



Monthly Current Affairs Magazine

# Current X-press



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- MCQ For Practice
- Keywords & Quotes of Month

# JUNE 2024

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## How to Use This Current Affairs Magazine Effectively ?

This magazine is designed to help aspirants preparing for competitive exams like UPSC. To make the most of it, follow these tips:

1. **Understand the Structure:** The magazine covers topics aligned with the UPSC syllabus—GS1 to GS4—ensuring comprehensive coverage of current affairs.
2. **Link to the Syllabus:** As you read, map each topic to the relevant portion of the syllabus for better retention and integration.
3. **Highlight Key Points:** Mark facts, figures, and examples for Prelims, and analytical insights for Mains. Use these for essays and Ethics answers.
4. **Integrate with Static Topics:** Relate current issues to your static syllabus, e.g., linking a climate report to environment topics.
5. **Answer Writing Practice:** Use the data and examples for **structuring Mains answers**—start with a strong introduction, provide analysis, and conclude with solutions.
6. **Update Notes:** Extract key points and add them to your notes for easy revision.
7. **Revise Regularly:** Review highlighted sections weekly to strengthen recall.
8. **Skip any information** : which you feel useless for exam . Everything in magazine is not always necessarily to be read. **So be selective with utility for PRELIMS/MAINS utility.**

This magazine is a one-stop resource for mastering current affairs. Use it effectively to enhance your preparation and boost your performance !

All the best !

# 1: POLITY AND GOVERNANCE

## KEYWORDS OF THE MONTH (From the covered CA Topics):

1. **Collaborative Governance:** Joint action by multiple stakeholders or entities to address complex issues, reflecting cooperative federalism.
2. **Linguistic Federalism:** Division based on language to preserve cultural identity and administrative efficiency.
3. **Constitutional Morality:** Adherence to constitutional ethics to balance rights and national security.
4. **Electoral Inclusivity:** Proportional representation ensuring fair inclusion of diverse socio-political groups.
5. **Capacity-Building Ecosystem:** Enhancing governance through skill development and institutional reforms (e.g., Mission Karmayogi).
6. **Decentralized Governance:** Devolution of power to local bodies for participatory democracy.
7. **Health Ecosystem Integration:** Unified healthcare services to optimize delivery and affordability.
8. **Technological Sovereignty:** Self-reliance through indigenous technology for strategic independence.
9. **Restorative Justice:** Rectifying judicial errors to uphold human rights and public trust.
10. **Collaborative Federalism:** Coordination between government levels for shared policy goals.
11. **Digital Integrity:** Efforts to counter online misinformation and ensure responsible information sharing.
12. **Progressive Codification:** Modernizing laws to align with current needs and technologies.
13. **Inclusive Representation:** Increasing women's participation in legislatures for democratic inclusivity.
14. **Ethical Advertisement:** Ensuring accountability in public communication through mandates like SDCs.
15. **Civic Housing:** Equitable housing solutions under schemes like PMAY for socio-economic empowerment.

## QUOTES OF THE MONTH (For the covered CA Topics):

1. "Consensus is the essence of coalition politics, where diverse voices unite to strengthen democracy."
2. "In a diverse nation, the creation of new states is not division but a response to the call for inclusive governance."
3. "Proportional representation transforms democracy into a mirror reflecting every shade of the electorate's will."

## DEMAND FOR NEW STATES

**Recent Update:** June 2 marks the ten years of formation of **Telangana State**.

### Procedure for Formation of New States

- **Article 3** allows formation of new states and alteration of existing state boundaries or names.
- Power: **Parliament can form** a new state by separating or uniting territories or parts of states.
- **Presidential Recommendation:** Bill can only be introduced after the President's recommendation.
- **Consultation with State Legislatures:** President must refer the Bill to affected state legislatures for feedback.
- **Parliament can create a new state through ordinary legislation** (simple majority).

**Factors driving Demand for New States** in post-independence India

- **Linguistic diversity:** Language often drives demand for new states (e.g., Maharashtra and Gujarat in 1960).
- **Regional disparities:** Economic underdevelopment in regions like Vidarbha prompts statehood demands.
- **Cultural identity:** Ethnic groups seek statehood to preserve unique cultural, social, and linguistic identities (e.g., Bodoland in Assam).

## INTERNAL EMERGENCY

**Recent Update:** 2024 marks the 50th anniversary of the imposition of the **internal Emergency on June 25, 1975**.

### About Emergency:

- Emergency **suspends democratic rights** and gives central government powers over states.
- **Suspension of fundamental rights is based on the Weimar Constitution of Germany.**
- Emergency provisions are in **Articles 352 to 360** under Part XVIII of the Constitution.
- These provisions aim to **protect the country's sovereignty, unity, integrity, security, political system, and Constitution.**

### Types of Emergencies

1. **National Emergency:** President can declare emergency on **advice of Cabinet** if security is threatened by war, external aggression, or **armed rebellion (Article 352)**.

a. Three emergencies have been declared: **1962 (China), 1971 (Pakistan), and 1975 (internal disturbance)**.

b. "Internal disturbance" was changed to **"armed rebellion"** by the **44th Amendment (1978)**.

2. **President's Rule:** Declared if there is failure of **constitutional machinery in a state (Article 356)**.
3. **Financial Emergency:** Declared if there is a threat to **financial stability or credit of India or any part of the country (Article 360)**.

## PROPORTIONAL REPRESENTATION

**Recent Update:** Experts in India have recently proposed considering **Proportional Representation (PR)** for Lok Sabha and State Assembly elections instead of the **First-Past-The-Post (FPTP)** system.

First-Past-The-Post	Proportional Representation
<b>Geographical Unit:</b> Divided into constituencies or districts	<b>Geographical Unit:</b> Areas may be a single constituency
<b>Representation:</b> One representative per constituency	<b>Representation:</b> More than one representative per constituency
<b>Voting Process:</b> Voter votes for a candidate	<b>Voting Process:</b> Voter votes for a party
<b>Seat Distribution:</b> A party may get more seats than votes	<b>Seat Distribution:</b> Seats allocated based on <b>vote share</b>
<b>Examples:</b> U.S., U.K., Canada, India (Lok Sabha, State Assemblies)	<b>Examples:</b> Israel, Netherlands (Pres, VP, Rajya Sabha) elections

## MISSION KARMAYOGI

**Recent Update:** The **Capacity Building Commission (CBC)**, launched in 2021 under the National Programme for Civil Services Capacity Building (NPCSCB) - Mission Karmayogi, has **completed three years**.

### About Mission:

NPCSCB aims to build a **professional, well-trained civil service** aligned with India's developmental goals, national programs, and priorities.

- It covers **all civil servants, including contractual employees, across ministries, departments, and agencies of the Union Government.**
- Willing state governments can align their capacity-building plans with this framework.

## ONLINE MISINFORMATION

**Recent Update:** The **United Nations** unveiled the "Global Principles for Information Integrity: Recommendations for Multi-stakeholder Action" to combat online misinformation, disinformation, and hate speech.

### About Online Misinformation

- **Misinformation** is false or misleading content shared without harmful intent, though it can still cause harm.
- **Disinformation** is intentionally misleading content spread to deceive or gain economically or politically, causing public harm.
- **Social media accelerates** the spread of false information, making corrective measures harder.
- With nearly half of the world's population online, information spreads rapidly.

## NEW CRIMINAL LAWS

### New Acts Replacing Major Laws:-

- **Bharatiya Nyaya Sanhita, 2023** (Replaces Indian Penal Code, 1860)

#### Introduction of Community Service:

Introduced for petty offenses, including attempted suicide or obstruction of public servants' duties.

- **Rape Definition Updated:** Sexual acts against women under 18 are classified as rape, irrespective of consent.

- **Terrorism as a Separate Offense:** Clearly defines and recognizes acts of terrorism as a distinct offense.

- **Bharatiya Nagarik Suraksha Sanhita, 2023** (Replaces Criminal Procedure Code, 1973)

#### Detention of Undertrials:

Accused detained for half the maximum prescribed sentence must be released on bond.

Exceptions include cases involving the death penalty, life imprisonment, or multiple pending charges.

- **Specimen Signatures and Finger Impressions:** Magistrates of the first class are empowered to order the accused to provide specimen signatures, finger impressions, handwriting, or voice samples.

- **Bharatiya Sakshya Adhinyam, 2023** (Replaces Indian Evidence Act, 1872)

- **Electronic and Digital Records:**

Granted equal legal status as traditional paper documents.

## TELECOMMUNICATIONS ACT, 2023

**Recent Update:** The act came into effect to amend laws related to the development and operation of telecom services and networks, focusing on Inclusion, Security, Growth, and Responsiveness.

- Repeals the Indian Telegraph Act 1885 and Indian Wireless Telegraphy Act 1933 due to advancements in technology.

### Key features:

- Defines terms like telecommunication, spectrum, and user to improve investor confidence and ease of business.
- **RoW (Right of Way) framework** to be granted on a non-discriminatory, non-exclusive basis.
- **Central Government can set standards** for telecom services, networks, and equipment.
- **Protects users** by requiring consent for receiving specific messages and creating Do Not Disturb registers.
- Expands the **Universal Service Obligation Fund**, now called **Digital Bharat Nidhi**, for supporting R&D, technology, and pilot projects.

## POST OFFICE ACT 2023

**Recent Update:** The Indian Post Office Act, 1898 is repealed by the Post Office Act, 2023.

### Key provisions:

- Director General of Postal Services (DGPS) appointed to head India Post, with powers to regulate services and stamp sales.
- Government can intercept postal articles on grounds of national security, foreign relations, public order, or safety.
- Post office exempt from liability for its services, except as prescribed for specific services.
- **No penal provisions** are included in the Act.

## WOMEN MPS IN 18TH LOK SABHA

**Recent Update:** 74 women were elected to the 18th Lok Sabha, making up 13.6% of the total, a slight decrease from the 78 women (14.4%) elected to the 17th Lok Sabha.

### Status of women representation in Legislature

- 9.7% of 797 women contestants won in the 18th Lok Sabha elections, compared to 10.74% of 726 women in the 17th LS elections.
- Women's representation in the Lok Sabha increased from 5% in the first LS to 14.4% in the 17th LS.

- Women currently make up **14.05%** of Rajya Sabha members.
- **Globally**, women hold **26.9%** of seats in national parliaments.

### SELF DECLARATION CERTIFICATES

The **Ministry of Information and Broadcasting** has made a **Self-declaration certificate (SDC)** mandatory for all new advertisements as per a Supreme Court directive.

- **No advertisement can air on TV, print, or online without a valid SDC.**
- The SDC must be signed by an authorized representative of the advertiser/agency and submitted via:
  - **Broadcast Seva Portal** for TV and Radio ads.
  - **Press Council of India portal** for print and digital ads.

### PRADHAN MANTRI AWAAS YOJANA

#### PMAY-Urban :

- **Objectives:** Address urban housing shortage for EWS, LIG, MIG, and slum dwellers with pucca houses.
- **Type:** Centrally Sponsored Scheme (except CLSS vertical).
- **Nodal Ministry:** Ministry of Housing and Urban Affairs (MoHUA)
- **Launch Year:** 2015.
- **Beneficiaries:** EWS (income up to Rs. 3 lakh), LIG (Rs. 3-6 lakh), MIG (Rs. 6-18 lakh), eligible under CLSS.
- **Women Empowerment:** Female head of the family must be the owner or co-owner.

#### PMAY-Rural :

- **Objectives:** Provide pucca houses with basic amenities to all houseless and those in kutcha/dilapidated houses by 2024.
- **Type:** Centrally Sponsored Scheme.
- **Nodal Ministry:** Ministry of Rural Development.
- **Launch Year:** 2016.
- **Beneficiaries:** Based on SECC 2011 data, housing deprivation parameters, and Awaas+ list.
- **Women Empowerment:** Female head of the family must be the owner or co-owner.

### NOTA (NONE OF THE ABOVE)

**Recent Update:** In Indore, NOTA (None of the Above) received over 200,000 votes, emerging as the runner-up.

**About:**

NOTA lets voters **reject all candidates**, showing dissatisfaction.

- If NOTA gets the most votes, the **runner-up wins.**
- The Supreme Court mandates NOTA for **universal suffrage and direct elections.**
- Used in countries like **France, Belgium, Brazil, Finland, and Sweden.**
- Introduced in India in **2013** after a Supreme Court ruling from a **PUCL petition.**

**If NOTA wins the most votes:**

- Currently, there are **no legal consequences.**
- The **second-place candidate wins.**
- A petition is under review to make elections **"null and void"** if NOTA wins, with calls for rules against candidates losing to NOTA.

### 65% QUOTA IN BIHAR

**Recent Update:** The Patna High Court recently invalidated Bihar's move to raise BC reservation to 18%, EBC to 25%, and adjust quotas for SCs and STs, totaling 65% reservation.

**Indra Sawhney case:**

The 1992 Indra Sawhney judgment set a **50% cap on reservations for SCs, STs, and OBCs in legislatures, education, and public employment**, allowing flexibility only in exceptional cases.

**Other judgments:**

1. **Maratha Reservation:** Maharashtra's **68% reservation** was **struck down** by the SC in 2021 for exceeding the 50% limit.

**Exceptions:**

1. **State Exceptions:** States like Tamil Nadu with 69% reservation and occasionally the Union government have exceeded the ceiling.
2. **EWS Reservation:** Upheld in 2023, stating the 50% cap is flexible but applies mainly to SCs, STs, and OBCs.

### ARBITRATION GUIDELINES

**Recent Update:** The **Department of Expenditure** released **guidelines** for using arbitration and mediation in domestic public procurement contracts.

**Arbitration:** Arbitration is a **quasi-judicial dispute resolution method** where parties submit their issues to an impartial third party (the arbitrator), whose decision is binding.

**Key guidelines:**

1. Avoid **automatic arbitration** in **large contracts.**
2. **Limit arbitration** to disputes **under Rs 10 crores.**
3. Prefer institutional arbitration.

- Use mediation under the Mediation Act, 2023, for high-value cases.

**Alternate dispute resolution (ADR):** refers to settling disputes outside the court system, including arbitration, negotiation, mediation, and Lok Adalats in India.

### CUSTODIAL DEATH

The NHRC has issued a notice to the Odisha government for failing to pay compensation to the family of a person who died in custody.

**Custodial Death:** A major concern in India, often linked to torture and abuse. Over 660 custodial deaths occurred between 2017 and 2022, with Gujarat having the highest number (80).

**Safeguards** against Custodial Violence:

- Article 14:** Right to equality before the law.
- Article 21:** Right to life.
- IPC Sections 330 & 331:** Punishment for injuries inflicted to extort confessions.
- Cr. P.C. Section 176:** Mandates magisterial inquiry in custodial death cases.
- Bhartiya Nyaya Sanhita Sections 120 & 127:** Additional protections for the accused.
- NHRC 1993 guidelines:** Require reporting custodial deaths or rapes within 24 hours.
- DK Basu case:** Supreme Court guidelines for detainee protection and arrest procedures.

**About NHRC:** A statutory body set up in 1993 to protect human rights, address violations, and promote awareness.

### NATIONAL EDUCATION POLICY (NEP) 2020

**Recent Update:** The implementation of the National Education Policy (NEP) 2020 in India has faced challenges and criticism, highlighting several areas of failure.

**About:** NEP 2020 was introduced based on recommendations from the Kasturirangan and T.S.R. Subramanian committees. It aims to reform the education system from pre-primary to higher education, focusing on universal access, a flexible curriculum, multilingualism, and vocational integration.

**Major Features** of NEP 2020:

- Universalize education by 2030** with 100% GER from pre-primary to secondary.
- Open schooling** for out-of-school children, e.g., NIOS.
- New **5+3+3+4 curriculum** system, replacing the 10+2 system.
- Mother tongue instruction up to class 5.**

- Holistic, multi-disciplinary** undergraduate education with **vocational integration** and regional language options.
- Academic Bank of Credits** for easy credit transfers.
- Establishment of the **Higher Education Commission of India (HECI)** for regulation, excluding legal and medical fields.
- Promotion of **multilingualism** in education.
- Creation of **PARAKH**, a National Assessment Centre for holistic development.
- Gender Inclusion Fund** and Special Education Zones for disadvantaged groups.

### PUBLIC EXAMINATIONS (PREVENTION OF UNFAIR MEANS) ACT 2024

**Key Highlights** of the Public Examinations Act:

- Objective:** Improve transparency, fairness, and credibility in public exams, ensuring fair rewards for youth. Supports initiatives like self-attestation and reduced exam cycles.
- Applicability:** Covers central recruitment and entrance exams by UPSC, SSC, RRBs, IBPS, NTA, and all central ministries and departments.
- Public Examination:** Defined as any exam conducted by a listed authority or designated by the government.
- Exclusion of Students:** The bill does not target students; they fall under existing exam authority rules.
- Punishments:** 3-5 years imprisonment for paper leaks; up to 10 years for organized crime links; fines up to Rs 1 crore, exam firms may be barred.
- Unfair Means:** Lists 20 offences, including impersonation, tampering, paper leaks, and fake websites.
- Nature of Offences:** Cognizable, non-bailable, and non-compoundable.
- Investigation:** Led by officers with a rank of Deputy Superintendent of Police or Assistant Commissioner; states may refer cases to central agencies.
- National Technical Committee (NTC):** Enhances security in computerized exams and develops IT protocols.
- Model Draft for States:** The act is binding for central authorities and serves as a model for states.

### SPECIAL CATEGORY STATUS

**Recent Update:** The Bihar Chief Minister recently reiterated the state's long-standing demand for special category status from the Centre.

**About Special Category Status (SCS):**

500s  
Enrollment  
Ratio

Performance  
Assessment,  
Review  
Analysis  
of  
Knowledge  
for  
Holistic  
Development

Barling  
NET  
CUET

- SCS is given to states facing **geographical and socio-economic disadvantages** to aid development.
- It was introduced based on the **5th Finance Commission's 1969 recommendations**, though the Constitution doesn't mandate it.
- Initially granted to **Jammu and Kashmir, Assam, and Nagaland**, with **Telangana** being the latest recipient.
- SCS differs from "Special Status," which involves enhanced political and legislative rights, while SCS focuses on economic support.

- **Criteria** for SCS include
  1. hilly terrain
  2. low population density
  3. strategic location (China)
  4. economic backwardness
  5. nonviable state finances.

### AGNIPATH SCHEME

About:

- "Agniveer" refers to recruits in **non-officer ranks (soldiers, airmen, sailors)** in the Indian Armed Forces.
- Recruits serve for **4 years**, with up to **25%** eligible for permanent commission, based on merit and requirements.
- The scheme covers **all personnel, except for medical technical cadres.**

Eligibility:

- Applicants must be **between 17.5 and 23 years old** (age limit raised from 21).
- **Both men and women can apply**, but there is no reservation for women under this scheme.

### NATIONAL TESTING AGENCY

**Recent Update:** The National Testing Agency (NTA) recently released the **NEET UG results**, highlighting an **unusually high number** of candidates scoring a perfect 720/720 and the controversial **near-perfect scores of 718 or 719.**

**About:** The National Testing Agency (NTA) is an **autonomous body** under the Indian Societies Registration Act, 1860, responsible for conducting entrance exams for higher education admissions.

**Governance:**

- **NTA is chaired by an educationist appointed by the Ministry of Education**, with a **CEO (Director-General)** appointed by the government.
- A **Board of Governors** includes members from user institutions.

**Functions:**

- **Identifying partner institutions** to conduct online exams without disrupting their academic schedule.
- Creating a **question bank** for various subjects.
- Establishing a **research and development culture**, with expertise in testing.
- Collaborating with **international organizations like ETS.**
- **Conducting exams** assigned by the government.

### LEADER OF OPPOSITION

**Recent Update:** The Congress Working Committee selected the **Leader of Opposition for the 18th Lok Sabha.**

**About:**

- The Leader of Opposition must be from the **largest opposition party with at least one-tenth of Lok Sabha seats.**
- The LoP holds membership in crucial committees and **has a say in appointments** to statutory bodies like CVC and CBI.
- The LoP's role is to **critique government policies** and offer alternatives.
- The LoP's office is recognized under the **Salaries and Allowances of Leader of Opposition** in Parliament Act, 1977.

### PERSONALITY RIGHTS

**Recent Update:** The recent dispute between a **Hollywood actress and OpenAI** underscores the significance of personality rights in AI models.

**About:** Personality rights protect an **individual's public persona**, including their **name, voice, image, and distinctive traits.**

**Types:**

1. **Right to Privacy:** Protects personal information from unauthorized disclosure or intrusion, affirmed by the **2017 Puttaswamy v. Union of India case.**
2. **Right of Publicity:** Grants control over the commercial use of one's identity, allowing individuals to **decide how their image or likeness is used in endorsements or advertising.**

### AMRUT Scheme

**Recent Update:** The AMRUT scheme is facing challenges in **tackling infrastructure issues** related to water, mobility, and pollution.

**About:**

# "Atal Mission for Rejuvenation & Urban Transformation"

- Launched in June 2015, AMRUT aimed at improving basic infrastructure in 500 cities, covering 60% of urban population.
- Focuses on water supply, sewerage, drainage, green spaces, non-motorized transport, and urban capacity building.

## AMRUT 2.0 Scheme:

- Launched on 1st October 2021, covering 5 years (FY 2021-22 to FY 2025-26).
- Expands water supply to 4,900 towns and addresses sewerage/septage in 500 cities from Phase 1.
- Promotes water circular economy with plans for water recycling, rejuvenating water bodies, and conservation.
- Includes reforms for better urban living, urban planning, and improved finance.

## PM KISAN

**Recent Update:** The Union Government released the 17th installment of the PM Kisan Nidhi scheme.

### About:

- The scheme provides Rs 6,000 per year to landholding farmers in three equal installments.
- Launched in February 2019, it is fully funded by the Government of India.
- The Ministry of Agriculture implements the scheme, while State/UT Governments identify eligible beneficiaries.

## ENEMY AGENTS ORDINANCE

**Recent Update:** Jammu and Kashmir's DGP recently proposed using the 2005 Enemy Agents Ordinance, which allows penalties like life imprisonment or the death penalty, to prosecute militant supporters instead of the Unlawful Activities Prevention Act (UAPA).

### About the Enemy Agent Ordinance:

- Introduced in 1917 by the Dogra Maharaja of Jammu and Kashmir (J&K); the term 'ordinance' reflects the Dogra era's legal terminology.
- Re-enacted in 1948 by the Maharaja under the Kashmir Constitution Act of 1939.
- Protected under Section 157 of the J&K Constitution (1957).
- **Post-Article 370 changes:** Key laws like the Enemy Agents Ordinance were retained, while some, like the Ranbir Penal Code, were replaced by the Indian Penal Code.

### Key Provisions:

- **Enemy Agent Definition:** Targets those aiding the enemy, defined in context of the 1947 tribal invasion of Kashmir.
- **Punishment:** Includes death, life imprisonment, or up to 10 years in prison with fines.

### About Unlawful Activities Prevention Act (UAPA):

- Enacted in 1967 to address secessionist and anti-national activities.
- Amended several times, most recently in 2019, to include provisions on terrorist financing, "cyber-terrorism," individual designation, and asset seizure.
- Grants the National Investigation Agency (NIA) authority for nationwide investigations and prosecutions.
- Imposes severe penalties, including death or life imprisonment, for terrorist acts.
- Allows detention without charge for up to 180 days and denies bail unless the accused is found not guilty.
- Defines terrorism as acts that harm individuals, cause property damage, or threaten India's unity, security, or economic stability.

## DEPUTY SPEAKER

**Recent Update:** The recent increase in the Opposition's strength in the Lok Sabha has sparked renewed interest in securing the Deputy Speaker's post, which has remained vacant throughout the 17th Lok Sabha (2019-24), unlike the 16th Lok Sabha (2014-19), where a ruling party ally held the office.

### Role of Deputy Speaker:

- **Constitutional Provisions:**
  - Article 95(1) states that the Deputy Speaker performs the duties of the Speaker if the post is vacant and has the same powers when presiding over the House.
  - Article 93 mandates the Lok Sabha to elect both a Speaker and Deputy Speaker.
  - Article 178 has a similar provision for State Assemblies.
- **Compulsion of Choosing Deputy Speaker:**
  - While the Constitution mandates the election of the Speaker and Deputy Speaker "as soon as may be," it does not specify a time frame, which can lead to delays.
- **Election Process:**
  - The Deputy Speaker is elected by a simple majority of members present and voting, under Rule 8 of the Lok Sabha's Rules of Procedure.

- The election typically takes place in the **second session** but can also occur in the first.
- **Resignation/Removal:**
  - Under **Article 94** (and Article 179 for states), the Deputy Speaker vacates office if they cease to be a member of the House.

### PESA Act, 1996

**Recent Update:** A recent study has found that providing political representation and decision-making power to tribal populations through acts like PESA has supported forest conservation in India's Scheduled Areas.

**About:**

The PESA Act, enacted on 24th December 1996, aims to ensure **self-governance for people** in tribal areas (Scheduled Areas) through traditional village assemblies, or Gram Sabhas. It extends Panchayat provisions to tribal areas in Fifth Schedule states.

**Legislation:**

- The Act defines **Scheduled Areas** as those under **Article 244(1)**, which applies to areas and tribes in states other than Assam, Meghalaya, Tripura, and Mizoram.
- Scheduled Areas are those **notified by the President** as predominantly tribal.
- **10 states have notified Fifth Schedule areas**, covering districts in Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana.



### MANAGED CARE ORGANISATION

**Recent Update:** A South Indian healthcare chain is launching a comprehensive health insurance venture, combining insurance and healthcare services like a Managed Care Organization (MCO).

**MCOs in the U.S.**

- MCOs mainly serve **urban, high-income populations**.
- Successful MCOs need **strong financial resources, expert management, and a clear beneficiary base**.

**Background of Managed Care Organizations (MCOs)**

- MCOs aim to provide **cost-effective** medical treatment.
- They evolved from **prepaid healthcare models** in the early 20th century.
- In the **1970s**, MCOs combined insurance and services to control costs, focusing on prevention and early care with fixed premiums.
- MCOs have grown in the **health insurance space**, though evidence on their impact on health outcomes is limited. They have helped reduce costly hospitalizations.

### RAILWAY ACCIDENTS AND KAVACH SCHEME

**Recent Update:**

- The recent collision at **Rangapani** involving the **Kanchenjunga Express** highlights the need for better safety measures.
- **Indian Railways** has seen fluctuating collision rates, with six incidents in 2022-23 and four in 2023-24, emphasizing the need for continued improvements.

**Kavach System**

- Kavach, launched in 2020, is an **anti-collision system** developed by **RDSO** and **Indian vendors**. It is India's National Automatic Train Protection (ATP) system.
- It operates under **Safety Integrity Level-4 (SIL-4)** standards, providing **automatic braking** when approaching a red signal.
- The system sends **SOS messages** during emergencies and includes **live train movement monitoring** through the Network Monitor System.

**Components of Kavach:**

- **RFID Technology:** Integrated into tracks for automatic identification and data reading.
- **Driver's Cabin:** Equipped with RFID readers, a computer, and brake interface.
- **Radio Infrastructure:** Towers and modems installed at stations for communication.

### MERCY PETITION

**Recent Update:** The President of India recently denied the mercy petition of a Pakistani national sentenced to death for the 2000 Red Fort terrorist attack.

**About Mercy Petition:**

- A mercy petition is a **formal request** made by a convict seeking clemency from the President or Governor.
- It is practiced in countries like **the US, UK, Canada, and India.**
- The **right to life**, protected under Article 21 of the Indian Constitution, underpins the concept of mercy petitions.

#### Philosophy Behind Mercy Petitions:

- The **pardoning power acknowledges** that judicial systems can err and allows for correction of potential miscarriages of justice.
- For **example**, in 2012, 14 judges highlighted wrongful capital punishment cases, where two individuals were executed despite errors.
- The pardoning power helps maintain **public trust** in the justice system.

#### Constitutional Framework:

- A mercy petition to the **President** is the **final constitutional** option for a convict sentenced by a court, under Article 72 of the Indian Constitution.
- **Governors** also have the power to grant pardons under Article 161.

#### COHABITATION

- Cohabitation occurs when **the President and Prime Minister come from different political parties** due to the President's party not having a majority in the National Assembly.
- In this system, the President manages foreign policy and defense, while the Prime Minister focuses on domestic policy and governance.
- It has happened **three times** in the French Fifth Republic since 1958.

#### FULL LITERACY

- **Ladakh** achieved over **97% literacy** under the ULLAS-Nav Bharat Saksharta Karyakram, which aims to improve adult literacy.
- The program focuses on literacy, numeracy, critical life skills, and vocational education for adults aged 15 and above.

#### PARLIAMENT SECURITY

**Recent Update:** In April 2024, the Central Industrial Security Force (CISF) took over Parliament security following a breach in December 2023.

#### About:

- **Prior responsibility** was with the Parliament Security Service (PSS) and Watch and Ward committee, formed after the 1929 bombing by Bhagat Singh and Batukeshwar Dutt.

- In 2009, the **Watch and Ward committee** was renamed PSS under the Speaker's control.

#### MISSION KARMAYOGI - NATIONAL PROGRAMME FOR CIVIL SERVICES CAPACITY BUILDING (NPCSCB)

- **Mission KarmaYogi** aims to **restructure and modernize** the framework for civil services capacity building in India. It seeks to create a comprehensive system that improves the overall training, development, and efficiency of civil servants, focusing on professional growth and skill enhancement.
- The mission aims to **create a civil service that is accountable, capable, and equipped** to handle modern governance challenges, promoting better public service delivery across the country.
- A key element of this initiative is the **Integrated Government Online Training (iGOT) karmayogi Platform**, an online portal for training civil servants. Hosted on the **DIKSHA platform** by the **Ministry of Human Resource Development**, the platform offers various courses to improve the knowledge and capabilities of public servants at all levels of government.

#### CAPACITY BUILDING COMMISSION (CBC)

- The Capacity Building Commission was established in 2021 as an **independent body** with full executive and financial autonomy. It is responsible for overseeing and implementing **Mission Karmayogi**, ensuring the **training of civil servants is effective**, targeted, and aligned with the changing needs of public administration.
- The commission consists of **three members** from diverse sectors, such as the private sector, academia, public administration, and civil society, which ensures a broad perspective in shaping the future of civil service training.
- The commission focuses on creating a **continuous learning environment** for civil servants, supporting their professional growth and ensuring they are well-prepared to tackle governance challenges.

#### NATIONAL STANDARDS FOR CIVIL SERVICE TRAINING INSTITUTIONS (NSCSTI)

- The NSCSTI was developed by the **Capacity Building Commission** to provide a baseline for the quality and effectiveness of training provided by Central Training Institutes (CTIs) in India.
- These standards aim to elevate the quality of **training, harmonize delivery methods** across different institutes, and address the evolving

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demands placed on civil servants in the 21st century.

- The framework set by these standards will help **improve civil service training** programs across the country, ensuring uniformity and quality in the training provided to public servants at various levels of government.

### GREAT SCHEME

- The **GREAT** (Grant for Research and Entrepreneurship Across Aspiring Innovators in Technical Textiles) scheme is a **part of the National Technical Textiles Mission (NTTM)**.
- It was launched by the Ministry of Textiles to encourage **young innovators, scientists, technologists, and startups** in the field of **technical textiles**. The scheme aims to support the development of innovative products in this high-growth sector, which has applications across industries such as healthcare, defense, and agriculture.
- Grants of **up to Rs. 50 lakh** are available for innovators to support the development of market-ready products, providing the necessary financial backing to translate ideas into commercially viable technologies.

### NATIONAL TECHNICAL TEXTILES MISSION (NTTM)

- The National Technical Textiles Mission is aimed at **increasing the use and penetration of technical textiles** in India, while positioning India as a global leader in this field.
- The mission runs from the **fiscal year 2020-21 to 2023-24** and focuses on advancing the technical textiles sector, which includes textiles used in high-performance applications like medical devices, automotive components, and protective clothing.
- The mission is designed to support the growth of the sector through innovation, research, and increased manufacturing capabilities, thereby strengthening India's global position in technical textiles.

### E-SAMRIDHI PORTAL

- The **e-Samridhi Portal**, developed by **NAFED** (National Agricultural Cooperative Marketing Federation of India) and **NCCF** (National Cooperative Consumers' Federation of India), aims to support farmers by providing a streamlined platform for registering for government procurement programs, particularly for pulses at Minimum Support Prices (MSP).
- **Farmers can register** on the portal directly or through Primary Agricultural Credit Societies (PACS) or Farmer Producer Organizations

(FPOs). Once registered, payments are directly deposited into farmers' bank accounts, ensuring **transparency and minimizing intermediary involvement**.

### NAFED (NATIONAL AGRICULTURAL COOPERATIVE MARKETING FEDERATION OF INDIA LTD.)

- NAFED is an **apex body for agricultural cooperatives** in India, tasked with promoting and marketing agricultural produce and forest resources.
- It helps stabilize the **prices of key agricultural commodities** and ensures that farmers get fair prices for their produce, which supports the incomes of farmers and strengthens the agricultural sector.
- NAFED is also involved in the **procurement of essential commodities** like oilseeds, pulses, and **copra** under the Price Support Scheme (PSS), and it collaborates with the Food Corporation of India (FCI) to ensure price stability.

### PRADHAN MANTRI JAN AUSHADHI KENDRAS

- **PM-JAKs** are part of the Pradhan Mantri Bhartiya Janaushadhi Pariyojana, an initiative to **provide high-quality generic medicines** at affordable prices.
- These centers aim to **sell medicines at 50-90% lower prices** than **branded drugs**, without compromising on quality or efficacy. The **Pharmaceutical & Medical Devices Bureau of India (PMBI)** coordinates the procurement, supply, and marketing of generic drugs through these centers.
- Entrepreneurs who set up **PM-JAKs** are provided with an **incentive of Rs. 5 lakh**. Recently, there has been interest from **Nepal** to establish similar centers to provide affordable medicines to their citizens.

### BIMA SUGAM

- Bima Sugam is a **platform** launched by the **Insurance Regulatory and Development Authority of India (IRDAI)** to digitize and simplify the insurance market in India.
- It **aims** to create a more **transparent, accessible, and efficient insurance marketplace** by bringing **all life and non-life insurance products under one roof**. This platform allows **customers to compare and choose** from various insurance products, making insurance more inclusive and accessible to a larger population.

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## KRISHI SAKHI CONVERGENCE PROGRAM (KSCP)

- The Krishi Sakhi Convergence Program (KSCP) is a joint initiative by the **Ministry of Agriculture and Farmers' Welfare and the Ministry of Rural Development**, designed to empower rural women by training them to become Para-extension Workers, known as Krishi Sakhis.
- The program aims to create a network of 70,000 Krishi Sakhis across India who will focus on natural farming and soil health management. This is part of the larger **Lakshmi Didi program** which aims to empower rural women economically and socially.
- The Krishi Sakhi program is a significant part of efforts to improve rural livelihoods by creating an informed, skilled workforce in agriculture and rural development.

## BHUVAN PANCHAYAT 4.0

- Bhuvan Panchayat 4.0 is an online platform developed by **ISRO's National Remote Sensing Centre (NRSC)** to support decentralized planning at the Gram Panchayat level.
- This **WebGIS platform** enables visualization, analysis, and sharing of geospatial data, which aids in better decision-making for rural governance and development.
- By integrating space-based information into grassroots planning, Bhuvan Panchayat 4.0 promotes **transparency and accountability** in local governance and helps improve the efficiency of rural development initiatives.

## NATIONAL DATABASE FOR EMERGENCY MANAGEMENT (NDEM) PORTAL

- The NDEM portal, developed by **ISRO**, provides a **geospatial database** that supports disaster management by offering real-time situational awareness.
- It serves as a **valuable resource** for various agencies involved in disaster response and recovery, ensuring that they can make data-driven decisions during emergencies.
- The **5th version** of the NDEM portal has recently been launched, improving its ability to deliver accurate, timely information to help manage disasters more effectively.

## NATIONAL FORENSIC INFRASTRUCTURE ENHANCEMENT SCHEME (NFIES)

- The NFIES is a **central sector scheme** launched by the **Ministry of Home Affairs** to enhance forensic infrastructure in India.

- The scheme will run from 2024 to 2029 and includes setting up **National Forensic Sciences University (NFSU)** campuses across India and developing Central Forensic Science Laboratories.
- This initiative aims to strengthen the criminal justice system by **improving forensic capabilities**, ensuring more effective investigations and a more robust legal framework.

## LIVING WILL

- A "living will" allows individuals to make their own medical decisions for the future, especially in case of terminal illness.
- It is **voluntary** in nature, meaning the individual has the right to choose whether to create one.
- A living will enables individuals to **refuse medical treatment** if they are in a terminal condition.
- The living will must be drafted in the presence of **two witnesses**.
- It must be certified by a gazetted officer or notary for legal validation.
- The living will should be sent to the District Collector for safekeeping.
- The Supreme Court, in the **\*Common Cause vs. Union of India & Anr.\* (2018)** case, ruled that a person in a persistent vegetative state can opt for passive euthanasia, including withdrawing life support.
- Goa** is the first state to formally implement these directives.
- Recently, Justice M.S. Sonak of the Goa Bench of the Bombay High Court became the first person in Goa to register a "living will".

## SELF-DECLARATION CERTIFICATES (SDC)

- As per a recent directive from the Supreme Court, no advertisement will be allowed to run on television, print media, or the internet without a valid Self-Declaration Certificate (SDC).
- The **Ministry of Information and Broadcasting** has made the SDC mandatory for all new advertisements.
- The SDC must be signed by an authorized representative of the advertiser or advertising agency.
- The SDC needs to be submitted through specific portals:
  - Broadcast Seva Portal for TV and radio advertisements.

- b. The Press Council of India's portal for print and digital/internet advertisements.

- The SDC serves as a certification that the advertisement:

- a. Does not contain misleading claims.
- b. Complies with all relevant regulatory guidelines.
- c. Adheres to the Cable Television Networks Rules of 1994.
- d. Meets the Norms of Journalistic Conduct established by the Press Council of India.

### PAROLE AND FURLOUGH

- Parole and furlough are **reformatory** processes aimed at re-integrating prisoners back into society.
- Both parole and furlough are governed by the Prisons Act of 1894 and the Model Prison Manual 2016 of the **Ministry of Home Affairs (MHA)**.

#### PAROLE:

- Parole refers to the **conditional release** of a prisoner with **suspension** of their sentence for a specific reason.
- Parole is **not a right**; it is granted based on certain conditions and the prisoner's situation.
- The period of parole does not count toward the total sentence duration.
- The typical duration of parole is one month.

#### FURLOUGH:

- Furlough is a **temporary, conditional** release granted to prisoners for a **short period**.
- Unlike parole, furlough is considered a **right for prisoners** under certain conditions.
- The period of furlough counts toward the total sentence duration.
- Furlough typically lasts for a **maximum of 14 days**.
- The purpose of furlough is to **balance the rights of inmates with the protection of society from potential harm**.

### NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING (NCERT)

- NCERT is an **autonomous** organization established in **1961** under the **Societies Registration Act**.
- Its primary mission is to assist and advise the central and state governments on policies and programs aimed at improving the quality of school education.

