



drishti

**Current
Affairs
(CONSOLIDATION)**

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Polity and Governance

Highlights

- PAC to Review Regulatory Bodies Performance
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- PM Surya Ghar—Muft Bijli Yojana
- 5 Years of Pradhan Mantri Kisan Maandhan Yojana
- Enemy Property Act 1968
- SC Calls for Uniform Demolition Guidelines
- Grading Report Highlights ITIs' Performance
- Himachal Pradesh's Bill to Raise Women's Minimum Marriage Age to 21
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- MoE Defines Literacy under NILP
- Open Prisons in India
- Surety Shouldn't Dictate Bail: SC
- 75 Years of Supreme Court

PAC to Review Regulatory Bodies Performance

Why in News?

Recently, the **Public Accounts Committee (PAC)** has taken suo-moto initiative to **review the performance** of regulatory bodies such as **Securities and Exchange Board of India (SEBI)** and **Telecom Regulatory Authority of India (TRAI)**.

Why has the PAC Initiated the Review of Regulatory Bodies?

- The review aims to enhance the effective use of **public funds and improve governmental oversight**.
- The decision was made amid a **political controversy over allegations of conflict of interest** against the SEBI chief.
- The panel has chosen **5 subjects for suo-motu investigations**, including "**performance review** of regulatory bodies established by Act of Parliament" and "**levy and regulation** of fees, tariffs, user charges etc. on public infrastructure and other public utilities".

What is the Public Accounts Committee (PAC)?

- **About:**
 - The **PAC** is a committee of selected **members of Parliament**, constituted by the Parliament of India, for the purpose of **auditing the revenue and the expenditure** of the Government of India.

- **Parliamentary committees** draw their authority from **Article 105** and **Article 118 of the Constitution**. PAC is one of the three Financial Parliamentary committees, the other two are the **Estimates Committee** and the **Committee on Public Undertakings**.
- **None of the members of the CAG** committee can hold positions as government **ministers**.

➤ Background:

- The PAC was introduced in **1921** after its first mention in the **Government of India Act, 1919** also called **Montford Reforms**.
 - It is **constituted every year** under **Rule 308** of the **Rules of Procedure and Conduct of Business in Lok Sabha**.
- **Composition:** It presently comprises **22 members (15 members elected by the Lok Sabha Speaker, and 7 members elected by the Rajya Sabha Chairman)** with a **term of 1 year only**.
 - The Chairman of the Committee is appointed by the **Speaker of Lok Sabha**.
- **Powers and Functions:**
 - **Examine accounts** showing the appropriation of funds granted by the House for expenditure and the annual Finance Accounts of the government.
 - **Review other accounts presented to the House** that the Committee deems appropriate, except those related to Public Undertakings assigned to the **Committee on Public Undertakings**.

Note:

- Committee reviews various CAG Audit Reports on revenue receipts, government expenditure by different Ministries/Departments, and accounts of autonomous bodies.
 - The CAG assists the committee during the investigation.
- **Recommendations:**
 - The PAC's recommendations are **advisory and not binding on the government**, as it is an executive body that **cannot issue orders**, and only Parliament can take a final decision on the committee's findings.

What are Regulatory Bodies in India?

- **About:**
 - Regulatory bodies are **independent government entities** established to **set and enforce standards in specific fields** of activity or operations.
 - These agencies **may operate with or without direct executive supervision**.
- **Functions:**
 - Creating regulations and guidelines
 - Reviewing and assessing activities
 - Issuing licences
 - Conducting inspections
 - Implementing corrective actions
 - Enforcing standards
- **Examples:**
 - **Securities and Exchange Board of India (SEBI)**
 - **Established:** 1992
 - **Headquarters:** Mumbai
 - **Role:** Regulates securities markets, protects investors, and ensures market integrity.
 - **Structure:** Board with Chairman, whole-time, and part-time members. Appeals handled by Securities Appellate Tribunal (SAT), with further appeals to the Supreme Court.
 - **Functions:** Drafts regulations, conducts inquiries, imposes penalties. Overseas venture capital funds, mutual funds, and addresses fraudulent practices.
 - **Telecom Regulatory Authority of India (TRAI)**
 - **Established:** 1997
 - **Headquarters:** New Delhi

- **Role:** Regulates telecom services, revises tariffs, ensures service quality, and advises the government on telecom policy.
- **Structure:** Chairperson, up to two whole-time and two part-time members.
- **Appellate Authority:** Telecommunications Dispute Settlement and Appellate Tribunal (TDSAT), established in 2000, handles disputes and appeals from TRAI's decisions.
- **Other Regulatory Bodies:** [Reserve Bank of India \(RBI\)](#), [National Bank for Agriculture and Rural Development \(NABARD\)](#), [Small Industries Development Bank of India \(SIDBI\)](#), [Food Safety and Standards Authority of India \(FSSAI\)](#), [Central Drugs Standard Control Organisation \(CDSCO\)](#), and [Competition Commission of India \(CCI\)](#).

Read More: [Securities and Exchange Board of India, Telecom Regulatory Authority of India Repealing Regulations, 2023](#)

Inquiry Wing of Lokpal

Why in News?

Recently, the **Lokpal** has constituted an **inquiry wing** to conduct a preliminary **probe** into **graft-related offences** committed by **public servants**.

