a **National Digital Repository** supported by advanced technology and Artificial Intelligence to ensure access and global reach.
- The mission builds upon and revamps the earlier National Mission for Manuscripts (NMM), which was established in 2003

and functions under the Indira Gandhi National Centre for the Arts (IGNCA).

### What are Manuscripts?

- A manuscript is a **handwritten document** crafted on materials like paper, bark, or palm leaves, which is at least 75 years old and holds notable scientific, historical, or artistic importance.
- For example, the **Bakhshali manuscript**, dating back to the third or fourth century AD, is an ancient Indian text on mathematics written on birch bark.
- Research has revealed that the Bakhshali manuscript features the earliest known instance of the mathematical symbol 'zero'.

## 75) YOUR MONEY, YOUR RIGHT INITIATIVE

### Why in news?

PM calls upon citizens to participate in 'Your Money, Your Right' Movement.

### About

- The Government of India has launched a nationwide campaign titled "Your Money, Your Right" to facilitate the **settlement of unclaimed financial assets**, including bank deposits, insurance, dividends, shares, mutual fund and pension, to their legitimate claimants.
- It is built on the 3A Framework- **Awareness, Accessibility and Action**.
- The campaign entails collaborative participation of all major financial sector fund regulators- Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), Pension Fund Regulatory and Development Authority (PFRDA).

## 76) SAHAKAR SARATHI

### Why in news

For free learning, visit [www.officerspulse.com](http://www.officerspulse.com)

The Government of India has operationalized **Sahakar Sarathi**, to strengthen and modernize **Rural Cooperative Banks (RCBs)** across the country.

### About

- **Sahakar Sarathi**, a Shared Service Entity (SSE), to strengthen and modernise Rural Cooperative Banks across the country.
- The initiative aims to enable RCBs to deliver standardised, technology-driven banking services comparable to other regulated banking institutions.
- It has an authorised capital of ₹1,000 crore, with the shareholding of **NABARD, NCDC, and Rural Cooperative Banks fixed at 33.33% each**.

The Sahakar Sarathi provides shared technological infrastructure and digital services to RCBs, including:

- Common and modern Core Banking Solutions (CBS);
- Digital payment systems such as AePS, UPI, and related digital channels;
- Cybersecurity framework, IT governance, and domain migration support (e.g., *bank.in*);
- Standard operating procedures, training, and capacity-building for technology adoption.

## 77) SABHASAAR INITIATIVE

### Why in news

The Union Minister of Panchayati Raj recently informed the Rajya Sabha about the successful rollout of the **SabhaSaar** initiative, highlighting its progressive adoption by Gram Panchayats across states.

### About

- It is an **AI-enabled voice-to-text meeting summarisation tool**.

- Launched by the **Ministry of Panchayat Raj**.
- SabhaSaar has been made available to all States/UTs, and Gram Panchayats are progressively adopting it for routine Gram Sabha and Panchayat meetings.
- The AI model used in SabhaSaar operates on AI and cloud infrastructure provisioned through the India AI Compute Portal under the India AI Mission of MeitY.
- Data is processed within the Government framework and is not shared with any external third-party service provider.

#### **Features of SabhaSaar Initiative**

- It leverages the power of AI to generate structured minutes of meetings from Gram Sabha videos and audio recordings.
- It will bring uniformity in minutes of the Gram Sabha meetings across the country.
- Panchayat officials can use their e-GramSwaraj login credentials to upload video/audio recordings on 'SabhaSaar'.
- It is built on **Bhashini, an AI-powered language translation platform launched by the government** to bridge literacy, language, and digital divides.
- It enables transcription in all major Indian languages like Hindi, Bengali, Tamil, Telugu, Marathi and Gujarati, in addition to English.

## ART & CULTURE

### 78) KASHI TAMIL SANGAMAM

#### Why in News?

Kashi Tamil Sangamam 4.0 will be organised around the theme 'Learn Tamil - Tamil Karkalam', with the aim to promote Tamil learning across India.

#### About

- The Kashi Tamil Sangamam is part of the Central Government's 'Ek Bharat Shreshtha Bharat Yuva Sangam' programme.
- Aims to celebrate and strengthen the historical and **civilizational ties between India's North and South**, fostering a deeper people-to-people connection.
- Its broader objective is to create awareness of shared heritage, and it is organized by the **Ministry of Education** in collaboration with ministries like Culture, Textiles, Railways, Tourism, and the Government of Uttar Pradesh.
- The Sangamam has been held annually since 2022.