- NCERT is responsible for developing **National Curriculum Frameworks** for:

- a. **Early Childhood Care and Education (ECCE)**.
- b. **School Education**.
- c. **Adult Education**, as per the guidelines of NEP 2020.

- NCERT is the implementation agency for **bilateral cultural exchange programs** related to school education.
- NCERT has been granted the **status of a deemed university** under the **'de novo'** category, focusing on innovations in teaching and research in emerging areas of knowledge.
- NCERT's headquarters is located in New Delhi.

### PRESS COUNCIL OF INDIA (PCI)

- PCI is a **statutory, quasi-judicial autonomous body** established under the Press Council Act of 1978.
- Its main **role** is to preserve the freedom of the press and maintain and improve the standard of newspapers and news agencies in India.
- The Press Council is **composed** of a Chairman and 28 members.
- The Chairman is a retired Supreme Court judge, nominated by a **committee** that includes the Chairman of the Rajya Sabha, the Speaker of the Lok Sabha, and an elected representative from the council's members.

### INDIA METEOROLOGICAL DEPARTMENT (IMD)

- The IMD was established in **1875** and serves as the principal government agency for matters related to meteorology and allied subjects.
- It is currently under the **Ministry of Earth Sciences (MoES)**.
- IMD has **6 regional meteorological centers** located in:
- **Mumbai, Chennai, New Delhi, Calcutta, Nagpur, and Guwahati**.
- The **Director General of Meteorology** is the head of IMD.
- IMD recently introduced a new logo as part of preparations for its **150th anniversary** celebrations, marking its establishment in 1875.

### POSTAL BALLET

- **Before 2019 LS elections**, postal ballot counting was done first, followed by EVM counting 30 minutes later, with all postal ballots counted before EVMs.
- **After 2019**, EC changed the rules: postal ballot counting starts 30 minutes before EVM

counting but doesn't need to be completed before EVMs.

- The change was due to an increase in postal ballots, especially with ETPBS, and **mandatory VVPAT slip counting** for randomly selected polling stations.
- In 2019, EC expanded eligibility for postal ballots to essential service workers, people above 80, and those with disabilities. The age limit was raised to 85, and Covid-19 patients were also included.
- The **opposition INDIA alliance has called for the EC to revoke** the May 2019 directive and follow Rule 54A, which requires postal ballots to be counted first.

### ELECTIONS FROM JAIL

**Recent Update:** Amritpal Singh from Punjab and Engineer Rashid from J&K won Lok Sabha seats while in prison on serious charges under the NSA and UAPA, respectively.

**About:**

- Amritpal Singh has been detained under the National Security Act since March 2023, while Rashid is in Tihar jail facing terror-funding charges.
- Despite being in jail, their election victories grant them a constitutional mandate as **parliamentarians**.
- Jailed lawmakers may be **granted temporary parole** to take their oath. Previous examples include Sanjay Singh in March 2023 and Akhil Gogoi in 2021.
- The most **famous case is George Fernandes**, elected from jail in **1977 during the Emergency**.
- Taking the oath is a **special parole, not bail**. Jailed lawmakers must inform the Speaker if they can't attend sessions. Absence for over 60 days without permission can lead to a vacant seat.
- A conviction of **two or more years** is required for disqualification from Parliament.

### POWERS OF SPEAKER

- The Speaker, elected by a **simple majority**, has a key **constitutional role**, including overseeing the House, casting votes, and dealing with member disqualification.
- The Speaker has **vast powers** in conducting the House, deciding on questions, expunging remarks, and ensuring impartiality in procedures.
- The Speaker's **casting vote** resolves tie votes, typically favoring the government.

- Under the **anti-defection law (Tenth Schedule)**, the Speaker can disqualify defecting members, impacting government stability.
- The **Supreme Court** mandates timely disqualification decisions, ideally within three months, to prevent delays that could destabilize governments.

### REPRESENTATION OF THE PEOPLE ACT

- **Section 70:** If a person is elected to multiple seats in Parliament or State Legislature, they must resign all but one seat within the prescribed time. Otherwise, all seats become vacant.
- **Section 33(7):** A person cannot be nominated for election to more than two constituencies in:
  - a. A general election to the House of the People or Legislative Assembly.
  - b. A biennial election to the Legislative Council or Council of States.
  - c. Bye-elections to the House of the People, Legislative Assembly, Legislative Council, or Council of States.

### MONEY LAUNDERING CASE

**Recent Update:** After a trial court granted bail to Delhi CM in a PMLA case, the Delhi High Court stayed the order following an appeal by the **Enforcement Directorate (ED)**.

**About:**

- **Section 45 - PMLA Bail Conditions:** Under PMLA, bail is not the default; the court must apply a **"twin test"** when the public prosecutor opposes bail. The two conditions are:
  1. **Reasonable grounds** to believe the accused is not guilty.
  2. The accused is **not likely to commit further offences** on bail.
- **Similar Laws:** Other laws like the Narcotic Drugs Act and UAPA also have **strict bail conditions**, requiring the court to apply similar tests.
- **Legal Challenges:** The twin test was initially struck down by the Supreme Court in 2017 (Nikesh Tarachand Shah case), but Parliament reinstated it in 2018. In 2022, the Supreme Court upheld the amendment despite challenges.
- **Government's Defense:** The government argues that **money laundering** involves sophisticated, premeditated crimes, warranting **strict bail conditions**.

- **Current Law:** The twin test must be applied in all PMLA cases, including anticipatory and regular bail. However, under Section 436A of the CrPC, an accused can be granted bail if the trial exceeds half the maximum sentence duration.

### EVM- VVPAT

**Recent Update:** Eleven candidates in the 2024 Lok Sabha and State Assembly elections have requested verification of EVM (Electronic Voting Machine) and VVPAT (Voter Verifiable Paper Audit Trail) units, as allowed by the Supreme Court in April.

#### About:

- The Supreme Court upheld the EVM-VVPAT system and allowed second- and third-placed candidates to request verification of up to 5% of machines in their constituencies, with candidates bearing the verification costs, refundable if tampering is found.
- The ECI released an administrative SOP for verification. Candidates can request verification of up to 5% of EVMs and VVPATs, or 2.5% if both candidates request it.

- **Requests must be made** within seven days of result declaration, and candidates must pay Rs 40,000 per set for verification.
- **Verification is managed by District Election Officers (DEOs)**, with manufacturers notified within 30 days. It begins 45 days after result declaration, unless election petitions are filed.
- If **petitions are filed**, verification starts after court approval, with results expected by mid-August.
- Verification takes place in secure halls with CCTV, armed police, and strict entry controls. Electronic devices are prohibited.

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## 2: INTERNATIONAL RELATIONS (GS-2)

### KEYWORDS OF THE MONTH (From the covered CA Topics):

(Main)

1. **Strategic Multilateralism:** Emphasizes India's active role in international forums to promote peace and cooperation, leveraging its diplomatic capital.
2. **Diplomatic Autonomy:** Reflects India's balanced stance, such as abstaining from signing joint communiqués while promoting dialogue.
3. **Indo-Pacific Synergy:** Highlights India's engagement in region-specific frameworks like QUAD and IPEF to enhance security and economic integration.
4. **Geostrategic Prudence:** Underlines India's strategic partnerships, like INDUS-X and Horizon 2047, to strengthen bilateral and multilateral cooperation.
5. **Sustainable Peacekeeping:** Focuses on India's commitment to UN peacekeeping and ethical recruitment under initiatives like the Colombo Process.
6. **Multilateral Diplomacy:** Highlights cooperative efforts among multiple nations, emphasizing India's role in exercises like Tarang Shakti 2024 to enhance defense collaboration and interoperability.
7. **Global Governance:** Refers to institutions and frameworks, such as the UN Peacekeeping and A4P, that manage global challenges collectively, underscoring India's contributions to peace and stability.
8. **Sustainable Development:** Focuses on economic growth balanced with environmental and social goals, as seen in UNCTAD's initiatives or Denmark's carbon tax policy.
9. **Strategic Geopolitics:** Captures power dynamics and regional alliances, such as the GCC or Mattei Plan, which link energy, security, and development.
10. **Digital Sovereignty:** Represents the control nations like Estonia and India exercise over their digital ecosystems, ensuring cybersecurity and citizen identity protection amidst external threats.
11. **Geostrategic Convergence:** This term highlights the alignment of strategic objectives among nations in the context of geopolitics, emphasizing mutual interests in security and economic cooperation.
12. **Migrant Vulnerability Index:** A concept indicating the susceptibility of migrant workers to exploitation, abuse, and poor living conditions due to systemic shortcomings like the Kafala system.
13. **Regulatory Diplomacy:** Refers to international collaboration on creating and enforcing frameworks for global challenges such as financial crimes, energy security, and AI governance.
14. **Supply Chain Resilience:** The capacity of global trade networks to adapt and recover from disruptions caused by climate change, geopolitical tensions, or pandemics.
15. **Maritime Interoperability:** A focus on coordinated naval operations among allied nations to enhance collective security, particularly in contested regions like the Indo-Pacific.

### QUOTES OF THE MONTH (For the covered CA Topics):

1. "Strategic partnerships are the architecture of global stability, bridging aspirations with shared responsibilities."
2. "Diplomacy is the art of balancing autonomy with collaboration, ensuring dialogue over discord."
3. "In a multipolar world, synergy across nations is the cornerstone of sustainable development and peace."

## INDIA: GLOBAL PEACEMAKER

**Recent Update:** The "Path to Peace Summit" on Ukraine was recently held in Switzerland.

### About Peace Summit

The Peace Summit aimed to create a shared understanding for a just and lasting peace in Ukraine.

- India's representation: The Secretary of the Ministry of External Affairs attended aligning with India's focus on dialogue and diplomacy for peace.
- India abstained from signing the joint communique, advocating for practical engagement through dialogue between the parties.

## MINILATERALS

**Recent Update:** Chinese aggression in the Indo-Pacific has led to the formation of the "Squad," a minilateral group of the US, Japan, Australia, and the Philippines.

About: Minilaterals are informal groups of 3-4 states focused on addressing specific threats or security issues with shared interests and a set timeframe.

### More about Squad:

- Squad adds to security minilateral groupings in the Indo-Pacific, like QUAD, AUKUS, and trilaterals such as US-Philippines-Japan and US-Japan-South Korea.
- Its formation highlights the growing preference for minilateralism in global cooperation.

## INDIA-BANGLADESH RELATIONS

**Recent Update:** The Prime Minister of Bangladesh recently paid a state visit to India, strengthening bilateral ties.

### Recent developments in India-Bangladesh Relations

- Regional cooperation: Bangladesh joined the Indo-Pacific Oceans Initiative.
- Power and energy: India-Bangladesh Friendship Pipeline (transports diesel) and Maitree Super Thermal Power Plant (supplies electricity).
- Digital cooperation: MoU signed for cross-border UPI payments between NPCI and Bangladesh Bank.
- Space collaboration: Joint development of small satellites with Indian launch vehicles.
- Medical tourism: India extended e-Medical visa facilities to Bangladesh



## GROUP OF 7 (G7)

**Recent update:** India attended the 50th G7 Summit in Apulia, Italy, as an Outreach Country.

### About:

- Nature: Informal grouping of advanced democracies meeting annually to coordinate economic policy and address global issues like migration, climate change, and conflicts.
- Genesis: Formed in 1975 in response to the energy crisis.
- Working: No permanent structure; the rotating Presidency sets the agenda, and the summit concludes with a communiqué on political commitments.
- Members: US, Germany, Canada, UK, Japan, Italy, France. Russia was part of G8 (1998-2014) but excluded after Crimea's annexation. The EU attends the summit but is not a member.

## UN GLOBAL PRINCIPLES FOR INFORMATION INTEGRITY

**Recent Update:** The UN Secretary-General recently launched the 'Global Principles for Information Integrity' to combat online misinformation, disinformation, and hate speech.

**Principles:** These principles aim to create a more humane information ecosystem, focusing on human rights, sustainable development, climate action, democracy, and peace.

## INDIA-FRANCE RELATIONS

In the meeting, both countries focused on the 'Horizon 2047' and Indo-Pacific Roadmaps.

- Horizon 2047 Roadmap has 3 pillars:
  - Security and sovereignty: Ensure Indo-Pacific stability, counter online radicalization, and

combat terror through No Money for Terror (NMFT).

- Planet partnership:** Through Indo-Pacific Parks Partnership, International Solar Alliance, and Indo-Pacific Oceans Initiative (IPOI).
  - People partnership:** Enhance mobility of students and graduates through the Migration and Mobility Agreement (2021).\*
- Both agreed to intensify strategic **defence cooperation**, with an emphasis on 'Make in India'.



### NUCLEAR WEAPONS ARSENAL

**Recent Update:** The **SIPRI Yearbook 2024** highlights a concerning rise in nuclear weapon development and deployment.

#### Key findings

- India's nuclear arsenal** grew from **164 in 2023 to 172**, giving it a two-warhead advantage over Pakistan.
- Nine nuclear-armed states** are modernizing arsenals and deploying new systems, with 12,121 warheads globally, 2,100 on high alert.
- Transparency** on nuclear forces has **decreased in Russia and the US**.
- While total **warheads have decreased**, **operational warheads have increased yearly**, reflecting rising tensions.

#### Treaties and Non-Proliferation Efforts:

- Comprehensive Nuclear Test Ban Treaty (CTBT)** bans all nuclear explosion tests globally. **India is not a signatory.**
- Nuclear Non-Proliferation Treaty (NPT)** limits nuclear weapons spread through non-proliferation, disarmament, and peaceful use. **India is not a signatory.**
- The **2005 International Convention for the Suppression of Acts of Nuclear Terrorism** criminalizes nuclear terrorism; **India is a signatory.**

- Nuclear Security Summits** aim to secure vulnerable nuclear material; **India participates.**
- The **Conference on Disarmament (CD)** has been a multilateral forum since 1979, with **India being an active participant.**
- The **International Campaign to Abolish Nuclear Weapons (ICAN)** promotes the UN Treaty on the Prohibition of Nuclear Weapons (2017); **India has not signed it.** ICAN won the Nobel Peace Prize in 2017.

#### Nuclear Weapon Technologies:

A nuclear weapon releases energy through fission, fusion, or both.

Fission Weapon	Fusion Weapon
Also known as <b>atomic bombs</b> .	Also known as <b>thermonuclear or hydrogen bombs</b> .
Uses <b>U-235 isotope</b> of Uranium as fuel.	Uses <b>deuterium and tritium</b> (hydrogen isotopes) for fusion
Fission <b>splits atoms</b> , releasing energy and neutrons.	Fission <b>triggers hydrogen fusion</b> , causing further fission and massive energy release.
<b>Energy output: From 1 ton to 500 kilotons of TNT.</b>	<b>Yields megatons of TNT, far more powerful than atomic bombs.</b>

### INDIA-ITALY STRATEGIC PARTNERSHIP

**Recent Update:** The **Prime Ministers of India and Italy** reviewed progress at the G7 Summit and agreed to strengthen cooperation in global initiatives, including the **India-Middle East-Europe Economic Corridor (IMEC)**.

#### Key Aspects of Bilateral Partnership

- Political**
  - Relations began in 1947, elevated to **Strategic Partnership in 2023**.
  - 2020 Virtual Summit** led to a **2020-2025 Action Plan** for enhanced cooperation.
- Economic**
  - Italy is India's 4th largest EU trading partner.
  - Joint Economic Commission cooperation since 1976.
  - Migration and Mobility Partnership Agreement** signed in 2023.
- Technology**
  - Science & Technology Cooperation Agreement** signed in **2003**, focusing on **Electronics, Biotechnology, and Energy**.

- New Executive Programme (2025-27) for joint R&D in Science & Technology.

#### 4. Defence and Security

- Italy joined Indo-Pacific Ocean Initiative's Science and Technology Pillar in 2023.
- Joint military exercises: PASSEX, MILAN.

#### 5. Multilateral Cooperation

- Italy joined India-led International Solar Alliance, Coalition for Disaster Resilient Infrastructure, Global Biofuels Alliance, and IMEC.

### INDUS-X INITIATIVE

The India-US Defence Acceleration Ecosystem (INDUS-X) was launched in June 2023 under the **Critical and Emerging Technologies initiative (iCET)** to foster defense innovation.

- INDUS-X promotes partnerships among defense companies, incubators, investors, and universities in both countries.

### INDO-PACIFIC ECONOMIC FRAMEWORK

**Recent Update:** India attended the Indo-Pacific Economic Framework for Prosperity (IPEF) ministerial meeting.

- IPEF members signed agreements to address 21st century challenges and strengthen economic engagement in the Indo-Pacific.

**Key outcomes:**

- IPEF **Clean Economy Agreement:** Focus on energy security, climate resilience, and GHG emissions reduction.
- IPEF **Fair Economy Agreement:** Aims to improve business transparency and predictability.
- **Cooperative Work Programme (CWP):** Three new CWPs on emissions intensity, e-waste urban mining (led by India), and Small Modular Reactors.
- IPEF **Catalytic Capital Fund:** Launched to support clean economy infrastructure projects.

### COLOMBO PROCESS

**Recent Update:** India chaired its first meeting as Chair of the Colombo Process.

**About** Colombo Process:

- A regional consultative platform for managing overseas employment and contractual labor.
- Comprises **12 Asian member states**, including Bangladesh and Sri Lanka. **India is a founding member.**
- **Key priorities:** Skills and qualification recognition, ethical recruitment practices.
- Supported by the **UN's International Organization for Migration (IOM).**

### 75 YEARS OF UNITED NATIONS PEACEKEEPING (2023)

- 2023 marked the 75th anniversary of UN Peacekeeping, with the theme "Peace begins with me" highlighting the importance of individual commitment to global peace.
- A special ceremony was held to posthumously award the **Dag Hammarskjöld Medal to peacekeepers who lost their lives in 2022.**
- The Peace Begins with Me campaign emphasizes the service, sacrifice, and resilience of peacekeepers and encourages people globally to join the movement for peace.

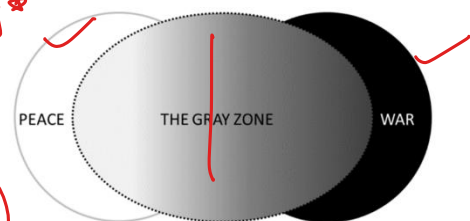
### 'GREY-ZONE' WARFARE

**Recent Update:** China is using 'grey-zone' tactics against Taiwan, including simulated invasion scenarios, military sorties, and cognitive warfare to pressure the island's leadership.

**Definition:** Grey-zone warfare combines conventional and non-conventional methods to harm an adversary without provoking full-scale conflict.

**Operation:** It operates in the space between peace and war, using tactics such as cyberattacks, economic coercion, disinformation, and proxy forces to achieve strategic objectives.

*Controlling*



### INDUS WATER TREATY

**Recent Update:** A Pakistani delegation visited Kishtwar, Jammu, to inspect hydroelectric projects (Kishanganga HEP and Ratle HEP) under the Indus Water Treaty, amid ongoing disputes over Pakistan's technical objections.

**About:** The Indus Waters Treaty (IWT), signed in 1960 between India and Pakistan, allocates the waters of the Indus River system. Under the treaty:

- **Pakistan** receives water from the Western Rivers (**Indus, Jhelum, Chenab**).
- **India** receives water from the Eastern Rivers (**Ravi, Beas, Sutlej**).

*World Bank*

## The Indus Waters Treaty (IWT)

■ The distribution of waters of the Indus and its tributaries between India and Pakistan is governed by the Indus Water Treaty (IWT).

■ Was signed on Sept 19, 1960, between India, Pakistan and a representative of World Bank after nine years of negotiations.

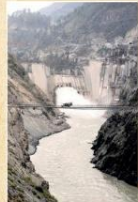
■ Partition of India cut across the Indus river basin, which has the Indus river, plus five of its main tributaries.

### Western rivers

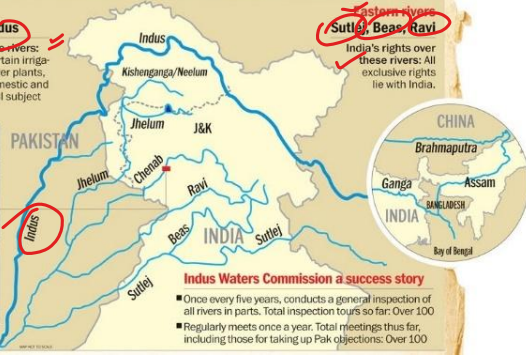
**Chenab, Jhelum, Indus**  
India's rights over these rivers: Limited – can set up certain irrigation, run-of-the-river power plants, very limited storage, domestic and non-consumptive use, all subject to conditions

### Eastern rivers

**Sutlej, Beas, Ravi**  
India's rights over these rivers: All exclusive rights lie with India.



Baglihar dam on Chenab



### Indus Waters Commission a success story

■ Once every five years, conducts a general inspection of all rivers in parts. Total inspection tours so far: Over 100  
■ Regularly meets once a year. Total meetings thus far, including those for taking up Pak objections: Over 100

## QUAD

**Recent Update:** A report titled "Two Decades of the Quad: Diplomacy & Cooperation in the Indo-Pacific" has been released.

**About:** The Quad (Quadrilateral Security Dialogue) is a strategic partnership between Australia, India, Japan, and the US.

- It is not a military alliance.
- The Quad nations account for 24% of the global population, 35% of the world's GDP, and 18% of global trade.

## AUKUS ALLIANCE

**Recent Update:** The article discusses the AUKUS alliance between the US, UK, and Australia to enhance military capabilities against China, including sharing nuclear submarine technology.

**About:**

- AUKUS, formed in 2021, aims to strengthen security and counter China's influence in the Indo-Pacific.
- It involves deeper information and technology sharing, and integration of security industries.
- India is not a member but has engaged informally with AUKUS on emerging technologies, with no formal dialogue yet.

## INDIAN MIGRANTS TO GULF COUNTRIES

**Recent Update:** The article discusses the tragic death of 49 migrant workers in a Kuwait fire, caused by poor living conditions and employer negligence. It criticizes Kuwait's weak enforcement of worker protections and the Kafala system, which restricts migrants' rights.

### Kafala system

- The Kafala system is used in some Middle Eastern countries, including Kuwait, to regulate migrant worker employment.

- A migrant's work and residency permits are tied to an employer (**Kafeel**), giving the sponsor significant control.
- This system often leads to exploitation and abuse, as workers struggle to change jobs or leave abusive employers without risking deportation.

## FINANCIAL ACTION TASK FORCE (FATF)

**Recent Update:** India's Mutual Evaluation Report, adopted at the FATF plenary in Singapore, places India in the "regular follow-up" category, alongside four other G-20 countries, highlighting its significant progress in combating money laundering and terrorist financing.

**About:**

- FATF is an inter-governmental body focused on combating money laundering and terrorist financing.
- Its objective is to set international standards and promote policies to fight money laundering and terrorism financing.
- Established in 1989 at the G7 Summit in Paris, its mandate expanded in 2001 to include terrorism financing.
- Headquarters: Paris, France.
- FATF has 39 members, including the US, India, China, and Saudi Arabia.

**FATF has two lists:**

1. **Black List:** Countries that support terror funding and money laundering (e.g., North Korea, Iran, Myanmar).
2. **Grey List:** Countries that are safe havens for terror funding and money laundering, serving as a warning they may be added to the blacklist.

## INTERNATIONAL ENERGY AGENCY (IEA)

- Established in 1974, the IEA is an intergovernmental organization under the OECD, focusing on energy security, economic development, and environmental sustainability.
- India is currently not a member but was invited to join as a full member due to its status as the world's third-largest energy consumer.
- To join the IEA, India would need to increase its strategic oil reserves to meet IEA requirements.

## INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

- Founded in 1945, IATA represents over 300 airlines, covering 94% of international air traffic.

- **India is a member of IATA**, which advocates for policies on aviation safety, environmental sustainability, and economic regulation of the airline industry.
- **India will host the IATA's Annual General Meeting (AGM) in 2025, the first time in 42 years.**

### INDIAN EXPATRIATE COMMUNITY

**Recent Update:** A recent fire in an apartment building near Kuwait City tragically killed at least 49 people, including around 40 Indian nationals.

**Expatriate:**

- An individual living or working in a country other than their own.
- Typically a **temporary** arrangement for work.
- Can also refer to someone who has given up their original citizenship to become a citizen of another country.

### PARTNERSHIP FOR GLOBAL INFRASTRUCTURE AND INVESTMENT (PGII)

- Launched at the **48th G7 Summit in 2022**, PGII (previously known as the Build Back Better World initiative) aims to fund critical infrastructure projects in developing countries.
- With a goal of investing nearly **\$600 billion by 2027**, the PGII will focus on infrastructure such as roads, ports, bridges, and communications, boosting global trade and cooperation.
- **The Blue Dot Network (BDN)** will set standards for the initiative, emphasizing transparency, accountability, sovereignty, labor rights, and sound governance.

### HIROSHIMA AI PROCESS (HAP)

- The G7's Hiroshima AI Process seeks to establish guidelines and strategies for **regulating artificial intelligence**.
- The initiative also encourages international organizations like the **OECD** and the Global Partnership on AI (**GPAI**) to evaluate the implications of AI policy developments and engage in practical projects.

### EXPANSION OF BRICS

**Recent Update:** BRICS foreign ministers recently held their first meeting since the group's expansion in 2023, which added **Egypt, Iran, UAE, Saudi Arabia, and Ethiopia**.

**About BRICS**

- BRICS includes **Brazil, Russia, India, China, and South Africa**, representing leading emerging economies.
- The BRICS Leaders' Summit is held annually. South Africa hosted the **15th summit in 2023, and Russia will host the 16th in October 2024.**
- BRICS **originated** in 2006 when Brazil, Russia, India, and China met informally at the **G8 Outreach Summit in St. Petersburg.**
- The group was formalized at the **first BRIC Foreign Ministers' Meeting in New York in 2006.**



### GLOBAL SUPPLY CHAIN FORUM

**Recent Update:** The inaugural United Nations Global Supply Chain Forum (UNGSCF), hosted by UNCTAD and the Government of Barbados, focused on addressing global supply chain disruptions.

**About UNGSCF:**

- The forum stressed the volatility in global trade and the need for more inclusive, sustainable, and resilient supply chains.
- **Global disruptions** are leading to longer shipping times and higher greenhouse gas emissions.
- It addressed the compounded impacts of climate change, geopolitical tensions, and the **COVID-19 pandemic on supply chains.**
- Ports were emphasized as essential for sustaining global value chains through technology and sustainable practices.

**About UNCTAD:**

UNCTAD is a **permanent** intergovernmental body of the United Nations, established in **1964** and based in **Geneva, Switzerland.**

- It **promotes** sustainable development, focusing on developing countries, through trade, investment, finance, and technology transfer.
- UNCTAD's **key areas** of work are trade and development, investment and enterprise,

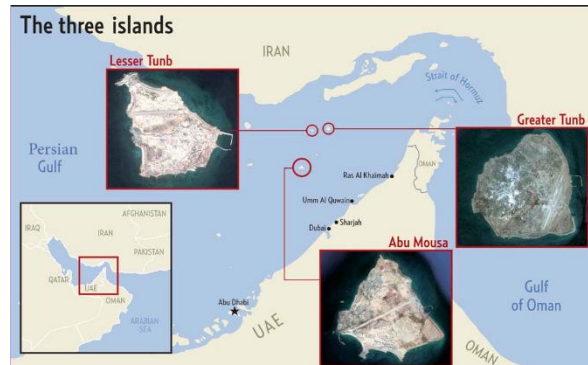
technology and innovation, and macroeconomics and development policies..

## JIMEX 24

- **Event:** Eighth edition of the Japan-India Maritime Exercise (JIMEX 24).
- **Location:** The exercise will take place in Yokosuka, Japan.
- **Structure:** The exercise includes both harbour and sea phases.
- **Harbour Phase:** Professional, sports, and social activities.
- **Sea Phase:** Naval drills at sea.
- **Indian Navy Representation:** INS Shivalik (Indian Navy ship).
- **Japan Maritime Self-Defense Force Representation:** Guided Missile Destroyer JS Yugiri (Japan's naval ship).
- **Helicopters:** Both the Indian and Japanese navies will participate with their helicopters.
- **Objective:** The exercise aims to enhance interoperability and cooperation in maritime security in the Indo-Pacific region.
- **Other Bilateral Exercises:** India and Japan also conduct several other joint exercises:
  1. **Malabar:** A trilateral exercise involving India, Japan, and the U.S.
  2. **Veer Guardian:** A joint air exercise.
  3. **SHINYUU Maitri:** A joint air exercise focused on enhancing defense cooperation.
  4. **Dharma Guardian:** A joint army exercise focusing on counter-terrorism.

## GREATER AND LESSER TUNB

- Iran recently protested China's joint statement with the UAE on the sovereignty of the **Abu Musa, Greater Tunb, and Lesser Tunb islands.**
- These disputed islands are located at the entrance to the Strait of Hormuz, in the Persian Gulf, and are claimed by both Iran and the UAE.
- Iran asserts the islands were historically part of Persian territory, occupied by the British in the early 20th century, and regained control after Britain withdrew in 1971.
- The **UAE claims the islands belonged to the emirate of Ras al-Khaimah** and were seized by Iran just before the formation of the UAE Federation in 1971.



## JOLFA

- Iran's President and Foreign Minister recently died in a helicopter crash in Jolfa, East Azerbaijan province.
- The crash involved a US-made Bell-212 helicopter, known for its reliability despite its age.
- A city in East Azerbaijan, Iran, and the capital of both Jolfa County and District.
- It is separated by the Aras River from the town of Julfa in Azerbaijan.
- To reimburse exporters for taxes, duties, and levies on production and distribution not refunded by other schemes.

## GLOBAL SUPPLY CHAIN FORUM 2024

- The first-ever Global Supply Chain Forum was held in Barbados in 2024, organized **by the UN Conference on Trade and Development (UNCTAD) and the Government of Barbados.**
- The forum was convened to address global challenges such as trade disruptions, geopolitical tensions, climate change, and the COVID-19 pandemic.
- A **key outcome** was the launch of the "Manifesto for Intermodal, Low-Carbon, Efficient and Resilient Freight Transport and Logistics."
- The next Global Supply Chain Forum is scheduled for 2026 in Saudi Arabia.

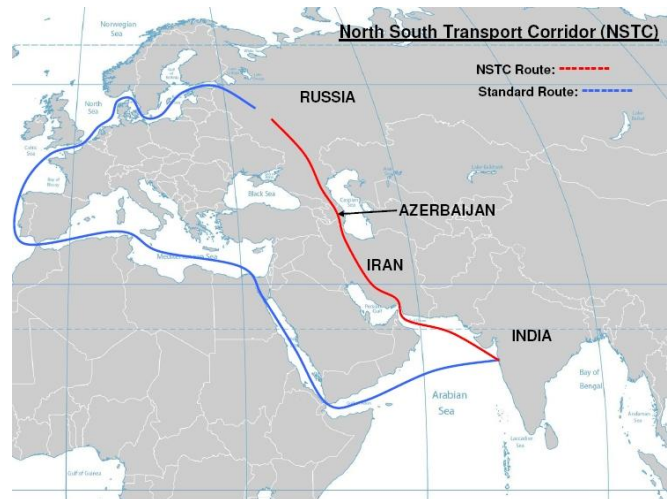
## INSTC

**Recent Update:** Russia recently sent two coal-filled trains to India via the **International North-South Transport Corridor (INSTVC)** for the first time. The 7,200 km journey starts from St. Petersburg, Russia, and ends at Mumbai port via Iran's Bandar Abbas.

**About:** INSTC is a **7,200 km multimodal route** connecting the **Indian Ocean and Persian Gulf to the Caspian Sea, extending to northern Europe via St. Petersburg, Russia.**

It links ship, rail, and road routes between India, Iran, Azerbaijan, Russia, Central Asia, and Europe.

**Origin:** Launched on September 12, 2000, by a trilateral agreement between Iran, Russia, and India to enhance transport cooperation.

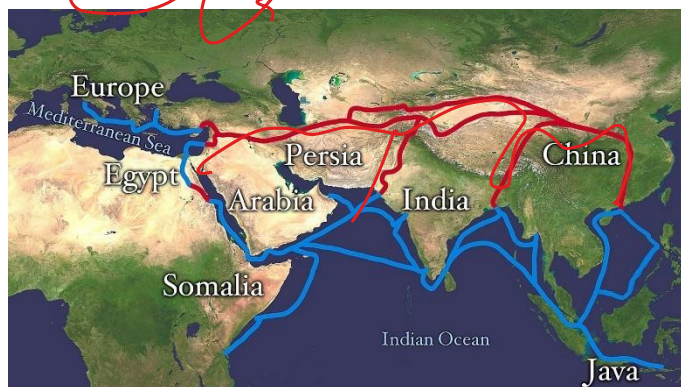


### SILK ROAD

**Recent Update:** A recent study by Chinese scientists in *Science Bulletin* found that climate change caused the main route of the ancient Silk Road to shift northward. The study offers insights into how climate change influenced the spatial evolution of human societies.

**About:**

- A trade network connecting Europe and Asia, lasting over 1,500 years.
- Named for China's silk trade, but also carried spices, gold, and precious stones.
- **Key cities:** Samarkand, Babylon, Constantinople.
- Established in the 2nd century BCE by Chinese diplomat Zhang Qian.



### RELOS

**Recent Update:** India and Russia are finalizing the **Reciprocal Exchange of Logistics Agreement (RELOS)**, aimed at boosting military cooperation, including joint exercises, training, and disaster relief.

**About:** A key agreement to enhance military logistics and cooperation between India and Russia.

**Purpose:** Streamlines logistics support for joint operations and long-distance missions, improving efficiency and cost-effectiveness.

### INDIA SRI LANKA RELATIONS

**Recent Update:** The Indian External Affairs Minister recently met with the Sri Lankan President to discuss bilateral cooperation in sectors such as power, energy, connectivity, ports, and aviation.

**About:**

- **Historical Ties:** The two countries share deep cultural, religious and trade connections, with many Sri Lankans having Indian roots and Buddhism playing a significant role in both nations.
- **Economic Ties:**
  - i. **Financial Assistance:** India provided USD 4 billion to support Sri Lanka during its 2022 financial crisis and helped with debt restructuring through the IMF.
  - ii. **Economic Cooperation Agreement (ETCA):** Both nations are exploring an ETCA to integrate their economies.
  - iii. **UPI Adoption:** Sri Lanka adopted India's UPI, boosting fintech connectivity.
  - iv. **Trade:** India is Sri Lanka's third-largest export destination, with over 60% of Sri Lankan exports benefiting from the India-Sri Lanka Free Trade Agreement.
- **Regional Groupings:** Sri Lanka is a member of BIMSTEC and SAARC, where India plays a leading role.
- **Tourism:** India was the largest source of tourists to Sri Lanka in 2022, with over 100,000 visitors.

### INDIA AFRICA POSTAL LEADERS MEET

**Recent Update:** The 'India Africa Postal Leaders Meet' was held in India to enhance postal sector ties between India and African nations.

- It focused on capacity building through study visits, showcasing India Post's services like e-commerce, Aadhaar, and passport services.
- 42 postal heads from 22 African countries participated, supporting broader initiatives like the India-Africa Forum and G20 inclusion of the African Union.

### KANISHKA TRAGEDY

**Recent Update:** The 1985 bombing of Air India Flight 182, which killed 329 people, remains under investigation by Canada.

**About:**

- The bombing was linked to Sikh militants seeking revenge for **'Operation Bluestar'**, a 1984 Indian Army action at the Golden Temple.
- A second bomb exploded at Tokyo's Narita Airport, killing two baggage handlers.

### CECA NEGOTIATIONS

**Recent Update:** Australia aims to finalize the Comprehensive Economic Cooperation Agreement (CECA) with India within 6-7 months, ahead of its 2025 elections.

**About:**

- CECA is a **broader trade agreement** than the Economic Cooperation and Trade Agreement (ECTA), which took effect in December 2022.
- CECA negotiations began in 2011, stalled in 2016, and resumed in 2021 with the goal of enhancing trade in goods, services, digital trade, and more.
- New areas of focus include **competition policy**, MSMEs, agri-tech, innovation, critical minerals, and sports.
- In 2023-24, India's imports from Australia dropped 15%, while exports grew 14%. Australia is India's 13th largest export partner.

### TARANG SHAKTI 2024

**Recent update:** India will host the multinational air exercise **Tarang Shakti-2024** in August, involving 10 countries.

**About:**

- The exercise will take place in two phases: southern and western India.
- Participants include **Australia, France, Germany, Japan, and the US**.
- Germany will showcase the A-400M aircraft for India's medium transport aircraft tender.
- **Indian Rafales also participated in Red Flag 2024**, conducting air defense and offensive exercises.

### UN PEACEKEEPING

- UN Peacekeeping deploys personnel from across the globe, including military troops, police, and civilian peacekeepers, to support and implement mandates **established by the UN Security Council (UNSC) and General Assembly**.
- Funding for these operations is the collective responsibility of UN Member States, with each country obligated under the UN Charter to contribute a share based on their capacity.

- India is one of the largest contributors to UN Peacekeeping efforts, ranking second among troop-contributing countries. In 2007, **India made history by deploying the first all-women peacekeeping contingent to a UN mission**.

### ACTION FOR PEACE (A4P)

- The **Action for Peace (A4P) initiative**, launched in 2018, focuses on strengthening peacekeeping by driving collective action from various stakeholders, including UN Member States, the Security Council, contributors of troops and police, host countries, and regional organizations.
- A4P consists of a set of mutually agreed principles and commitments designed to enhance the effectiveness and future readiness of peacekeeping operations, focusing on eight priority areas.
- The **A4P+ strategy**, effective from 2021-23, includes seven key priorities for implementing the original commitments.

### UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)

- UNCTAD, established in 1964, is the UN's primary institution dealing with trade and development, **headquartered** in Geneva, Switzerland.
- It assists developing countries in leveraging trade, investment, finance, and technology for sustainable and inclusive development.
- UNCTAD publishes several key reports, including the **Trade and Development Report, World Investment Report, and the Least Developed Countries Report**.

### GLOBAL PRINCIPLES FOR INFORMATION INTEGRITY (UN)

- The UN has unveiled five key principles to address the **damage caused by false information on digital platforms**. These principles are:
  - a) Societal Trust and Resilience
  - b) Independent, Free, and Pluralistic Media
  - c) Healthy Incentives
  - d) Transparency and Research
  - e) Public Empowerment.

### G7 SUMMIT

- **India was invited** to participate in the 50th Group of Seven (G7) Summit in **Apulia, Italy**, as an Outreach Country.
- The G7, an informal grouping of advanced democracies, addresses global economic policies and transnational issues.

- The G7's history dates back to 1975 in response to the oil crisis, and its members currently include the **US, Germany, Canada, the UK, Japan, Italy, and France.**
- The G7 accounts for approximately **40% of the global economy and 10% of the world's population.**

### FINANCIAL ACTION TASK FORCE (FATF)

- The FATF is an intergovernmental body based in Paris, established in 1989, **focused on combating money laundering, terrorist financing, and the proliferation of weapons of mass destruction.**
- **India joined FATF as a full member in 2010**, after first participating as an observer in 2006.
- FATF maintains a list of jurisdictions with deficient anti-money laundering measures, with countries in the **"grey list"** under increased monitoring and those in the **"black list"** subject to a call for action.
- FATF's decision-making body, the Plenary, meets three times a year to review countries' progress on AML/CFT (anti-money laundering and combating the financing of terrorism) standards.