What are the Key Highlights of the Inquiry Wing of Lokpal?

- **Legal Backing:** Section 11 of the [Lokpal and Lokayuktas Act, 2013](#), mandates the Lokpal to establish an inquiry wing.
 - This wing is responsible for conducting preliminary inquiries into offences under the [Prevention of Corruption Act, 1988](#), allegedly committed by specified public servants and functionaries.
- **Organisational Structure:** There will be a **Director of Inquiry** under the Lokpal chairperson. The director will be assisted by **three Superintendents of Police (SPs)** SP (general), SP (economic and banking) and SP (cyber).
 - Each SP will be further assisted by inquiry officers and other staff.
- **Preliminary Inquiry Timeline and Reporting:** The Inquiry Wing must finalize its preliminary inquiry and submit a report to the Lokpal within 60 days.

Note:

- This report should include feedback from both the public servant and the designated competent authority for each category of public servant.

Note:

- The Lokpal and Lokayuktas Act, 2013 also has provision to constitute a **prosecution wing** headed by the “**Director of Prosecution**” for the purpose of prosecution of public servants, which is **yet to be constituted**.

What is the Need of the Inquiry Wing of Lokpal?

- **Effective Preliminary Inquiries:** The **Central Vigilance Commission (CVC)** emphasises the need for an independent authority like the Inquiry Wing of the Lokpal which is vital for conducting preliminary inquiries into such allegations.
- **Independence in Anti-Corruption Investigations:** The Lokpal’s Inquiry Wing, being autonomous, can mitigate issues such as **allegation of biases** in politically sensitive cases investigated by **Central Bureau of Investigation (CBI)**.
 - The Inquiry Wing will work in conjunction with other agencies such as the **CVC, CBI**, and state-level **Lokayuktas**.
- **Strengthening Accountability and Public Trust:** It aligns with the recommendations of the **Second Administrative Reforms Commission (ARC)**, which suggested strengthening anti-corruption institutions and enhancing coordination between different investigative and prosecuting agencies.
- **Addressing Global Concerns on Corruption:** **Global corruption indices** such as those by **Transparency International** have consistently highlighted the need for robust, independent institutions to tackle corruption.
 - The Inquiry wing of Lokpal is seen as a response to international calls for reform by enhancing India’s mechanism for transparency and governance.
- **Filling Gaps in the Current Anti-Corruption Framework:** The **2011 Public Accounts Committee (PAC) Report** on corruption highlighted the limitations of existing anti-corruption frameworks in India.
 - The Inquiry Wing of the Lokpal addresses these gaps by providing a **specialised mechanism** for inquiry, separate from administrative and political influence.

What are the Key Facts About Lokpal?

- **About :** It is the first institution of its kind in independent India, created to **combat corruption** among public functionaries.
 - It was established under the **Lokpal and Lokayuktas Act, 2013**, to investigate allegations of corruption against individuals within its scope.
- **Composition of the Lokpal:** The Lokpal consists of a **Chairperson and eight Members**, with at least 50% being Judicial Members.
 - The **Chairperson and Members** are appointed by the President of India and serve for a term of **five years** or until the age of **70 years**, whichever is earlier.
 - The **Chairperson’s salary and allowances** are equivalent to those of the **Chief Justice of India**, while the Members receive benefits similar to those of a **Judge of the Supreme Court**.
- **Organisational Structure:** The Lokpal operates through **two main branches:** the **Administrative Branch** and the **Judicial Branch**.
 - Administrative branch is headed by an officer of the rank of **Secretary to the Government of India**.
 - Judicial branch is headed by a **Judicial Officer** of an appropriate level.
- **Jurisdiction:** The Lokpal has the authority to investigate allegations of corruption against a wide range of public functionaries, including the **Prime Minister, Union Ministers, Members of Parliament, and officials in Groups A, B, C, and D** of the Union Government.
 - It also covers **chairpersons, members, officers, and directors** of any board, corporation, society, trust, or autonomous body established by an Act of Parliament or funded by the Union or State Government.
- **Proceeding of Lokpal:** Upon receiving a complaint, the Lokpal may order a **preliminary inquiry** by its Inquiry Wing or refer the matter to agencies like the **Central Bureau of Investigation (CBI) or CVC**.
 - The CVC sends a report back to the Lokpal for officials in Groups A and B, while it takes action under the **CVC Act, 2003** for Groups C and D.
- **Function of Lokpal:** They perform the function of an “**ombudsman**” and inquire into allegations of corruption against certain public functionaries and for related matters.

Note:

- An ombudsman is an official who **investigates complaints** (usually lodged by private citizens) against **businesses, public entities, or officials**.

What are the Challenges in Functioning of Lokpal?