#### Focus on sage Agasthyar

- The third edition of the Kashi Tamil Sangamam in 2024 centered on **Sage Agasthyar**, a revered scholar and **one of the seven Saptarishis in Vedic texts**.
- Agasthyar is considered the father of the **Siddha system of medicine**, the author of the earliest Tamil grammar, **Agatthiyam**, and a pivotal figure in **establishing Shaivite centers** across South India and present-day Sri Lanka.
- Known as "**Tamil Siddhar**" in Shaivite tradition, he appears in major epics like the Ramayana and Mahabharata, and his depictions are found in temples across South and Southeast Asia.

- The Sangamam, implemented by **IIT Madras** and **Banaras Hindu University**, includes lectures on literature, philosophy, spirituality, music, dance, yoga, and Ayurveda, aligning with **NEP 2020's** emphasis on integrating traditional Indian Knowledge Systems with modern education.

### 79) KHIAMNIUNGAN TRIBE

#### Why in news?

PM Modi referred to the Khamniungan tribe in his 'Mann Ki Baat' address, bringing attention to their culture



#### About

- They are one of the major Naga tribes, living as clans, inhabiting eastern Nagaland and north-western Myanmar.
- They reside in mountainous and riverine regions, up to the Chindwin River in Myanmar. Also known as the "**people of the great waters**" (from Kham-water, Niu-great, Ngan-source).
- They speak Khamniungan, Sino-Tibetan language.
- Their primary livelihood is jhum (shifting) cultivation, growing rice, millet, and vegetables.

- They are known for traditional cliff honey harvesting practices that have been passed down for generations.
- The major festivals of the Khamniungan tribe are Tsokum Sumai and Khaotzao Sey Hok-ah Sumai.
- They traditionally follow animistic, nature-centric beliefs, honouring spirits of land, water and ancestors.

## 80) AMBASAMUDRAM CHOPPU SAMAN

### Why in news?

It was recently granted the Geographical Indication tag.



### About

- Ambasamudram *Choppu Saman* refers to **finely handcrafted wooden miniature toys** such as tiny kitchen utensils, tables, chairs, and other play items produced in the Ambasamudram region of Tirunelveli district.
- The craft traces its origins to the 18th century and has been practiced continuously for over two centuries.
- Traditionally, artisans carved these miniatures from indigenous woods, including **Manjal Kadamba (*Neolamarckia cadamba*), teak, and rosewood.**

## 81) RAMAPPA TEMPLE

### Why in news?

Conservation measures undertaken by the Archaeological Survey of India (ASI) and the State government at Ramappa Temple.



### About

The **Rudreshwara Temple**, popularly known as the Ramappa Temple, is a **Kakatiya-style** Hindu temple dedicated to Lord Shiva, located in present-day Telangana.

### Historical Background and Patronage:

- The temple dates to 1213 CE and was constructed during the reign of the Kakatiya ruler **Ganapati Deva**.
- The project was executed under the authority of the chief commander, Rudra Samani.
- Uniquely, the temple is named after its chief sculptor, Ramappa, making it one of the rare instances in India where a monument is named after its architect rather than its patron or deity.

### Architectural Innovations:

The Ramappa Temple is noted for its advanced engineering and artistic excellence.

- The gopuram was built using lightweight bricks composed of a mixture of **clay, acacia wood, chaff, and myrobalan fruit**
- These bricks are sufficiently light enough to float on water, reducing structural load and enhancing seismic resilience.
- The temple foundation employs the **sandbox technique**, wherein the foundation pit is filled with a composite mixture of sand, lime, jaggery, and black myrobalan fruit.
- This method functions as a shock-absorbing base, significantly increasing the structure's resistance to earthquakes.

### Artistic Features:

Certain pillars are acoustically engineered to produce **musical notes** when gently struck, demonstrating sophisticated knowledge of sound and material properties.