### GULF COOPERATION COUNCIL (GCC)

- The GCC is a regional political and economic alliance established in 1981, consisting of **six Arab states: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE.**
- Its goals include fostering cooperation on socioeconomic issues and addressing regional security challenges.
- The GCC is **India's largest regional trading partner.**

### EUROPEAN PARLIAMENT ELECTIONS

- The European Parliament is a **key institution of the European Union (EU)**, where member states pool sovereignty to gain collective strength.
- MEPs (Members of the European Parliament) are directly **elected by citizens of 27 member states**, providing democratic legitimacy to EU activities.
- The **720 seats** are allocated on a **principle of 'degressive proportionality'**, with smaller states electing more MEPs than their populations would proportionally warrant.
- The European Parliament has **three main functions: adopting and amending EU legislation with the Council of the EU, supervising EU institutions** (particularly the European Commission), and **sharing authority over the EU budget.** It also ratifies international agreements, such as trade deals.

*Cohesive economic political bloc*  
*1993*

*financial*

- The **new Parliament** will focus on **key issues**, including climate change, migration, the Green Deal, digitisation, and foreign policies related to Ukraine, Russia, China, and the Indo-Pacific.

### ESTONIA CYBERSECURITY INFRASTRUCTURE

- **Estonia**, a **highly advanced digital country**, aims to collaborate with India to strengthen cybersecurity, given both nations face cyber threats from neighboring countries—Russia for Estonia and China for India.
- Estonia, with a **population of 1.3 million**, was part of the Soviet Union and suffered a major cyberattack in 2007, linked to political unrest over a Soviet war memorial in Tallinn.
- **NATO's Cyber Defence Centre of Excellence (CCDCOE)**, established in 2008, provides expertise in **cyber defense with input from 39 countries** across military, government, academia, and industry.
- Both **Estonia and India have national identity systems**—Estonia's e-ID and India's Aadhar—integrated with government services. Indian officials studied Estonia's system during the early development of Aadhar.

*USA 1922 - 1991*

*Socialist Republics 1917*

*A Baltic countries Estonia Latvia Lithuania*



### MATTEI PLAN

**Recent Update:** The Mattei Plan aims to **boost development in Africa** to curb irregular immigration to Europe.

**About:**

- Named after Enrico Mattei, **founder of Italy's state oil company Eni**, the plan focuses on five pillars: education, agriculture, health, water, and energy.
- Italy aims to **become an energy hub**, transporting natural gas from **Africa** to Europe, with Eni playing a key role.
- An **initial 5.5 billion euros** will be allocated, including public guarantees and 3 billion euros from a 2021 climate fund for international environmental projects.

### HAWAII ISLANDS

**Recent Update:** Hawaii settled a lawsuit with **13 youth plaintiffs** over the state's use of fossil fuels in transportation, aiming to decarbonize its system over 21 years.

- The lawsuit, filed in 2022, was the **first youth-led constitutional climate case** targeting transportation sector pollution.

**About:**

- It argued that Hawaii violated the **plaintiffs' right to a clean environment** by prioritizing fossil fuel-based transportation policies.
- The **settlement requires Hawaii** to achieve zero GHG emissions in transportation by 2045, create a greenhouse gas reduction plan within a year, and develop pedestrian, bicycle, and transit networks within five years.
- Hawaii will also **allocate \$40 million** to expand electric vehicle charging by 2030, with a judge overseeing enforcement.

### SAIPAN

- Saipan, known for its beaches and WWII wrecks, will host the **final stage of Julian Assange's** 14-year legal journey.
- Assange is expected to plead guilty to a single charge in a plea deal that will allow him to return home to Australia.
- Saipan is the **capital of the Northern Mariana Islands**, a US commonwealth in the western Pacific, located about 70 km north of Guam.

### CARBON TAX IN DENMARK

**Recent Update:** Denmark will tax livestock farmers starting in 2030 for methane emissions from cows, sheep, and pigs, aiming to **reduce greenhouse gas emissions** by 70% from 1990 levels by 2030.

**About:**

- The tax will start at **300 kroner (\$43) per ton of CO2 equivalent**, increasing to 750 kroner (\$108) by 2035. Due to a 60% income tax deduction, the actual cost will be lower.
- **Methane**, a potent **greenhouse gas**, is 87 times more heat-trapping than CO2 over 20 years. Livestock contribute 32% of human-caused methane emissions.
- **New Zealand** had a similar law, but it was removed after **farmer backlash and a change in government**.
- **Danish cows** produce 6 metric tons of CO2 equivalent per year. Denmark will also tax pigs, though cows emit more methane.

### BOLIVIA COUP

- **Bolivian armed forces** withdrew from the presidential palace in La Paz, and a general was arrested after **President Luis Arce** denounced a "coup" attempt, seeking global support.
- **Declining gas exports**, which fueled Bolivia's "economic miracle" in the 2000s, have led to a severe drop in foreign reserves, now near zero.
- **Bolivia** has two capitals: **Sucre** (constitutional capital and location of the Supreme Court) and **La Paz** (administrative capital, housing the executive and legislative branches).

### 3: ECONOMY

#### KEYWORDS OF THE MONTH (From the covered CA Topics):

1. **Interoperable Ecosystems:** Refers to systems that allow seamless interaction and data exchange across platforms, enhancing inclusivity and scalability.
2. **Fiscal Transparency:** Emphasizes openness and accountability in public financial systems, ensuring efficient fund utilization and decision-making.
3. **Value Chain Optimization:** Involves improving each stage of production or service delivery to maximize efficiency and sustainability.
4. **Inclusive Innovation:** Refers to innovation processes that cater to diverse socio-economic groups, promoting equitable access to advancements.
5. **Tech-Driven Synergies:** Highlights the integration of technology to create collaborative and efficient solutions across sectors.
6. **Technological Disruption** - Represents transformative changes in industries through innovative technology, revolutionizing traditional processes in areas like fintech, digital payments, and e-commerce.
7. **Financial Inclusion** - Enabling broader access to financial services for underserved populations through digital platforms, promoting equity and reducing out-of-pocket expenditures.
8. **Regulatory Synergy** - Collaboration between government bodies and industry to create frameworks that balance innovation with safety, as seen in initiatives like AEO status and digital payment platforms.
9. **Data-Driven Decision-Making** - Utilizing analytics and intelligence platforms for real-time insights to optimize operations and mitigate risks, such as in fraud detection and household consumption surveys.
10. **Sustainable Growth Paradigm** - Emphasizing economic strategies that balance innovation, environmental considerations, and inclusivity, illustrated by coal gasification and organic standardization efforts.
11. **Concessional Duty:** A lower tariff rate on specific goods, aimed at reducing import costs and supporting domestic industries, while also maintaining a balance between trade protection and demand fulfillment.
12. **Rooftop Solar:** A key renewable energy initiative encouraging the installation of solar panels on rooftops, contributing to India's ambitious clean energy targets by utilizing residential buildings for sustainable power generation.
13. **Remittances:** Financial transfers made by migrants to their home countries, playing a crucial role in supporting family income, national foreign exchange, and stimulating economic activity, especially in developing regions.
14. **Power Markets:** Platforms for electricity trading, designed to optimize power supply through competitive and transparent mechanisms, thus enhancing the efficiency of energy allocation in a country's grid system.

#### QUOTES OF THE MONTH (For the covered CA Topics):

1. "Innovation is not an isolated event, but a symphony of interoperable systems that drive inclusive progress, fiscal transparency, and sustainable growth, bridging gaps between economies and societies."
2. "The true power of technology lies in its ability to create synergies—where disruptive innovation, inclusive practices, and efficient value chains converge to shape a future that is not only technologically advanced but also equitable and resilient."
3. "In the modern age, data-driven decision-making and regulatory synergy are the twin pillars supporting the evolution of sectors, whether it's in enhancing power markets, fostering financial inclusion, or unlocking the potential of renewable energy solutions like rooftop solar."

## DIGITAL PUBLIC INFRASTRUCTURE (DPI)

- **Definition:** It is a **secured interoperable digital system** built on open standards to ensure equitable access to public and private services at scale.
- These systems are **governed by legal frameworks** that promote development, inclusion, innovation, trust, competition, and respect for human rights.
- **India Stack** is India's foundational DPI, comprising three interconnected layers:
  1. **Identity Layer** - e.g., Aadhar, e-KYC
  2. **Payment Layer** - e.g., UPI, Aadhar Payment Bridge
  3. **Data Governance Layer** - e.g., DigiLocker, Account Aggregator
- **One Future Alliance** is a voluntary initiative by the **G20 India Presidency** to build capacity and provide technical assistance and funding for implementing DPI in low and middle income countries.

## ANGEL TAX

- **Definition:** This is the **income tax** imposed on funding **raised by unlisted companies or startups** when their valuation exceeds the fair market value.
- **For example,** if a startup's fair market value is Rs 10 and they sell shares for Rs 20, the Rs 10 difference is taxed as income.
- **Objective:** Introduced in 2012 to combat money laundering and tax evasion.
- **Legal Provision:** Levied under Section 56(II)(viiB) of the **Income Tax Act, 1961**.
- **Coverage:** Initially applied only to local investors, but the Budget 2023-24 expanded it to include foreign investments (with some exceptions).
- **Angel Tax Has Been Abolished-** to improve Ease of Doing Business and streamline Investment

## GIG ECONOMY

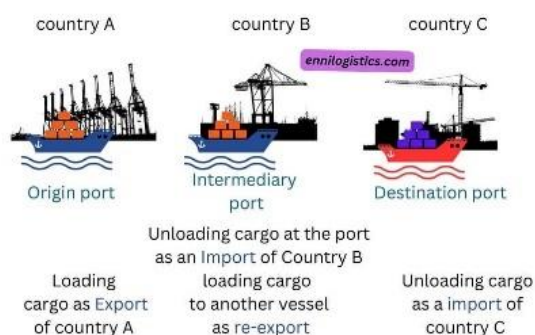
- **Definition:** It refers to a **labor market** characterized by **short-term, flexible jobs**, often mediated through **digital platforms**.
- **Gig Workers** typically take on freelance or part-time tasks rather than traditional full time employment.
- The **gig economy** is broadly classified into two categories:
  - i. **Platform-Based:** Workers utilize online apps or digital platforms (e.g., Zomato delivery workers).

- ii. **Non-Platform Based:** **Casual wage workers** in traditional sectors, either part time or full-time (e.g., domestic)

## TRANSSHIPMENT PORT

- **Definition:** A **transit hub** where cargo is transferred from one ship to another en route to its **final destination**, often involving rails and roads.
- **Smaller parcels** are consolidated onto larger ships for transportation to distant international ports.

### Transshipment of country B



## INDIA'S STRUCTURAL TRANSFORMATION

- **Structural Transformation:** Transition of an economy from low productivity and labour intensive **economic activities** to higher productivity and skill intensive activities.
- **Indicators of Structural Transformation**
  - i. **Shift from Agriculture:** Resources (labor, capital, technology) move from low productivity sectors like agriculture to higher-productivity sectors such as services.
  - ii. **Sectoral Distribution:** An increased share of **manufacturing and services**, measured through employment, value-added, and consumption distribution.
  - iii. **Capital Accumulation:** Growth in **physical and human capital**, along with changes in demand, production, employment, and trade.
  - iv. **Migration:** Rural-to-urban migration driven by both rural and urban development.
  - v. **Demographic Transition:** A shift from **high birth and death rates** in underdeveloped areas to low rates in developed, urban areas.

## SPACE ECONOMY

- **Definition:** The **space economy** encompasses all economic activities related to the exploration and utilization of outer space

- This venture capital fund will finance space tech startups and small to medium-sized enterprises at various stages of their lifecycle. It will complement initiatives like the Seed Fund Scheme launched by the Indian National Space Promotion and Authorization Centre (IN-SPACe) in 2023. ✱
- Private Sector Participation** in Space
  - India has over 200 space-based startups.
  - In 2022, **Vikram-S**, India's first privately built rocket, was launched by Skyroot Aerospace under 'Mission Prarambh.'
  - Agnikul Cosmos**, incubated at IIT Madras, test-launched the world's first rocket with a single-piece 3D printed engine.

Space-X

- Electric Vehicles (EVs):** Cars, buses, and trucks powered by electric motors.
- E-Bikes and E-Scooters:** Electric bicycles and scooters for personal transport.
- Public Transport:** Electrified buses and trains

- Benefits:**
  - Environmental Impact:** Reduced greenhouse gas emissions and air pollution.
  - Energy Efficiency:** Electric motors are more efficient than internal combustion engines.
  - Cost Savings:** Lower fuel and maintenance costs for electric vehicles.
- E-mobility is seen as a **crucial component of sustainable transport systems**, contributing to a reduction in reliance on fossil fuels and promoting cleaner urban environments.

### SUSTAINABLE DEVELOPMENT GOALS

- The concept of sustainable development, defined by the 1987 **Brundtland Commission** Report, emphasizes meeting present needs without compromising future generations.
- In 2000, the United Nations **Millennium Development Goals (MDGs)** were established, committing global leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and gender discrimination, with **targets set for 2015**.
- The Sustainable Development Goals (SDGs) serve as a **blueprint for a better future**, addressing global challenges like poverty, inequality, climate change, and peace.
- In 2015, the UN adopted the **2030 Agenda** for Sustainable Development, outlining a **15-year plan with 17 Goals and 169 targets to be achieved by 2030**.



### CITY GAS DISTRIBUTION (CGD) NETWORK

- Definition:** It is an interconnected system of underground natural gas pipelines supplying **Piped Natural Gas (PNG) and Compressed Natural Gas (CNG)**. Natural gas, primarily methane (CH<sub>4</sub>), is a cleaner fossil fuel.
- Segments:** CNG is mainly used as auto fuel, while PNG serves domestic, commercial, and industrial sectors.
- Regulation:** The PNGRB Act 2006 authorizes entities to develop CGD networks in specific geographical areas.
- Coverage:** India has over 33,753 km of natural gas trunk pipelines, with around 24,623 km operational. Recent bidding rounds aim to extend coverage to **nearly 100%**, excluding the Andaman and Nicobar and Lakshadweep Islands. ✱
- Growth:** The Government of India aims to increase the share of natural gas in the energy mix from 7% to 15% by 2030.

### COAL SECTOR IN INDIA

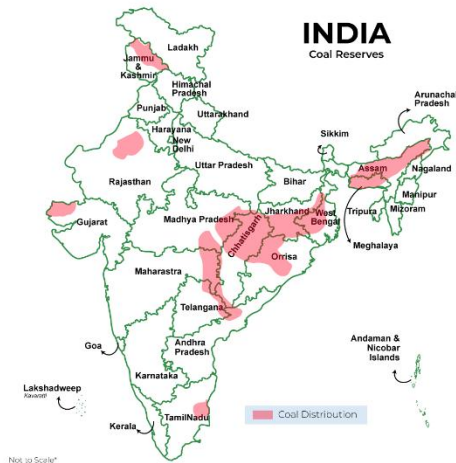
- Coal is a readily combustible, black or brownish black sedimentary rock, predominantly made of **carbon**.
- The **precursor to coal is peat**. Peat is a soft, organic material consisting of partly decayed plant and mineral matter.
- Types of coal found in India**
  - Anthracite:** It is the highest grade of coal containing a high percentage of fixed carbon. It is hard, brittle, black and lustrous.

### E-MOBILITY

- Definition:** E-mobility refers to the **use of electric vehicles (EVs)** and other electric transportation options.
- Types of E-Mobility:**

Bifurcations = quite high ash content

2. **Bituminous:** It is a **medium grade** of coal having high heating capacity. It is the most commonly used type of coal for electricity generation in India.
  3. **Lignite:** It is the **lowest grade coal** with the least carbon content. It is found in the regions of Rajasthan, Tamil Nadu, and Jammu & Kashmir.
- **69% of the total coal resources is in Odisha, Jharkhand, Chhattisgarh**



## WORLD BANK

### About:

- Established in 1944 as the **International Bank for Reconstruction and Development (IBRD)**, which became the World Bank.
- The World Bank Group is a global partnership of five institutions focused on poverty reduction and sustainable solutions in developing countries.
- It is a specialized agency of the United Nations.

**Members:** 189 member countries, including India.

### Major Reports:

- Human Capital Index.
- World Development Report.
- Global Economic Prospects (published biannually).

### Development Institutions:

1. International Bank for Reconstruction and Development (**IBRD**)
2. International Development Association (**IDA**)
3. International Finance Corporation (**IFC**).
4. Multilateral Guarantee Agency (**MIGA**)
5. International Centre for the Settlement of Investment Disputes (**ICSID**)- India is not a member of ICSID

## SYNDICATED LOAN

- A **private Non-Banking Financial Company (NBFC)** recently raised USD 425 million and EURO 40 million through a syndicated loan.
- The three-year loan is structured as a social loan to **support** small entrepreneurs and vulnerable groups in India.
- A syndicated loan is provided by a group of lenders who **share the risk of funding** large borrowers, such as corporations or government projects.
- **External Commercial Borrowings (ECBs)** are **loans from foreign sources** used by Indian companies for expansion, asset acquisition, or debt repayment.

## PUBLIC FINANCIAL MANAGEMENT SYSTEM (PFMS)

**Recent Update:** Recently, the CBIC decided to transfer duty drawback funds electronically via the PFMS, directly to exporters' bank accounts to ensure transparency and efficiency.

### Duty Drawback

- Under section 75 of the Customs Act, 1962, it rebates customs or excise duty on imported or excisable materials used in manufacturing export goods.
- This helps exporters offset costs incurred in the export process, especially within the supply or value chain.

**About:** **PFMS is a web-based software developed by the Controller General of Accounts (CGA), Ministry of Finance**, and was launched in 2009 by the Planning Commission (NITI Aayog).

### Objective of PFMS:

- The goal is to create a robust Public Financial Management System (PFMS) with an efficient fund flow system and payment-cum-accounting network.
- It **covers** Central Sector and Centrally Sponsored Schemes, along with Finance Commission grants.
- PFMS **provides** real-time management information and supports decision-making, aligning with the Digital India initiative.
- Integrated with the core banking system, it ensures seamless transactions and promotes transparency and accountability in managing public funds.

## FINTECH START UPS

**Recent Update:** Fintech companies continue to attract entrepreneurs, receiving over 15% of total equity funding in start-ups in FY24, according to Tracxn data.

**About:** Fintech combines "financial" and "technology" to enhance or automate financial services.

**Types:**

1. **Digital Payments:** Solutions like mobile wallets and online payment gateways (e.g., PhonePe, Paytm).
2. **Alternative Lending:** Online platforms for marketplace lending and P2P lending (e.g., Lending Club, GoFundMe).
3. **Insurance:** Digital insurance services (e.g., Digit Insurance, Policybazaar).
4. **InvestmentTech:** Digital investment platforms (e.g., Zerodha, Groww).
5. **Others:** Includes crop loan risk management (e.g., Satsure), fraud detection (e.g., Tutelar), and debt management (e.g., Debt Nirvana).

#### OUT-OF-POCKET EXPENDITURE (OOPE):

- Money paid directly by households for healthcare, excluding insurance-covered individuals.
- Health insurance accounts for about 29% of general insurance premiums.
- India ranks 10th in global life insurance, with a 2.73% market share (2019).
- India ranks 15th in global non-life insurance, with a 0.79% market share (2019).

#### DIGITAL PAYMENTS INTELLIGENCE PLATFORM

**Recent Update:** The RBI has set up a committee to explore a Digital Payments Intelligence Platform to curb payment frauds.

**About:**

- Domestic frauds surged by 70.64% to Rs 2,604 crore in the first half of 2024.
- Other proposals include raising the bulk deposit limit and implementing automatic e-mandates for UPI Lite and Fastag.

#### E-SHRAM PORTAL AT ILC

**Recent Update:** The e-Shram portal was showcased at the 112th International Labour Conference in Geneva in June 2024.

**About:**

- Launched in 2021, it serves as a one-stop solution for unorganised workers, creating a national database and providing access to social security schemes.

- Integrated with portals like NCS, SIDH, and PMSYM, it aims to include more schemes like PMJJBY, PMSBY, AB-PMJAY, and PM-SVANidhi.
- India's informal sector includes 85% of workers, with 90% being self-employed or casual labourers.

#### AUTHORISED ECONOMIC OPERATOR PROGRAMME

**Recent Update:** Recently, the gem and jewellery sector has been granted Authorised Economic Operator (AEO) status by the Ministry of Finance, easing export-import processes with shorter cargo release times and reduced bank guarantees.

**About:**

- Launched in 2007 under the WCO's SAFE Framework.
- **Purpose:**
  - Enhance supply chain security by reducing risks of smuggling and counterfeiting.
  - Facilitate trade by expediting customs clearance and reducing delays and costs for legitimate businesses.
- **AEO Status:** Businesses meeting security standards are recognized as reliable trading partners.
- **Benefits:** Faster clearance, fewer inspections, and improved security and communication.
- **India's AEO Programme:** Launched in 2011, with a three-tiered system for exporters and importers based on WCO standards.

#### GLOBAL DEBT CRISIS

**Recent Update:** A recent UNCTAD report, "A World of Debt 2024," highlights an unprecedented global debt crisis, with 3.3 billion people living in countries where debt interest payments exceed spending on education or health.

Global debt refers to the total money owed by governments, businesses, and individuals worldwide, including both public and private debt.

1. **Public Debt:** Money owed by governments to domestic and foreign creditors, typically through bonds, treasury bills, or loans.
2. **Private Debt:** Money owed by businesses and individuals to banks and financial institutions, including mortgages, corporate bonds, student loans, and credit card debt.

#### HOUSEHOLD CONSUMPTION EXPENDITURE SURVEY 2023

**Recent Update:** The Ministry of Statistics and Programme Implementation (MoSPI) recently

released the Household Consumption Expenditure Survey (HCES) 2022-23, offering insights into the spending habits of rural and urban households across states.

#### About:

- The Household Consumption Expenditure Survey (HCES) is conducted every 5 years by the National Statistical Office (NSO).
- It collects data on household consumption of goods and services.
- The data is used to calculate macroeconomic indicators like GDP, poverty rates, and Consumer Price Index (CPI).
- The 2022-23 survey covered all of India, ~~excluding a few remote villages in the Andaman and Nicobar Islands.~~
- The findings are based on 2011-12 prices.
- Results from the 2017-18 survey were withheld due to **data quality concerns**.

### WILFUL DEFAULTERS

**Recent Update:** Since 2018, six Public Sector Banks (PSBs) have issued 1,071 Look-out Circulars (LOCs) to prevent wilful defaulters from fleeing the country.

**About:** The RBI defines wilful defaulters as borrowers who:

- Deliberately avoid repaying dues despite having funds.
- Divert loan funds for non-approved uses.
- Misappropriate loan funds, making them unavailable for repayment.

A borrower with a loan of **Rs 25 lakh** or more can be classified as a wilful defaulter. A "large defaulter" has an outstanding balance of Rs 1 crore or more, with the account marked as doubtful or a loss.

### OPEN NETWORK FOR DIGITAL COMMERCE

**Recent Update:** In May 2024, ONDC saw a record 8.9 million transactions in retail and ride-hailing, marking a 23% month-on-month growth.

#### About:

- Open Network for Digital Commerce (ONDC) connects e-marketplaces, enabling direct sales between sellers and customers without intermediaries.
- Launched in 2021 by DPIIT under the Ministry of Commerce, ONDC is part of the Digital India initiative.
- It offers services in sectors like groceries, food delivery, and home decor.

- As a not-for-profit, ONDC supports local digital commerce and aims to level the e-commerce playing field, similar to UPI.
- The Quality Council of India oversees the integration of e-commerce platforms through this open-source network.

### COAL GASIFICATION

**Recent:** The Ministry of Coal has invited proposals for coal gasification projects under an Rs 8,500 crore **Viability Gap Funding (VGF) scheme**. VGF supports projects that are economically justified but not financially viable on their own.

**About:** Syngas is used to produce fertilizers, fuels, solvents, and synthetic materials.

#### Process:

1. **Preparation:** Coal is crushed to increase surface area for better chemical reactions.
2. **Gasification Reactor:** Crushed coal is fed into a high-temperature, high-pressure reactor with limited oxygen and steam.
3. **Chemical Reactions:** Coal undergoes chemical reactions, breaking down into syngas components.
4. **Gas Cleaning:** Impurities like tar, sulfur, and dust are removed from raw syngas before further use.

### WIPO Treaty

**Recent Update:** The recent WIPO treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge is a major win for Global South countries, including India.

**About:** World Intellectual Property Organization (WIPO)

- WIPO is the global forum for IP services, policy, information, and cooperation, with 193 member states, including India.
- Its mission is to develop a balanced international IP system that fosters innovation and benefits all.
- WIPO defines **Traditional Knowledge (TK)** as knowledge and practices passed down within communities, often linked to cultural or spiritual identity.

### UN's WSIS 2024 "Champion" Award

**Recent Update:** C-DOT (Centre for Development of Telematics), India's telecom R&D center, won the UN's WSIS 2024 "Champion" Award in the "Mobile-Enabled Disaster Resilience through Cell Broadcast Emergency Alerting" category.

- The WSIS+20 Forum 2024 was conducted by the International Telecom Union (ITU).
  - ITU is a UN agency for ICTs, founded in 1865 and headquartered in Geneva, Switzerland.
  - India has been a member of ITU since 1952.
- C-DOT was recognized for using technology to address societal issues, aligning with global initiatives like **Early Warnings for All (EW4All)** and **ITU's Common Alerting Protocol (CAP)**.
- At the AI for Good Global Summit, C-DOT showcased AI-powered solutions like ASTR (AI and Facial Recognition for telecom SIM verification) to detect fraudulent mobile connections.

### SPARSH

**Recent Update:** The Defence Accounts Department (DAD) recently signed MoUs with several banks to onboard them as **SPARSH( System for Pension Administration Raksha) Service Centres**.

#### About:

The MoUs will provide last-mile connectivity to pensioners, especially in remote areas.

- Through SPARSH Service Centres, defence pensioners can update profiles, register grievances, complete digital identification, verify data, and access pension details.
- SPARSH (System for Pension Administration Raksha) is an integrated, web-based system automating pension sanctions and disbursements.
- It processes claims and credits pensions directly to bank accounts, ensuring efficiency, transparency, and responsiveness.

### UNIFIED INDIA ORGANIC LOGO

**Recent Update:** The Food Safety and Standards Authority of India (FSSAI) and the Agricultural and Processed Food Products Export Development Authority (APEDA) have jointly developed a new **"Unified India Organic" logo** to replace the India Organic and Jaivik Bharat logos.

**About:** The new "Unified India Organic" logo aims to standardize the implementation of organic regulations under NPOP and FSSAI.

- The India Organic logo was used for NPOP-certified products, while Jaivik Bharat was for FSSAI-certified products.
- Certification bodies will have three months to transition to the new logo.

- FSSAI, established under the Food Safety and Standards Act of 2006, regulates food safety and quality in India.
- APEDA, under the Ministry of Commerce, promotes the export of products like fruits and vegetables.

### EXCHANGE TRADED FUND

**Recent Update:** Hong Kong has launched Asia's first Spot Bitcoin and Ether Exchange-Traded Funds (ETFs).

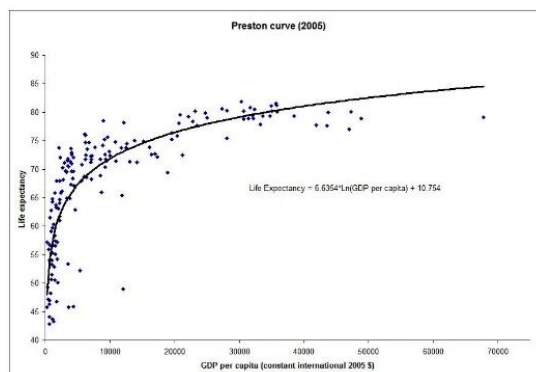
#### About:

- Bitcoin is the first and most well-known cryptocurrency, operating on decentralized blockchain technology.
- Spot Bitcoin refers to real-time transactions of Bitcoin at current market prices.
- ETFs are investment funds traded on stock exchanges, tracking assets like indices, commodities, or currencies.
- Hong Kong's ETFs can be traded in Hong Kong Dollars, US Dollars, and Chinese Yuan, potentially promoting wider adoption of digital assets globally.

### PRESTON CURVE

**About:** The Preston Curve, proposed by sociologist Samuel H. Preston in 1975, shows the relationship between life expectancy and per capita income.

- Richer countries generally have longer life spans due to better healthcare, education, and nutrition.
- As a country's income rises, life expectancy increases significantly at first. For example, India's per capita income grew from Rs 9,000 in 1947 to Rs 55,000 in 2011, while life expectancy increased from 32 to 66 years.
- However, this relationship flattens after a certain income level, as life expectancy cannot increase indefinitely.
- The Preston curve also applies to other development indicators like infant and maternal mortality, education, and healthcare.



## CONCESSIONAL DUTY

**Recent Update:** India has recently allowed limited imports of corn, crude sunflower oil, refined rapeseed oil, and milk powder under the Tariff-Rate Quota (TRQ) to help control rising food inflation.

**Tariff-Rate Quota (TRQ) :** is a trade policy that allows a limited quantity of a good to be imported at a lower tariff, with higher tariffs on amounts above the threshold. It balances protecting domestic industries and meeting import demand.

**About the duty:** A tariff imposed on imported goods at a lower rate than the standard duty.

### Reasons for Imposition:

- Reduces import costs, making goods more affordable for consumers.
- Helps control domestic prices, especially for essential goods.
- Encourages domestic production by reducing duties on raw materials or equipment.
- Strengthens trade relations by offering concessional duties.

## ROOFTOP SOLAR

**Recent Update:** As of March 2024, India's rooftop solar (RTS) capacity reached **11.87 GW**, with 2.99 GW added in 2023-2024, highlighting RTS's growing role in India's energy sector.

### About:

- Launched in 2014 to promote rooftop solar installations.
- The target was 40 GW by 2022 (out of 100 GW by 2030), but the deadline was extended to 2026.
- RTS involves **photovoltaic panels** installed on rooftops, connected to the main power supply.

**Objective:** To promote grid-connected solar rooftop systems on residential buildings.

### Key Initiatives under Rooftop Solar:

1. **SUPRABHA** (Sustainable Partnership for RTS Acceleration in Bharat)
2. **SRISTI** (Sustainable Rooftop Implementation for Solar Transfiguration of India)

## REMITTANCES

**Recent Update:** According to the **World Bank**, growth in remittances to India is expected to halve in 2024 compared to 2023, due to reduced outflows from GCC countries amid falling oil prices and production cuts.

## About: What are Remittances?

- Remittances are funds or goods sent by migrants to support their families back home.
- They are crucial for income, foreign exchange, and economic activity in many developing countries, especially in South Asia.
- In 2023, India sent out 18.7 million emigrants.

### Growth of Remittances:

- India received USD 120 billion in remittances in 2023, growing by 7.5%.
- Growth is expected to slow to 3.7% in 2024, reaching USD 124 billion, with a forecasted 4% growth in 2025 to USD 129 billion.

## POVERTY AND INEQUALITY MEASURES

**Recent Update:** PM's Economic Advisory Council chief **Bibek Debroy** recently called for a review of India's official poverty line and suggested analyzing inequality at the state level.

### Status of Poverty in India:

- Poverty is a condition where people lack the financial resources for a minimum standard of living.
- In September 2022, the **World Bank set the international poverty line at USD 2.15 per day** (2017 prices), defining those living below this threshold as in extreme poverty.

## COTTON CULTIVATION

**Recent Update:** data from the **Ministry of Textiles** shows that cotton consumption by the textile industry from October 2023 to September 2024 is among the highest this decade.

### Key Facts About Cotton Cultivation

- Cotton is a major commercial crop in India, contributing about **25%** of global production and is known as "**White-Gold.**"
- **About 67%** of India's cotton is grown in rain-fed areas, and **33%** in irrigated regions.

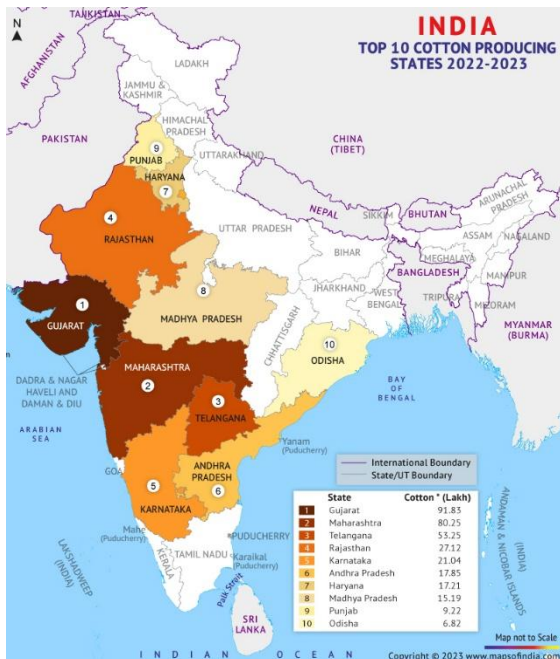
### Growing Conditions:

- Cotton requires a **hot, sunny climate and a long frost-free period.** It thrives in warm, humid conditions.
- It can grow in various soil types, including alluvial, black clayey, and mixed black-red soils.
- Cotton tolerates some **salinity** but is sensitive to waterlogging, requiring well-drained soils.

*Handwritten notes:*  
- Above Bibek Debroy: *consumption*  
- Below Bibek Debroy: *Tendulkar committee*  
- Below Bibek Debroy: *Remission*  
- Below Bibek Debroy: *head raho*  
- Below World Bank: *Alagh Committee*  
- Below World Bank: *Lakshminarayana Committee*  
- Below World Bank: *Carbonic*

## Hybrid and Bt Cotton:

- **Hybrid Cotton:** Created by crossing two different parent strains, often naturally through cross-pollination.
- **Bt Cotton:** A genetically modified, pest-resistant variety.



## POWER MARKETS IN INDIA

**Recent Update:** Recently, the government allowed trading of surplus electricity from "linkage coal" in power markets to meet rising summer demand.

- **Coal linkages** are government-allocated resources to thermal units based on long-term PPAs to ensure a consistent coal supply for power generation.

### About Power Markets of India

- **Power markets** enable electricity trading through platforms like power exchanges for efficient allocation.
- **Power Exchanges:** These platforms facilitate buying and selling of electricity through transparent, competitive processes, enhancing supply efficiency.
- **Structure and Evolution:** Power exchanges began in Europe in the early 1990s and now operate in around 50 countries. In India, the Electricity Act of 2003 set the framework, with exchanges starting in 2008.

## GST COUNCIL MEETING

**Recent Update:** The 53rd GST Council meeting approved measures to ease compliance for small businesses, including exemptions for hostel accommodation and railway services.

- It also decided to reconvene in August 2024 to discuss restructuring the multiple tax rates under the seven-year GST.

**About council:** The **GST Council is a constitutional body** responsible for recommending GST-related issues in India. It was created to simplify India's complex tax structure, replacing multiple taxes levied by both the Centre and states.

### Constitutional Provisions:

- The 101st Amendment Act of 2016 introduced GST and added Article 279-A to the Constitution, enabling the formation of the GST Council.
- The President constituted the GST Council in 2016.

### Members:

- The Council is chaired by the **Union Finance Minister**, with the Union Minister of State for Finance as a member.
- Each state nominates a finance or taxation minister to be part of the Council.

### Functions:

- The Council recommends goods and services for GST exemption, model laws, and tax rates.
- It decides on GST rate slabs and modifications for specific products.
- It also suggests special rates for resources during natural disasters and provisions for certain states.

### Working:

- Decisions are made by a three-fourths majority of weighted votes.
- A quorum of 50% of members is required.
- The Central Government's vote holds one-third of the total votes, while state governments' votes account for two-thirds.
- Recommendations were previously binding but were ruled non-binding by the Supreme Court in 2022.

## CONTAINER PORT PERFORMANCE INDEX (CPPI) 2023

**Recent Update:** India's port development received a major boost, with 9 Indian ports making it to the Global Top 100 in the 2023 Container Port Performance Index (CPPI).

- This achievement is credited to the Sagarmala programme, which focuses on modernizing ports and improving efficiency.

### Sagarmala Programme

- Launched in 2015 by the Ministry of Ports, Shipping and Waterways, Sagarmala aims to transform India's maritime sector.
- It focuses on leveraging India's coastline, waterways, and strategic trade routes for port-led development and coastal community upliftment.
- The programme aims to reduce logistics costs, improving the efficiency of domestic and international trade.
- By using coastal and waterway transport, it minimizes the need for extensive infrastructure, enhancing logistics efficiency and boosting India's export competitiveness.

## Major Ports of India



### NATIONAL MONETISATION PIPELINE

**Recent Update:** NITI Aayog reported that assets worth Rs 3.85 lakh crore have been monetized under the **National Monetisation Pipeline (NMP)** from 2021-22 to 2024-25.

**- NITI Aayog is responsible for developing the NMP.**

**About** National Monetisation Pipeline (NMP)

- The **NMP aims to monetize Rs 6 lakh crore by leasing core assets** of the Central government in sectors like roads, railways, power, oil and gas, telecom, and civil aviation from FY 2021-22 to 2024-25.
- It only includes core assets, excluding non-core asset disinvestment.
- **Monetization of non-core assets, such as land and real estate, is being transferred from DIPAM to DPE in the Ministry of Finance.**

### E COMMERCE AS EXPORT HUB

**Recent Update:** The commerce ministry's 100-day agenda includes plans to use e-commerce for exports. India aims to reach USD 1 trillion in merchandise exports by 2030, with cross-border e-commerce as a key strategy.

**About:** E-commerce is the buying and selling of goods and services over the Internet. As of 2023, India is the eighth-largest e-commerce market globally.

**Classification:**

- **Market-based Model:** Platforms like Amazon and Flipkart connect buyers and sellers.
- **Inventory-based Model:** Platforms like Myntra and Nykaa sell goods directly from their own inventory.
- **Note:** FDI is not allowed in the inventory-based model.

### SEBI Expands Promoter Definition for IPO Companies

- SEBI has expanded the promoter definition for IPO-bound companies.
- **Founders with a 10% stake and key managerial personnel are now classified as promoters.**
- Immediate relatives on the board or with 10%+ stakes are also considered promoters.
- Declassification as a promoter is difficult under SEBI's regulations.
- **A promoter is someone who controls the company's affairs or appoints the majority of directors.**

### DARK PATTERNS

**Recent Update:** The Department of Consumer Affairs addressed deceptive online designs known as "dark patterns."

**About:**

- These designs manipulate users into making unintended purchases or actions.
- Guidelines to regulate dark patterns were introduced in 2023.
- The goal is to protect consumers from misleading online practices.
- The session focused on strategies for implementing these regulations.