- **Delay in Establishment of Supporting Infrastructure:** The **Lokpal and Lokayuktas Act, 2013** mandates separate **Inquiry and Prosecution Wings** for the Lokpal. While the Inquiry Wing has been established after a decade, the Prosecution Wing is yet to be constituted.
- **Exclusion Clause:** In terms of provisions of **section 14 of the Lokpal and Lokayuktas Act, 2013** the employees of the State Government are not covered unless they have served in connection with the affairs of the Union.
- **Lack of Clarity in Powers Over the CBI:** While the Lokpal has the authority of superintendence over **CBI** for cases referred by it, there are ongoing **ambiguities** regarding the actual extent of this power, especially in relation to investigations involving high-level public officials.
- **Shortage of Personnel:** The Lokpal currently operates with vacancies in key positions. As of 2024, there are **two vacant member positions—one judicial and one non-judicial**. This shortage hampers its ability to effectively discharge its functions.
- **Dependence on External Agencies:** The Lokpal largely depends on **external agencies** like the CBI or the police for conducting investigations, which undermines its independence.
- **No Comprehensive Oversight Mechanism:** While the Lokpal is empowered to investigate high-level corruption, there is no dedicated oversight mechanism to monitor the functioning of the Lokpal itself.

PM-SHRI Scheme

Why in News?

After Punjab, the Delhi government has decided to sign a **Memorandum of Understanding (MoU)** with the central government to implement the **Pradhan Mantri Schools for Rising India (PM-SHRI)** scheme.

- The Education Ministry had stopped funds under the **Samagra Shiksha Abhiyan (SSA)**, to Delhi, Punjab and West Bengal because of their reluctance to participate in the PM-SHRI scheme.

Samagra Shiksha Abhiyan (SSA)

- **Samagra Shiksha Abhiyan (SSA)** is an integrated scheme for school education extending from **pre-school to class XII** to ensure inclusive and equitable quality education at all levels of school education.
 - It subsumes the 3 Schemes of **Sarva Shiksha Abhiyan (SSA)**, **Rashtriya Madhyamik Shiksha Abhiyan (RMSA)** and **Teacher Education (TE)**.
 - The main emphasis of the Scheme is on improving the quality of school education by focussing on the two T's – **Teacher and Technology**.
 - The Scheme is being implemented as a **Centrally Sponsored Scheme**.
 - The **fund sharing pattern** for the scheme between Centre and States is in the ratio of **90:10 for the North-Eastern States and the Himalayan States** and **60:40 for all other States** and Union Territories with Legislature.

What is the PM-SHRI Scheme?

- **About:**
 - The PM SHRI Scheme is a **centrally sponsored initiative**, launched in 2022, by the Government of India aimed at establishing over **14,500 PM SHRI Schools** by **enhancing existing schools** to showcase the implementation of the **National Education Policy (NEP) 2020**.
- **Objective:**
 - The primary objective is to create an **inclusive and nurturing environment** that **promotes the well-being and safety** of every student, **offering diverse learning experiences** and access to **quality infrastructure and resources**.
- **Funding:**
 - The funding pattern is **60:40 between Centre and State** Governments and UTs with legislature (except J&K).
 - The sharing pattern is **90:10 for North Eastern and Himalayan States** and UT of J&K and 100% central funding for the Union Territories without legislature.
 - States must confirm their participation by signing a **Memorandum of Understanding (MoU)** with the Education Ministry.

Note:

- **Duration of Scheme:**
 - The duration of the scheme is from **2022-23 to 2026-27**, after which it shall be the **responsibility of the states/UTs to continue** to maintain the benchmarks achieved by these schools.
- **Key Features of PM SHRI Schools:**
 - These schools will **focus on holistic student development** of students including the skills of communication, collaboration and critical thinking.
 - Teaching methods will be **experiential, inquiry-driven, and learner-centred**.
 - Schools will have **modern labs, libraries, art rooms, and promote “green” initiatives** like water conservation and waste recycling.
 - They have **best-in-class modern facilities**, including **Smart Classrooms, Computer Labs, Integrated Science Labs, Vocational Labs/Skill Labs, and Atal Tinkering Labs**.
 - Learning outcomes will be prioritized, with **competency-based assessments** that apply knowledge to real-life situations.
- **Schools Eligible to become PM SHRI School:**
 - Schools managed by Central/State/UT Governments and local bodies.
 - All Kendriya Vidyalayas and Navodaya Vidyalayas which are non-project and run from permanent buildings.
- **Monitoring Framework of Schools:**
 - A **School Quality Assessment Framework (SQAF)** will monitor performance, with regular evaluations to ensure high standards.
 - SQAF is a **set of standards and best practices** as paradigms for attaining individual and institutional excellence.
- **Selection of Schools:** It is done through **Challenge Mode** in a 3-stage process:
 - Stage-1 involves signing MoU with the Centre.
 - Stage-2 identifies eligible schools based on **UDISE (Unified District Information System for Education)+** data, and
 - Stage-3 is a **challenge method** where eligible schools compete to fulfill certain criteria.
 - States/UTs/KVS/JNV verify claims and recommend schools, and an Expert committee headed by Secretary makes the final selection.

National Education Policy (NEP) 2020

- The NEP 2020 aims to make India a **global knowledge superpower**, being the **3rd major revamp of the education framework** since independence, following the 1968 and 1986 policies.
- Key Features:
 - Ensures **universal access to education** from **pre-primary to Grade 12**.
 - Guarantees **quality early childhood care** and education for children aged 3-6.
 - Introduces a new **5+3+3+4 curricular structure** aligned with the age groups of 3-8, 8-11, 11-14, and 14-18, covering Foundational (5 years), Preparatory (3 years), Middle (3 years), and Secondary (4 years) stages.
 - **Eliminates rigid divisions** between arts and sciences, curricular and extracurricular activities, and vocational and academic streams.
 - **Promotes multilingualism** and the use of Indian languages.
 - Establishes a **National Assessment Centre, PARAKH**, to assess and improve holistic development.
 - Proposes a **Gender Inclusion Fund and Special Education Zones** to support disadvantaged groups and regions.