### World heritage recognition:

In recognition of its outstanding universal value, the temple was inscribed in 2021 as a **UNESCO World Heritage Site under the title *Kakatiya Rudreshwara (Ramappa) Temple, Telangana.***

## 82) DEEPAVALI

### Why in news?

Deepavali has been inducted as the 16th item from India in the UNESCO List of **Intangible Cultural Heritage**



### About

- Deepavali, commonly known as Diwali, is the festival of lights celebrated across India and among Indian communities worldwide.
- The term *Deepavali* is derived from the Sanskrit words *Deepa* (lamp or light) and *Vali* (row or series), signifying “a row of lights.”
- The festival is observed on *Kartik Amavasya*, typically falling in October or November.
- The underlying philosophy of Deepavali emphasizes prosperity, renewal, abundance, and the triumph of light over

darkness, knowledge over ignorance, and good over evil.

Recognizing its profound cultural significance, Deepavali has been inscribed as the 16th Indian element on **UNESCO’s Representative List of the Intangible Cultural Heritage of Humanity.**

### Celebration and Ritual Sequence:

- Deepavali is celebrated over several days, each with distinct religious and cultural significance.
- The festivities begin with **Dhanteras**, considered an auspicious occasion for new beginnings, during which households purchase metalware or essential items symbolizing wealth and prosperity.
- The second day, **Naraka Chaturdashi**, is marked by ritual bathing, lighting of lamps, and practices intended to dispel negativity and invite positive energies.
- The third day constitutes the core of the festival and is dedicated to **Lakshmi-Ganesha Puja**, performed to seek prosperity, wisdom, and well-being.
- The celebrations culminate with **Bhai Dooj**, which honors the affectionate bond between brothers and sisters through prayers, blessings, and symbolic rituals.

## 83) NATYASAstra

### Why in news?

UNESCO has included the **Natyasastra** in its **Memory of the World Register**, in recognition of its profound intellectual contribution and enduring cultural and historical significance.

### About

- The **Natyasastra** derives its name from two Sanskrit words: **Natya**, referring to the art of dance and drama, and **Sastra**, meaning a systematic body of knowledge.

- Traditionally attributed to the sage **Bharata Muni**, the text is dated between the **second century BCE and the second century CE** and is widely regarded as the **earliest comprehensive treatise on the performing arts in South Asia**.
- As an ancient Sanskrit work, the **Natyasastra** occupies a **foundational place in the study of drama, dance, and music**.
- Comprising nearly **36,000 verses**, the text provides an extensive exposition on **theatre (natya), performance and expression (abhinaya), music (sangita), emotions (bhava), and aesthetic experience (rasa)**.
- Among its most enduring contributions is the **systematic formulation of the Rasa theory**, which explains the emotional essence at the heart of artistic expression.
- Bharata Muni identified **eight primary Rasas: Sringara** (love), **Hasya** (humour), **Karuna** (compassion), **Raudra** (anger), **Vira** (heroism), **Bhayanaka** (fear), **Bibhatsa** (disgust), and **Adbhuta** (wonder) and demonstrated how a skilled performer, through the effective expression of **bhava**, evokes these aesthetic responses in the audience.

#### **UNESCO Memory of the World (MoW) Register**

*It was launched by UNESCO in 1992 to preserve and promote access to documentary heritage of global significance.*

*It includes manuscripts, archives, rare books, inscriptions, audiovisual material, etc*

*The Memory of the World Register lists such heritage at international, regional, and national levels.*

## **84) THANJAVUR PAINTING**

### **Why in news?**

Department of Post transported **Thanjavur Painting** of Lord Ram from Bengaluru to Ayodhya



### **About**

- **Thanjavur (Tanjore) painting** is a classical art tradition of South India that emerged around the 17th century in Thanjavur, Tamil Nadu.
- Traditionally rendered on wooden panels known as **palagai padam**, the art form flourished under the patronage of the **Nayakas** of Thanjavur and has since been recognised with the **Geographical Indication (GI) tag**.
- A distinctive feature of Thanjavur paintings is their preparation on canvas mounted on **wooden boards**, usually made of **jackfruit or teak**, and **bound using Arabic gum**.
- They are characterised by rich and vibrant colours, with prominent use of bright reds,

blues, greens, and **extensive gold leafwork** that lends a regal appearance.

- Another hallmark is the use of **gesso** work a paste made of chalk, gypsum, and glue applied to create raised, embossed decorative patterns and motifs.