### IFC's INVESTMENT

**Recent Update:** The IFC committed USD 105 million to fund a 550 MW solar project in Rajasthan.

**About:**

- The project **aims** to provide affordable solar energy to Indian businesses.
- It supports India's goal of reaching 500 GW of renewable energy by 2030.
- **The IFC is part of the World Bank Group, focusing on private sector development.**

- The project will help reduce India's greenhouse gas emissions and transition to clean energy.

### FINTECH REPOSITORY

- Launched by RBI, the FinTech Repository is a web-based database containing comprehensive data on Indian FinTech firms. It helps regulators better understand the FinTech landscape.
- RBI also launched the EmTech Repository, focusing on the adoption of emerging technologies like AI, ML, and cloud computing by RBI-regulated entities.
- Both repositories are secure applications managed by the RBIH (Reserve Bank Innovation Hub).

### PUMP AND DUMP SCHEME

- A manipulation activity in the stock market, where stock prices are artificially inflated through misleading information, allowing manipulators to sell stocks at the inflated price and leave investors with significant losses.
- This scheme is common in micro-cap and small-cap sectors, where public information is limited and trading volumes are lower.
- It is completely banned under SEBI guidelines.

### BASE EROSION AND PROFIT SHIFTING

**Recent Update:** The Organisation for Economic Co-operation and Development (OECD) recently welcomed the commitment of 147 members of the Inclusive Framework on BEPS to resolve remaining issues in the signing process of the **Multilateral Convention (MLC)**.

**About BEPS:**

The BEPS initiative, approved by the G20 and led by the OECD, aims to standardize global tax rules. BEPS involves strategies that exploit tax rule differences across countries to reduce corporate tax payments.

**Aim:** The goal is to reduce corporate tax liability by shifting profits to low-tax regions or making them appear to vanish, often exploiting international tax differences. Developing countries are especially vulnerable due to their reliance on corporate taxes from multinationals.

### Global Minimum Tax (GMT)

- A proposed global minimum tax rate of 15% aims to reduce tax base erosion without harming companies financially.

- GMT seeks to prevent multinationals from shifting profits to low-tax jurisdictions, regardless of where sales occur.
- Companies increasingly move income from intangibles like patents and royalties to tax havens to avoid higher taxes.

- The G20 and OECD will lead decisions on this initiative.

### About OECD

- An intergovernmental economic organisation, founded in 1961, headquartered in Paris, France.
- It has 38 member countries, with India being a key partner but not a member.
- The OECD aims to stimulate economic progress and global trade.
- Most members are high-income, developed countries.

### NEW ECONOMIC BRAIN POWER

**Recent Update:** India's shift from a back-office service provider to a strategic intellectual hub for MNCs is driven by the rise of **Global Capability Centers (GCCs)**.

- GCCs are offshore units set up by MNCs to perform strategic functions, leveraging specialized talent, cost advantages, and operational efficiencies globally.

**About GCC:** Global Capability Centers (GCCs), also known as Global In-House Centers (GICs), are strategic outposts set up by multinational corporations (MNCs) in various countries.

- These centers provide specialized services like IT, R&D, and customer support within the global corporate structure.

**Examples:**

- General Electric (GE) has an R&D and engineering GCC in Bangalore for its aviation and healthcare sectors.
- Nestle has a GCC in Lausanne focused on product development for its food and beverage brands.

### INTERNATIONAL SUGAR ORGANISATION (ISO)

- Established in 1968, ISO is an inter-governmental body dedicated to improving the world sugar market, affiliated with the UN.
- It has 85 members, covering almost 90% of global sugar production.
- India is a member, and the ISO works to bring together sugar-producing, consuming, and

trading nations to address sectoral issues, including biofuels like ethanol.

- The ISO administers the 1992 International Sugar Agreement (ISA), and its headquarters are in London.

### WTO'S SANITARY AND PHYTOSANITARY (SPS) MEASURES

- The SPS Agreement, established under the WTO, sets regulations for countries to protect human, animal, and plant life or health from risks like contaminants, pests, and diseases.
- It involves three standard-setting organizations: Codex Alimentarius Commission, World Organization for Animal Health (OIE), and the International Plant Protection Convention (IPPC).
- SPS measures are closely linked to the Agreement on Technical Barriers to Trade (TBT) and were negotiated during the Uruguay Round of GATT.

### DIRECT SEEDING OF RICE

**Recent Update:** The Punjab government is promoting Direct Seeding of Rice (DSR) or the 'tar-wattar' technique, offering several advantages over traditional transplanting. However, adoption has been slow, with only 1.73 lakh acres out of 79 lakh acres under paddy cultivation using DSR in 2023.

#### Direct Seeding of Rice (DSR):

- In DSR, pre-germinated seeds are directly drilled into the field without nursery preparation or transplantation.
- The field is leveled and irrigated before seeding, which is done using a seed drill or lucky seeder.
- Seeds are soaked in a fungicide solution before sowing.
- The first irrigation is done 21 days after sowing.

**Traditional Transplanting:** - Involves preparing nurseries, transplanting seedlings after 25-35 days, and requiring 25-27 irrigations. It is labour- and water-intensive but maximizes yields and crop health.

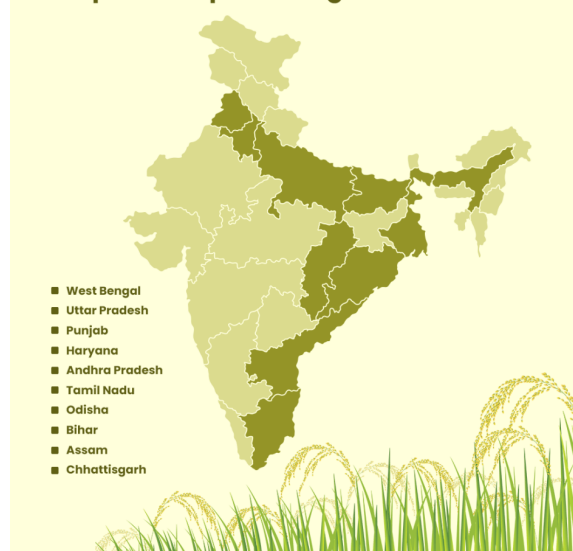
**About Rice:** Rice is a staple food in India and a kharif crop requiring high temperatures (above 25°C) and humidity, with annual rainfall over 100 cm. In areas with less rainfall, it is irrigated.

- Southern states and West Bengal grow multiple rice crops per year.
- In West Bengal, farmers cultivate three crops: 'aus,' 'aman,' and 'boro.'

- Rice covers about one-fourth of India's cropped area.
- **Major producing states:** West Bengal, Uttar Pradesh, and Punjab.
- **High-yielding states:** Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal, and Kerala.

India is the second-largest rice producer globally, after China.

#### Top 10 rice-producing states of India



### DIGIYATRA SERVICES

- DigiYatra, a biometric system for airport check-ins, may expand to hotels and monuments.
- It allows paperless travel via facial recognition technology.
- The system, coordinated by the Ministry of Civil Aviation, was launched in 2022.
- Privacy and data security concerns are associated with DigiYatra.
- DigiYatra is collaboration between private airports (74%) and Airports Authority of India (26%).

### FARMER PRODUCER ORGANISATION

**Recent Update:** An MoU was signed to convert 10,000 Farmer Producer Organizations (FPOs) into Common Service Centres (CSCs).

#### About:

- This will provide farmers with services like tele-consultation, crop insurance, and Kisan Credit Cards.
- The goal is to improve farmers' bargaining power, reduce costs, and increase income through aggregation.
- Launched in 2020, the FPO scheme helps farmers access better market opportunities.

- CSCs are part of the **Digital India** initiative, delivering essential services in rural areas.

### FSSAI

**Recent Update:** FSSAI (Food Safety and Standards Authority of India) directed manufacturers to remove "100% fruit juice" claims from reconstituted juices.

#### About:

- Reconstituted juices are diluted with water, misleading consumers into thinking they are pure.
- FSSAI's regulations mandate clear labeling for reconstituted juices.
- **Juices with added sweeteners above 15 gm/kg must be labeled as "sweetened juice."**
- FSSAI, under the Ministry of Health, enforces food safety standards in India.

### INDIAS EXTERNAL DEBT

India's external debt increased by USD 39.7 billion from March 2023 to March 2024, reaching USD 663.8 billion.

- The **debt-to-GDP ratio fell slightly** from 19.0% to 18.7%.
- The majority of the debt is in USD (53.8%), followed by Indian rupees and yen.
- **Non-financial corporations hold the largest share of debt.**

### 21st LIVESTOCK CENSUS

A workshop was held for the 21st Livestock Census, set for September-December 2024.

- The census aims to collect data on livestock across India using mobile apps.
- The 20th Census (2019) reported 535.78 million livestock in India, with the largest share being bovine (302.79 million).

### VIABILITY GAP FUNDING

**Recent Update:** The Union Cabinet approved the Viability Gap Funding (VGF) scheme for offshore wind energy projects with a total outlay of Rs. 7453 crore.

#### About:

- The scheme covers the installation of 1 GW offshore wind projects, including 500 MW in Gujarat and Tamil Nadu.
- VGF will provide up to 40% of project costs, helping make offshore wind energy more affordable for distribution companies.
- This supports the National Offshore Wind Energy Policy and promotes renewable energy

with lower storage needs and greater reliability.

### PALM OIL

- Native to West Africa, palm oil is an edible vegetable oil derived from the mesocarp (reddish pulp) of the fruit.
- **Features:** It is highly saturated, semisolid at room temperature, resistant to oxidation, and has a longer shelf-life.
- **Uses:** Palm oil is widely used in food manufacturing, beauty products, and as biofuel (biodiesel).
- **Global Production:** Indonesia and Malaysia are the top producers, followed by Thailand, Colombia, and Nigeria.
- **Consumption:** India is one of the largest importers and the second-largest consumer of edible oils globally. The top three vegetable oil imports to India are palm oil, soybean oil, and sunflower seed oil.
- **Major Producers in India:** Andhra Pradesh, Telangana, and Kerala account for 98% of India's palm oil production.

### FINANCIAL INFLUENCER (FINFLUENCER)

- A "**FinFluencer**" is someone who provides financial advice, particularly on stock market trading, mutual funds, insurance, etc., through social media platforms.
- Their income comes from advertisements, collaborations, and affiliate partnerships.
- SEBI has set rules for unregistered financial influencers, prohibiting regulated entities from dealing with them. SEBI has also introduced a fixed-price delisting process for frequently traded shares.

### INFRASTRUCTURE INVESTMENT TRUSTS (INVIS)

- InvITs are investment vehicles that allow investors to invest in infrastructure projects such as toll roads, power lines, and pipelines.
- Sponsors (infra companies) set up InvITs through SEBI and are recognized as borrowers **under the SARFAESI Act 2002.**
- They earn income through tolls, rents, interest, or dividends, which is distributed as taxable earnings to investors.
- InvITs Regulation 2024 allows the issuance of subordinate units by privately placed InvITs to sponsors on acquisition of infrastructure projects.

### CLEARING CORPORATION (CC)

- A Clearing Corporation handles the clearing and settlement of trades in securities or other instruments on stock exchanges.
- It works with **stock exchanges and depositories** as Market Infrastructure Institutions and plays a critical role in risk management.
- SEBI formed a committee to review the ownership and economic structure of clearing corporations.

### GENERAL ANTI-AVOIDANCE RULE (GAAR)

- GAAR is an anti-tax avoidance law introduced in 2012 to curb tax evasion and prevent tax leaks, implemented under the Income Tax Act in 2017.
- It aims to check aggressive tax planning strategies that lack commercial substance.
- GAAR distinguishes between acceptable tax mitigation and unacceptable tax avoidance, ensuring that transactions aren't structured solely to avoid taxes.
- **BEPS (Base Erosion and Profit Shifting)** strategies, often used by MNCs, are linked to GAAR's objective of preventing tax avoidance.

### STICKY INFLATION

- Sticky inflation refers to the phenomenon where prices do not adjust quickly to changes in supply and demand, causing persistent inflation.
- Causes include rising wages and prices for consumer goods and services.

### FRONT RUNNING

- Front running involves using non-public information to buy or sell securities in advance of a large order, creating an unfair advantage.
- It is **illegal** in India under SEBI regulations as it undermines market confidence and creates an uneven playing field.
- SEBI amended mutual fund regulations in 2022 to prevent front running and penalize such activities.

### VIKSIT BHARAT

#### About:

- India aims to become a **developed country by 2047**, but with a current per capita income of \$2,500 (IMF, 2024), it needs an average **annual growth of 6-7%** to reach the \$13,845 threshold.

- To achieve this, India requires a real gross fixed capital formation (**GFCF**) rate of **35%** of GDP, which is close to the current rate. However, sustained growth in government capital expenditure is unsustainable due to high fiscal deficits, so private investment must increase.
- Analysts suggest **redesigning industrial policy, emphasizing exports, services, manufacturing, and agriculture**. India's export share increased from 0.6% in 1970 to 2.5% in 2022, but manufacturing exports need more focus.
- **Job creation remains a critical issue**, especially with technological advancements like AI and machine learning. While these can reduce labor absorption, a balance of sectors promoting growth and job creation is needed.

### RBI DIGITAL PLATFORM

**Recent Update:** - The Reserve Bank of India (RBI) has proposed a **Digital Payments Intelligence Platform** to reduce payment fraud risks, with a **committee led by A.P. Hota** to examine its setup, expected to report in two months.

#### About:

- Domestic payment frauds **surged by 70.64%** to Rs 2,604 crore in the six months ending March 2024, up from Rs 1,526 crore in the same period last year.
- The RBI plans to **revise the bulk deposit** limit to Rs 3 crore and above for commercial and small finance banks, and Rs 1 crore for local area banks.
- The RBI has introduced an **automatic replenishment** facility for recurring transactions under the e-mandate framework, allowing Fastag or NCMC balances to be topped up automatically when they fall below a set threshold.
- UPI Lite will also be included in the **e-mandate framework**, enabling auto-replenishment of the wallet when the balance goes below a threshold, with payments of up to Rs 500.
- The RBI plans to **rationalize export and import guidelines** to align with global trade changes and simplify procedures, promoting ease of doing business.

### UGC ADMITS TWICE A YEAR

**Recent Update:** - The University Grants Commission (UGC) now allows higher education institutions to **admit students twice a year**, in January/February and

July/August, providing flexibility in the admissions process.

#### About:

- Institutions can **choose whether to offer admissions** in both cycles or just one, based on their infrastructure and faculty capacity.
- **Biannual admissions** are **not mandatory** but offer institutions the option to increase student intake and introduce new programs in emerging fields.
- The UGC initially trialed biannual admissions for **open and distance learning (ODL)** and online programs, benefiting students by allowing early enrollment.
- The new system allows students who missed admissions in **July/August to join in January**, aligning with global practices and potentially increasing the Gross Enrollment Ratio (GER).
- Universities opting for **biannual admissions** need approval from their academic and executive councils, with necessary amendments to their regulations.

- Entrance exams may be held **twice a year** to benefit students, as they are now technology-driven.

#### JP MORGAN INDEX

**Recent Update:** **Indian Government Bonds (IGBs)** will be included in JP Morgan's emerging markets bond indices starting June 28. The inclusion, spread over 10 months until March 31, 2025, is expected to bring \$20-25 billion into the country.

#### About:

- JP Morgan **announced the inclusion** of Indian Government Bonds (IGBs) in its emerging markets bond index starting June 28, 2024.
- India's weight in the **GBI-EM Global Diversified Index** is expected to reach 10%, potentially bringing \$2-3 billion in monthly flows.
- 23 IGBs, totaling **\$330 billion**, are eligible for inclusion under the Fully Accessible Route (FAR) for non-resident investors.

## 4: ENVIRONMENT & DISASTER MANAGEMENT(GS-3)

### KEYWORDS OF THE MONTH (From the covered CA Topics):

1. **Global Commons** - Refers to natural resources like the high seas, which belong to no one and are open to all nations for use and exploration.
2. **Marine Genetic Resources** - Biological resources in marine areas beyond national jurisdiction, critical for conservation and sustainable use under international agreements like the BBNJ.
3. **Exclusive Economic Zone (EEZ)** - A sea zone over which a coastal state has special rights to explore and exploit marine resources, extending 200 nautical miles from the shore.
4. **Disaster Resilience** - The capacity of urban areas to withstand and recover from natural and man-made disasters, emphasizing planning and community participation.
5. **Eco-Sensitive Area (ESA)** - A region designated for environmental protection and conservation to balance biodiversity conservation and sustainable development, as recommended by the Kasturirangan Committee.
6. **Diadromous Fishes** - Fish species that migrate between freshwater and saltwater habitats during their life cycle, crucial for biodiversity and ecosystem dynamics.
7. **Marine Protected Areas (MPAs)** - Designated zones in oceans where human activities are restricted to preserve marine biodiversity, ecosystems, and resources.
8. **Persistent Organic Pollutants (POPs)** - Toxic chemicals resistant to environmental degradation, posing long-term risks to human health and ecosystems, regulated globally by agreements like the Stockholm Convention.
9. **Faecal Sludge and Septage Management (FSSM)** - A process to manage and treat human waste in areas without centralized sewage systems, utilizing digital tools and eco-friendly technologies.
10. **Ethanol Production** - Biofuel derived from biomass or grains like maize, used as a cleaner alternative to fossil fuels and vital for sustainable energy development.
11. **Radioisotope Conservation**: A method utilizing radioisotopes to deter poaching by making rhino horns harmful, aiming for cost-effective conservation without harming the animals.
12. **Adaptive Evolution**: Refers to how flamingos have evolved to survive extreme environments, showcasing their unique physical traits like filter-feeding bills and color variation for adaptive advantage.
13. **Climate Finance Gap**: Highlights the insufficient progress in securing global funding necessary to meet climate adaptation and mitigation goals, as discussed at the Bonn Climate Conference.
14. **Rewilding Efforts**: The process of reintroducing Przewalski's horses, an endangered wild species, to their native habitat, focusing on ecosystem restoration and species conservation.
15. **E-Flow Management**: The monitoring of environmental flow systems to preserve river ecosystems, ensuring adequate water quality and quantity for maintaining biodiversity and human livelihoods.

### QUOTES OF THE MONTH (For the covered CA Topics):

1. "The high seas belong to no one, yet they are a collective responsibility—preserving global commons is the key to sustainable prosperity for all nations."
2. "A nation's sovereignty extends not just to its shores, but to the depths of the oceans within its EEZ, where marine resources become a gateway to both prosperity and environmental stewardship."
3. "In the face of disasters, resilience is not merely a measure of survival, but the strength to rebuild smarter, with community at the heart of every urban recovery plan."

## HIGH SEAS TREATY

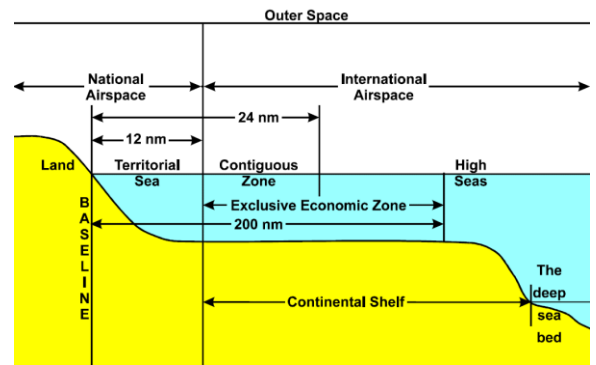
- **Definition:** The high seas are ocean areas outside any country's national jurisdiction, beyond the Exclusive Economic Zone (EEZ), which extends up to 200 nautical miles (370 km) from the coast.
- Coverage: They make up about **64% of the world's oceans**
- **Global commons:** meaning they belong to no one and are open to all for navigation, overflight, economic activities, scientific research, and infrastructure like undersea cables.

## BIODIVERSITY BEYOND NATIONAL JURISDICTION (BBNJ) AGREEMENT

- Agreement on Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement) **under UNCLOS**
- **Objective:** Conserve and sustainably use marine biodiversity in areas beyond national jurisdiction for present and future generations.
- Scope: **Applies to Areas Beyond National Jurisdiction (ABNJ)**, including the high seas.
  - Does not apply to warships, military aircraft, or naval auxiliaries.
  - Part-II (Marine Genetic Resources) applies to government vessels in non-commercial service

## UN CONVENTION ON LAWS OF THE SEAS (UNCLOS)

- A comprehensive international law governing the use of seas and oceans in force since 1994.
- **State Parties:** 170 countries, including India; often called the "**constitution of the oceans.**"
- **Provisions:** Defines nations' rights and duties on the oceans, covering sovereignty, passage rights, and exclusive economic usage.
- **International Seabed Authority (ISA):** Regulates mining and activities on the ocean floor beyond national jurisdiction.
- **Territorial Demarcation:**
  1. **Territorial Sea:** Up to 12 nautical miles; full sovereignty of coastal States.
  2. **Contiguous Zone:** Up to 24 nautical miles; limited enforcement authority for coastal States.
  3. **Exclusive Economic Zone (EEZ):** Up to 200 nautical miles; coastal States have rights over marine resources but no full sovereignty.
  4. **High Sea:** Areas beyond national jurisdiction, not controlled by any state.



## URBAN DEVELOPMENT AND DISASTER RESILIENCE

- **Vulnerability of Indian Cities:**
  1. **Population Growth:** expected to rise to 40% by 2030, creating increased risks
  2. **Unplanned Urbanization**
  3. **Climate Change**
  4. **Existing Vulnerabilities:** including poverty, informal employment, and social inequality.

### Disaster Resilient City

According to the National Institute of Disaster Management, a disaster-resilient city:

- i. Follows **building codes and avoids informal settlements** in vulnerable areas like floodplains or steep slopes.
- ii. Has an **inclusive, accountable local government** focused on sustainable urbanization.
- iii. Maintains a **shared local information** base on disaster risks, losses, and vulnerabilities.
- iv. Empowers **citizens to participate** in planning, alongside valuing local knowledge and resources.
- v. Can **quickly respond** to disasters, implement recovery strategies, and restore basic services to resume social and economic activities.

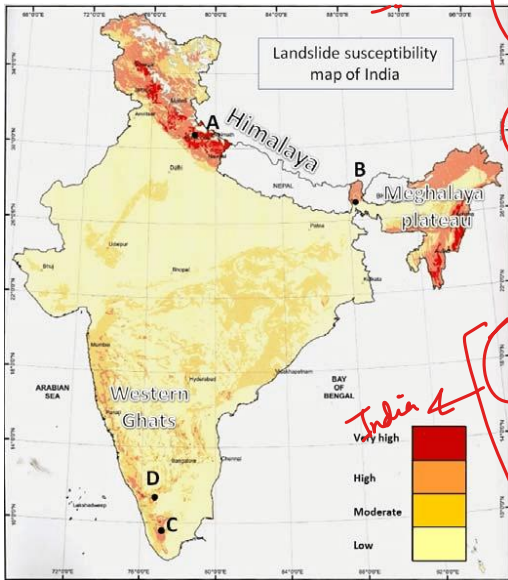
## LANDSLIDES

- A landslide is the **downward movement of rock, earth, or debris on a slope due to gravity.**
- **Steep slopes** are particularly **vulnerable to landslides** from minimal water or seismic activity.
- According to the India Landslide Susceptibility Map, **13.17% of India** is susceptible to landslides, with 4.75% being highly susceptible. **Sikkim has 57.6% of its area** prone to landslides.
- India accounts for about **8% of global landslide fatalities.**

### Causes of landslides

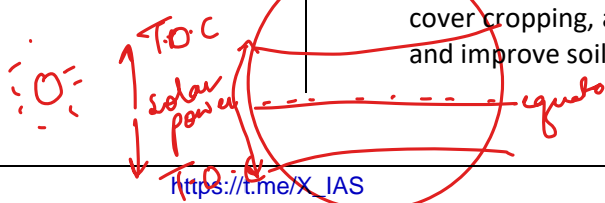
- **Himalayan Region**
  - Tectonically unstable formations increase earthquake risk and landslides.
  - Loose sediments make areas more prone to landslides.
  - Hydropower projects increase humidity and pressure, raising landslide risk.
  - Development activities like road widening destabilize the environment.

- **Western Ghats**
  - Geological stability is generally high, but neo-tectonic activity can affect landslide risk.
  - Deforestation weakens soil stability, increasing susceptibility.
  - Human activities like mining, settlements, and construction further destabilize the area.



### INTERNATIONAL SOLAR ALLIANCE (ISA)

- Established in November 2015 at COP21 in Paris.
- **Objective:** Promote solar energy adoption and combat climate change.
- **Membership:** Countries with high solar potential, primarily between the Tropics of Cancer and Capricorn.
- **Headquarters:** Gurugram, India.
- **Vision:** Deploy 1,000 GW of solar power and mobilize \$1 trillion in investments by 2030.
- **Key Activities:**
  - Facilitates cooperation on solar technology, financing, and policy frameworks.
  - Shares best practices, knowledge, and experiences in solar energy.
  - Promotes solar projects, especially in developing nations.
- **Initiatives:**



- Solar Risk Mitigation Initiative (SRMI)** to reduce financial risks for solar projects.
  - One Sun, One World, One Grid** initiative to create a global solar grid.
- **Partnerships:** Works with international organizations, governments, and financial institutions to boost solar energy adoption.

### GREAT INDIAN BUSTARD

- **large bird native to the Indian subcontinent.**
- **Conservation Status**
  - Wildlife Protection Act, 1972: Schedule I and IV**
  - IUCN: Critically Endangered**
  - CITES: Appendix I**
- **Habitat:** Found in dry, open grasslands and scrublands, primarily in Rajasthan, Gujarat, and parts of Maharashtra, Karnataka, and Andhra Pradesh.
- **Physical Characteristics:** Known for its large size, long legs, and distinctive white and black plumage.
- **Diet:** Primarily feeds on grasshoppers, beetles, seeds, and other vegetation.
- **Threats:** Major threats include habitat loss, hunting, powerline collisions, and disturbance from human activity.
- **Conservation Efforts:** The species is protected under the Wildlife Protection Act of 1972 and is part of conservation programs aimed at habitat restoration and breeding.

### SOIL HEALTH

- **Definition:** It refers to the condition of soil in terms of its ability to support plant growth and sustain ecosystems.
- **Key indicators:** soil texture, organic matter content, nutrient availability, and biological activity.
- Healthy soil promotes water retention, supports plant growth, and helps in carbon sequestration.
- **Degrading factors:** Soil erosion, pollution, and overuse of chemical fertilizers and pesticides
- **Soil fertility** is impacted by the balance of essential nutrients like nitrogen, phosphorus, and potassium.

### Conservation efforts

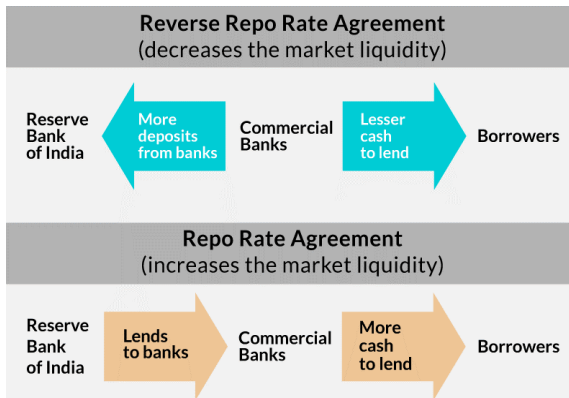
- **Organic matter**, such as compost and crop residues, is crucial for improving soil structure and nutrient content.
- **Sustainable farming practices**, crop rotation, cover cropping, and reduced tillage help maintain and improve soil health

## RBI AND REPO RATE

**Recent Update:** The RBI has kept the repo rate unchanged since February 2023, despite stable inflation, impacting loan EMIs.

**About:**

- The repo rate is the **interest rate at which the RBI lends to commercial banks**.
- It **influences economic activity**: a lower rate encourages borrowing and spending, while a higher rate discourages it.
- The RBI's monetary policy aims for **price stability, a 4% inflation target**, and economic growth through repo rate adjustments.
- Lowering the rate boosts borrowing post-pandemic, while raising it curbs spending during inflationary periods like the Russia-Ukraine conflict.



## HEAT AND WATER CRISES: A GLOBAL FOOD SECURITY EMERGENCY

**Recent Update:** The report "Global Impacts of Heat and Water Stress on Food Production and Severe Food Insecurity" predicts a **decline in food production by 2050** under various climate change scenarios.

**Food insecurity:** is the **lack of reliable access** to sufficient, affordable, and nutritious food. Severe food insecurity occurs when individuals frequently run out of food, go hungry, and cannot eat regularly.

**Major Findings of the Report:**

- Global food production could decrease by 6-14% by 2050 due to heat and water stress.
- Severe food insecurity may affect up to 1.36 billion more people by 2050.
- Regional food production declines:
  - India: 16%
  - China: 22%
  - US: 12%
- China and ASEAN may become food importers by 2050.

- Food prices could rise significantly, especially in areas with extreme warming and water stress.
- Extreme weather has already affected over 72 million people in 18 countries.
- May 2024 was the warmest May on record, continuing a trend of record-high temperatures.
- In 2023, nearly 282 million people faced acute food insecurity, driven by extreme weather.

## VADHAVAN PORT (INDIA'S FIRST MEGA PORT)

**Recent Update:** The Vadhavan port, recently approved by the Cabinet, will be India's first mega port, boosting sea-based trade.

**About Vadhavan Port:** The Vadhavan port will be built by a **Special Purpose Vehicle (SPV)** formed by the Jawaharlal Nehru Port Authority and the Maharashtra Maritime Board.

**Key Features:**

- Greenfield Infrastructure:** Developed on undeveloped land.
- Construction: Built in 2 phases with a capacity of 23.2 million TEUs and a 20-meter draft for mega vessels.
- Landlord Model:** Port authority as a regulator, with private companies managing operations.



## RISING GLOBAL TEMPERATURES

**Recent Update:** Record-breaking temperatures are increasing globally due to global warming, with extremes like 56.7°C in Death Valley and 52.9°C in Delhi becoming more common as the planet heats up.

**About:**

- Global warming is the **long-term rise in Earth's average surface temperature** due to human activities, primarily the emission of greenhouse gases (GHGs) like CO2 and methane.
- GHGs trap heat in the atmosphere, causing global temperatures to rise.

- Since the late 19th century, **Earth's temperature** has increased by **around 1°C**.
- The past decade has seen some of the warmest years on record, including 2023 and 2024.

### WESTERN GHATS ECO-SENSITIVE AREA

**Recent Update:** Karnataka, Maharashtra, and Goa, three of the six states with proposed eco-sensitive areas (ESAs) in the Western Ghats, have requested a reduction in ESA boundaries to allow development projects.

**About:**

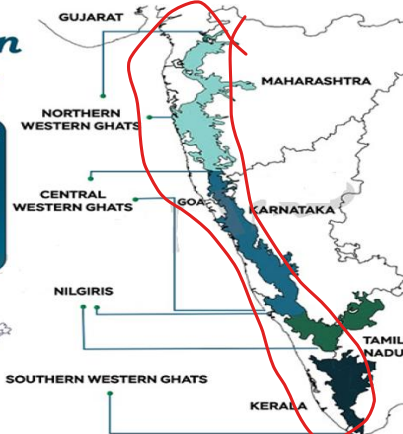
- In 2013, the government formed a **High-Level Working Group chaired by Dr. Kasturirangan** to recommend biodiversity protection for the Western Ghats alongside **sustainable development**.
- This followed the **2011 Madhav Gadgil Committee**, which proposed eco-sensitive areas (ESA) in parts of Kerala, Karnataka, Goa, Maharashtra, Gujarat, and Tamil Nadu.
- The **Kasturirangan Committee** recommended designating 37% of the Western Ghats as ESA, down from Gadgil's suggestion of 64%.

**Kasturirangan Committee, 2013:**

- Recommended bringing only 37% of the Western Ghats under ESA, balancing development and environmental protection.
- Proposed a **complete ban on mining, quarrying, and sand mining** in ESAs.
- Restricted **thermal power projects** and allowed hydropower only after detailed studies.
- Advocated for a **ban on highly polluting industries** and excluded inhabited regions and plantations from ESAs, favoring farmers.

### Western Ghats

One of the four biodiversity hotspots of India; recognised as a UNESCO WHS (2012)



### GLOBAL NITROUS OXIDE BUDGET 2024

**Recent Update:** A new study by the **Global Carbon Project (GCP)**, titled "Global Nitrous Oxide Budget (1980-2020)," shows that nitrous oxide emissions have been steadily rising from 1980 to 2020.

**About GCP:**

- The Global Carbon Project (GCP) was established in 2001 to study and quantify global greenhouse gas emissions and their causes.
- The study **focuses on the impact of human activity on emissions of carbon dioxide, methane, and nitrous oxide**.
- It aims to inform public policy and international action on climate change.
- The analysis includes global data from major economic activities contributing to nitrous oxide emissions, along with three absorbent "sinks" that reduce these emissions.

### INDIAN HOUSE CROWS

**Recent Update:** The **Kenyan government** has announced a **plan to eliminate one million Indian House Crows** by the end of 2024 due to their negative impact on local ecosystems and their nuisance, especially in the coastal region.

**About:**

- **Common names:** Indian house crow, house crow, grey-necked crow
- **Family:** Corvidae
- **Taxonomy:** Found in India, Nepal, and Bangladesh, with a grey neck collar
- **Conservation Status:**
  1. IUCN: **Least Concern**
  2. Wildlife Protection Act: **Schedule II**

### GREATER ADJUTANT STORK

**Recent Update:** The **Greater Adjutant Stork**, once widespread in southern and mainland Southeast Asia, is now **limited to Assam, India**. Known for its long neck, large bill, and prominent gular pouch, it is locally called **'Garuda'**.

**About:**

- **Habitat:** Breeds in three locations: Cambodia, Assam, and Bihar. In India, the largest colony is in Assam, particularly in the Brahmaputra valley (Guwahati, Morigaon, Nagaon), and a smaller one near Bhagalpur.
- **Protection Status:**
  1. IUCN Red List: **Endangered**
  2. Wildlife Protection Act 1972: **Schedule IV**

- **Diet:** Carnivorous, feeding on fish, frogs, snakes, birds, offal, and carrion; shares scavenging habits with vultures.
- **Significance:** Considered the mount of Vishnu in Hinduism.



### Hargila Army

The Hargila Army is a **community-based conservation effort** in Assam, India, focused on protecting the endangered **Greater Adjutant Stork**. Established in 2008, the initiative involves **local women** trained to monitor and protect stork nests, mainly in **Morigaon and Nagaon districts**.

#### Key points:

- The Hargila Army empowers **rural women** by involving them in wildlife conservation and awareness.
- The women protect **stork nests** from poaching, disturbances, and human-wildlife conflicts.
- The project has led to a **rise in the stork population in Assam**, preventing the species' extinction.

The Hargila Army is a successful example of **grassroots, women-led conservation**.

### NAGI AND NAKTI BIRD SANCTUARIES

**Recent Update:** On World Environment Day, the Nagi and Nakti Bird Sanctuaries in Bihar were designated as wetlands of international importance **under the Ramsar Convention**.

#### Key Features:

- The Nagi and Nakti Bird Sanctuaries **were established in 1984** as human-made wetlands for irrigation, created by the Nakti Dam.
- They provide **crucial wintering habitats** for migratory birds and are surrounded by dry deciduous forests and hills.
- The sanctuaries host **over 150 species**, including endangered Indian elephants and vulnerable native catfish.
- In the 2023 Asiatic Waterbird Census, Nakti recorded 7,844 birds, while Nagi had 6,938,

highlighting their importance for bird conservation.

#### About Ramsar sites:

- The Ramsar Convention, **signed in 1971 in Ramsar, Iran**, is an international treaty focused on conserving wetlands of global importance.
- In India, it came into effect on **February 1, 1982**, designating Ramsar sites.
- The **Montreux Record** is a register within the **Ramsar List** that tracks wetlands where ecological changes have occurred or are likely due to human activities like pollution or development.

### WORLD ENVIRONMENT DAY 2024

**Recent Update:** World Environment Day, celebrated on **June 5th**, promotes environmental **awareness and protection**. In a notable effort to combat deforestation and restore biodiversity, two environmentalists have launched India's first biospheres within tiger reserves.

#### About:

- World Environment Day (WED) was **established by the UN in 1972 during the Stockholm Conference**.
- WED is **celebrated annually** with a specific theme addressing current environmental issues.
- WED 2024 will be **hosted by Saudi Arabia**.
- India hosted the **45th WED** in 2018 with the theme 'Beat Plastic Pollution'.
- The 2021 WED celebration launched the UN Decade on Ecosystem Restoration (2021-2030) to restore global ecosystems.

#### 'Ek Ped Maa Ke Naam':

- The **campaign** was launched on World Environment Day, 5 June 2024, **by the Prime Minister of India**.
- The Prime Minister planted a **Peepal tree at Buddha Jayanti Park** in Delhi.
- The campaign **encourages sustainable living** and protecting Mother Nature.

### CONSERVATION BREEDING

**Recent Update:** The **Indira Gandhi Zoological Park (IGZP)** in Visakhapatnam is leading wildlife conservation efforts in India, with successful breeding programs for **striped hyenas and Asiatic wild dogs (Dhole)**.

#### About IGZP:

- was established in 1977 and is located in Visakhapatnam, Andhra Pradesh.
- The zoo is surrounded by the Eastern Ghats on three sides and the Bay of Bengal on the fourth.
- It is recognized as a large zoo by the Central Zoo Authority.
- Located near Kambalakonda Wildlife Sanctuary, IGZP also hosts free-ranging animals and birds.
- The zoo has successfully bred species such as striped hyenas, wild dogs, Indian grey wolves, and ring-tailed lemurs.

- Conservation challenges include habitat loss, human-wildlife conflict, poaching, and illegal trade.
- Protection Status:
  - a. IUCN: **Near Threatened**
  - b. Wildlife Protection Act, 1972: **Schedule I**

### Asiatic Wild Dogs (Dhole) ✓



- Dhole is a **carnivorous wild animal** in the Canidae family.
- **Habitat:** Once widespread from southern Russia to Southeast Asia, now mainly found in South and Southeast Asia, including northern China and regions of India (Western and Eastern Ghats, central and northeast India).
- **Conservation:**
  - a. Wildlife Protection Act, 1972: **Schedule II**
  - b. IUCN Red List: **Endangered**
  - c. CITES: **Appendix II**
  - d. Protected in reserves created under **Project Tiger**, where they coexist with tigers.

*2 lions & 2 hyenas  
Parks  
documentary*

### Striped Hyenas (Hyaena) ✓



- are one of three hyena species, **smaller and less social than the Spotted hyena.**

*spotted*

### KAZA SUMMIT 2024

**Recent Update:** The 2024 Heads of State Summit for the Kavango-Zambezi Trans-Frontier Conservation Area (KAZA-TFCA) in Livingstone, Zambia, saw member states renew calls to withdraw from the Convention on International Trade in Endangered Species (CITES).

#### Key Issues at the 2024 KAZA-TFCA Summit:

- KAZA-TFCA spans five southern African nations (Angola, Botswana, Namibia, Zambia, Zimbabwe), with 70% of its land under conservation, home to over 450,000 elephants.
- In 2022, southern African nations proposed legalizing the ivory trade to fund conservation, but CITES rejected the idea.
- At the 2024 summit, delegates highlighted the economic impact of CITES restrictions, calling for the sale of wildlife products and stressing elephant mortality rates and the lost economic potential from ivory stockpiles.