“Effective Consultation” in Judicial Appointments

Why in News?

- Recently, the **Supreme Court (SC)** in its ruling emphasised the importance of **seniority and effective consultation** in the appointment of High Court judges.
- In a case involving the Himachal Pradesh High Court (HC) collegium, the Supreme Court ruled that a **‘lack of effective consultation’** in judicial appointments falls within the scope of **judicial review**.
 - It directed a reconsideration of two judicial officers recommended for elevation, highlighting the importance of procedural adherence.

Note:

What is the Background of Case and Supreme Court Ruling?

➤ Background:

- In December 2022, the **Himachal Pradesh HC collegium recommended** two District judges for **elevation to HC Judges**.
- However, the **SC collegium requested reconsideration** on this prompting a further review.
- Later, HC collegium recommended two other judicial officers. The **initially recommended judges challenged this decision in the SC**, arguing their seniority was overlooked.

➤ Supreme Court' Ruling:

- **Maintainability:** The SC assessed whether it had jurisdiction to review appointment recommendations, referencing the **Second and Third Judges Cases**.
 - It ruled that its review focused solely on **whether "effective consultation" occurred** after the SC collegium's resolution, **without evaluating the candidates' "merits" or "suitability."**
- **Proper Procedure:** The SC collegium had returned the recommendations to the HC Chief Justice and requested for reconsideration of names.
 - The **SC examined** whether the HC Chief Justice had **"effective consultation"** with **other judges of the High Court**.
 - SC held that despite the resolution being addressed to the Chief Justice of HC, he **could not independently make recommendations**. Decisions **must involve "collective consultation"** among the Chief Justice and the two senior-most judges of HC.
- This ruling reinforces the **need for adherence to established procedures in judicial appointments** and highlights the importance of seniority, ensuring a fair and transparent process in the elevation of judges.

What is the Procedure for the Appointment of High Court Judges?

- **Procedure:** The appointment of judges to the High Courts follows a procedure based on the **collegium system**, which was established through various landmark cases, such as **Second Judges Case (1993)** and further clarified in the **Third Judges Case (1998)**.

- The collegium system empowers the judiciary to **recommend appointments and transfers of judges** to the Supreme Court and High Courts, with the government having a limited role.
- After the **Third Judges Case (1998)**, the central government and the SC formalised High Court judge appointments through a **Memorandum of Procedure (MoP)**.

➤ Appointment of High Court Judges:

- For High Court appointments, the collegium comprises the **Chief Justice of India (CJI)** and the **2 senior most judges of the Supreme Court**.
- This collegium would **form an opinion on a person** to be recommended for appointment to the High Court, taking into account the **views of the Chief Justice of the concerned High Court**, senior Judges of the High Court, and Judges of the Supreme Court conversant with the affairs of that High Court.

➤ Memorandum of Procedure (MoP) for Appointment of High Court Judge:

- **High Court Collegium Recommendation:** The **Chief Justice of the High Court**, in consultation with the **2 senior most judges of that court**, **recommends names** for appointment.
- **State-Level Review:** The recommendations are sent to the **Chief Minister** and **Governor** for their views, though they do not have the power to reject the recommendation.
- **Central Government Process:** The Governor forwards the recommendations to the **Union Minister of Law and Justice**, who conducts a background check.
- **Supreme Court Collegium Review:** The recommendations are then **sent to the CJI**, who consults the Supreme Court collegium. If approved, the names are sent to the **President** for final approval.
 - The government's **role is limited to delaying appointments or raising concerns**, but it cannot overrule the collegium's recommendations.

What is a Collegium System of Judicial Appointments?

- **About:** It is the system of **appointment and transfer of judges** of the Supreme Court and High Courts that has evolved through judgments of the **Supreme**

Note:

Court (SC), and not by an Act of **Parliament** or by a provision of the Constitution.

➤ **Evolution of the System:**

○ **First Judges Case (1981):** It is also known as *S.P. Gupta v. Union of India (1981)*.

- It stated that the **CJI's** recommendations on judicial appointments and transfers **can be rejected for "cogent (strong and convincing) reasons."**
- The ruling **gave the Executive primacy over the Judiciary** in judicial appointments for the next 12 years.

○ **Second Judges Case (1993):** SC in *Supreme Court Advocates-on-Record Association vs Union of India (1993)* introduced the **Collegium system**, holding that "**consultation**" really meant "**concurrence**".

- The ruling made the SC collegium's recommendations **binding on the central government** and granted the **judiciary the authority to appoint and transfer higher judiciary judges**.
- It also added that **it was not the CJI's individual opinion**, but an **institutional opinion** formed in consultation with the two senior-most judges in the SC.

○ **Third Judges Case (1998):** SC on the President's reference (**Article 143**) expanded the **Collegium to a 5-member body**, comprising the CJI and 4 of his senior-most colleagues.

- It also outlined 2 limited grounds for challenging a recommendation.

➤ **Lack of "effective consultation"** with relevant individuals or institutions.

➤ The **candidate's ineligibility** based on the qualifications specified in **Articles 217** (High Court) and **Article 124** (Supreme Court) of the Constitution.

○ **Head of Collegium System:**

- The **SC collegium is headed by the CJI (Chief Justice of India)** and comprises 4 other senior most judges of the court.
- A **HC collegium is led by its Chief Justice** and 4 other senior most judges of that HC.

➤ Names recommended for appointment by a HC collegium reaches the government only after approval by the CJI and the SC collegium.

- **Judges of the higher judiciary are appointed only through the collegium system** and the government has a role only after names have been decided by the collegium.

Appointment	Consultation
Appointment of Judge of Supreme Court	4 Senior most Judges of the Supreme Court
Appointment of Judge of High Court	2 Senior most Judges of the Supreme Court
Transfer of Judge of High Court	4 Senior most judges of the Supreme Court along with the judges of the two High Courts.

What are the Demerits of the Collegium System?

- **Lack of Transparency:** The system is criticised for its opaqueness, with limited public insight into the appointment process.
- **Nepotism:** There is a **concern that personal connections and relationships (Uncle Judge syndrome)** within the judiciary can influence appointments, potentially leading to favoritism.
- **Inefficiency:** The absence of a permanent commission for judicial appointments can lead to delays and inefficiencies in filling vacancies.

PM Surya Ghar—Muft Bijli Yojana

Why in News?

Recently, the **Ministry of New and Renewable Energy** has come up with draft guidelines for the **central financial assistance** and **payment security mechanism** for the **PM Surya Ghar—Muft Bijli Yojana**.

- The union cabinet approved the **Rs 75,000 crore PM Surya Ghar—Muft Bijli Yojana** to benefit **1 crore families** in February 2024.

What are the Key Highlights of the Draft Guidelines?

- **Models:** The draft guidelines have been issued under the **renewable energy services company (RESCO) model** and **utility led asset (ULA) model** of the rooftop solar scheme—'PM Surya Ghar—Muft Bijli Yojana'.

Note:



- **Renewable Energy Services Company (RESCO) Model:** RESCO develops and owns the rooftop solar system installed on the consumer's rooftop for **at least five years**.
 - The RESCO also makes all the **operational expenditures** required for the maintenance of the plant, as needed.
 - **Customers pay** the RESCO for the **electricity generated** and receive **net metering benefits** on their electricity bill.
 - The RESCO may enter into an **arrangement** with a **distribution company (discom)** for the sale of generated power to the grid under a **power purchase agreement**.
- **Utility led Asset (ULA) Model:** Under it, a **state discom** owns the rooftop solar systems for the project period of at least of **five years**, after which the ownership is transferred to the household.
- **Eligibility for Central Financial Assistance (CFA):**
 - **Grid-connected** rooftop solar systems on residential properties, including **roofs, terraces, balconies, and elevated structures**.
 - Installations under metering mechanisms such as **group net metering** and **virtual net metering**.
 - **Exclusions:** Households with **pre-existing** rooftop solar systems are **not eligible** under the RESCO and ULA models for the PM Surya Ghar scheme.
- **Payment Security Mechanism:** A **Rs 100 crore corpus** will be established to ensure **payment security**, managed by a national program implementation agency.
 - The creation of a payment security corpus ensures **financial stability and security** for the solar projects.

What is PM Surya Ghar-Muft Bijli Yojana?

- **About:** It is a **central scheme** to promote the adoption of **solar rooftop systems** by providing substantial financial subsidies and ensuring ease of installation.
- **Objective:** It aims to provide **free electricity** to **one crore households** in India, who opt to install roof top solar electricity units.
 - The households will be able to get **300 units** of electricity **free every month**.
- **Implementation Agencies:** The scheme will be executed at **two levels**.

- **National Level:** Managed by the **National Programme Implementation Agency (NPIA)**.
- **State Level:** Managed by **State Implementation Agencies (SIAs)**, which are the Distribution Utilities (DISCOMs) or Power/Energy Departments of the respective states or UTs.
- **Role of DISCOMs:** As SIAs, **DISCOMs are responsible for facilitating various measures** to promote rooftop solar adoption, including ensuring the availability of **net metres**, and conducting timely inspections and commissioning of installations.
- **Subsidy Structure:** The scheme provides subsidies to reduce the cost of installing solar rooftop systems. The subsidy is capped at a maximum of **3kW capacity**.
 - **60% subsidy** for solar systems up to 2kW capacity.
 - **40% subsidy** for systems between 2kW to 3kW capacity.
- **Additional Features of the Scheme:**
 - **Model Solar Villages:** A **"Model Solar Village"** will be developed in each district to serve as a demonstration project and promote rooftop solar adoption in rural areas.
 - **Incentives for Local Bodies:** **Urban Local Bodies** and **Panchayati Raj Institutions** will receive incentives to **promote rooftop solar installations** in their respective areas.

What are Expected Benefits of PM Surya Ghar-Muft Bijli Yojana?