#### What is Ivory?

- Elephant ivory tusks are made of **dentine** encased in enamel, similar to **oversized teeth.**
- **Both male and female African elephants have tusks, while only some male Asian elephants do.**
- Ivory includes materials from other species like **mastodons, mammoths, hippos, narwhals, and walrus.**

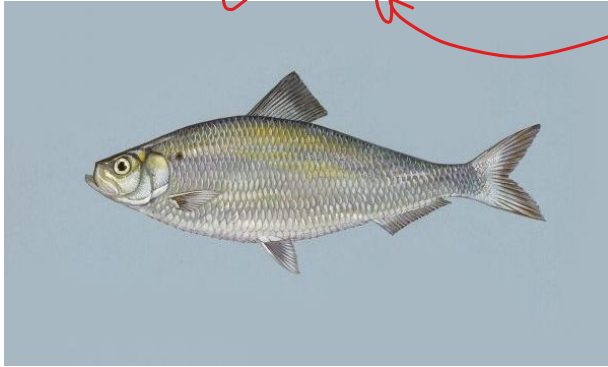
### MIGRATORY DIADROMOUS FISHES

**Recent Update:** A recent study questions the effectiveness of Marine Protected Areas (MPAs) in protecting rare migratory fish species, finding that many MPAs do not align with the species' core habitats, undermining conservation efforts.

**About:** Migratory fish **move between freshwater and saltwater habitats** during their lives, exploiting resources in both environments.

#### Types:

1. **Anadromous Fish:** Live in the ocean but return to freshwater to spawn (e.g., salmon, trout, shad).
2. **Catadromous Fish:** Live in freshwater but migrate to the ocean to spawn (e.g., eel).



- The region receives over **200 cm of rainfall** annually and has temperatures ranging from **20°C to 35°C**.
- Despite covering only **1% of Earth's surface**, the Amazon is **home to 10%** of global wildlife.
- The forest hosts more than **400 indigenous groups**, contributing to its cultural and linguistic diversity.
- The Amazon plays a critical role in combating **global warming** by absorbing large amounts of **greenhouse gases**.

*Lungs of the Earth*

### Marine Protected Areas (MPAs)

- MPAs are designated **areas in oceans, seas, or large lakes** where human activities are regulated to conserve marine ecosystems and biodiversity.
- The **goal** of MPAs is to **protect marine life, support sustainable fisheries, and restore habitats**, such as coral reefs and seagrass beds.
- MPAs vary in terms of protection levels, from **fully protected (no-take zones)** to areas where sustainable fishing and other activities are allowed.
- MPAs help **protect vulnerable species**, rebuild fish stocks, and preserve ecosystem services like carbon sequestration and coastal protection.
- Globally, the establishment of MPAs is seen as **a crucial strategy to combat the decline of marine biodiversity** and mitigate the impacts of climate change.



### Forest Fires in India

- In **2024**, India has reported its **highest** number of forest fires, particularly in **Mizoram, Manipur, Assam, Meghalaya, and Maharashtra**.
- Satellite data shows widespread fires in **Maharashtra, Gujarat, Rajasthan, Madhya Pradesh, Odisha, Jharkhand, and South India**, with significant incidents in Shimla and Uttarakhand.
- Human activities, like discarded **cigarettes, campfires, and burning debris**, are the primary causes of these fires.
- Hot and dry weather conditions, especially in southern India, have created an environment conducive to fire spread, with dry vegetation, including chir forests, being especially vulnerable.

### AMAZON FOREST FIRE

**Recent Update:** Brazil's Amazon rainforest saw its **largest forest fires** on record in the first four months of **2024**, driven by a record drought linked to the **El Nino climate phenomenon** and global warming, which intensified dry conditions.

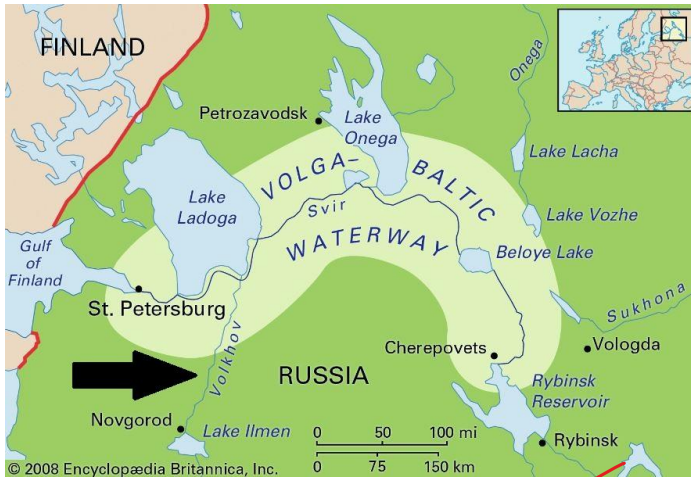
#### About:

- The Amazon rainforest spans **8 countries** and covers **6 million square km**, representing 40% of Brazil's land area.
- It is bordered by the **Guiana Highlands, Andes, Brazilian Plateau, and the Atlantic Ocean**.

### VOLKHOV RIVER

- Four medical students from Maharashtra drowned in the Volkhov River near St. Petersburg, Russia.

- The Volkhov River flows from Lake Ilmen, through Novgorod, and into Lake Ladoga.
- It was historically part of the Baltic Sea-Black Sea trade route and is navigable only by small craft.
- The first Soviet hydroelectric station was built on the river in 1926.
- In 2022, nearly 16,500 Indian students were studying in Russia.



### BLUE PLANET PRIZE

**Recent Update:** The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) won the 2024 Blue Planet Prize for its contributions to biodiversity science.

**About:**

- The prize, awarded by Japan's Asahi Glass Foundation, includes a USD 500,000 award.
- IPBES, established in 2012, has over 145 member states and focuses on providing policy-relevant knowledge on biodiversity.

### DDT Decline, POPs Rising

**Recent Update:** A study reports a decline in DDT and other Persistent Organic Pollutants (POPs) since 2004 due to global regulations.

**About:**

- However, other harmful POPs are on the rise, which can cause cancer and hormonal disruption.
- The Stockholm Convention (2001) works to eliminate or restrict these pollutants.

### HEATER PRGANS IN MARSUPIALS

**Recent Update:** Research reveals that placental mammals evolved brown fat 100 million years ago to survive cold.

**About:**

- Marsupials, like kangaroos, have less developed brown fat, which is important for regulating body temperature.
- Brown fat has potential applications for treating obesity and metabolic disorders.

### MONTREAL PROTOCOL

**Recent Update:** A new study in Nature Journal shows the Montreal Protocol has reduced radiative forcing and chlorine from HCFCs since 2021, marking progress in mitigating climate change and ozone layer loss.

**About:**

- The Montreal Protocol, adopted in 1987, aims to phase out ozone-depleting substances (ODS).
- It operates under the Vienna Convention (1985).
- The Kigali Amendment, adopted in 2016 and effective in 2019, targets reducing Hydrofluorocarbons (HFCs), non-ODS alternatives to CFCs and HCFCs.

### Ozone depleting substances (ODS)

- Ozone-depleting substances (ODS) are synthetic compounds like CFCs and HCFCs containing chlorine and bromine.
- When released, these chemicals reach the stratosphere and trigger reactions that degrade ozone molecules.

Ozone Depleting Substances (ODS)	Sources
Chlorofluorocarbons (CFCs)	Refrigerators, air-conditioners, solvents, dry-cleaning agents, etc
Halons	Fire-extinguishers
Carbon tetrachloride	Fire-extinguishers, solvents
Methyl chloroform	Adhesives, aerosols
Hydrofluorocarbons	Fire extinguishers, air conditioners, solvents

### STRIPED CAECILIAN DISCOVERY

**Recent Update:** The Striped Caecilian, a limbless amphibian, was recently discovered in Kaziranga National Park.

**About:**

- Caecilians are worm-like, rely on touch and smell, and are carnivorous burrowers.
- They provide insights into evolution and play a key role in pest control.

**Kaziranga National Park:**

- Located between the Brahmaputra River and Karbi Hills, it became a national park in 1974 and a UNESCO World Heritage Site in 1985.

- Home to the "Big 5" species: Rhinoceros, Tiger, Elephant, Wild Water Buffalo, and Swamp Deer.
- Features alluvial grasslands and tropical forests.



### IBERIAN LYNX RECOVERY

**Recent Update:** The Iberian lynx has moved from "endangered" to "vulnerable" on the IUCN Red List, with over 2,000 lynxes in Spain and Portugal.

**About:**

- **Family:** Felidae, known for being the most dangerous feline species.
- **Distribution:** Found only in southwestern Spain, in eastern Sierra Morena and coastal plains west of the Guadalquivir.
- **Protection:** Listed under IUCN Red List Appendix II and CITES Appendix I.
- **Threats:** Poaching, road accidents, habitat loss, and climate change.



### MAINLAND SEROW

- **Appearance:** A mammal resembling a cross between a goat and an antelope.
- **Habitat:** Found at altitudes of 200-3,000 meters in the Himalayas, Southeast Asia, and China.
- **Distinct Features:** Only males have light-colored horns.
- **IUCN Status:** Vulnerable.
- **Other Species:** Includes the Japanese serow, Taiwan serow, and red serow.

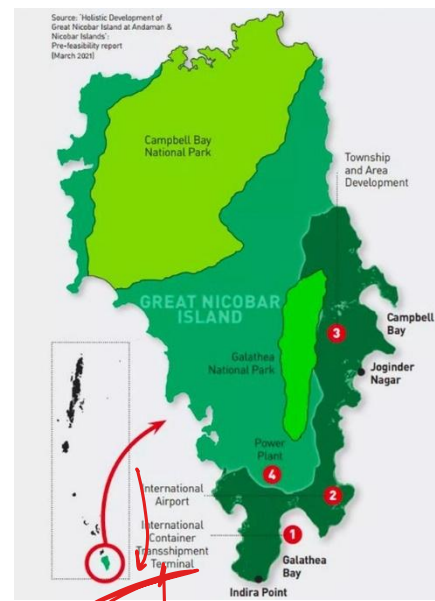
- **Recent Discovery:** First photographic evidence of the Mainland Serow in Assam's Raimona National Park.

### FOUR-HORNED ANTELOPE (CHOUSINGHA)

- **Size:** One of the smallest antelopes in Asia.
- **Habitat:** Found in open, dry, deciduous forests in hilly terrains of India and Nepal.
- **Distinct Features:** Males have four horns, and the coat is yellowish-brown to reddish.
- **Behavior:** Diurnal and solitary.
- **IUCN Status:** Vulnerable.

### GREAT NICOBAR PROJECT

- Introduced in the 1970s for national security in the Indian Ocean Region, the project has gained urgency due to rising Chinese activity in the Bay of Bengal and Indo-Pacific.
- The Rs 72,000 crore development includes a ₹35,000 crore transshipment port at Galathea Bay, a dual-use military-civil airport, a power plant, and a greenfield township.
- The project is overseen by the Andaman and Nicobar Islands Integrated Development Corporation.



### Binsar Wildlife Sanctuary

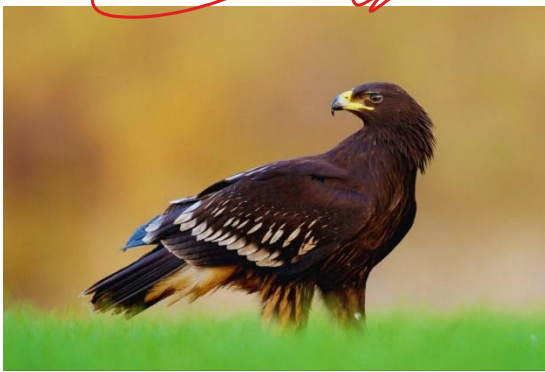
- Four forest workers lost their lives during a wildfire in Binsar Wildlife Sanctuary, Almora.
- Located in the Kumaon Himalayas of Uttarakhand, the sanctuary was established in 1988 to conserve regional biodiversity.
- The area features dense oak and pine forests and is home to over 200 bird species.
- Binsar was once the summer capital of the Chand Dynasty and is named after the Bineshwar Mahadev temple, a 16th-century temple dedicated to Lord Shiva.

## Eco-Friendly Solution for Safe Groundwater

- Researchers at IISc developed a technique to remove arsenic and other harmful metals from groundwater, making it safe to drink.
- The process uses a chitosan-based adsorbent and ensures environmentally sustainable disposal of contaminants.
- The system works by filtering contaminated water through the adsorbent, which is then regenerated using a recycled alkaline wash.

## GREATER SPOTTED EAGLE

- The war between Russia and Ukraine has disrupted the migratory paths of greater spotted eagles, a vulnerable raptor species.
- **IUCN Status:** Vulnerable.
- **Geographic Distribution:** Mainly vanished from western and central Europe, with a limited population in Polesia, Belarus.
- Listed under **Schedule I** of India's Wildlife Protection Act, 1972.



## FAECAL SLUDGE AND SEPTAGE MANAGEMENT

**Recent Update:** India has set up over 1,000 Faecal Sludge Treatment Plants (FSTPs) using digital technology, marking the rise of Faecal Sludge and Septage Management (FSSM) as an innovative, eco-friendly sanitation solution.

- **About:** FSTPs are specialized facilities in Faecal Sludge and Septage Management (FSSM) designed to treat faecal sludge and septage from septic tanks and other on-site systems, addressing waste with high disease transmission risks.
- **Objective:** FSTPs manage and treat human waste in areas lacking centralized sewage systems, reducing pathogens and organic matter to make waste safe for disposal or reuse.
- **Digital Integration:** Increasing use of digital tools to improve efficiency, including:
  1. **GIS:** Mapping sanitation infrastructure and planning.

2. **Mobile Apps:** Tools like SaniTab and mWater for data collection and GPS tracking for desludging in places like Odisha and Maharashtra.
3. **Sustainable Services:** Odisha's SUJOG program, powered by the DIGIT platform, supports sustainable urban services.

## ETHANOL

**Recent Update:** India has recently increased ethanol production from grains, particularly maize, surpassing sugar-based feedstocks.

### What is Ethanol?

- Ethanol (ethyl alcohol) is a biofuel made from sources like sugarcane, corn, rice, wheat, and biomass.
- Molasses, a byproduct of sugar production, is the main source of ethanol.
  - a. Molasses: First by-product, 80-85% dry matter.
  - b. Molasses: Second by-product, lower sugar content.
  - c. Molasses (Blackstrap): Final by-product, used as animal feed.
- Ethanol is produced by fermenting sugars or through petrochemical processes like ethylene hydration.
- It is 99.9% pure alcohol and can be blended with petrol for cleaner fuel.

## RHISOPE PROJECT

- Launched in 2021, the Rhisotope Project involves injecting measured quantities of radioisotopes into live rhino horns.
- Radioactive chips make the horn "useless" and "poisonous" for human consumption.
- The project includes follow-up care and blood tests to ensure the rhinos' well-being. The radioisotopes remain effective for five years, making it more cost-effective than regular dehorning.
- Aiming to use nuclear science for conservation, this non-lethal method seeks to reduce poaching and protect rhinos from extinction.



## PINK FLAMINGOS

- Flamingos belong to the Phoenicopteridae family, with six species: Greater, Chilean, Lesser, Caribbean, Andean, and Puna flamingos. They inhabit lakes, mudflats, and shallow lagoons across the Americas, Africa, Asia, and Europe.
- Known for their pink feathers, long legs and necks, webbed feet, and downward-curving bills adapted for filter-feeding.
- Flamingos' color varies by location and season, ranging from dark pink to white.
- Adapted to extreme environments with high salinity and temperatures, where few predators thrive.
- **Conservation Status:**
  - **IUCN Red List:**
    - a. **Vulnerable:** Andean flamingo
    - b. **Near Threatened:** Lesser flamingo, Puna flamingo, and Chilean flamingo
  - **CITES:** Appendix II
  - **Wildlife Protection Act, 1972:** Schedule II



## BONN CLIMATE CONFERENCE 2024

**Recent Update:** The recent climate meeting in Bonn, Germany, made limited progress on defining a new climate finance goal. Countries have not yet made concrete advancements on funding required to tackle the climate crisis.

**About Climate Financing:** Climate financing involves large-scale investments to mitigate or adapt to climate change.

- **Mitigation** includes reducing greenhouse gas emissions, such as through renewable energy and forest expansion.
- **Adaptation** involves measures to minimize the impact of climate change, like building infrastructure to protect coastal communities from sea-level rise.

## SEA CUCUMBER

- Part of the echinoderm group, lives on the seafloor

- Found in tropical and temperate oceans, including Lakshadweep and Andaman Nicobar islands, Gulf of Mannar
- **Schedule 1** of WPA, trade banned
- **CITES:** Appendix II
- Plays an important role in preserving coral reefs and supporting benthic animals
- Exhibits both sexual and asexual reproduction

## SOLID WASTE MANAGEMENT

**Recent Update:** Bengaluru has proposed increasing the Solid Waste Management (SWM) Cess to Rs. 100 per month per household to address the financial strain in waste management. Currently, ULBs charge Rs. 30-50 per month, typically collected with property tax.

### About SWM Cess:

- A user fee or charge imposed by **Urban Local Bodies (ULBs)** to fund waste management services.
- It is a tax levied for specific purposes like waste management or infrastructure development.
- Legal Provisions: **Under the Solid Waste Management Rules, 2016**, ULBs must collect user fees for waste services. The proposed fee hike addresses rising costs and operational challenges.

### Solid Waste Management Rules, 2016

- Replaced the 2000 Municipal Solid Waste Rules.
- Emphasized waste segregation at the source, manufacturer responsibility for disposal, and user fees from bulk generators.

### Key Features:

- **Waste Segregation:** Residents separate waste into wet, dry, and hazardous categories.
- **Payments:** Residents pay for collection and can be fined for littering or not segregating.
- **Waste Processing:** Encourages composting, bio-methanation, and waste-to-energy methods.
- **Local Authority Duties:** Municipalities collect segregated waste, ensure processing/disposal, and levy fees.
- **Extended Producer Responsibility:** Manufacturers of disposables help fund waste collection systems

## CHEETAH

**Recent Update:** The Madhya Pradesh Government has completed preparations for the reintroduction of

African cheetahs in the Gandhi Sagar Wildlife Sanctuary (GSWS).

About Project Cheetah:

- Phase-1 (2022) aimed to restore India's extinct cheetah population by translocating cheetahs from South Africa and Namibia to Kuno National Park.
- The project is led by NTCA, Madhya Pradesh Forest Department, and Wildlife Institute of India (WII).
- Phase-2 considers sourcing cheetahs from Kenya for similar habitats, with translocation planned to Kuno National Park and Gandhi Sagar Wildlife Sanctuary.

Facts About Gandhi Sagar Wildlife Sanctuary:

- Located in western Madhya Pradesh, covering Mandasaur and Neemuch districts, bordering Rajasthan. The Chambal River divides the sanctuary, with Gandhi Sagar Dam inside.
- The ecosystem features rocky terrain, shallow topsoil, open grasslands, dry deciduous trees, and riverine evergreen valleys.
- The sanctuary's savanna-like landscape, similar to Kenya's Maasai Mara, makes it an ideal habitat for cheetahs.



About Cheetah:

- Cheetahs breed year-round, with a peak during the rainy season. Females mature at 20-24 months, males at 24-30 months.
- Gestation lasts 90-95 days, with litters typically of 3-5 cubs.
- Unlike other big cats, cheetahs do not roar but communicate with chirps and barks.
- Cheetahs are solitary and mark territories with scratch marks, scent marking, and vocalizations like the "stutter bark."
- The fastest land animals, cheetahs can reach speeds of 120 km/h and accelerate from 0 to

100 km/h in 3 seconds. Their hunting success rate is 40-50%.

Protected under IUCN as Vulnerable, Schedule 2 of the Wildlife Protection Act, 1972, and Appendix I of CITES.

## WORLD CROCODILE DAY 2024

Recent Update: World Crocodile Day is observed on June 17th to raise global awareness about the plight of endangered crocodiles and alligators.



## ENVIRONMENTAL PERFORMANCE INDEX

Recent Update: The Yale Center for Environmental Law and Policy and the Columbia Center for International Earth Science Information Network released the 2024 Environmental Performance Index (EPI).

Key Highlights of EPI 2024:

- Global Scenario: Estonia leads by cutting greenhouse gas emissions by 59% from 1990 levels. Five countries (Estonia, Finland, Greece, Timor-Leste, UK) are on track to meet net zero by 2050. Sub-Saharan Africa and Southern Asia rank lowest.
- India's Performance: India ranks 176th out of 180 countries with 27.6 points, ahead of only Pakistan, Vietnam, Laos, and Myanmar.

About EPI:

- The Environmental Performance Index (EPI) is a biennial index, launched in 2002 as the Environmental Sustainability Index (ESI) by the World Economic Forum.
- Evaluation Target: It assesses countries' progress towards international environmental goals, including the U.N. sustainability targets, the Paris Climate Agreement, and the Kunming-Montreal Global Biodiversity Framework.
- Framework: The 2024 EPI uses 58 performance indicators across 11 issue categories, with three policy objectives: Environmental Health, Ecosystem Vitality, and Climate Change.

### DIADROMOUS FISH

- Migrate between **freshwater and saltwater** environments throughout their lives
- Move back and forth between the ocean and rivers or streams at different life stages
- Examples: Allis shad, Mediterranean twaite shad, European eel

### E FLOW MONITORING SYSTEM

**Recent Update:** The Union Jal Shakti Ministry has launched an Environmental Flows (E-flows) Monitoring System to monitor river water quality in real-time and support planning of river ecosystem projects. Objective: It aims to improve water resource management and environmental flow monitoring in key rivers like the Ganga and Yamuna.

**About Environmental Flow:** Environmental flow (E-flow) refers to the quantity, timing, and quality of water needed to maintain the health of aquatic ecosystems and support livelihoods dependent on them.

#### Key Aspects:

1. Quantity: Sufficient water volume to support ecological processes.
2. Timing: Preserving natural flow variations, including seasonal changes.
3. Quality: Ensuring water quality is suitable for ecosystem health (e.g., oxygen levels, temperature).
4. Frequency: Ensuring regular flow events like high, low, and flood flows to support species life cycles.

### LEOPARD SAFARI

- India's largest leopard safari, covering 20 hectares, was inaugurated at **Bannerghatta Biological Park, Bengaluru.**

- It currently hosts 8 leopards and is part of a park that includes a zoo, butterfly park, and rescue center.

### About Leopard

- Leopards (*Panthera pardus*) are large carnivorous cats found in sub-Saharan Africa, parts of Asia, and India.
- They are known for their distinctive coat with rosettes, which helps them blend into their environment.
- Leopards are solitary and territorial animals, usually hunting alone and often at night (nocturnal).
- They are highly adaptable and can thrive in a wide range of habitats, from savannas to forests to mountainous regions.
- Leopards are skilled climbers and often drag their prey up into trees to protect it from scavengers like hyenas.



### GLOBAL WIND DAY 2024

**Recent Update:** India celebrated Global Wind Day 2024 with the theme "**Pawan Urja: Powering the Future of India.**"

#### About:

- India reached a wind power capacity of 46.4 GW by May 2024, ranking 4th globally.
- Wind energy is essential to India's goal of 500 GW renewable capacity by 2030.
- Gujarat, Tamil Nadu, and Karnataka lead in wind power production in India.
- Wind energy is vital for achieving India's net-zero target by 2070.

### MONSOON CROAKS BIOBLITZ 2024

**Recent Update:** Kerala Forest Research Institute launched the Monsoon Croaks Bioblitz to document frog species in Kerala.

#### About:

*frog*

- The project runs from June to September, contributing **data to the Global Biodiversity Information Facility (GBIF)**.
- It aims to protect frog habitats and raise awareness about biodiversity.
- Climate change, habitat loss, and pollution threaten frogs, with 41% of species endangered.
- **Kerala** hosts over 200 frog species, some critically endangered, emphasizing the need for conservation.

*Monkey Ape*  
*no tail*  
*long*  
*small*

- **Species:** The **only ape found in India**, known for its speed and vocalizations.
- **Habitat:** Found in tropical and subtropical forests in Northeast India, Eastern Bangladesh, Myanmar, and Southern China.
- **Behavior:** Primarily arboreal and cannot adapt to living on the ground.
- **IUCN Status:** Endangered (Western Hoolock) and Vulnerable (Eastern Hoolock).
- **Conservation:** Global Gibbon Network launched an initiative for the conservation of gibbons in 2020.

### RISING SEA LEVEL ON DELOS ISLAND

**Recent Update:** Rising sea levels may cause Delos Island to vanish in the next 50 years.

**About:**

- Delos is a **UNESCO World Heritage site** with ancient Greek and Roman significance.
- Seawater erosion and climate change are damaging the island's structures.
- Increased temperatures and humidity are affecting the materials of cultural monuments.
- The island is in the Aegean Sea, which connects to the **Mediterranean and Black Sea**.

### GIANT PANDA (CHINESE PANDA)

- **Species:** Endemic to China, recognized by its black-and-white coat and rotund body.
- **Diet:** Primarily bamboo (over 99% of its diet), though it may eat other plants and occasionally small animals.
- **Habitat:** Limited to mountain ranges in central China, primarily Sichuan, Shaanxi, and Gansu.
- **IUCN Status:** Vulnerable.
- **Cultural Significance:** Has been the logo of WWF since 1961.

*Panda diplomacy*

### ARABIAN ORYX

- **Species:** Smallest oryx species, native to the Arabian Peninsula.
- **Adaptation:** Extremely well-suited for desert life, capable of going without water for long periods by extracting moisture from plants and dew.
- **Diet:** Herbivores.
- **IUCN Status:** Vulnerable.
- **CITES:** Appendix I.

### HOLOCK GIBBON

### CROCODILE CONSERVATION PROJECT

- Launched in 1975 at **Bhitarkanika National Park, Odisha with the help of UNDP and FAO**.
- Crocodiles are the largest living reptiles, primarily found in freshwater environments, **except for saltwater crocodiles**.
- They are nocturnal and poikilothermic (limited body temperature regulation).
- Recently, Indian Gharial was confirmed in Greater Kaziranga after 75 years.

**Species:**

1. **Saltwater Crocodile:** Largest living reptile, found in Bhitarkanika, Sundarbans, and Andaman & Nicobar Islands. **IUCN: Least Concern.**
2. **Mugger Crocodile:** Found in 15 Indian states, characterized by broad snouts and burrowing habits. **IUCN: Vulnerable.**
3. **Gharial:** Known for its long, narrow snout, found in fast-flowing rivers of India and Nepal. **IUCN: Critically Endangered.**

### PEARL SPOT

- Locally known as "**Karimeen**" in Kerala and popular food fish
- **Indigenous** fish found along the east and southwest coasts of Peninsular India
- **A euryhaline species**, inhabits mainly brackish water and river mouths
- **Distributed** in Kerala, Tamil Nadu, Goa, Andhra Pradesh, Orissa, and West Bengal in India
- **IUCN Status:** Least Concern

*wide*

### PARENGYODONTIUM ALBUM

- Breaks down plastic polyethene (PE) in ocean waters through **bioremediation**
- Converts PE-derived carbon into fungal biomass
- Initial photodegradation of PE by UV sunlight is crucial to the process

## MAHUA

- Known as the "Tree of Life," produces alcoholic beverages from its flowers
- Found in multiple states of India including West Bengal, Odisha, and Maharashtra
- The flowers are rich in **sugars, vitamins, minerals, and calcium**
- Mahua is used for food, medicine, and liquor production

## BAOBAB TREE

- Known as the "upside-down tree" due to its appearance
- Can store large amounts of water in its trunk to survive dry conditions
- Native to Africa and Madagascar, introduced to India
- **IUCN Status:** Endangered

## ENCEPHALARTOS WOODIE

- A member of the cycad family from South Africa, often called a "living fossil"
- Thick trunks and large stiff leaves form a majestic crown
- Scientists are using AI and remote sensing to find a female plant in Ngoye Forest, South Africa

## FILOBOLETUS MANIPULARIS

- Recently discovered in the **Western Ghats, Kerala**
- Emits a bright green **glow at night** due to a chemical reaction involving **luciferin** and **luciferase**
- **Bioluminescence** believed to attract insects for spore dispersal, aiding in the fungus's life cycle.

## MURRAYA AND DAVANA FLOWERS

- National Botanical Research Institute (NBRI) preserving flowers used in rituals of **12th-century** Shree Jagannath Temple, Puri, Odisha
- **Davana Flowers:** Aromatic herb, grows wild in the temperate Himalayas, cultivated in multiple Indian states
- **Murraya Flowers:** Found in India, Sri Lanka, southern China, Thailand, and northeastern Australia

## DICTYOSTELIUM DISCOIDEUM

- **Free-living, fast-growing unicellular amoeba that feeds on bacteria from decaying vegetation**

- Transitions into a **multicellular slug** and fruiting body during its lifecycle
- Studied for insights into **natural altruism**

## HINDU KUSH HIMALAYAN (HKH) REGION

- Spans 4.3 million square km across Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan
- Known as the "**Third Pole**" due to its vast ice reserves, vulnerable to hazards like earthquakes and landslides
- **Highest point:** **Tirich Mir in Pakistan**

## INDIAN HIMALAYAN REGION (IHR)

- Formed by the collision of the Eurasian and Indian plates about 50 million years ago
- Spans 13 Indian states/UTs, covering 18% of India's land area and 50% of its forest cover
- Source of major rivers like the Ganges, Yamuna, and Brahmaputra
- **Recognized by the Supreme Court (2024)** as a region needing sustainable development due to climate change

## INTERNATIONAL CENTRE FOR INTEGRATED MOUNTAIN DEVELOPMENT (ICIMOD)

- Intergovernmental knowledge center based in **Kathmandu, Nepal**
- Works across **eight regional countries** in the HKH region
- **Engaged in research, policy implementation, and global mountain advocacy.**

## SARASWATI RIVER

- **Originates** from the **Himalayas** near **Kapal Tirth**
- Mentioned in the Rigveda, flows mainly during the monsoon season through **India and Pakistan**
- Known as the **Ghaggar-Hakra river** in India and Pakistan

## TEESTA RIVER

- Tributary of the Brahmaputra River, flows through **Sikkim, West Bengal, and Bangladesh**
- Considered the **lifeline of Sikkim**, with ongoing water-sharing disputes between India and Bangladesh

## KRISHNA RIVER

- Originates in the **Western Ghats** near Mahabaleshwar, Maharashtra

- Flows through **Maharashtra, Karnataka, Telangana, and Andhra Pradesh** before draining into the Bay of Bengal

- ★ **Major tributaries include Tungabhadra, Bhima, Koyna, and others**

### GHATAPRABHA RIVER

- The Ghataprabha River is a **tributary of the Krishna River**.
- It flows predominantly in the state of **Karnataka**.
- **Hidkal Dam**, an important reservoir, is located on this river.
- The Ghataprabha River is joined by several tributaries, including the **Hiranyakeshi and Markandeya rivers**.

### PERIYAR RIVER

- Periyar is the **longest river in Kerala**, earning its name, which means "big river."
- The source of the Periyar River lies high in the **Western Ghats of Tamil Nadu**.
- It flows through the Periyar National Park and into the **Periyar Lake**, which is a man-made reservoir.
- The river eventually flows into the **Vembanad Lake** and finally reaches the Arabian Sea.
- The Periyar River is often referred to as the "**Lifeline of Kerala**" due to its critical role in the state's water resources.
- The river's main **tributaries** include Muthirapuzha, Mullayar, Cheruthoni, and Perinjankutti.
- The **Idukki Dam**, the largest hydroelectric project in Kerala, is built across the Periyar River.
- The **birthplace of Sankaracharya**, a renowned Advaita philosopher, is located along the Periyar River.

### ADYAR RIVER

- The **Adyar River** originates from **Chembarambakkam Lake**, located in Chennai.
- It flows through the districts of **Kancheepuram, Tiruvallur, and Chennai**.
- The river follows a **west-to-east direction** and eventually joins the Bay of Bengal at the Adyar estuary.
- The Adyar River is one of the **three rivers that wind through Chennai**.
- **Guindy National Park**, located in Chennai, is bounded by the Adyar River to the north.
- The Adyar River is a significant tributary of the **Kaveri River**.

### KANKARIA LAKE

- Kankaria Lake is the **second-largest lake in Ahmedabad, Gujarat**.
- The lake was completed in **1451** during the reign of Sultan Qutb-ud-Din Ahmad Shah II.
- It may have origins dating back to the **Chalukya period**.

### KAWAL TIGER RESERVE

- The Kawal Tiger Reserve is located in the **Deccan Peninsula's central highlands**, in Telangana.
- The reserve is positioned between the **Godavari River** on one side and the Maharashtra border on the other.
- The catchment areas for the rivers **Godavari and Kadam** are located within the reserve, which flows southward.
- The vegetation in the Kawal Tiger Reserve is primarily **Southern Tropical Dry Deciduous Forest**.

### TADOBA-ANDHARI TIGER RESERVE

- The Tadoba-Andhari Tiger Reserve is located in **Maharashtra**.
- Biogeographically, it falls within the **Central Plateau province** of the Deccan Peninsula.
- The reserve features two lakes—**Tadoba Lake and Kolsa Lake**—and the Tadoba River.
- The **primary** vegetation type in the reserve is **Southern Tropical Dry Deciduous Forest**.

### PENCH TIGER RESERVE

- The Pench Tiger Reserve is spread across the states of Maharashtra and Madhya Pradesh in the lower southern reaches of the **Satpura Hills**.
- The Pench River divides the reserve into two parts.
- The reserve gained National Park status in **1975** and **Tiger Reserve status in 1992**.
- The Pench Tiger Reserve is also the inspiration for **Rudyard Kipling's** famous work **The Jungle Book**.
- The forest types include South Indian Tropical Moist Deciduous, Southern Tropical Dry Deciduous Teak, and Southern **Dry Mixed Deciduous**.

### VEERANGANA DURGAVATI TIGER RESERVE

- The Veerangana Durgavati Tiger Reserve is located in **Madhya Pradesh**.
- The reserve encompasses parts of the **Nauradehi Wildlife Sanctuary** and the Durgavati Wildlife Sanctuary.
- Rivers flowing through the reserve include those in the **Narmada and Yamuna River** basins.

- **Singorgarh Fort**, an ancient historical site, is located within the reserve.
- The dominant vegetation in the reserve is of the **dry deciduous type**.

#### RANTHAMBORE NATIONAL PARK

- Located in southeastern **Rajasthan**, the Ranthambore National Park is situated at the junction of the **Aravalli and Vindhya hill ranges**.
- The park derives its name from the **Ranthambore Fort**, which is located within its boundaries.
- It was declared a national park in 1980, and the surrounding forests were designated as the **Sawai Man Singh Sanctuary and Keladevi Sanctuary**.
- The park's vegetation is predominantly **tropical dry deciduous** and tropical thorn forests.
- The park is enclosed by the **Chambal River and Banas River** on two sides.

#### POBITORA WILDLIFE SANCTUARY

- Pobitora Wildlife Sanctuary is located on the southern bank of the **Brahmaputra River** in Assam's Morigaon district.
- The sanctuary includes the **Rajamayong and Pobitora Reserve Forests**.
- It is renowned for hosting the highest density of Greater One-horned Rhinoceros in India, earning it the nickname "**Mini Kaziranga**."

#### RAIMONA NATIONAL PARK

- Raimona National Park is located in **Assam**, along the **Indo-Bhutan border**.
- The northern boundary of the park shares the border with **Bhutan's Phibsoo Wildlife Sanctuary**.
- The western boundary is defined by the **Sankosh River**, while the eastern boundary is the **Saralbhanga River** (also known as **Surmanga**).
- Vegetation types in the park range from **moist sal forests** to high alluvial semi-evergreen forests and savannah forests.

#### BINSAR WILDLIFE SANCTUARY

- Located in Uttarakhand, the Binsar Wildlife Sanctuary is named after the **Bindeshwar Mahadev** rock temple dedicated to Lord Shiva.
- The sanctuary was once the summer capital of the **Chand dynasty**, which ruled from the 11th to the 18th centuries.
- The sanctuary is recognized as an **Important Bird Area (IBA)** by BirdLife International, as it hosts rare bird species such as the Forktail and Blackbird.

#### KOYA TRIBE

- The **Koya tribe** is found in the **Papikonda hill range** near the Godavari and Sabari rivers in Andhra Pradesh and Telangana.
- They are the **second-largest tribal community** in **Telangana** and are also found in Chhattisgarh and Odisha.
- Traditionally, the Koyas were pastoralists and shifting cultivators but have now adopted settled cultivation supplemented by animal husbandry and forest gathering.
- The Koya people have unique cultural practices, including the erection of menhirs in memory of the dead.
- The **Koya language (Koyi)** is related to Gondi and Telugu.
- Festivals like **Vijji Pandum** (seed-charming festival) and **Kondala Kolupu** (festival for appeasing hill deities) are important for the Koya tribe.
- The Koyas are known for their vibrant, energetic dance, known as **Permakok** or the **Bison Horn Dance**, performed during festivals and marriage ceremonies.

#### CYCLONE REMAL

- Cyclone Remal is a tropical cyclone that formed in the **Bay of Bengal**.
- The name "Remal" was **given by Oman**, and it was the first cyclone of the 2024 pre-monsoon season.
- Cyclone Remal recently struck the coasts of **Bangladesh and West Bengal**, causing fatalities, power outages, and widespread flooding in **coastal areas**.

#### INDIA'S PRIVATE BIOSPHERE

- The **Rajaji Raghati Biosphere (RRB)** in **Uttarakhand** is India's first private biosphere.
- It is managed by ecologists **Vijay Dhasmana and Jai Dhar Gupta**.
- The RRB is located adjacent to the Rajaji National Park.

#### WILDLIFE INSTITUTE OF INDIA (WII)

- The Wildlife Institute of India (WII) is an **autonomous institution** under the Ministry of Environment, Forests, and Climate Change.
- Established in 1982, its **headquarters are located in Dehradun**, Uttarakhand.
- WII offers **training, academic courses**, and advisory services in wildlife research and management.

#### NATIONAL CENTRE FOR POLAR AND OCEAN RESEARCH (NCPOR)

- NCPOR, formerly known as the **National Center for Antarctic and Ocean Research (NCAOR)**, was established in 1998.
- It is India's **premier research institution** for scientific studies in the polar and southern ocean regions.
- NCPOR is responsible for planning and executing polar expeditions and research in Antarctica, the Arctic, the Himalayas, and the Southern Ocean.
- It is based in **Vasco da Gama, Goa**.

### BIODIVERSITY HOTSPOTS

- Biodiversity hotspots are **geographical regions** with exceptionally high species richness, including rare and endemic species.
- Hotspots represent **just 2.5% of Earth's land** but support more than half of the world's plant species as endemics.
- India has **four biodiversity hotspots: the Himalayas, Indo-Burma region, Western Ghats, and Sundaland**.