- **Economic Benefits:** Households will benefit from **reduced electricity bills** and can **earn additional income** by selling surplus power to Distribution Companies (DISCOMs).
 - A 3 kW system can generate over **300 units of electricity** per month, providing free electricity as per the scheme's objectives.
- **Solar Power Generation:** The scheme is expected to **add 30 GW of solar capacity** through residential rooftop installations, generating **1000 billion units (BUs)** of electricity over the system's **25-year lifetime**.
- **Low Carbon Emission:** It will reduce **CO₂** equivalent emissions by **720 million tonnes**, contributing significantly to environmental sustainability.

Note:

- **Job Creation:** The scheme is anticipated to create around **17 lakh direct jobs** across various sectors such as manufacturing, logistics, supply chain management, sales, installation, operations, and maintenance (O&M).

What are the Challenges in Implementation of the Scheme?

- **Household Reluctance:** A significant challenge is the reluctance of households to adopt rooftop solar systems due to the availability of **free electricity** provided by several states and union territories.
- **Restricted Space Use:** Serving the **1-2 kW segment** is complicated due to **limited terrace space**, uneven terrain, shading, low property ownership, and risks like vandalism or theft of solar panels.
- **Operational Strain on DISCOMs:** The current net metering system is financially **burdensome for DISCOMs**, which already face substantial losses.
 - DISCOMs become **unpaid storage facilities** for homeowners who generate energy during the day but draw from the grid at other times especially night.
- **Storage Integration:** The **lack of a mandate for storage systems** with rooftop solar installations could lead to grid management issues similar to the **“duck curve”**.
 - The Duck Curve refers to a graphical representation of **electricity demand** from the grid on **days** when solar energy production is **high** and demand in the grid is **low**.
- **Quality Assurance Challenges:** Customers often find it difficult to assess the quality of the installed systems, making them **vulnerable to substandard service** and performance.

What are the Other Government Initiatives to Harness Solar Energy?

- [One Sun, One World, One Grid](#)
- [Pradhan Mantri Sahaj Bijli Har Ghar Yojana \(SAUBHAGYA\)](#)
- [National Smart Grid Mission \(NSGM\) and Smart Meter National Programme](#)
- [International Solar Alliance \(ISA\)](#)
- [National Solar Mission](#)
- [Solar Park Scheme](#)
- [Kisan Urja Suraksha evam Utthaan Mahabhiyan \(PM-KUSUM\)](#)

5 Years of Pradhan Mantri Kisan Maandhan Yojana

Why in News?

Recently, the **Pradhan Mantri Kisan Maandhan Yojana (PM-KMY)**, launched on 12th September 2019, has **completed five successful years**.

What is the Pradhan Mantri Kisan Maandhan Yojana (PM-KMY)?

- **About:**
 - **Eligibility:** The scheme has been started to provide social security to all landholding **Small and Marginal Farmers** (farmers whose **land holdings are upto two hectares** of land in the country).
- **Current Status:**
 - As of August 2024, 23.38 lakh farmers have enrolled, with **Bihar and Jharkhand leading in registrations**.
 - **Uttar Pradesh, Chhattisgarh, and Odisha** have over 2.5 lakh, 2 lakh, and 1.5 lakh farmer registrations, respectively.
 - This widespread participation highlights increasing awareness and growing adoption of the scheme among small and marginal farmers, reflecting its importance in **ensuring financial stability for this vulnerable segment**.

Note:

- **Key Benefits under PM-KMY:**
 - **Monthly Contributions:** Contributions range from Rs 55 to Rs 200, based on the subscriber's age at enrollment.
 - **Equal Government Contribution:** The Central Government contributes an equal amount to the pension fund as the subscriber.
 - **Minimum Assured Pension:** Each subscriber is entitled to a guaranteed **minimum pension of Rs 3,000 per month** upon **reaching 60 years of age**.
 - **Family Pension:** Upon the subscriber's demise, the spouse will receive a family **pension of Rs 1,500 per month**, provided they are not already a scheme beneficiary.
 - **PM-KISAN Benefit:** Small and Marginal Farmers (SMFs) may utilise their **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)** benefits for **voluntary contributions**, with necessary authorisation for auto-debit.
- **Leaving the Pension Scheme:**
 - If the subscriber **exits before reaching age sixty**, they will **receive their contribution plus accumulated interest**.
 - If a **subscriber passes away while receiving their pension**, their spouse will be entitled to a **family pension equal to 50% of the amount the subscriber was receiving** i.e. Rs.1500 per month as Family Pension.
 - Upon the **subscriber's and spouse's death**, the remaining corpus shall be **returned to the fund**.
- **Management of Scheme:**
 - The **pension fund** is managed by **Life Insurance Corporation of India (LIC)** with registration facilitated through **Common Service Centres (CSCs)** and State Governments.

Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)

- **About:**
 - Under the scheme, the Centre **transfers an amount of Rs 6,000 per year, in three equal installments**, directly into the bank accounts of **all landholding farmers irrespective of the size of their land holdings**.
 - It was launched in **February 2019**.
- **Funding and Implementation:**
 - It is a **Central Sector Scheme** with 100% funding from the Government of India.
 - It is being implemented by the **Ministry of Agriculture and Farmers Welfare**.
- **Identification of Beneficiaries:**
 - The entire responsibility of **identification of beneficiary farmer families rests with the State / UT Governments**.
- **Objective:**
 - To **supplement the financial needs of the Small and Marginal Farmers** in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income at the end of each crop cycle.
 - To **protect them from falling in the clutches of moneylenders** for meeting such expenses and ensure their continuance in the farming activities.