### MIYAWAKI TECHNIQUE

- The Miyawaki technique, developed by **Japanese botanist Akira Miyawaki**, is an innovative method for afforestation and ecological restoration.
- It involves planting dense mini-forests in urban areas with **2-4 types of indigenous trees** per square meter.
- These **mini-forests grow** quickly and do not require regular maintenance, being self-sustaining after establishment.

### CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

- The **CBAM is a proposed tariff mechanism by the European Union to tax carbon-intensive products**.
- It is designed to **impose a price on carbon emissions** from goods entering the EU, encouraging cleaner industrial practices in **non-EU countries**.
- The CBAM aims to prevent **carbon leakage** and level the playing field between EU producers and foreign manufacturers.

### NATURE RESTORATION PLAN (NRP)

- The NRP is a continent-wide initiative by the **European Union**, aiming to restore 20% of the EU's land and sea areas by 2030.

- The goal is to ensure **net zero emissions by 2050**, with complete ecosystem restoration by 2050.
- Implementation will be through the **National Restoration Plans** of EU member states.

### NEW COLLECTIVE QUANTITATIVE GOAL (NCQG)

- The NCQG is a **proposed financial target** to provide climate finance to developing countries from 2025 onward.
- This new goal will replace the **previous USD 100 billion per year** commitment, which was not met.
- Negotiations are ongoing, and the final NCQG amount will be set at the **COP29 summit** in 2024.

### MONTREAL PROTOCOL (1987)

- The **Montreal Protocol** is a global environmental treaty designed to eliminate the production of **ozone-depleting substances (ODS)**.
- The **Kigali Amendment** to the Montreal Protocol, adopted in 2016, focuses on phasing out **Hydrofluorocarbons (HFCs)**, which have high global warming potential.
- The protocol has been successful in reducing emissions of ODS, including **HCFC-22**, which is commonly used in refrigeration.

### ANTARCTIC TREATY CONSULTATIVE MEETING (ATCM-46)

- India recently hosted the **46th Antarctic Treaty Consultative Meeting (ATCM-46)** in Kochi.
- The Antarctic Treaty (1959) establishes **Antarctica as a region for peaceful purposes and scientific cooperation**.
- India has been a Consultative Party to the Antarctic Treaty since 1983, operating two year-round research stations in Antarctica: **Maitri and Bharati**.

### GREENING EDUCATION PARTNERSHIP (UNESCO)

- The **Greening Education Partnership**, launched by UNESCO, supports countries in tackling climate change through education.
- It aims to **integrate environmental education** across schools, curricula, teacher training, and communities to address the climate crisis.

### UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD)

- The UNCCD, established in 1994, is a **legally binding international agreement** focused on

sustainable land management and combating desertification.

- **India ratified** the convention in 1996, and the Ministry of Environment, Forests, and Climate Change (**MoEF&CC**) is the nodal authority.

### SMALL ISLAND DEVELOPING STATES (SIDS)

- SIDS are a group of **39 countries and 18 associate members** facing unique social, economic, and environmental challenges.
- These countries are located in the **Caribbean, Pacific, and the Atlantic, Indian Ocean, and South China Sea (AIS) regions.**

### INFRASTRUCTURE FOR RESILIENT ISLAND STATES (IRIS) PROGRAMME

- IRIS is a **flagship programme of the Coalition for Disaster Resilient Infrastructure (CDRI).**
- Launched at COP26 of the UNFCCC, held in **Glasgow, UK.**
- The first major initiative by CDRI, which was **founded by India in 2019.**
- IRIS contributes to **the UN's SAMOA Pathway initiative**, which aims to improve the resilience of infrastructure in **Small Island Developing States (SIDS)** against climate change and disasters.

### GLOBAL ENVIRONMENT FACILITY (GEF)

- GEF is a financial mechanism created at the **1992 Rio Earth Summit** to address the world's most pressing environmental issues.
- Managed by the **World Bank**, with its secretariat based in **Washington, D.C.**
- GEF involves **183 countries**, international institutions, civil society organizations, and the **private sector (not only the public sector)** in tackling global environmental problems.
- The GEF Council is its main governing body, consisting of 32 members appointed from GEF member countries (14 from developed countries, 16 from developing countries, and 2 from economies in transition).
- The GEF Assembly includes all **183 member countries**, meeting every four years to review policies and operations.
- **GEF funds** are provided by participating donor countries, mobilized through a replenishment process every four years.
- **GEF supports** various environmental conventions including: the Convention on Biodiversity (**CBD**), the UN Convention to Combat Desertification (**UNCCD**), the UN Framework Convention on Climate Change (**UNFCCC**), the Stockholm Convention on

Persistent Organic Pollutants, the **Minamata Convention**, and the **Montreal Protocol.**

### COHABITAT PROJECT

- CoHABITAT focuses on the **conservation and sustainable management of wetlands, forests, and grasslands** to protect migratory species along the Central Asian Flyway in India.
- The project is implemented by UNDP in collaboration with the **Indian Ministry of Environment, Forest, and Climate Change**, which serves as the executive agency.
- At the 67th GEF Council meeting, funding was mobilized for the **CoHABITAT project.**

### GLOBAL SOIL PARTNERSHIP (GSP)

- GSP was established in **2012 by the Food and Agriculture Organization (FAO).**
- It aims to promote the importance of **soil management, improve soil governance, and encourage sustainable soil practices worldwide.**
- GSP has called for **urgent action** to improve and maintain the health of at least 50% of the world's soils by 2030.

### GREENPEACE INTERNATIONAL

- Greenpeace is an **environmental NGO**, founded in **1971 in Vancouver, Canada.**
- Initially known as the "**Don't Make a Wave Committee**," it was renamed Greenpeace in 1972.
- Greenpeace's headquarters are in **Amsterdam, Netherlands.**
- Greenpeace India was established in **2001** as part of the global Greenpeace network.

### BUILD CLIMATE RESILIENCE

**Recent Update: India needs US \$679 billion by 2030** for climate adaptation, according to the **Third National Communication to the UNFCCC.**

#### About:

- The National Adaptation Fund for Climate Change supports vulnerable regions, but funding has been inadequate, with no budget allocation in the past two years.
- While **mitigation funding has grown**, the government should prioritize adaptation needs.
- Current risk assessments **focus mainly on hazards, highlighting the need for a standardized framework** to assess climate

risks, vulnerabilities, and the effectiveness of development programs.

- Adaptation requires investment in research, community impact studies, capacity building for local administrations, and technological interventions, particularly in sectors like agriculture and small enterprises.

## URBAN FLOODS

**Recent Update :** Urban floods in India are becoming a major issue, affecting cities nationwide.

**About:**

- Urban flooding differs from rural flooding due to rapid urbanization, causing loss of infrastructure, property, lives, and economic strain.
- The National Disaster Management Authority (NDMA) focused on riverine floods in rural areas, neglecting urban flooding.
- Urban expansion has led to more settlements in flood-prone areas, doubling since 1985, increasing flood risk.
- Economic losses from urban floods are significant, with events like the 2023 North India floods and Cyclone Biparjoy causing Rs 10,000-15,000 crore in damages.
- Globally, East Asia has the highest rate of settlement in flood-prone areas, with India ranking third after China and the U.S. in terms of exposure.

## BIODIVERSITY CONSERVATION

**Recent Update:** The neglect of biodiversity conservation over the past two decades requires immediate action.

**About Biodiversity:**

- Biodiversity encompasses genetic, species, and ecological diversity.
1. **Genetic Diversity:** India has over 50,000 distinct rice strains and 1,000 mango varieties.
  2. **Species Diversity:** Despite covering only 2.4% of the world's land, India hosts 8.1% of global species, with 45,000 plant species and double that number in animals.
  3. **Ecological Diversity:** India's ecosystems include deserts, rainforests, mangroves, coral reefs, wetlands, and alpine meadows, making it one of the world's 12 megadiverse countries.

## PARTICULATE MATTER

**Recent Update:** A study published in **Environment International** found that PM2.5 exposure caused 135 million premature deaths worldwide between 1980 and 2020.

**Particulate Matter (PM):**

- PM refers to a mix of solid particles and liquid droplets in the air, with various sizes and chemical compositions.
- Some particles are emitted directly from sources like construction sites, roads, and fires, while others form through chemical reactions in the atmosphere (e.g., sulfur dioxide and nitrogen oxides from power plants, industries, and vehicles).

**Size of Particulate Matter:**

- a. **PM10:** Particles 10 micrometers or smaller, inhalable into the lungs.
- b. **PM2.5:** Fine particles 2.5 micrometers or smaller, more harmful due to their ability to penetrate deeper into the lungs.

## PESTICIDE MISMANAGEMENT

**Recent Update:** Hong Kong, Singapore, and Nepal banned certain Indian spices due to the presence of ethylene oxide, a carcinogenic pesticide.

**Ethylene Oxide:**

- A chemical used for fumigation, sterilization, and insecticide to reduce microbial contamination in spices.
- Classified as carcinogenic by the US EPA, it increases the risk of lymphoid cancer and breast cancer.

**Spices Industry in India:**

- India is the largest producer, consumer, and exporter of spices, with production in 2022-23 at 11.14 million tonnes.
- Major spices produced include pepper, cardamom, chili, ginger, turmeric, coriander, cumin, and garlic.
- Leading spice-producing states: Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, Karnataka, Maharashtra, Assam, Orissa, Uttar Pradesh, West Bengal, Tamil Nadu, and Kerala.
- Spice exports in 2023-24 reached \$4.25 billion, accounting for 12% of global spice exports, with top destinations including China, the USA, Bangladesh, UAE, and the UK.

## CARDIVASCULAR DISEASES

**Recent Update:** WHO reported that cardiovascular diseases, along with respiratory infections and tuberculosis, caused 45% of all deaths in India in 2021.

**About:** Cardiovascular diseases include heart and blood vessel disorders such as coronary heart disease, stroke, peripheral artery disease, and others.

### Risk Factors:

- **Behavioral risks:** Poor diet, tobacco use, high alcohol consumption, low physical activity, unsafe sex, drug use, and violence.
- **Environmental/occupational risks:** Air pollution, poor sanitation, unsafe water, and occupational hazards.
- **Metabolic risks:** High blood pressure, high blood glucose, high cholesterol, kidney dysfunction, obesity, and low bone mineral density.

## CARBON OFFSETTING

**Recent Update:** A group of 10 West African countries recently advocated for using carbon offsets to reduce emissions, despite concerns about their effectiveness.

**About:** Carbon offsetting involves compensating for emissions by investing in projects that reduce or remove an equivalent amount of CO<sub>2</sub> from the atmosphere, effectively balancing one's carbon footprint.

### Working of Carbon Offsetting

- **Calculate Emissions:** First, determine the amount of emissions you need to offset.
- **Invest in Offsets:** Purchase credits from projects like renewable energy, reforestation, or methane capture.
- **Support Projects:** Your funds support initiatives that reduce emissions, such as:
  - a. Renewable energy (wind, solar, hydro).
  - b. Forestry (tree planting, forest protection).
  - c. Efficiency (energy-saving technologies).
  - d. Methane capture (from landfills or livestock).

## H5N2 BIRD FLU

**Recent Update:** WHO confirmed the first fatal human case of H5N2 bird flu in Mexico.

## Avian Influenza Virus:

**Caused by influenza A viruses,** mainly affecting birds, with two categories:

- a. **Low Pathogenicity (LPAI):** Causes mild symptoms, rare outbreaks, but can still affect poultry populations.
- b. **Highly Pathogenic (HPAI):** More severe, causing high mortality in birds, devastating poultry farms, and significant economic loss.

## ENGA LANDSLIDE

**Recent Update:** A massive landslide in the **Mulitaka area of Enga Province** caused significant loss of life and property.

### About the Landslide:

- Papua New Guinea's rugged terrain makes it prone to landslides, especially with intense rainfall, flooding, and poor land use practices.
- In 2024, heavy rainfall and flooding triggered landslides from the limestone slopes of Mount Mungalo.

### Papua New Guinea

- An island country in the southwestern Pacific, comprising eastern New Guinea and many offshore islands.
- Neighbors include Indonesia (west), Australia (south), and the Solomon Islands (south-east).
- Mostly mountainous with low-lying plains in southern New Guinea.

## UN's ITLOS

**Recent Update:** Recently, ITLOS for the first time classified greenhouse gas emissions as marine pollutants and stated that countries must mitigate their effects on oceans.

### About ITLOS:

- ITLOS (International Tribunal for the Law of the Sea) interprets and applies the United Nations Convention on the Law of the Sea (UNCLOS).
- UNCLOS, signed in 1982, sets international rules for ocean governance and resource management.

### Composition:

- ITLOS consists of 21 independent members, elected by UNCLOS States Parties through secret ballot.
- Each country can nominate up to two candidates.

## ZERO DEBRIS CHARTER

**Recent Update:** Recently, 12 European countries, including Austria, Germany, Sweden, and the UK, signed the Zero Debris Charter.

#### About the Charter:

- The initiative aims to ensure sustainable human activity in Earth's orbit by reducing space debris.
- Developed by global space actors, it sets goals to mitigate and remediate space debris.
- The European Space Agency (ESA) was urged to adopt a 'Zero Debris Approach' at the 2022 Ministerial Conference, aiming to be debris-neutral by 2030.
- There are over 1 million pieces of space debris in orbit, threatening satellites and space assets.
- The charter is a community-driven effort with 40 space entities defining principles and targets for Zero Debris by 2030.

### GLOBAL FOOD POLICY REPORT

**Recent Update:** The 2024 Global Food Policy Report was released by the International Food Policy Research Institute (IFPRI).

#### Key Findings:

- Unhealthy diets contribute to malnutrition and diet-related diseases. Less than half the global population consumes diverse, nutritious diets. In India, 28% eat healthy food, while 38% consume processed food. As a result, 16.6% of Indians suffer from malnutrition.
- Climate change affects both food supply and nutritional quality. The report emphasizes the need to transform food systems to ensure sustainable and healthy diets.

### 1.5 DEGREE CELSIUS WARMING THRESHOLD

**Recent Update:** This May was the warmest on record, with each of the last 12 months setting a new warming record, according to Europe's Copernicus Climate Change Service (C3S).

#### About:

- In 2015, 195 countries signed the Paris Agreement to limit global temperatures to well below 2°C above pre-industrial levels, with an ideal target of 1.5°C.
- The baseline for "pre-industrial" is considered 1850-1900, as it is the earliest period with reliable global data.
- The 1.5°C limit was set to protect vulnerable regions and ecosystems from severe climate

risks, like sea level rise, floods, droughts, and wildfires.

- Breaching 1.5°C won't trigger immediate collapse but will accelerate harmful impacts, such as extreme weather events.
- For example, the heatwave in India in May, with temperatures near 50°C, was 1.5°C hotter than previous heatwaves, demonstrating the effects of rising global temperatures.

### PLANET WARMING NITROUS OXIDE GAS

**Recent Update:** Nitrous oxide emissions rose by 40% from 1980 to 2020, with China (16.7%), India (10.9%), the US (5.7%), Brazil (5.3%), and Russia (4.6%) as the top five emitters of this potent greenhouse gas.

#### About:

- High nitrous oxide levels deplete the ozone layer and exacerbate climate change.
- Agriculture and livestock contribute 74% of human-driven nitrous oxide emissions.
- Agricultural emissions reached 8 million metric tons in 2020, a 67% increase from 1980.
- Nitrogen fertilizer use grew from 60 million metric tons in 1980 to 107 million in 2020, with manure adding another 101 million metric tons.
- Reducing nitrous oxide emissions is crucial to meet the Paris Agreement's 2°C limit, as no technology can remove it from the atmosphere.
- Natural sources contribute 11.8% of emissions, while human activities and waste contribute 6%.
- The Global Carbon Project monitors these emissions to inform policy and global action.

### BUTTERFLIES CROSSED AN OCEAN

**Recent Update:** In October 2013, Gerard Talavera found painted lady butterflies stranded on a French Guiana beach, far outside their usual range.

#### About:

- These butterflies typically migrate between Europe and sub-Saharan Africa, covering up to 9,000 miles.
- Talavera used DNA metabarcoding to analyze pollen on the butterflies, which matched plants in West Africa, suggesting they crossed the Atlantic.

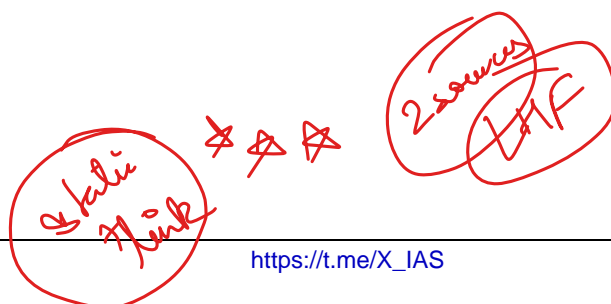
## 5: SCIENCE & TECHNOLOGY(GS-3)

### KEYWORDS OF THE MONTH (From the covered CA Topics):

1. **Quantum Leap:** A major breakthrough in quantum technologies like computing, vastly improving computational power.
2. **Space Diplomacy:** International agreements for peaceful, sustainable space exploration, as seen in the Artemis Accords.
3. **Trans-fat Epidemic:** The global health issue caused by artificial trans fats, leading to heart diseases and efforts for elimination.
4. **Gene Revolution:** Advances in gene-editing technologies like CRISPR, enabling precise genetic modifications with wide applications.
5. **Techno-entrepreneurship:** Startups using AI, blockchain, and IoT to solve complex global problems and drive innovation
6. **Lunar Gateway:** An international project aimed at building a space station orbiting the Moon, designed to support sustainable lunar exploration and deep-space missions.
7. **Solar Magnetism:** The study of magnetic fields in the Sun, crucial for understanding space weather and its impact on Earth's technology and satellites.
8. **Nano-nutrient Delivery:** A cutting-edge approach using nano-technology to enhance the efficiency and absorption of fertilizers in agriculture, improving crop yields and sustainability.
9. **Quantum Imaging:** The use of quantum mechanics in imaging technologies to enhance precision in fields like semiconductor analysis and biological imaging.
10. **Cryopreservation Ethics:** The debate surrounding the scientific feasibility and ethical implications of preserving bodies at extremely low temperatures with the hope of future revival.
11. **Precision Medicine:** Tailors medical treatment to individual genetics and lifestyle, as seen in studies like PI-CheCK for non-communicable diseases.
12. **Paleobiological Discovery:** Refers to ancient life form studies, like the Musankwa sanyatiensis dinosaur, enriching our understanding of evolution.
13. **Molecular Diagnostics:** Advanced tools like Truenat TB enable rapid, cost-effective disease detection, crucial for managing high-burden diseases.
14. **Immunological Strategies:** Innovative approaches like bNAbs and germline targeting aim to create effective HIV vaccines against the virus's mutations.
15. **Space Exploration Innovation:** Missions like DAKSHA and TRISHNA highlight advancements in space research and environmental monitoring through global collaboration.

### QUOTES OF THE MONTH (For the covered CA Topics):

1. "Innovation is the key to the future, and technology is the gateway."
2. "Collaboration across borders is the lifeblood of global progress, whether in space or science."
3. "The frontier of science is no longer just about discovery, but ethical responsibility."





## QUANTUM SCIENCE AND TECHNOLOGY

**Recent Update:** UN designated **2025 to be International Year of Quantum Science and Technology.**

Quantum mechanics explains how small objects **exhibit both particle and wave characteristics.**

### Quantum Computing & Simulations:

- Uses **qubits** (subatomic particles) instead of binary bits.
- In **healthcare**, quantum photonics enhances medical imaging and quantum chemistry aids **vaccine and drug development.**
- Quantum computing with AI processes **vast data and performs complex calculations.**
- Optimizes **logistics and supply chains**, solving problems like route planning and inventory management.

**Quantum Communications:** Includes post-quantum cryptography and **Quantum Key Distribution (QKD)**, which uses photons for secure key transmission.

**Quantum Sensing & Metrology:** Utilizes particles like photons and electrons for sensitive measurements in forces, gravitation, and electric fields.

### Quantum Materials & Devices:

- Develops materials like **superconductors and novel semiconductors** for quantum devices.
- Quantum engineering **improves energy-efficient solar cells**, low-emission LEDs, and climate models.

### India's Initiatives in Quantum Technology

- **National Quantum Mission (2023):** Aims to advance R&D and create an innovative quantum ecosystem.
- **Quantum Enabled Science & Technology (QuEST):** A program to build quantum capabilities.
- **Quantum Computing Applications Lab (QCAL):** Accelerates quantum computing R&D for new scientific discoveries.
- **Other initiatives:**
  - 1) National Mission on Quantum Technologies & Applications (NMQTA).
  - 2) Qsim – Quantum Computer Simulator Toolkit.
  - 3) Quantum Frontier mission by PM-STIAC.
  - 4) Dedicated labs and centres at a military institute in Mhow, Madhya Pradesh.

India's first **Quantum Diamond Microchip Imager**

- An **advanced sensing tool** for semiconductor chip imaging.
- Uses **Nitrogen-Vacancy (NV) centers** in diamonds to detect anomalies in chips.
  - I. Reduces chip failures and improves energy efficiency.
  - II. Promotes the development of the semiconductor industry.

## OUTER SPACE GOVERNANCE

**Recent Update:** Armenia is the 43rd nation to **sign NASA's Artemis Accords** for lunar exploration.

### Artemis Accords

- Established in 2020 by NASA, in coordination with the **US Department of State and seven founding nations** (Australia, Canada, Italy, Japan, Luxembourg, UAE, UK).
- Based on the **Outer Space Treaty (1967)** and other agreements like the Registration and Rescue and Return Conventions.
- **Objective:** To establish non-binding principles for the peaceful exploration and use of space, including the Moon, Mars, comets, and asteroids.
- **Aims to promote peaceful, sustainable, and transparent space cooperation.**
- **India is also a signatory.**

### Key International Space Treaties:

- **Outer Space Treaty (1967):** Governs activities in outer space, including the Moon and other celestial bodies.
- **Rescue Agreement (1968):** Covers the rescue and return of astronauts and space objects.
- **Liability Convention (1972):** Addresses liability for damage caused by space objects.
- **Registration Convention (1976):** Requires the registration of space objects.
- **Moon Agreement (1979):** Governs activities on the Moon and other celestial bodies.
- **India is a signatory** to all five but has ratified only four, excluding the Moon Agreement.

## TRANS-FAT ELIMINATION

**Recent Update:** The World Health Organization (WHO) published its fifth milestone report on **global trans-fat elimination**, covering 2018–2023.

### About Trans-fat (Trans-fatty acids)

- Trans fats are **unsaturated fatty acids** partially hydrogenated, making them the **worst type of fat.**
- **Types:**

1. **Natural:** Found in small amounts in meat and dairy, not usually harmful.
2. **Artificial:** Created industrially by adding hydrogen to vegetable oil, forming partially hydrogenated oil (PHO).
  - PHO contains 25–45% trans fats and is used in processed foods with no nutritional benefits.

#### Health Impacts:

- **Raises bad cholesterol** (VLDL and LDL) and lowers good cholesterol, increasing the risk of heart attack or stroke.
- **Linked to inflammation, obesity, high blood pressure, diabetes, and certain cancers.**

#### Food Safety and Standards Authority of India (FSSAI)

- FSSAI is a **regulatory body** under the **Ministry of Health and Family Welfare**.
- Established in 2008 to **set food safety standards and regulate the food industry** in India.
- Ensures food products are **safe, healthy, and properly labeled**.
- Oversees food safety standards, licensing, and enforcement across manufacturing, distribution, and sale.
- Promotes **awareness and education** on food safety for consumers and businesses.

#### Omega-3 Fatty Acids

- Omega-3s are **polyunsaturated fats** with more than one unsaturated carbon bond.
- ALA (alpha-linolenic acid), besides EPA and DHA, is **plant-based**.
- These are **essential fats**, meaning the body cannot produce them and must obtain them from external sources.
- **Key sources** include **nuts, seeds** (e.g., flaxseed), **plant oils** (e.g., flaxseed oil), and **seafood**.

#### NEGLECTED TROPICAL DISEASES (NTDS)

**Recent Update:** The World Health Organization recently published the "Global Report on Neglected Tropical Diseases 2024."

#### About:

- NTDS are a group of conditions common in tropical areas, caused by viruses, bacteria, parasites, fungi, and toxins.
- They are "neglected" **due to low global funding, stigma, and social exclusion**.
- Historically overlooked in global health agendas, NTDS **gained recognition in 2015** with the SDGs (Target 3.3).

- **India has the largest burden** of at least 10 major NTDs, including hookworm, dengue, leprosy, kala-azar, rabies, and others.

#### NEW CRISPR/CAS9 GENE-EDITING PLATFORM

**Recent Update:** Scientists at Columbia University developed SafeEXO-Cas, an **exosome-based platform**.

- **Exosomes are natural vesicles** that can be engineered for drug delivery and gene editing.
- It **enhances the delivery of CRISPR/Cas9 genome editing components** to specific cells.
- The platform supports precision medicine and improves cancer treatment.
- Precision medicine tailors prevention and treatment based on individual genetic, environmental, and lifestyle factors.

#### About CRISPR/Cas9 Technology

- CRISPR-Cas9 is a **genome editing tool** that alters DNA at specific locations.
- It works like a **cut-and-paste mechanism**, using **Cas9 protein to cut DNA strands and modify genetic codes**.
- Applications include **gene editing in human embryos, improving crop resilience, and treating diseases like sickle cell**.

#### DEEPTECH STARTUPS IN INDIA

- DeepTech startups use **advanced technologies like AI, IoT, Blockchain, and AR/VR** to create solutions for complex problems, often combining multiple technologies.
- **Examples** include Agnikul, GalaxyEye, and Sarvam AI.
- These startups are **characterized by long development timelines and high capital needs**.
- **Key areas of potential:** **Healthcare** (AI-powered diagnostics and precision medicine), **Agriculture** (Agribots and automation), and more.

#### ALPHAFOLD-3

**Recent Update:** Google DeepMind and Isomorphic Labs developed AlphaFold-3, an AI model that predicts the structure

#### About:

- It **predicts the structure and interactions of molecules** with high accuracy and speed.
- Given a list of molecules, it **generates their joint 3D structure**, showing how they fit together.

*Nobel Prize 2024*

- It can model chemical modifications that control cell function, with disruptions potentially leading to disease.

## NUCLEAR TECHNOLOGIES FOR FOOD SAFETY

According to the **FAO**, nuclear technologies play a key role in food safety.

- The role of nuclear tech was **highlighted at the International Symposium** on Food Safety and Control in Vienna, organized by FAO and IAEA.
- These technologies **help combat hunger, reduce malnutrition, and improve environmental sustainability.**
- They complement the **One Health approach**, which balances the health of people, animals, and ecosystems.

### One Health Approach

- The **WHO's One Health approach** emphasizes the **interconnectedness of human, animal, and environmental health.**
- It encourages collaboration across multiple sectors to address health threats at the human-animal-environment interface.
- The approach is crucial for **preventing zoonotic diseases, improving disease surveillance, and managing health risks.**
- It supports sustainable practices to enhance global health security and tackle emerging health challenges.

## DAKSHA PROJECT

The proposal aims to **build two high-energy space telescopes** to study explosive astrophysical sources.

- Each telescope will **have sensors covering low to high-energy bands.**
- **Objectives** include detecting and characterizing high-energy counterparts to gravitational wave sources and studying Gamma Ray Bursts (GRBs).
  - GRBs are **short-lived, highly energetic bursts of gamma-ray light.**

## TRISHNA

The TRISHNA mission, a collaboration between **ISRO and CNES** (French National Centre for Space Studies), aims to monitor surface temperature and water management globally.

- **Objective:** To **monitor energy and water budgets**, assess water stress, and observe water quality and dynamics.
  - It will also **track urban heat islands, volcanic thermal anomalies, and geothermal resources.**

- **Two main payloads:**

- **Thermal Infra-Red (TIR)** by CNES for infrared imaging.
- **VNIR-SWIR** by ISRO for surface reflectance mapping.

- TRISHNA will operate in a **Sun-synchronous orbit for five years.**

- **Significance:** It will aid in climate monitoring, urban planning, drought management, and heat alerts.

## EARTHCARE MISSION

The Earth Cloud Aerosol and Radiation Explorer (EarthCARE) mission is a collaboration between **ESA (European Space Agency) and JAXA (Japan Aerospace Exploration Agency)**

- **Objective:** To study the interaction between clouds, aerosols, and radiation, enhancing understanding of Earth's radiation balance amidst climate change.

- **Orbit: Sun-synchronous**

- **Instruments: Atmospheric Lidar, cloud profiling radar, multispectral imager, and broadband radiometer.**

### Relationship between Clouds, Aerosols, and Radiation:

- **Clouds:** Affect Earth's heat budget by reflecting sunlight or trapping infrared radiation. Their impact depends on shape, location, altitude, and water content.
- **Aerosols:** Tiny particles that reflect/absorb solar radiation, trap outgoing radiation, and influence cloud formation, impacting climate. Human activities alter aerosol levels, affecting regional climates.

## SYMBIOTIC SYSTEM

**NASA's Hubble Space Telescope** observed the symbiotic system HM Sagittae in the Milky Way.

- A symbiotic system is a **binary star system with a white dwarf and a red giant.**

- The **white dwarf** is a star that has exhausted its nuclear fuel.

- The **red giant** is a dying star in its final evolutionary stages.

- In this system, the red giant loses material that flows onto the white dwarf, forming an accretion disk around it.

## AMENDMENTS TO INTERNATIONAL HEALTH REGULATIONS

**Recent Update:** The 77th World Health Assembly recently concluded with an agreement on key amendments to the IHR, 2005.

#### About IHR:

- Successor to the International Sanitary Regulations (1951).
- A **legally binding framework** defining countries' rights and obligations in handling public health emergencies that can cross borders.
- **Comprises 194 WHO Member States**, plus Liechtenstein and the Holy See.

**Need for Amendments:** - Epidemics and pandemics (e.g., Ebola, COVID-19) highlighted the need for better global health surveillance and preparedness.

#### Key Amendments:

- **Define a pandemic emergency** as a disease with widespread geographical reach or the potential to overwhelm national health systems.
- Establish a **Coordinating Financial Mechanism** for developing countries.
- Create a **States Parties Committee** to enhance IHR implementation.
- Form **National IHR Authorities** for better coordination among nations.

#### ARUN-III HYDROPOWER PROJECT

- The Arun-III Hydro Power Project is a 900 MW run-of-the-river hydropower facility being constructed on the Arun River in Sankhuwasabha District, Eastern Nepal.
- Once completed, it will be Nepal's largest hydroelectric power plant.
- The project is being developed by Satluj Jal Vidyut Nigam (SJVN) Arun-III Power Development Company (SAPDC), a joint venture between the Government of India and the Government of Himachal Pradesh.
- The project will operate for 25 years before ownership is transferred to the Nepalese government.

#### QUANTUM DIAMOND MICROCHIP IMAGER

- India's first Quantum Diamond Microchip Imager is being developed by Tata Consultancy Services (TCS) in collaboration with IIT Bombay.
- The project is part of India's National Quantum Mission (NQM), which aims to establish India as a global leader in quantum technologies.

- The imager uses defects in a diamond's structure (specifically Nitrogen-Vacancy centers) to detect anomalies in semiconductor chips, making it a valuable tool for advanced semiconductor and electronics research.

#### BIOPHARMACEUTICAL ALLIANCE

**India, South Korea, the US, Japan, and the EU** launched a Biopharmaceutical Alliance to address drug supply shortages experienced **during the COVID-19 pandemic**. The announcement was made at the Bio International Convention 2024.

#### Significance:

- Build a **resilient pharmaceutical supply chain** as key raw materials are concentrated in a few countries.
- Coordinate **bio policies, regulations, and R&D support** across member countries.

#### RECOMBINANT PROTEINS

- Recombinant proteins are produced **using recombinant DNA (rDNA) technology**.
- rDNA involves **combining DNA from different species or sources**.
- This technology allows for the **manipulation of gene sequences**.
- It helps **increase protein production** or create new genes with specific functions.
- Recombinant proteins are used in various commercial applications.

#### JUMPING GENES

- A **new plant species, *Stellaria mcclintockiae***, from Kerala, is named after Barbara McClintock.
- McClintock won the Nobel Prize for discovering jumping genes.
- Jumping genes, or **transposable elements**, are **DNA sequences** that can move within the genome.
- They can **activate or deactivate nearby genes** and replicate themselves.
- Their movement can lead to **genetic mutations and influence genome evolution**.

#### ARTIFICIAL GENERAL INTELLIGENCE (AGI)

- AGI **surpasses conventional AI** in sophistication.
- AGI aims for broad, human-like intelligence, including reasoning, learning, and creativity.
- It generalizes knowledge, engages in complex reasoning, and exhibits self-awareness.

- AGI seeks to replicate human cognitive abilities across various tasks and domains.

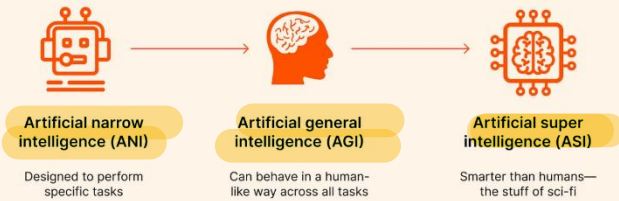
neuroscience, and nanoscience. All recipients are professors at leading American universities.

#### Kavli Medal:

- The Kavli Medal is awarded annually for excellence in environmental science and engineering.
- It is open to UK, Commonwealth, or Irish Republic citizens or residents with at least three years of residency.
- The award is aimed at early-career scientists within 15 years of their PhD, excluding career breaks.
- Recipients are selected by the Royal Society Council based on recommendations from the Joint Physical and Biological Sciences Awards Committee. Nominations are valid for five years, after which candidates must wait a year to be re-nominated.

### What is AI?

#### ANI vs. AGI vs. ASI



#### GM CROPS

**Recent Update:** Genetically modified (GM) crops are seen as a **solution for global food security**, addressing climate change. The **"gene revolution"** uses genetic editing to enhance crop resilience, supporting population growth and combating climate-related agricultural challenges.

#### About:

- A GM (genetically modified) crop is a plant with a **new combination of genetic material** created using modern biotechnology.
- The new gene revolution, powered by tools like CRISPR, enables precise gene editing without adding foreign genes.
- This technology **helps develop GM crop varieties** to improve food security.

#### REMOULDING THE GLOBAL PLASTICS TREATY

**Recent Update:** The OECD Global Plastic Outlook reports that global plastic waste production reached 353 million tonnes in 2019, more than double the amount from 2000, and is projected to triple by 2060.

#### About:

- The **Global Plastics Treaty** aims to create a legally binding agreement to reduce plastic pollution.
- The **Intergovernmental Negotiating Committee (INC)** was established in 2021 at the **UN Environment Assembly in Nairobi**.
- An Ad Hoc Open-Ended Working Group meeting was held in Dakar, Senegal, in 2022.
- The final INC-5 meeting will take place in South Korea with active participation from the International Alliance of Waste Pickers (IAWP).

#### KAVLI PRIZE

**Recent Update:** Eight scientists were awarded the 2024 Kavli Prize for their work in astrophysics,

#### BALON PROTEIN DISCOVERY

- Scientists discovered a protein, Balon, that allows a bacterium to pause its activities in harsh conditions and resume when conditions improve.
- This discovery could improve understanding of bacterial survival in extreme environments like the Arctic.

#### WHO'S FRAMEWORK FOR KALA AZAR

- The WHO has **launched a framework to combat visceral leishmaniasis (VL)** in eastern Africa with strategies for diagnosis, vector management, surveillance, advocacy, and research.

- VL is spread by sandflies and can cause fever, weight loss, and organ enlargement if untreated.

- In 2023, Bangladesh became the first country to eradicate VL. India successfully achieved its elimination target in 2023.

#### JUNO MISSION

- Launched by **NASA** in 2011 for a 5-year mission to explore **Jupiter's atmosphere and its moons**.
- Aims to probe beneath Jupiter's dense clouds and understand the planet's origin, evolution, and its moons Ganymede, Europa, and Io.
- Extended mission continues until September 2025.

#### ALMA TELESCOPE

- A state-of-the-art radio telescope located in the Atacama Desert of Chile.

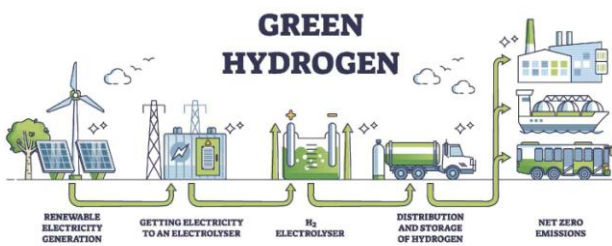
- Studies celestial objects at millimetre and submillimetre wavelengths.
- Extraordinary sensitivity allows it to detect extremely faint radio signals and penetrate dust clouds to observe distant galaxies and stars.
- Operated under a partnership involving the US, Europe, Japan, and Chile.

## GREEN HYDROGEN MISSION

**Recent Update:** The Ministry of New & Renewable Energy (MNRE) has increased the annual Green Ammonia allocation for the fertilizer sector from 550,000 to 750,000 tonnes to support rising demand and Green Hydrogen development in India.

### National Green Hydrogen Mission (NGHM):

- Launched in January 2023, the NGHM aims to produce 5 million tonnes of Green Hydrogen annually by 2030.
- Implemented by MNRE, the mission includes the SIGHT programme, which offers incentives for manufacturing electrolyzers and producing green ammonia.
- A dedicated portal provides information on the mission and green hydrogen development.
- Scheme guidelines have been released for using Green Hydrogen in steel, transport, and shipping sectors.
- The Department of Science and Technology has launched Hydrogen Valley Innovation Clusters to foster innovation and boost the green hydrogen ecosystem.



## TRAIN INDIAN ASTRANAUTS

- India and the US signed an agreement for enhanced cooperation in human spaceflight, including astronaut training at NASA.
- India's participation in the Lunar Gateway and the NISAR satellite mission for climate change are part of the collaboration.

## ADITYA L1

**Recent Update:** ISRO recently released images from its Aditya-L1 solar mission, capturing a major solar (geomagnetic) storm in May 2024.

### About:

- **Mission Objective:** Aditya-L1 is India's first dedicated solar observation mission to study the Sun and its impact on space weather.
- **Launch Date:** The spacecraft was launched on September 2, 2023, aboard a Polar Satellite Launch Vehicle (PSLV-C57).
- **Orbit:** Aditya-L1 is positioned in a halo orbit around the **Lagrange Point 1 (L1)**, about 1.5 million kilometers from Earth, providing an uninterrupted view of the Sun.
- **Key Scientific Goals:**
  - Study the Sun's outermost layer, the corona, to understand its heating mechanisms.
  - Investigate the Sun's solar wind and its effects on Earth's magnetosphere.
  - Observe solar flares and coronal mass ejections to study their impact on Earth's climate and technology.
- **Instruments:** Aditya-L1 is equipped with seven scientific instruments, including a visible emission line coronagraph (VELC), multi-wavelength solar imagers, and plasma and magnetic field sensors.
- **Importance:** The mission aims to improve understanding of space weather phenomena that can affect satellites, power grids, and communication systems on Earth.
- **Global Collaboration:** The mission involves collaboration with international space agencies to enhance global research on solar science.