What are the Key Initiatives of Government Related to Agriculture?

- [Pradhan Mantri Fasal Bima Yojana \(PMFBY\)](#)
- [Soil Health Card Scheme](#)
- [Pradhan Mantri Krishi Sinchai Yojana \(PMKSY\)](#)
- [e-National Agriculture Market \(e-NAM\)](#)
- [Paramparagat Krishi Vikas Yojana \(PKVY\)](#)
- [Digital Agriculture Mission](#)

Note:

- [Unified Farmer Service Platform \(UFSP\)](#)
- [National e-Governance Plan in Agriculture \(NeGP-A\)](#)
- [Mission Organic Value Chain Development for North Eastern Region \(MOVCDNER\)](#)

Enemy Property Act 1968

Why in News?

Recently, a parcel of land in Uttar Pradesh, formerly owned by the family of an ex-Pakistani President, is set to be auctioned under the **Enemy Property Act, 1968**. This development highlights ongoing discussions surrounding the management and **disposal of enemy properties in India**.

What is the Enemy Property Act?

- **Enactment:** The Enemy Property Act was enacted in 1968 following the **India-Pakistan war of 1965** to regulate properties owned by individuals classified as “enemy aliens” or “enemy subjects.”
- **Enemy Property Definition:** It refers to assets left behind by individuals or entities that migrated to enemy countries (Pakistan and China) following conflicts such as the **1965 and 1971 India-Pakistan wars and the 1962 Sino-Indian War**.
 - These properties were initially taken over under the **Defence of India Rules of 1962**, which were enacted under the **Defence of India Act of 1962** and vested with the **Custodian of Enemy Property for India (CEPI)**, a department under the Ministry of Home Affairs,.
 - The **1966 Tashkent Declaration between India and Pakistan** included discussions about the return of such properties, but Pakistan disposed of these properties in 1971.
 - India continued to hold these properties under the **Enemy Property Act of 1968**.
 - The Act authorises the government to assume custody and management of such properties to prevent their use against national interests.
- **Amendment:** The **Enemy Property (Amendment and Validation) Bill, 2016**, was passed by Parliament in

2017, amending the 1968 Act and the **1971 Public Premises (Eviction of Unauthorised Occupants) Act**.

- It broadened the definitions of “**enemy subject**” and “**enemy firm**” to include an **enemy’s legal heir and successor**, whether a citizen of India or a citizen of a non-enemy country, as well as the succeeding firm of an enemy firm, regardless of the nationality of its members or partners.
- The 2017 amendment clarified that enemy property remains under government control even if the original enemy’s status changes.
- **Key Legal Precedents:**
 - **Union of India vs. Raja Mohammad Amir Mohammad Khan Case, 2005:** The Raja of Mahmudabad owned properties in Uttar Pradesh. After Partition, he left for Pakistan in 1957 and acquired Pakistani citizenship, leading to his estate being declared enemy property.
 - His wife and son stayed in India as Indian citizens, and upon the Raja’s death, his son staked a claim to the properties, challenging their classification as enemy property.
 - The **Supreme Court (SC) of India** held that **since the son was an Indian citizen**, he was entitled to reclaim his father’s properties. The properties could not be treated as enemy property because the rightful heir was a citizen of India.
 - **Impact:** The SC verdict led to numerous claims by relatives of those who migrated to Pakistan. In response, the government issued ordinances to prevent courts from ordering the return of enemy properties, **ultimately passing The Enemy Property (Amendment and Validation) Act in 2017**.
 - **Lucknow Nagar Nigam & Others V. Kohli Brothers Colour Lab. Pvt. Ltd. & Others Case, 2024:** The SC ruled that **vesting enemy property in the Custodian is temporary**. The Union of India cannot claim ownership, as there is no transfer of ownership from the original owner to the Custodian, and thus no ownership rights are transferred to the government.

Note:

Public Premises (Eviction of Unauthorised Occupants) Act, 1971

- It is **commonly known as the Public Premises Act** and is designed to address the issue of unauthorised occupation of public property.
- **Definition of Public Premises:** Under Section 2(e) of the Act, “public premises” include:
 - Properties belonging to or leased by the Central Government.
 - Premises under the control of the Secretariat of either House of Parliament.
 - Properties controlled by companies with significant Central Government shareholding, corporations established by Central Acts, universities, and technology institutes.
- **Implications for Occupants and Landlords:**
 - **Unauthorised Occupants:** The Act provides a **stringent mechanism for eviction**, offering limited scope for legal recourse. Courts consistently **uphold the principle that public premises should be available for their intended use** and that unauthorised occupation undermines this purpose.
 - **Landlords (Government Bodies/Public Sector Undertakings):** The Act streamlines the process for reclaiming occupied properties. However, authorities must ensure that the **eviction process is fair and reasonable**, adhering to principles of natural justice. Judicial interpretations emphasise that while estate officers have substantial powers, these must be exercised judiciously.

SC Calls for Uniform Demolition Guidelines

Why in News?