## NANO FERTILIZER PLANT

- **Coromandel International** opened a nano-fertilizer plant at its Kakinada complex in Andhra Pradesh.
- **Nano-fertilizers** (like Nano DAP and Nano urea) offer efficient nutrient delivery, potentially replacing conventional fertilizers and boosting crop yields.
- Made from nanoparticles, they allow nutrients to penetrate plant cells more effectively.

## HAWKING RADIATION

**Recent Update:** Scientists recently proposed that small "morsel" black holes, formed during larger black hole mergers, could emit detectable high-energy photons. These black holes would lose mass through Hawking radiation, leading to their explosive end.

### About:

- Smaller black holes emit **Hawking radiation** faster than larger ones.
- **Gravitational waves** could detect black hole mergers, followed by gamma-ray telescopes spotting high-energy photons from morsel black holes.
- Hawking radiation suggests black holes leak **thermal radiation**, gradually evaporating and exploding.
- The event horizon is the "**point of no return**" beyond which particles can no longer escape a black hole.

### KUDANKULAM NPP

**Recent Update:** Russia has shipped 26 turbine hall pipeline valves for the Kudankulam Nuclear Power Project's reactors 5 and 6.

**About:**

- Kudankulam, India's **largest nuclear plant**, is being modernized by Rosatom and NPCIL.
- The plant, which began in 2002, is set to operate at **full capacity by 2027**.



### SOFTWARE TECHNOLOGY PARKS OF INDIA (STPI)

- STPI celebrated its **33rd Foundation Day**.
- Established in **1991** as an autonomous society under the Ministry of Electronics & IT.
- The objective was to implement Software Technology Park (STP) and Electronics Hardware Technology Park (EHTP) schemes.
- STPI supports India's startup ecosystem through Centres of Entrepreneurship and Next Generation Incubation Scheme.
- Launched platforms like **SayujNet** and STPI Workspace.
- **Announced "Ananta,"** a hyperscale cloud service offering IAAS, PAAS, SaaS, and GPU-based services.

- Released a report on India's progress in **cutting-edge technologies**.

### CRYONICS

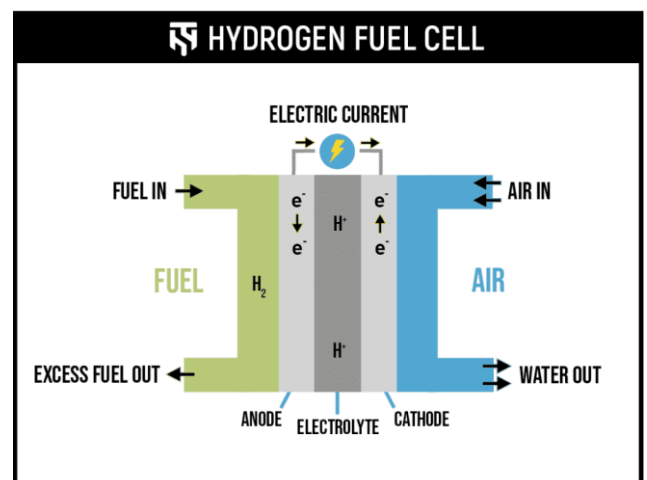
- Southern Cryonics in **Australia froze** its first client, an 80-year-old man who died in May 2024.
- Cryonics involves **freezing the body at -196°C** with hopes of future revival.
- The process includes **cooling the body with ice**, preserving it with a solution, and gradually lowering the temperature to -200°C.
- Concerns remain about the **scientific feasibility and ethical implications** of reviving humans after prolonged preservation.

### HYDROGEN BUSES

**Recent Update:** The **Indian Army** has partnered with Indian Oil Corporation (IOCL) to demonstrate **Hydrogen Fuel Cell Bus technology**.

**About:**

- The Army received its first Hydrogen Fuel Cell Bus, with a 37-passenger capacity and a mileage of **250-300 km** on a 30 kg hydrogen fuel tank.
- In March 2023, the Army also **signed an MoU** with NTPC Renewable Energy for Green Hydrogen-based Microgrid Power Plants along the Northern Borders.
- Hydrogen fuel cell technology **generates electricity** through a reaction between hydrogen and oxygen, with water vapor as the only byproduct, making it a clean alternative to traditional fuels.



### LEADING EDGE ACTUATORS

DRDO's Aeronautical Development Agency (ADA) delivered the first batch of indigenous Leading Edge Actuators and Airbrake Control Modules to HAL for the **Mk-1A Light Combat Aircraft (Tejas)**.

- These components control aircraft wing slats, **crucial for flight dynamics**.
- Developed with **Research Centre Imarat (RCI)** and Central Manufacturing Technology Institute (CMTI), enabling HAL to equip Tejas Mk-1A.

### PRAVAHA SOFTWARE

- **ISRO** has developed PraVaHa, a **Computational Fluid Dynamics (CFD) software** for aerospace vehicle analysis.
- PraVaHa simulates **airflows and calculates forces** and heat effects on aerospace vehicles, essential for designing shapes, structures, and Thermal Protection Systems (TPS) for launch and re-entry vehicles.
- It has been extensively **used in the Gaganyaan program** for aerodynamic analysis of human-rated launch vehicles.

### CHANG'E 6

**Recent Update:** China's Chang'e-6 probe recently successfully collected rock and soil samples from the **moon's far side and returned to Earth**.

**About:**

- The landing site was the **South Pole-Aitken Basin**, an impact crater over 4 billion years old, 13 km deep, and 2,500 km in diameter.
- This mission **faced challenges due to the lack of direct communication** with Earth and rugged terrain, requiring a relay satellite.
- It is the **sixth mission** in China's Chang'e program, named after a moon goddess, and the second to bring back samples (after Chang'e-5 in 2020).
- China plans to **land astronauts on the moon** by 2030, with this mission being a key step toward that goal.

### NELSON MANDELA AWARD

**Recent Update:** The National Institute of Mental Health and Neuro Sciences (**NIMHANS**), Bengaluru, has been awarded the Nelson Mandela Award for **Health Promotion by the WHO** for 2024.

- The award **highlights India's efforts** to address mental health challenges and improve access to services.
- India has made strides with initiatives like **the Tele MANAS helpline** and Mental Health Units in nearly all districts.

**About NIMHANS:**

- A leading institute in **mental health and neuroscience**, offering clinical care, education, and research.
- Established in **1974**, it became a **Deemed University in 1994** and was declared an Institute of National Importance in 2012.

### RudraM-II

**Recent Update:** The **DRDO** recently flight-tested the Rudra M-II missile from a **Sukhoi-30 MKI jet**.

**About:**

- **The air-launched missile** is designed for Air-to-Surface operations and can neutralize various enemy targets.
- It will enhance India's air security and defense, acting as a **"force multiplier."**
- Specifications:
  - a. **Range: 300 km**, Speed: Mach 5.5, Payload: 200 kg.
  - b. **Detection:** Can identify enemy radio frequencies and radar signals from 100+ km.
- The Rudra M-II could replace Russia's Kh-31 missile on India's Sukhoi jets.

### WOODEN SATELLITE

**Recent Update:** Japanese researchers have built the world's first wooden satellite, **LignoSat**, made from magnolia wood, measuring **10 cm per side**.

**About:**

- It will be launched in **September 2024** on a SpaceX rocket to the ISS for durability testing.
- The satellite is designed to burn up on re-entry, reducing environmental impact.
- The European Space Agency (**ESA**) and **JAXA** also launched the **EarthCARE** satellite to study how clouds **influence climate change**.



### INDIA'S 1<sup>ST</sup> 3D PRINTED ROCKET

**Recent Update:** Chennai-based **start-up Agnikul Cosmos** has launched the **Agnibaan** Sub Orbital Technology Demonstrator (**SORTeD**), powered by the world's first fully 3D-printed engine.

### About:

- The launch showcases **homegrown technologies, including a semi-cryo engine and a 3D-printed single-piece engine.**
- It uses liquid oxygen and kerosene as propellants and was supported by **ISRO and IN-SPACE.**

**About 3D Printing:** 3D printing (additive manufacturing) creates 3D objects from digital designs, using materials like plastics and metals, unlike subtractive manufacturing, which removes material.



### QUANTUM DIAMOND MICROCHIP IMAGER

**Recent Update:** IIT-Bombay and Tata Consultancy Services (TCS) have developed India's first Quantum Diamond Microchip Imager under the National Quantum Mission.

### About:

- The imager enhances precision in semiconductor chip analysis, reduces failures, and improves energy efficiency.
- Using **nitrogen-vacancy centres** in diamonds, it offers non-invasive imaging of chips and visualizes charge flow in multi-layer chips for defect detection.
- It has applications in **microelectronics, biological imaging, and magnetic field analysis.**

### GLOBAL INITIATIVE ON DIGITAL HEALTH

**Recent update:** The Department of Economic Affairs (DEA) has not approved India's contribution of USD 10 million for the Global Initiative on Digital Health (GIDH).

### About GIDH:

- GIDH is a **network of organizations and government agencies** supporting national digital health transformation, managed by the World Health Organization (WHO).

- Its goals include **assessing digital health needs and aligning resources with priorities.**
- Launched during **India's G20 Presidency** in August 2023, GIDH became part of the New Delhi Declaration, with India pledging USD 10 million as seed funding. The initiative was officially launched in February 2024.

### BIO BITUMEN

**Recent Update:** India plans to initiate large-scale production of bio-bitumen from biomass or agricultural waste.

**About:** Bio-bitumen is a bio-based binder made from renewable sources like vegetable oils, crop stubble, algae, lignin, or animal manure.

**Production:** While bitumen is traditionally derived from crude oil, bio-bitumen offers a sustainable alternative.

**Properties and Uses:** Known for its waterproofing and adhesive qualities, bio-bitumen is used in road construction (asphalt paving) and waterproofing in buildings and marine structures.

### Uses of Bio-Bitumen:

- Direct replacement of petroleum bitumen in asphalt.
- Modifier to improve properties of traditional bitumen.
- Rejuvenator to restore elasticity in aged asphalt pavements.

### PUSHPAK

**Recent Update:** Recently, the Indian Space Research Organisation (ISRO) successfully completed the third and final **Reusable Launch Vehicle Landing Experiment (RLV LEX-03)** for the Pushpak vehicle. This demonstrated its autonomous landing capability under challenging conditions, including severe winds.

### About:

- During the RLV LEX-03, the Pushpak vehicle was released from an **Indian Air Force Chinook** helicopter at 4.5 km altitude.
- The vehicle autonomously performed cross-range corrections, approached the runway, and executed a precise horizontal landing.
- The high-speed landing (over 320 km/h) was safely slowed to around **100 km/h** using a brake parachute and landing gear brakes.

### FRESHWATER DIATOM GENUS

**Recent Update:** Scientists recently discovered a new genus of **freshwater diatom, Indiconema**, a microscopic algae vital to life, in the clean rivers of the Eastern and Western Ghats.

#### About Diatoms:

- Diatoms are **microscopic algae** that produce 25% of global oxygen and are a crucial part of the aquatic food chain.
- They are **sensitive to changes** in water chemistry, making them important indicators of aquatic health.
- **First recorded in India in 1845** by German naturalist Ehrenberg, India hosts about 6,500 diatom species, with 30% being endemic.
- **Diatoms thrive in diverse habitats across India**, including freshwater, marine environments, and high mountain regions, influenced by the monsoons and the unique climates of the Eastern and Western Ghats.

#### DOUBLE SUN HALO

- A rare optical phenomenon where **two concentric halos** appear around the Sun.
- Inner halo has a **radius of 22 degrees**, and outer halo is around 46 degrees.
- **Occurs due to sunlight refracting** through ice crystals in cirrus clouds.
- Recently **witnessed in Ladakh**, where atmospheric conditions are ideal for such phenomena.

#### MILGROMIAN DYNAMICS OR MOND

- An **alternative theory to explain galaxy dynamics** without invoking dark matter.
- Proposed by **Mordehai Milgrom** in 1983, aiming to replace Newtonian dynamics and general relativity.
- MOND explains **mass discrepancies** in galaxies without dark matter.

#### PLANET NINE

- A hypothetical planet in the **outer region of the solar system**, proposed to explain anomalies in the orbits of trans-Neptunian objects.
- Estimated mass is **5 to 10 times** that of Earth, with an orbit ranging from 400 to 800 AU.

#### PI-CheCK

- **PI-CheCK (Phenome India-CSIR Health Cohort Knowledgebase)** is a 2023 health study by CSIR to assess risk factors for non-communicable diseases in India.

- It has **enrolled nearly 10,000 participants** to gather data on genetic and lifestyle risks for cardio-metabolic diseases.
- The study **aims to improve prediction models** and create better prevention strategies for NCDs.
- **CSIR developed** cost-effective procedures for sample collection in the study.
- Established in 1942, CSIR is a **premier research body** funded by India's Ministry of Science and Technology.

#### MUSANKWA SANYATIENSIS

**Recent Update:** A new dinosaur species, **Musankwa sanyatiensis**, was discovered in **Zimbabwe near Lake Kariba**.

#### About:

- This herbivorous dinosaur lived about **210 million years** ago in the Late Triassic period.
- It is the first dinosaur named from the **Mid-Zambezi Basin** in over 50 years.
- Named after the houseboat and **Sanyati River**, this discovery adds to Africa's dinosaur fossil history.
- **Africa** has a long history of dinosaur discoveries, with the first found in South Africa in 1842.

#### TB DIAGNOSTIC TECH

**Recent Update:** India's **Truenat TB diagnostic tool** was praised at the 77th World Health Assembly.

#### About:

- Truenat delivers results in less than an hour and is used in 7,000+ health centers across India.
- The World Health Assembly recognized India's efforts to combat TB with innovative tools like Truenat and handheld X-rays.
- **India accounts for 27% of the global TB burden**, with over 10 million new cases annually.
- Under the **Pradhan Mantri TB Mukht Bharat Abhiyan**, India aims to eliminate TB by 2025.

#### About TB:

- **TB is a contagious bacterial infection** caused by *Mycobacterium tuberculosis*, primarily affecting the lungs, but can also impact other organs.
- Diagnosis involves tests like chest X-rays, sputum culture, and molecular tests (e.g., Truenat and GeneXpert).

- TB is treated with antibiotics for 6-9 months, and India's Pradhan Mantri TB Mukh Bharat Abhiyan aims to eliminate TB by 2025.

### HIV VACCINE RESEARCH

**Recent Update:** Despite 40 years of effort, traditional vaccines have failed to prevent HIV due to the virus's rapid mutation and ability to evade the immune system. Experts believe more advanced vaccine strategies are needed, and further research and development will take time.

**About Traditional Vaccine Approach against HIV:**

- Traditional HIV vaccines aim to prevent infection using methods like inactivated or weakened virus forms, viral subunits, or other components to trigger an immune response.
- These vaccines teach the immune system to recognize and attack HIV, preventing infection or reducing disease severity

**Failure of Traditional Approach:** Traditional vaccines have failed for HIV due to the body's inability to build strong defenses against the virus on its own, unlike other viruses.

**Progress in the Development of Effective HIV Vaccines?**

- **Broadly Neutralising Antibodies (bNAbs):** These antibodies can neutralize a wide range of HIV strains.
- **Germline Targeting Approach:** This approach uses multiple vaccines to stimulate B cells to produce bNAbs, targeting and neutralizing various HIV strains.

### MIFEPRISTONE

**Recent Update:** The US Supreme Court upheld the FDA's approval of the abortion pill mifepristone.

**About:**

- Mifepristone, used with misoprostol, has a 97.4% success rate for early pregnancy termination.
- In India, the MTP Act allows abortion up to 20 weeks with one doctor's approval, and up to 24 weeks with two.
- Unmarried women face difficulties accessing abortion beyond 20 weeks.
- **'Abortion' is used for termination within the first 3 months, while 'miscarriage' is used for 4-7 months.**
- Institute of Fundamental Research (TIFR), and Raman Research Institute (RRI).
- Other Gamma-Ray Detection Missions:

- **Astrosat:** India's multi-wavelength space observatory.
- **Fermi Gamma-ray Space Telescope:** NASA's wide-range gamma-ray observatory.
- **Swift Observatory:** NASA's mission to study gamma-ray bursts.

### TRISHNA MISSION

- **A collaborative effort between ISRO and CNES (French Space Agency)** to monitor surface temperature and water management.
- Aims for detailed monitoring of energy and water budgets and high-resolution observation of water quality.
- Operates in a Sun-synchronous orbit with a 5-year operational life.
- Primary payloads:
  - Thermal Infra-Red (TIR) payload: Provided by CNES with a four-channel long-wave infrared imaging sensor.
  - VNIR-SWIR payload: Developed by ISRO, designed for detailed mapping of surface reflectance.

### EARTHCARE MISSION

- **A joint project by ESA and JAXA** to study the interaction between clouds, aerosols, and radiation.
- Aims to understand Earth's radiation balance in the context of the climate crisis.
- Operates in a Sun-synchronous orbit.

### HM SAGITAE (HM SGE)

- A symbiotic binary star system observed by NASA's Hubble Space Telescope.
- Consists of a white dwarf and a red giant, where the red giant loses material flowing onto the hotter white dwarf.

### UNITED NATIONS COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE (COPUOS)

- Forum for developing international space law, established by the UN General Assembly in 1958.
- Supports the exploration and use of space for the benefit of humanity.
- India is a signatory to five space treaties but has not ratified the Moon Agreement.
- Key treaties include the Outer Space Treaty (1967), Rescue Agreement, Liability Convention, and Registration Convention.

## T CORONAE BOREALIS (BLAZE STAR)

- A recurrent nova in the constellation Corona Borealis, with an explosion that occurs once every 80 years.
- The upcoming explosion is expected to be visible to the naked eye for the first time since 1946.

## SAFEEXO-CAS

- SafeEXO-Cas is a new CRISPR/Cas9 gene editing platform developed by scientists at Columbia University.
- It utilizes exosomes, which are naturally occurring vesicles, to deliver CRISPR/Cas9 components to specific cells for gene editing.
- This platform significantly enhances the precision and effectiveness of gene delivery, making it a promising tool for advancing cancer treatments and precision medicine.

## XYLITOL

- Xylitol is a sugar alcohol derived from natural sources such as plants, fruits, and vegetables.
- It serves as a natural sugar substitute and is safe for diabetics because it does not spike blood sugar levels.
- Xylitol has dental benefits as it reduces levels of decay-causing bacteria in saliva.
- However, high consumption of xylitol can lead to hypercoagulability, a condition where blood has an increased tendency to clot, raising the risk of cardiovascular events like heart attacks and strokes.

## WHITE PHOSPHOROUS

- White phosphorus is a waxy, yellowish-to-clear chemical with a pungent garlic-like odor.
- It is pyrophoric, meaning it ignites spontaneously upon exposure to air, producing intense heat (about 815°C) and light.
- White phosphorus is often used in military applications to create dense smoke screens but is not considered a chemical weapon, as its primary mechanism is heat and flame, not toxicity.
- Despite its dangerous properties, white phosphorus is not explicitly banned under international conventions.

## HYDROGEN LINE

- The hydrogen line refers to a specific type of electromagnetic radiation emitted by hydrogen atoms when an electron moves between energy levels, releasing energy at a wavelength of about 21 centimeters.
- This line is crucial for astronomers to study the distribution of hydrogen in the universe, as hydrogen is the most abundant element in the cosmos.
- The hydrogen line also serves as a key tool in the search for extraterrestrial intelligence, as its unique wavelength could potentially be used for interstellar communication.

## NEW ALZHEIMER DRUG

**Recent Update:** After debate on its cost-benefit analysis, an FDA advisory committee unanimously concluded that the Alzheimer's drug **Donanemab's** benefits outweigh the risks.

Developed by Eli Lilly, Donanemab slowed cognitive decline in early-stage **Alzheimer's patients** but had risks like brain swelling and bleeding.

## SPACEX STARSHIP

**About:**

- Starship is a two-stage heavy lift vehicle designed for crew and cargo missions to Earth orbit, the Moon, Mars, and beyond. At nearly **120 meters tall**, it's the largest rocket ever flown, surpassing the Saturn V (111 m).
- The **Super Heavy booster** has 33 Raptor engines generating 74 meganewtons of thrust, surpassing NASA's Space Launch System (39 meganewtons) and Saturn V (35 meganewtons).
- **Raptor engines** use a 3.6:1 ratio of liquid oxygen and liquid methane.
- Both the **Super Heavy booster and Starship spacecraft** are fully reusable, with the booster designed to land after missions and the Starship using six Raptor engines and four landing fins.

## SENSORINEURAL DEAFNESS

- The human ear consists of external, middle, and inner structures. Sound vibrations travel from the eardrum to tiny bones in the middle ear, then to the cochlea in the inner ear, where hair cells convert sound into electrical signals sent to the brain via the auditory nerve.

- **Sensorineural hearing loss** occurs when the inner ear or auditory nerve is damaged, often leading to permanent deafness if untreated within 48 hours.
- The inner ear can be **damaged by viral infections** (such as flu), head injuries, or prolonged exposure to loud sounds.
- **Symptoms** include drastic hearing loss, difficulty understanding speech, ringing or buzzing sounds, and numbness.
- **Treatment** options include steroid injections (if treated within a week), hearing aids, or cochlear implants for severe damage.
- **Prevention** includes avoiding the flu through vaccination and wearing earplugs to protect against loud noises.

- Inactivity is rising due to sedentary work, reduced active transport, and more screen-based leisure activities.

### CLAUDE 3.5 SONNET

**Recent Update:** Anthropic has launched Claude 3.5 Sonnet, its **latest AI model**, claiming it outperforms competitors like OpenAI's GPT-4, Google's Gemini-1.5 Pro, and Meta's Llama-400B.

#### About:

- Claude 3.5 Sonnet is **part of the Claude 3.5 series**, a generative pre-trained transformer that predicts the next word in large texts. It follows the Claude 3 Sonnet from March and is faster and more powerful than Claude 3 Opus.
- Claude 3.5 Sonnet **excels in coding (HumanEval)**, reasoning (GPQA), and knowledge (MMLU). It also improves in nuance, humor, and complex instructions.
- Benchmark results show Claude 3.5 **Sonnet outperforms** its competitors in seven out of eight tests, though benchmark scores may be selectively chosen.

### LANCET STUDY

- **Half of India's adult population** doesn't meet the WHO's physical activity guidelines, with 57% of women and 42% of men inactive. Physical inactivity has risen sharply from 22.3% in 2000 to 49.4% in 2022, potentially affecting 60% of the population by 2030.
- **WHO recommends** at least 150 minutes of moderate or 75 minutes of vigorous activity per week. Inactivity increases the risk of cardiovascular diseases, Type 2 diabetes, dementia, and certain cancers.
- **India ranks 12th** globally for physical inactivity. Worldwide, 31% of adults (1.8 billion people) failed to meet activity guidelines in 2022.

## 6: HISTORY , ART & CULTURE(GS-1)

### KEYWORDS OF THE MONTH (From the covered CA Topics):

1. **Patron of Arts:** Ahilyabai's support for Sanskrit scholars and poets, promoting cultural enrichment in Malwa.
2. **Heritage Preservation:** Ahilyabai's role in preserving cultural and religious heritage, including temple restorations.
3. **Nalanda Renaissance:** Revitalization of Nalanda University, merging ancient knowledge with modern inter-civilizational dialogue.
4. **UNESCO Heritage:** Nalanda's recognition as a UNESCO World Heritage Site for its historic and academic contributions.
5. **Geo-heritage Sites:** Geological landmarks with scientific and cultural significance, safeguarded by India's Geological Survey.
6. **Kargil Victory:** India's military success in the Kargil War, emphasizing national resilience and defense.
7. **Khalistan Movement:** A separatist campaign aiming for an independent Sikh state, shaping India's post-independence challenges.
8. **Yoga's Global Role:** The significance of Yoga in promoting holistic health, celebrated worldwide on International Yoga Day.
9. **Literary Legacy:** Kozhikode's designation as India's first UNESCO 'City of Literature,' recognizing its cultural importance.
10. **Cultural Festivals:** The Ambubachi Mela, a unique Hindu festival celebrating women's fertility and Shakti worship.
11. **Craft Heritage:** Srinagar's recognition as a "World Craft City" for its artisan culture and craft preservation.
12. **GI Protection:** The legal safeguarding of regional products like Dodol and Ajrakh under Geographical Indications (GI) to preserve traditional craftsmanship.

### QUOTES OF THE MONTH (For the covered CA Topics):

1. "Culture is the intersection of history and identity, and in preserving heritage, we preserve the soul of a nation."
2. "The strength of a civilization lies not just in its monuments, but in its ability to pass on the wisdom of its ancestors to future generations."
3. "Empowerment is not only a social principle but a sacred duty, manifesting through action, education, and cultural upliftment."

## DEVI AHILYABAI HOLKAR (1725–1795)

**Recent Update:** The 300th birth anniversary of Malwa queen Devi Ahilyabai Holkar was celebrated on May 31, 2024

### About

- **Birth:** Born in Chondi village, Ahmednagar, in 1725.
- **Family:** Daughter of Mankoji Rao Shinde, wife of Khanderao Holkar, and daughter-in-law of Malhar Rao Holkar (founder of the Holkar dynasty).
- **Ruler of Malwa:** Became queen after her husband's death in 1754, with Tukoji Rao Holkar (her adopted son) as army commander.
- **Capital:** Established Maheshwar in Madhya Pradesh as the Holkar dynasty's seat.

### Key Contributions:

- **Temple Reconstruction:** Rebuilt Somnath Temple and supported Kashi Vishvanath Temple restoration.
- **Patronized Arts:** Supported Sanskrit scholar Khushali Ram, poet Moropant, and Lavani composer Shahir Anantaphandi.
- **Social Reform:** Advocated for women's education, widow remarriage, and fought against Sati and untouchability.
- **Economic Development:** Established a well-organized tax system, promoted trade, and supported the Maheswari weaving industry. Maheshwar sarees are registered as a Geographical Indication (GI).

## NALANDA UNIVERSITY

**Recent Update:** The Prime Minister recently inaugurated the new Nalanda University campus in Rajgir, Bihar, designed as a hub for inter-civilizational dialogue.

### About:

- Nalanda University is a 'Net Zero Green Campus' covering over 100 acres.
- Features include Kamal Sagar ponds, an on-grid solar plant, and advanced water treatment.
- Located near the ancient Nalanda ruins, destroyed by Bakhtiyar Khalji in 1205 AD.
- Rediscovered in the 19th century by Sir Francis Buchanan.
- Systematic excavations by ASI in the 20th century reignited interest in the revival.

- The project involves 17 countries, including Australia, China, Singapore, and Vietnam.



### About Ancient Nalanda University

- Oldest residential university founded by Kumargupta I of the Gupta dynasty in the 5th century CE.
- Patrons included King Harshavardhana and the Pala dynasty; King Asoka made offerings at Nalanda.
- Buddha visited Nalanda; Sariputra and Moggallana were born there; Mahavira spent fourteen rainy seasons in Nalanda.
- Prominent teachers included Aryabhata (mathematician), Nagarjuna (philosopher), Dinnaga (logic), Dharmapala (Brahmin scholar), Abhayakaragupta (tantric practitioner), and Naropa (Tibetan scholar).
- Attracted foreign scholars from China, Korea, Japan, Tibet, Sri Lanka, and Southeast Asia, including Xuan Zang and I-Qing.
- Nalanda's ruins were declared a UNESCO World Heritage Site in 2016.

### Sculptural Art of Nalanda Mahavihara

- The sculptural art of Nalanda Mahavihara evolved from the Buddhist Gupta art of Sarnath, using stucco, stone, and bronze.
- Crowned Buddhas appear in art only after the 10th century.
- By the 9th century, a blend of Sarnath Gupta art, local Bihar traditions, and Central Indian styles formed the distinct Nalanda school of sculpture.
- Several brahmanical images, not following the Sarnath style, have also been found at Nalanda.

### Other Buddhist Centers

1. **Takshila:** Located in present-day Pakistan, discovered by Alexander Cunningham, and a UNESCO World Heritage site since 1980. Notable pupils include Panini, Jivaka, and Chanakya.
2. **Vikramshila:** Near Bhagalpur, Bihar, established by King Dharmapala of the Pala Dynasty. Famous

alumni include Atisha Dipankara and Vasubandhu.

3. **Odantipuri:** Located in Bihar, established in the 8th century by Pala ruler Gopal I. It was the second oldest university in India and a hub for Tibetan scholars.
4. **Nagarjunakonda:** In Andhra Pradesh, named after the Mahayana Buddhist philosopher Nagarjuna.
5. Others: **Valabhi** (Gujarat), **Jagaddala** (Bangladesh).

## INDIA'S GEOLOGICAL-HERITAGE SITES

**Recent Update:** India's diverse landscape, from towering peaks to coastal plains, reflects billions of years of geological evolution. However, the country's appreciation for its geo-heritage remains limited.

### About:

- Geo-heritage refers to geological features with scientific or cultural significance that provide insights into Earth's history and evolution.
- Sites are designated as Geo-heritage Sites (GHS) by the Geological Survey of India (GSI).
- India, as a UNESCO member, safeguards these sites through appropriate legislation.
- **Examples**
  - i. **Lonar Crater:** Buldhana, Maharashtra – Hyper-velocity impact crater formed around 576,000 years ago.
  - ii. **Bhimbetka Rock Shelters:** Raisen, Madhya Pradesh – Natural rock formations with prehistoric cave paintings.

## Geo relics

- Geo-relics are geological formations, rocks, minerals, and fossils that offer scientific, educational, and historical insights into Earth's history.
- They include unique and rare features that help understand the planet's evolution, climate changes, and the development of life.
- **Examples**
  - i. **Jhamarkotra Rock Phosphate:** Udaipur, Rajasthan – Mineral deposits with significant geological history.
  - ii. **Salkhan Fossil Park:** Sonbhadra, Uttar Pradesh – Fossilized tree trunks from the Upper Jurassic period.

## 25 YEARS OF KARGIL WAR

- After the 1971 Indo-Pak War, several conflicts followed.

- Both countries conducted nuclear tests in 1998, heightening tensions.
- This led to the Kargil War in 1999, fought between May and July in Jammu and Kashmir (now Ladakh).
- The war ended in an Indian victory.

**Operation Vijay:** In 1999, Pakistan's troops infiltrated the LoC under Operation Badr, prompting India to launch Operation Vijay.

## 40 YEARS OF OPERATION BLUESTAR

**About:** Operation Blue Star, conducted from June 1–6, 1984, aimed to remove militants from the Golden Temple and neutralize Jarnail Singh Bhindranwale, a leader of the Khalistan movement. It was followed by Operation Black Thunder in 1986 and 1988.

### Khalistan Movement

The Khalistan movement seeks to establish a sovereign Sikh state in Punjab, rooted in the aftermath of Partition and communal violence. It gained momentum with the Punjabi Suba Movement and the 1973 Anandpur Sahib Resolution. In the 1980s, Jarnail Singh Bhindranwale's radical leadership escalated tensions, leading to Operation Blue Star in 1984.

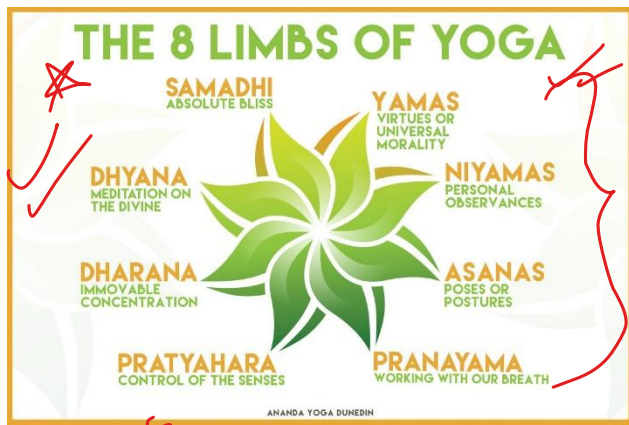
### Key factors:

1. Pre-partition violence led to demands for autonomy.
2. The 1966 linguistic reorganization of Punjab fueled calls for greater autonomy.
3. The Anandpur Sahib Resolution (1973) increased tensions with the central government.
4. Religious identity sought to protect Sikh culture and rights.
5. Socio-economic grievances over disparities and unemployment.
6. External support from the Sikh diaspora aided the movement.

## 10TH INTERNATIONAL YOGA DAY (IYD)

- The International Day of Yoga, celebrated on June 21, highlights yoga's role in promoting holistic health.
- The term "yoga" comes from the Sanskrit root "yuj," meaning "to unite," reflecting the connection of mind, body, and spirit.
- Yoga includes exercises such as breathing techniques, physical postures, and relaxation methods.

21 June



## KOZHIKODE: INDIA'S FIRST UNESCO 'CITY OF LITERATURE'

**Recent Update:** Kozhikode, Kerala, has been named India's first UNESCO 'City of Literature', recognizing its rich literary heritage and cultural contributions.

### About Kozhikode:

- Located on Kerala's **Malabar** coast, Kozhikode was named India's first UNESCO 'City of Literature' in October 2023 under the UNESCO Creative Cities Network.
- Famous travelers like **Ibn Battuta and Vasco da Gama** visited the city.

### Other Indian cities in the UCCN include

1. Jaipur: Crafts and Folk Arts (2015)
2. Varanasi: Creative City of Music (2015)
3. Chennai: Creative City of Music (2017)
4. Mumbai: Film (2019)
5. Hyderabad: Gastronomy (2019)
6. Srinagar: Crafts and Folk Art (2021)

## ANNUAL AMBUBACHI MELA

**Recent Update:** Devotees are gathering at Guwahati's Kamakhya temple for the annual Ambubachi Mela.

### About:

- The Ambubachi Mela is an annual Hindu festival at Kamakhya Temple in Guwahati, held during the monsoon season, typically in mid-June.
- It celebrates the menstruation cycle of Goddess Kamakhya and is also known as Ameti or the Tantric fertility festival, linked to the Shakti cult.

## WORLD CRAFT CITY

**Recent Update:** Srinagar has been recognized as a "World Craft City" by the World Crafts Council, honoring its rich heritage and skilled artisans.

### About WCC:

- Launched in 2014 by the World Crafts Council-International.
- Creates a network of global craft cities aligned with the creative economy.
- **Jaipur, Malappuram, and Mysore** are other Indian cities recognized as World Craft Cities.

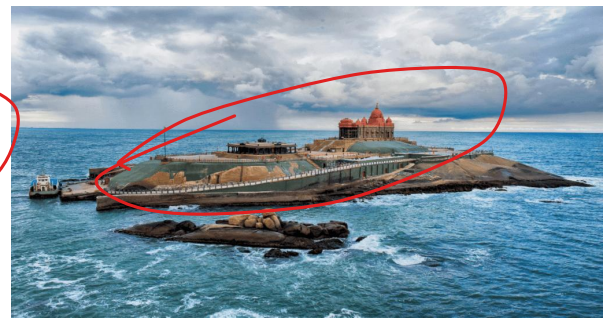
## KANYAKUMARI VIVEKANAND ROCK

### Swami Vivekananda's Spiritual Experience:

- In 1892, Vivekananda swam to a rock off Kanyakumari for meditation, spending three days there, which led to his enlightenment.
- A letter in 1894 mentions that his core philosophy formed after this meditation.

### Location:

- The memorial is on a small rock islet, 500 meters from the mainland of Vavathurai, Tamil Nadu, where the Bay of Bengal, Indian Ocean, and Arabian Sea meet.
- It includes two main structures: Vivekananda Mandapam and Shripada Mandapam.



### About Swami Vivekananda

#### Birth and Early Life:

- **Swami Vivekananda, born Narendranath Datta** on January 12, 1863, in Calcutta, came from a traditional Bengali family.
- He had a strong passion for knowledge, studying philosophy, literature, Indian scriptures, and Western philosophies.

#### Towards Spiritualism:

- In 1881, he became the chief disciple of **Ramakrishna Paramhansa**. Initially skeptical, he later embraced Ramakrishna's teachings and monastic life.
- In 1893, at the request of Maharaja Ajit Singh, he adopted the name "Vivekananda."

## AJRAKH CRAFT

Ajrakh, a resist-dyeing craft from **Kutch, Gujarat**, recently received a Geographical Indication (GI) tag, offering legal protection to regional arts.

- **Ajrakh is a centuries-old block-printed textile art using natural dyes** and intricate designs, traditionally worn by communities like Rabaris and Maldharis.
- The textiles feature vibrant colors like indigo, red, and white.

**Bela Block Printing** is another lesser-known craft from Kutch, mainly practiced by the Khatri community.

- It is known for bold designs, striking color combinations, and graphic motifs like elephants and horses on textured fabrics.



### SANT KABIR DAS

- On June 22, 2024, the 647th birth anniversary of Sant Kabir Das was commemorated.
- A mystic poet and Bhakti movement saint, Kabir's works emphasized devotion to God and were influential in Hindi literature.
- His followers, "**Kabir Panthis**," are revered by both Hindus and Muslims.

### BANKIM CHANDRA CHATTOPADHYAY

- Bankim Chandra Chattopadhyay, born 27th June 1838, was a key figure in the Bengal Renaissance and composed "Vande Mataram."
- His notable works include **Anandamath**, **Durgeshnandini**, and **Kapalkundala**.

### HANSA MEHTA

On International Day for Women in Diplomacy, Hansa Mehta was honoured for her contributions to gender equality in human rights.

- Mehta helped revise the Universal Declaration of Human Rights to be gender-inclusive, changing "All men are born free" to "All human beings."
- She also led the drafting of the Indian Women's Charter of Rights and was a member of the Constituent Assembly.

### CHHATRAPATI SHIVAJI'S CORONATION

- An exhibition marking the 350th anniversary of Shivaji Maharaj's coronation was held with 115 oil paintings.

- Shivaji was crowned on June 6, 1674, at Raigad Fort, beginning the Maratha Empire.

### KERALAM

- The Kerala Assembly passed a resolution requesting the Centre to rename the state as "**Keralam**."
- The name "Keralam" is historically mentioned in ancient inscriptions and has cultural significance.

### ALUVA SHIVA TEMPLE

- Located on the bank of the **Periyar River** at **Aluva Manappuram** in Kochi, Kerala.
- An ancient Hindu temple dedicated to Lord Shiva.

### BAVIKONDA MONASTERY

- Situated near **Visakhapatnam**, **Andhra Pradesh**.
- The name "Bavikonda" translates to "**hill of wells**," as the site originally had several wells that were used to store rainwater.
- The site represents an important part of the region's ancient **Buddhist heritage**.

### GREAT TRIGONOMETRIC SURVEY (GTS) OBSERVATORY

- A 19th-century structure that played a crucial role in mapping India.
- Established by **British infantry officer William Lambton** under the East India Company to carry out the **Great Trigonometric Survey**, a significant project aimed at accurately mapping the subcontinent.
- Located in Bengaluru, India, it was vital in determining the shape of the Earth and measuring baselines for surveying.
- Recently, the only surviving GTS observatory in Bengaluru was demolished by miscreants, sparking concerns over the preservation of historical scientific landmarks.

### NASTALIQ

- A Perso-Arabic script used predominantly during the Mughal period, especially for the writing of **classical Persian, Kashmiri, Punjabi (Shahmukhi), and Urdu**.
- The script is also associated with **Ottoman Turkish poetry**.
- Developed in Iran in the 13th century, Nastaliq emerged from the Naskh script and became widely used for artistic calligraphy.

- It is still used today in Iran, **Afghanistan, India, Pakistan, and other countries**, particularly for writing poetry and as a form of art.

### JOSHIMATH RENAMED

**Recent Update:** The Centre approved renaming Joshimath tehsil (**Chamoli**) to **Jyotirmath** and **Kosiyakutoli tehsil (Nainital)** to **Pargana Shri Kainchi Dham tehsil**.

**About:**

- The **Ministry of Science and Technology** issued a No Objection Certificate for the renaming, as the Survey of India is under the central ministry.
- Joshimath gained attention after land subsidence caused cracks in roads and buildings. **Kosiyakutoli** is known for **Neem Karoli Baba's Kainchi Dham Ashram**.
- **Jyotirmath**, established by **Adi Shankaracharya** in the 8th century, is one of

four cardinal **mathas** promoting Advaita Vedanta philosophy. The name "**Jyotirmath**" refers to the **divine light of knowledge** Shankaracharya attained.

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## 7: GEOGRAPHY (GS-1)

### KEYWORDS OF THE MONTH (From the covered CA Topics):

1. **Stromatolites** - Layered rock formations created by microbial communities, primarily cyanobacteria, that provide insights into Earth's early life forms.
2. **Microbial Communities** - Groups of microorganisms, including bacteria and algae, responsible for ecological functions such as the formation of stromatolites.
3. **Carbonate Minerals** - Minerals formed by carbonate ions, trapped in stromatolites, which help study the Earth's evolutionary and geological history.
4. **Cold Lava (Lahar)** - A hazardous mixture of volcanic debris and water, resembling a fast-moving landslide, capable of causing widespread destruction.
5. **Volcanic Debris Flow** - The movement of volcanic ash, rocks, and water that forms lahars, which can travel long distances, gaining volume and power as they go.
6. **Disaster Management Act** - Legislation in India that regulates disaster response and the use of National and State Disaster Response Funds (NDRF, SDRF) for emergencies.
7. **Heatwave Classification** - The debate over whether heatwaves should be classified as a notified disaster under the Disaster Management Act, considering their growing severity.
8. **Pantanal Wetlands** - The world's largest tropical wetland located in South America, critical for biodiversity but under threat due to limited protection.
9. **Floodplain Submergence** - The seasonal submergence of 80% of Pantanal wetlands during the rainy season, creating a vital habitat for wildlife and influencing local ecosystems.
10. **Regional Rapid Transit System (RRTS)** - A high-speed rail-based transit system being developed in India's National Capital Region to enhance urban mobility and reduce pollution.
11. **Rainwater Harvesting Pits** - Strategic installations along the RRTS corridor in NCR to collect and store rainwater, promoting sustainability and environmental resilience.
12. **Pastoralism** - A lifestyle focused on raising livestock, often in a nomadic or semi-nomadic manner, dependent on the management of rangelands.
13. **Rangeland Management** - The practice of managing vast grazing lands to maintain ecological balance, supporting both livestock and wildlife while ensuring sustainability.
14. **UNCCD** - The United Nations Convention to Combat Desertification, a legally binding international agreement aimed at improving land management and mitigating drought in drylands.
15. **Hunga Tonga-Hunga Ha'apai Volcano** - A significant undersea volcano whose 2022 eruption injected large amounts of water vapor into the stratosphere, influencing global weather patterns.

### QUOTES OF THE MONTH (For the covered CA Topics):

1. "The Earth's ancient microbial architects, etched in the stones of stromatolites, are the silent narrators of life's earliest whispers."
2. "Like an uninvited guest, lahars rush down volcanoes, destroying everything in their path with the unpredictable force of nature's fury."
3. "In the dance of nature's seasons, the solstice stands as a reminder of Earth's tilted journey around the sun, marking the passage of time with celestial precision."

## STROMATOLITES

**Recent Update:** Researchers have found living stromatolites on **Sheybarah** Island in the Red Sea, **Saudi Arabia**.

**About:**

- Stromatolites are **layered rock formations** created by microbial communities, mainly **cyanobacteria**.
- They form as **sediments accumulate**, trapping microorganisms that produce carbonate minerals.
- Stromatolites are significant for **studying early life** and Earth's evolutionary history.



## COLD LAVA

- Cold lava or "**lahar**," is a **hazardous flow of volcanic material**, debris, and water descending from volcanoes, resembling a fast-moving landslide.
- It forms when **water mixes with volcanic ash and debris**, creating a river-like flow more destructive than molten lava.
- Despite the name, "**cold lava**," it remains **hot internally but behaves like wet concrete**.
- Lahars can **travel far** from the volcano, gaining volume and destructive power as they pick up additional debris.



## NOTIFIED DISASTERS

**Recent Update:** The debate on classifying heatwaves as a notified disaster under the Disaster Management Act has resurfaced **due to extreme heat** across India.

## The Disaster Management Act of 2005

- regulates the **use of resources from the National and State Disaster Response Funds (NDRF and SDRF)**.
- It covers **12 notified disasters**, including **cyclones, droughts, floods, and earthquakes**.
- In 2020, **COVID-19** was designated as a notified disaster.

## BRAZIL'S PANTANAL WETLANDS

- **Pantanal** is the world's **largest tropical wetland**, spanning **Brazil, Bolivia, and Paraguay**, covering 140,000 to 195,000 square kilometers.
- It is fed by the **Paraguay River** and its tributaries.
- Around **80% of its floodplains** are submerged during the **rainy season**, supporting diverse wildlife.
- Despite its ecological importance, less than 5% of Pantanal is protected, with much under private ownership.

## REGIONAL RAPID TRANSIT SYSTEM

**Recent Update:** The National Capital Region Transport Corporation (NCRTC) is creating 900 rainwater harvesting pits along the Delhi-Ghaziabad-Meerut RRTS corridor to promote environmental sustainability.

**About:**

- RRTS is a new public transportation mode for the NCR.
- The Delhi-Meerut RRTS is a **semi-high-speed, rail-based commuter system**.
- The **82-km Delhi-Ghaziabad-Meerut** corridor includes 22 stations.

## RANGELANDS AND PASTORALISM

**Recent Update:** A UNCCD report on rangelands and pastoralists highlights the need for better recognition of pastoralists' rights and market access in India.

**About:**

- Rangelands are vast landscapes used for **grazing livestock and wildlife**, dominated by **grasses, shrubs, and trees**.
- Pastoralists are people who raise livestock on these natural pastures, often leading a nomadic or semi-nomadic lifestyle, moving their herds to access fresh pastures and water.

## About UNCCD

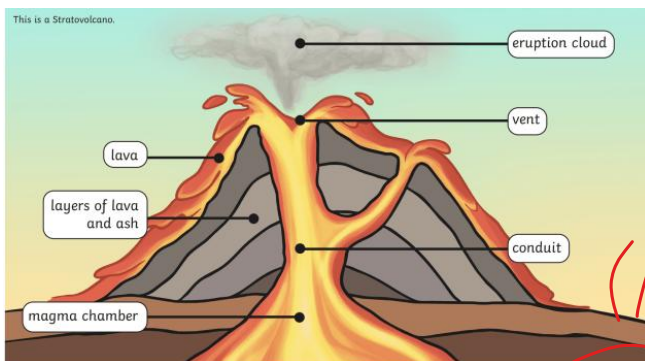
- The UNCCD, established in 1994, is the only legally binding international agreement for sustainable land management in drylands.
- It focuses on improving living conditions, restoring land productivity, and mitigating drought effects in arid, semi-arid, and dry sub-humid areas.
- The convention has 197 parties working together on land restoration and drought management.
- UNCCD collaborates with the CBD and UNFCCC to address the interlinked challenges of land, climate, and biodiversity.

## TONGA VOLCANO

**Recent Update:** A study in the Journal of Climate revealed that the January 2022 eruption of the Hunga Tonga-Hunga Ha'apai Volcano significantly impacted global weather patterns.

### About:

- Hunga Tonga-Hunga Ha'apai is an undersea volcanic eruption located between two uninhabited islands, Hunga-Ha'apai and Hunga-Tonga.



## NILE RIVER

**Recent Update:** A recent study discovered an ancient branch of the Nile River, the Ahramat Branch, which once transported workers and materials for Egypt's pyramids but is now buried. Researchers used satellite imagery, digital elevation data, and historical maps to trace its path.

### About river:

- The Nile River is the longest in the world, originating in Burundi, Africa.
- It flows north through 11 countries, including Egypt, Sudan, Ethiopia, and Uganda, and empties into the Mediterranean Sea.
- The river is formed by three main streams: the Blue Nile, Atbara, and White Nile.

- The Blue Nile and Atbara originate from Ethiopia's highlands, while the White Nile flows from Lakes Victoria and Albert.
- Known as the "father of African rivers," the Nile is crucial to the region's ecosystem and civilization..



## HINDU KUSH HIMALAYAS

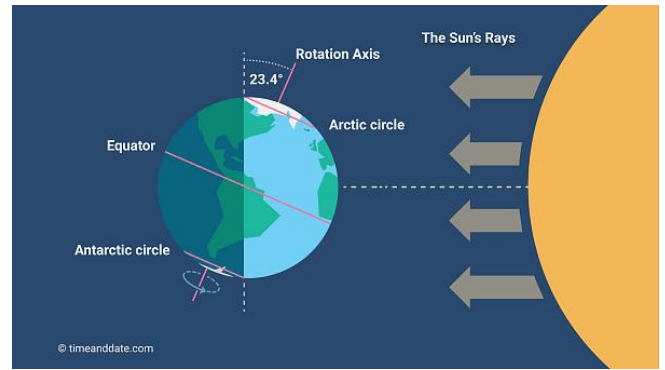
**Recent Update:** A recent ICIMOD report revealed that snow persistence in the Ganga, Brahmaputra, and Indus basins of the Hindu Kush Himalayas has hit record low levels.

ICIMOD, established in 1983, is a regional intergovernmental organization focused on promoting a greener, more inclusive, and climate-resilient HKH region.

### Hindu Kush Himalaya Region:

- Geographical Span: The HKH region spans Afghanistan, Bangladesh, Bhutan, China, India, Kyrgyzstan, Mongolia, Myanmar, Nepal, Pakistan, Tajikistan, and Uzbekistan.
- Third Pole: Known as the "Third Pole" for its vast ice and snow reserves, it holds the largest concentration of ice and snow outside the Arctic and Antarctica, with significant climatic importance.
- Key Rivers and Destinations:
  - a. South Asia: Indus, Ganga, Brahmaputra → Arabian Sea, Bay of Bengal
  - b. Central Asia: Syr Darya, Amu Darya → Aral Sea basin
  - c. East Asia: Tarim → Taklamakan Desert, Yellow River → Gulf of Bohai, Yangtze → East China Sea

- d. Southeast Asia: Mekong → South China Sea, Chindwin, Salween, Irrawaddy → Andaman Sea



### SUMMER SOLSTICE

**Recent Update:** The 21st of June marks the summer solstice in the northern hemisphere. It is celebrated as the beginning of summer when Earth's pole is maximally tilted towards the sun.

#### Origin:

- The summer solstice was first studied around 200 BC by Greek scholar Eratosthenes. He noticed that on this day, sunlight directly shone down a well in Aswan, Egypt, indicating the sun was directly overhead.
- Using shadow measurements between Aswan and Alexandria, Eratosthenes estimated Earth's circumference.

#### About:

- **The summer solstice is the longest day of the year when the sun reaches its highest point in the sky.**
- Earth's axis is tilted so the North Pole is closest to the sun, while the South Pole is farther away.
- The Earth's axis is tilted at 23.5 degrees, and at the Arctic Circle, the sun doesn't set during the solstice.
- The amount of sunlight a place receives on the solstice depends on its latitude.

## 8. INTERNAL SECURITY/DEFENCE(GS-3)

### INS VIKRAMADITYA

- India's most powerful aircraft carrier, built in 1987 and originally named "Baku" for the Soviet Navy.
- Purchased by India in 2004, commissioned in 2013 at Severodvinsk, Russia.
- Can carry over 30 aircraft, including MiG-29Ks, Kamov-28s, Kamov-31s, ALH-Dhruv, and Chetak helicopters.
- Retrofitted with the Barak missile system in collaboration with Israel.
- Based at Karwar in Karnataka.
- Operational after a two-and-a-half-year refit.

### INS VIKRANT (IAC-1)

- India's first Indigenous Aircraft Carrier, named after the original INS Vikrant, which played a key role in the 1971 War with Pakistan.
- Designed by the Indian Navy's Warship Design Bureau and built by Cochin Shipyard Ltd.
- Largest ship ever built in India's maritime history, equipped with advanced automation features.
- Can operate 30 aircraft, including MiG-29K fighter jets, Kamov-31, MH-60R helicopters, Advanced Light Helicopters (ALH), and Light Combat Aircraft (LCA) (Navy).

### PROJECT 28 (P28)

- Aimed at building 4 Indigenous Anti-Submarine Warfare (ASW) Corvettes, also known as Kamorta-class ships.
- Designed by the Indian Navy's Directorate of Naval Design and built by Garden Reach Shipbuilders & Engineers (GRSE).
- Ships include INS Kamorta, INS Kadmat, INS Kiltan, and INS Kavaratti.
- Equipped with anti-aircraft guns, torpedo launchers, early warning radars, and more.

- Capable of being deployed in nuclear, biological, and chemical warfare conditions.

### NAGASTRA-1

- **India's first indigenous loitering munition (suicide drones), developed by Solar Industries' Economics Explosives Ltd.**
- Features GPS-enabled precision strikes with an accuracy of up to 2 meters.
- Equipped with day-and-night surveillance cameras and a 1 kg high-explosive fragmenting warhead.

### RUDRAM-II

- An **indigenously** developed air-launched, solid-propelled missile designed for **air-to-surface** operations.
- Developed by DRDO as India's first anti-radiation missile (ARM) for the Indian Air Force.
- Equipped with INS-GPS navigation and Passive Homing Head (PHH).
- Successfully tested from the Su-30 MK-I.

### JAVELIN ANTI-TANK WEAPON SYSTEM

- A world-class, man-portable medium-range anti-tank missile system.
- The missile follows a fire-and-forget principle, guiding itself to the target, allowing the operator to take cover.
- Can be fired from inside buildings or bunkers.
- India and the US have discussed co-producing Javelin missiles for India's military needs.

### OPERATION VIJAY

- Launched by the Indian Army in response to the infiltration of Pakistani soldiers and militants in Kargil, 1999.
- **Kargil Vijay Diwas** is observed every year on July 26 to commemorate the success of the operation.
- The Indian Air Force conducted '**Operation Safed Sagar**' for airstrikes, while the Indian Navy launched '**Operation Talwar**' to secure the Arabian Sea.
- India recently marked the 25th anniversary of the Kargil War victory.

### EXERCISE HOPEX

- The 4th joint exercise between the **Indian Air Force (IAF) and Egyptian Air Force (EAF)**.
- Indian Rafale fighter jets participated to enhance bilateral cooperation and showcase the strong relationship between India and Egypt.

## 9. MISCELLANEOUS

### QS WORLD UNIVERSITY RANKINGS 2025

**Recent Update:** The 2025 QS World University Rankings recently revealed significant improvements for Indian universities and their strong global standings.

#### About:

- QS Quacquarelli Symonds (QS) offers data and solutions for global higher education.
- For the 2025 QS World University Rankings, QS analyzed:
  - a. 17 million research papers
  - b. 176 million citations
  - c. Data from 5,600 institutions
  - d. Insights from 175,798 academics and 105,476 employers.

### SPARSH

**Recent Update:** The Defence Accounts Department (DAD) recently signed MoUs with several banks to onboard them as SPARSH( System for Pension Administration Raksha) Service Centres.

#### About:

The MoUs will provide last-mile connectivity to pensioners, especially in remote areas.

- Through SPARSH Service Centres, defence pensioners can update profiles, register grievances, complete digital identification, verify data, and access pension details.
- SPARSH (System for Pension Administration Raksha) is an integrated, web-based system automating pension sanctions and disbursements.
- It processes claims and credits pensions directly to bank accounts, ensuring efficiency, transparency, and responsiveness.

### VOLCANISM ON VENUS

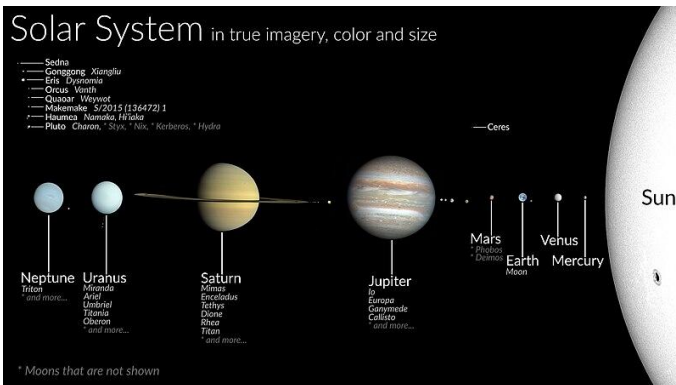
Active volcanic flows have been detected at two sites on Venus: the Eistla Regio region (including Sif Mons) and Niobe Planitia, with volcanic activity first observed in the 1990s.

A volcanic vent on Maat Mons in Atla Regio has also expanded and changed shape, supported by evidence like sulfur dioxide variations and thermal emissions.

#### Venus:

- Known as **Earth's twin**, it's slightly smaller than Earth.

- Second planet from the Sun and the hottest in the solar system.
- **Spins east to west** (backward compared to most planets), and its day is longer than its year.



### CARNIAN PLUVIAL EPISODE

The Carnian Pluvial Episode (CPE) occurred around 230 million years ago during the late Triassic Period, marked by intense rainfall and global climate change caused by volcanic activity in the Wrangellia Province.

#### Impact:

- It caused mass extinctions, wiping out about one-third of species, reducing biodiversity.
- However, it also allowed new species, including dinosaurs, to evolve.
- The CPE is thought to have paved the way for the Mesozoic Era, the age of dinosaurs.

### HOOCH TRAGEDY

**Recent Update:** Around 34 people died and 100 others were hospitalized after consuming spurious liquor in Tamil Nadu's Kallakurichi district.

#### About Hooch:

- Hooch is poor-quality alcohol, named after the Hoochinoo tribe known for making strong liquor.
- It is often produced in unregulated, unsanitary conditions, posing serious health risks.
- The lack of quality control makes it difficult to determine the alcohol content or contaminants.

### MATERNITY LEAVE

**Recent Update:** The government recently amended the Central Civil Services (Leave) Rules, 1972, to grant maternity leave and benefits to employees with children born through surrogacy. This aims to fill the gap in leave policies for surrogacy.

#### About Surrogacy and Related Regulation

- Surrogacy involves a woman carrying a child for an intended couple, with the child handed over after birth.
- It is allowed only for altruistic reasons or for couples with proven infertility or medical conditions.
- Commercial surrogacy, including sale or exploitation, is prohibited.
- A child born via surrogacy is considered the biological child of the intended couple.
- Abortion of the fetus is allowed only with the surrogate's consent and authority approval under the Medical Termination of Pregnancy Act, 2021.

### GREENING EDUCATION SECTOR

**Recent Update:** UNESCO recently launched two new tools—the Greening Curriculum Guidance (GCG) and Green School Quality Standards (GSQS)—under the Greening Education Partnership.

**About:** The Greening Education Partnership is a global initiative with 80 member states, focused on using education to address the climate crisis.

- It aims to transform 50% of schools, colleges, and universities into Green Schools by 2030.
- The goal is to achieve a green national curriculum in 90% of countries by 2030.

#### Pillars:

The initiative is based on four key pillars aligned with **SDG Target 4.7:**

- Greening schools
- Greening curriculum
- Greening teacher training and education systems
- Greening communities

### FIRST ALL INDIA SURVEY ON AYUSH

**Recent Update:** Recently, the Ministry of Statistics and Programme Implementation (MoSPI) released the findings of India's first-ever national survey on AYUSH systems of medicine.

**About:** Conducted by the National Sample Survey Office (NSSO) from July 2022 to June 2023, the survey provides insights into the use of traditional healthcare practices across India (excluding a few remote villages in the Andaman & Nicobar Islands).

#### Objectives:

- Assess awareness of AYUSH healthcare systems.

- Examine the use of AYUSH for prevention and treatment.
- Gather data on knowledge of home remedies, medicinal plants, and folk medicine.
- Collect information on household expenditure on AYUSH treatments.

AYUSH stands for the traditional medical systems practiced in India:

- **Ayurveda:** Focuses on holistic well-being.
- **Yoga:** Combines body, mind, and spirit through postures and meditation.
- **Naturopathy:** Uses natural elements like water, air, and diet for healing.
- **Unani:** Restores balance through herbal medicines and humoral theory.
- **Siddha:** Tamil medicine based on the five elements and humours.
- **Homeopathy:** Uses highly diluted remedies to stimulate self-healing.

These systems are based on established medical philosophies that emphasize disease prevention and health promotion.

### CHILD FOOD POVERTY

**Recent Update:** A recent UNICEF report, "Child Food Poverty: Nutrition Deprivation in Early Childhood," explores the trends, inequities, and drivers of child food poverty in early childhood.

- **Definition:** UNICEF defines child food poverty as the inability of children under 5 to access a nutritious, diverse diet.
- **Conditions:**
  1. **Undernutrition:** Includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age), and micronutrient deficiencies.
  2. **Overweight:** Occurs when children consume more calories than needed, leading to obesity and poor eating habits.



## CURRENT AFFAIRS MCQ

### 1. Demand for New States

**Question:** Which of the following statements about the procedure for forming new states under the Indian Constitution is/are correct?

1. The President can introduce the Bill for state formation in Parliament without consulting the concerned state legislatures.
2. The Bill requires a special majority in Parliament for approval.
3. Article 3 of the Constitution empowers Parliament to create new states or alter boundaries.

**Options:**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2, and 3

**Answer:** (c) 3 only

**Explanation:** The President must consult affected state legislatures, and the Bill requires a simple majority, not a special majority.

### 2. Internal Emergency

**Question:** Which of the following is true regarding the Internal Emergency imposed in 1975?

- (a) It was declared under Article 356 of the Constitution.
- (b) It was declared due to armed rebellion.
- (c) The term "internal disturbance" in the grounds for emergency declaration was amended to "armed rebellion" by the 44th Amendment.
- (d) It resulted in an increase in powers of state governments.

**Answer:** (c) The term "internal disturbance" in the grounds for emergency declaration was amended to "armed rebellion" by the 44th Amendment.

**Explanation:** The 44th Amendment (1978) made the ground for declaring an emergency more specific.

### 3. Coalition System of Government

**Question:** What is a key difference between pre-election and post-election coalitions in the Indian context?

- (a) Pre-election coalitions are more stable than post-election coalitions.
- (b) Post-election coalitions are formed only when there is a clear majority.
- (c) Pre-election coalitions imply parties contest elections independently but form alliances afterward.
- (d) Post-election coalitions often involve negotiations between parties after the results are declared.

**Answer:** (d) Post-election coalitions often involve

negotiations between parties after the results are declared.

**Explanation:** Post-election coalitions are formed to bridge gaps in seat counts for government formation.

### 4. Proportional Representation (PR)

**Question:** Which of the following countries uses the Proportional Representation (PR) system for elections?

1. India
2. Israel
3. Netherlands
4. United States

June

**Options:**

- (a) 1, 2, and 4 only
- (b) 2 and 3 only
- (c) 2, 3, and 4 only
- (d) 1, 2, 3, and 4

**Answer:** (b) 2 and 3 only

**Explanation:** India and the U.S. follow the First-Past-The-Post system, while Israel and the Netherlands use Proportional Representation.

### 5. Mission Karmayogi

**Question:** What is the primary objective of the Mission Karmayogi initiative?

- (a) To train state-level political leaders for developmental roles.
- (b) To build a specialized civil service aligned with national goals and priorities.
- (c) To replace traditional public administration training with privatized modules.
- (d) To focus solely on contractual employees in the government sector.

**Answer:** (b) To build a specialized civil service aligned with national goals and priorities.

**Explanation:** Mission Karmayogi aims to enhance the professional capacity of civil servants in alignment with India's developmental objectives.

### 6. Online Misinformation

**Question:** Which of the following is an accurate distinction between misinformation and disinformation?

- (a) Misinformation is always politically motivated, while disinformation is unintentional.
- (b) Misinformation is false content shared without harmful intent, while disinformation is deliberately deceptive.
- (c) Both misinformation and disinformation are shared with harmful intent.
- (d) Misinformation pertains to social media, while disinformation pertains to traditional media.

**Answer:** (b) Misinformation is false content shared without harmful intent, while disinformation is

deliberately deceptive.

**Explanation:** Disinformation has intentional malice, whereas misinformation may not.

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### 7. New Criminal Laws

**Question:** Which provision is newly introduced under the Bharatiya Nyaya Sanhita, 2023?

- (a) Criminalization of same-sex relationships.
- (b) Electronic records given the same legal status as paper documents.
- (c) Terrorist acts defined as separate offenses.
- (d) Women under 18 consenting to sexual acts exempted from prosecution.

**Answer:** (c) Terrorist acts defined as separate offenses.

**Explanation:** This is a distinct addition under the Bharatiya Nyaya Sanhita, 2023.

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### 8. NOTA in Elections

**Question:** What happens if NOTA receives the most votes in an election in India?

- (a) The election is declared null and void.
- (b) A re-election is mandated under the Representation of the People Act.
- (c) The candidate with the second-highest votes is declared the winner.
- (d) A judicial review decides the course of action.

**Answer:** (c) The candidate with the second-highest votes is declared the winner.

**Explanation:** There are no legal consequences of NOTA winning in India currently.

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### 9. Bihar Quota and Indra Sawhney Case

**Question:** The 1992 Indra Sawhney judgment of the Supreme Court:

- 1. Set a 50% cap on reservations.
- 2. Allowed exceptions to the cap under extraordinary circumstances.
- 3. Upheld the concept of "economic backwardness" as a criterion for reservation.

**Options:**

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

**Answer:** (a) 1 and 2 only

**Explanation:** The judgment rejected economic backwardness as a standalone criterion for reservation.

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### 10. Quad (Quadrilateral Security Dialogue)

**Question:** Which of the following statements is/are correct about the Quad?

- 1. The Quad is a military alliance between Australia, India, Japan, and the United States.

- 2. The Quad nations collectively account for 24% of the global population.
- 3. The Quad nations contribute to 35% of the world's GDP.

**Options:**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2, and 3
- (d) None of the above

**Answer:** (b) 2 and 3 only

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### 11. AUKUS Alliance

**Question:** Which of the following correctly describes the AUKUS alliance?

- 1. It was formed to counter China's influence in the Indo-Pacific.
- 2. India is a formal member of the AUKUS alliance.
- 3. It focuses on sharing nuclear submarine technology.

**Options:**

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

**Answer:** (b) 1 and 3 only

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### 12. Indian Migrants to Gulf Countries

**Question:** What is the Kafala system in the context of migrant workers?

- (a) A financial subsidy provided to migrants.
- (b) A sponsorship system tying migrant workers' employment and residency to their employer.
- (c) A training program for enhancing workers' skills.
- (d) A housing scheme for migrant workers in Gulf countries.

**Answer:** (b) A sponsorship system tying migrant workers' employment and residency to their employer.

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### 13. Financial Action Task Force (FATF)

**Question:** Consider the following statements about FATF:

- 1. FATF was established in 1989 at the G7 Summit in Paris.
- 2. It combats money laundering, but not terrorism financing.
- 3. Countries in the FATF Blacklist include Iran and Myanmar.

**Options:**

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

**Answer:** (b) 1 and 3 only

**14. Which of the following is the primary objective of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement under the UN Convention on the Law of the Sea (UNCLOS)?**

- (a) To regulate the mining activities in Areas Beyond National Jurisdiction (ABNJ).
- (b) To conserve and sustainably use marine biological diversity in areas beyond national jurisdiction.
- (c) To demarcate the territorial sea boundaries of coastal nations.
- (d) To set a global standard for the protection of warships and military aircraft.

**Answer:** (b)

**Explanation:** The primary objective of the BBNJ Agreement is to conserve and sustainably use marine biodiversity in Areas Beyond National Jurisdiction (ABNJ), including the high seas.

**15. Which of the following statements about the UN Convention on the Law of the Sea (UNCLOS) is correct?**

- (a) UNCLOS applies to warships and military aircraft.
- (b) The International Seabed Authority (ISA) regulates activities on the ocean floor beyond national jurisdiction.
- (c) The territorial sea extends up to 200 nautical miles from the coast.
- (d) The Convention does not cover marine genetic resources.

**Answer:** (b)

**Explanation:** UNCLOS provides a comprehensive international framework, and the ISA specifically regulates the mining and other activities on the ocean floor beyond national jurisdiction.

**16. What is the target of the International Solar Alliance (ISA) by 2030?**

- (a) To reduce solar energy costs globally by 50%.
- (b) To deploy 1,000 GW of solar power and mobilize \$1 trillion in investments.
- (c) To develop the first global solar power plant.
- (d) To reduce carbon emissions from fossil fuels in the Tropics by 30%.

**Answer:** (b)

**Explanation:** The ISA aims to deploy 1,000 GW of solar power and mobilize \$1 trillion in investments by 2030 as part of its vision to promote solar energy adoption.

**17. Which of the following is NOT a major threat to the conservation of the Great Indian Bustard?**

- (a) Habitat loss.
- (b) Powerline collisions.
- (c) Hunting.
- (d) Invasive species introduction.

**Answer:** (d)

**Explanation:** The primary threats to the Great Indian

Bustard are habitat loss, hunting, and powerline collisions, while invasive species are not listed as major threats in the provided information.

**18. Which of the following is the main feature of disaster-resilient cities, according to the National Institute of Disaster Management?**

- (a) It has the highest population density.
- (b) It avoids informal settlements in vulnerable areas.
- (c) It solely focuses on urban expansion without considering disaster risks.
- (d) It restricts citizen participation in disaster management.

**Answer:** (b)

**Explanation:** A disaster-resilient city focuses on avoiding informal settlements in vulnerable areas, such as floodplains or steep slopes, and encourages citizen participation.

**19. Which of the following regions in India is most prone to landslides, according to the India Landslide Susceptibility Map?**

- (a) Western Ghats.
- (b) Himalayan Region.
- (c) Coastal Andhra Pradesh.
- (d) Rajasthan.

**Answer:** (b)

**Explanation:** The Himalayan Region is particularly prone to landslides, with tectonically unstable formations and loose sediments contributing to its susceptibility.

**20. Which of the following statements about the VadHAVAN Port in India is true?**

- (a) It will be developed in partnership with the government of Gujarat.
- (b) It will be built in three phases with a total capacity of 30 million TEUs.
- (c) The port will be India's first mega port, boosting sea-based trade.
- (d) It will be built entirely by the central government without private sector involvement.

**Answer:** (c)

**Explanation:** The VadHAVAN Port, recently approved by the Cabinet, will be India's first mega port designed to boost sea-based trade.

**21. What is the current conservation status of the Greater Adjutant Stork in India?**

- (a) Vulnerable.
- (b) Endangered.
- (c) Critically Endangered.
- (d) Least Concern.

**Answer:** (b)

**Explanation:** The Greater Adjutant Stork is classified as Endangered on the IUCN Red List

**22. Which of the following initiatives is promoted by the International Solar Alliance (ISA)?**

- (a) One Earth, One Grid.
- (b) Solar Risk Mitigation Initiative (SRMI).
- (c) Solar Ocean Grid Network.
- (d) One Solar, One Nation.

**Answer:** (b)

**Explanation:** The ISA promotes the Solar Risk Mitigation Initiative (SRMI) to reduce financial risks associated with solar projects, particularly in developing nations.

**23. According to the recent report on global food security, which region is projected to experience the largest decline in food production by 2050?**

- (a) United States.
- (b) China.
- (c) India.
- (d) ASEAN.

**Answer:** (b)

**Explanation:** The report projects a 22% decline in food production by 2050 in China due to heat and water stress.

**24. What is the primary reason behind the rising risk of landslides in the Western Ghats?**

- (a) Frequent earthquakes.
- (b) Increased human activities like mining and deforestation.
- (c) Soil erosion from heavy rainfall.
- (d) High tectonic activity and loose sediments.

**Answer:** (b)

**Explanation:** In the Western Ghats, human activities like mining, settlements, and deforestation have led to the destabilization of soil, increasing the risk of landslides.

**25. What was the primary recommendation of the Kasturirangan Committee in 2013 regarding the Western Ghats Eco-Sensitive Areas (ESAs)?**

- (a) Inclusion of 64% of the Western Ghats under ESAs.
- (b) A complete ban on all types of development in the Western Ghats.
- (c) Designation of 37% of the Western Ghats as ESAs.
- (d) The exclusion of the Western Ghats from environmental protection frameworks.

**Answer:** (c)

**26. Which of the following is true about quantum computing?**

- (a) It uses binary bits for processing information.
- (b) It enhances medical imaging through quantum photonics.
- (c) It operates using classical computing algorithms.
- (d) It is not useful for supply chain optimization.

**Answer:** (b)

**Explanation:** Quantum computing enhances medical imaging through quantum photonics, improving resolution and image quality.

**27. Which of the following is an objective of the Artemis Accords, established in 2020?**

- (a) To regulate the use of space resources for commercial purposes.
- (b) To promote peaceful, sustainable, and transparent space cooperation.
- (c) To limit space exploration to government agencies only.
- (d) To encourage the militarization of outer space.

**Answer:** (b)

**Explanation:** The Artemis Accords aim to promote peaceful, sustainable, and transparent space cooperation among nations involved in lunar exploration.

**28. Trans fats, as defined by the WHO, are associated with which of the following health risks?**

- (a) Lowering the risk of stroke and heart attack.
- (b) Reducing inflammation and improving cholesterol levels.
- (c) Raising bad cholesterol and increasing the risk of heart disease.
- (d) Supporting weight management and preventing obesity.

**Answer:** (c)

**Explanation:** Trans fats raise bad cholesterol (LDL) levels and increase the risk of heart disease and stroke.

**29. Which of the following is a significant feature of the CRISPR/Cas9 gene-editing technology?**

- (a) It is used exclusively for agricultural modifications.
- (b) It allows precise alterations to DNA at specific locations.
- (c) It can only be applied to animal gene editing.
- (d) It is not applicable for human genome editing.

**Answer:** (b)

**Explanation:** CRISPR/Cas9 allows precise editing of DNA at specific locations, enabling targeted changes in genes.

**30. Which of the following is the objective of the TRISHNA mission?**

- (a) To explore the Moon for lunar resource utilization.
- (b) To study the Earth's radiation balance and climate change.
- (c) To monitor surface temperature and water management globally.
- (d) To develop advanced quantum technologies for climate modeling.

**Answer:** (c)

**Explanation:** The TRISHNA mission aims to monitor surface temperature and water management on a global scale to better understand climate dynamics.

**31. What is the purpose of the "One Health" approach advocated by WHO?**

- (a) To focus on human health exclusively.
- (b) To emphasize the interconnectedness of human, animal, and environmental health.
- (c) To regulate the use of antibiotics in agriculture.
- (d) To separate health policies for humans, animals, and the environment.

**Answer:** (b)

**Explanation:** The "One Health" approach recognizes the interconnectedness of human, animal, and environmental health, aiming for integrated policies to prevent and manage health challenges.

**32. Which organization has developed the Quantum Diamond Microchip Imager in India?**

- (a) Tata Consultancy Services (TCS) in collaboration with IIT Bombay.
- (b) Indian Space Research Organisation (ISRO) and CNES.
- (c) National Health Service (NHS) and IIT Delhi.
- (d) Indian Institute of Science (IISc) and DRDO.

**Answer:** (a)

**Explanation:** Tata Consultancy Services (TCS), in collaboration with IIT Bombay, developed the Quantum Diamond Microchip Imager for advanced imaging applications.

**33. Which of the following missions is associated with the study of clouds, aerosols, and radiation to understand Earth's radiation balance?**

- (a) TRISHNA Mission
- (b) EarthCARE Mission
- (c) DAKSHA Project
- (d) Quantum Frontier Mission

**Answer:** (b)

**Explanation:** The EarthCARE Mission studies clouds, aerosols, and radiation to improve understanding of Earth's radiation balance and climate systems.

**34. Which of the following is a major objective of India's National Quantum Mission (NQM)?**

- (a) To develop a military-grade quantum communication network.
- (b) To establish India as a global leader in quantum technologies.
- (c) To regulate space missions for quantum-based telecommunications.
- (d) To enhance solar energy production through quantum materials.

**Answer:** (b)

**Explanation:** The National Quantum Mission (NQM)

seeks to establish India as a global leader in quantum technologies through research and applications.

**35. What is the main goal of the Arun-III Hydropower Project in Nepal?**

- (a) To promote nuclear energy production in Nepal.
- (b) To build the largest hydropower facility in Nepal.
- (c) To supply power exclusively to India.
- (d) To develop geothermal energy resources.

**Answer:** (b)

**Explanation:** The Arun-III Hydropower Project aims to build Nepal's largest hydropower facility to boost energy production and regional cooperation.

**36. The term "Symbiotic System," as observed in the Milky Way, refers to:**

- (a) A system of two stars where both stars are in their main-sequence phase.
- (b) A binary star system with a white dwarf and a red giant.
- (c) A neutron star system with a black hole in orbit.
- (d) A planetary system with a binary star and multiple planets.

**Answer:** (b)

**Explanation:** A symbiotic system in astronomy is a binary star system where a white dwarf and a red giant coexist and interact.

**37. The "Global Report on Neglected Tropical Diseases 2024" was recently published by which organization?**

- (a) World Health Organization (WHO)
- (b) United Nations Environment Programme (UNEP)
- (c) Food and Agriculture Organization (FAO)
- (d) World Bank

**Answer:** (a)

**Explanation:** The World Health Organization (WHO) published the "Global Report on Neglected Tropical Diseases 2024" to highlight global health challenges.

**38. Which of the following is NOT a key international space treaty?**

- (a) Outer Space Treaty (1967)
- (b) Rescue Agreement (1968)
- (c) Mars Exploration Convention (2021)
- (d) Liability Convention (1972)

**Answer:** (c)

**Explanation:** The Mars Exploration Convention (2021) does not exist. The other treaties are foundational agreements governing international space activities.

**39. Which country was the 43rd nation to sign NASA's Artemis Accords for lunar exploration?**

- (a) United Kingdom
- (b) Armenia
- (c) Canada

(d) Japan

**Answer:** (b)

**Explanation:** Armenia recently became the 43rd nation to sign NASA's Artemis Accords, supporting peaceful lunar exploration and international cooperation.

**40. What is the primary role of nuclear technologies in food safety?**

- (a) To enhance the flavor of processed food.
- (b) To improve food preservation and combat hunger.
- (c) To accelerate the growth of crops genetically modified for pest resistance.
- (d) To monitor and regulate the food safety standards in restaurants.

**Answer:** (b)

**Explanation:** Nuclear technologies help in food preservation by sterilizing food products and combating hunger through longer shelf lives and waste reduction.