The **Supreme Court (SC) of India** recently announced its intention to issue nationwide guidelines to **regulate property demolitions**, a move spurred by increasing concerns over the **practice of “bulldozer justice.”**

- The SC’s intervention highlights a growing need for standardised due process to prevent arbitrary and potentially unjust demolitions.

Note: Bulldozer justice, a term refers to the practice of demolishing properties, often belonging to those accused of crimes, sometimes without following proper legal procedures.

Why is the Supreme Court Addressing Property Demolitions?

- **Context of the Move:** The SC’s decision comes amid widespread reports of property demolitions being used as a **form of punitive justice (also known as Retributive Justice)**.
 - Local state governments have increasingly resorted to **bulldozers to demolish properties of those accused of crimes**, often bypassing established legal procedures.
- **Supreme Court’s Response:** The SC emphasised that demolishing property solely based on accusations or convictions **violates principles of due process and natural justice**. This practice has raised concerns about its legality and fairness.
 - The SC criticised the practice of demolishing properties without proper legal procedures. They stressed that **even a conviction does not justify demolition without adherence to legal norms**.
 - The SC pointed out that **guidelines are needed to ensure demolitions are carried out fairly and consistently across all states**, especially in cases involving unauthorised constructions.

How will the Guidelines Affect Demolition Practices?

- **Pan-India Guidelines:** The SC plans to establish broad guidelines applicable nationwide to ensure that demolitions are conducted in accordance with legal procedures.
 - These guidelines will cover aspects such as notice periods, opportunities for legal responses, and documentation requirements.
- **Addressing Arbitrary Actions:** The guidelines aim to prevent arbitrary demolitions that could be **motivated by extrajudicial reasons**. By standardising procedures, the SC hopes to curb the misuse of demolition practices.
- **Impact on Legal Framework:** The SC’s proposed guidelines could serve as a crucial **check against the trend of “bulldozer justice.”**

Note:



- They are expected to provide a **uniform legal framework for property demolitions**, ensuring adherence to due process.

What are the Concerns Regarding Demolition Drives?

➤ **Constitutional:**

- **Article 300A of the Indian Constitution:** Guarantees that **no person shall be deprived of their property** except by law. This provision emphasises that property can only be taken away following due process and under valid laws.
- **Article 21 of the Constitution:** Guarantees that **no person shall be deprived of life or personal liberty** except according to a procedure established by law.
 - **Immediate demolitions** without due process **violate the right to a dignified life** and personal liberty.
- **Article 14 (Equality Before Law):** Demolitions that disproportionately affect certain communities (like slum dwellers) can be challenged as discriminatory.
- **Article 19 (Freedom of Speech and Expression):** Punitive demolitions targeting those **expressing dissent or criticism** can be seen as infringing on **free speech rights**.
- **Rule of Law:** A fundamental principle of the Constitution, which mandates that **actions of the state must comply with established legal procedures** and respect for individual rights.
 - The misuse of legal instruments for **suppression and control, rather than justice**, undermines the **rule of law**. The administrative practice of demolishing properties without due process reflects this antithesis, warranting judicial scrutiny and intervention.
- **Geneva Convention and International Obligations:** **Article 87(3) of the Geneva Convention** prohibits **collective punishments**. Such demolitions also violate **Article 51(3) of the Indian Constitution**, which mandates that India must respect international treaties and laws.
 - The Indian Constitution, much like any civilized society, **does not recognize the concept of collective punishment**.
 - Taking **punitive actions against the family members of an accused**, by demolishing their

homes, **does not align with the rule of law**. The state cannot **retaliate by committing another offense** under the guise of justice.

- **Irreversible Damage:** The **emotional and financial toll** of home demolitions is significant. Innocent family members who had no role in the alleged crimes suffer unnecessarily.
- **Targeting Marginalised Communities:** The practice disproportionately impacts minority and marginalized communities, perpetuating social divisions and existing inequalities.
 - Victims of bulldozer justice are **often left without resettlement options or compensation**, exacerbating their suffering and marginalisation.
- **Erosion of Trust:** The practice **undermines public trust in political and legal institutions** by bypassing established legal procedures.

What are the Other Judicial Pronouncements Related to Property Demolitions?

- **Maneka Gandhi vs. Union of India Case, 1978:** The Supreme Court held that the phrase used in Article 21 is **"procedure established by law"** instead of **"due process of law,"** which means the procedures must be free from arbitrariness and irrationality, and should be just, fair, and non-arbitrary.
 - Therefore, demolitions based on suspicion or unfounded allegations contradict the principles of justice, fairness, and non-arbitrariness.
- **Olga Tellis vs. Bombay Municipal Corporation Case, 1985:** The Supreme Court affirmed that Article 21 of the Constitution, which guarantees the **right to life, includes the right to livelihood and shelter**. Thus, demolishing homes without due process infringes on constitutional rights.
- **K.T. Plantation (P) Ltd. V. State of Karnataka Case, 2011:** Supreme Court ruled that the legislation providing for deprivation of property under **Article 300-A** must be just, fair, and reasonable.

What are the Guidelines for Demolitions Under Local Laws?

- **Rajasthan:** Demolitions in Rajasthan are regulated under the Rajasthan Municipalities Act, 2009, and the Rajasthan Forest Act, 1953.

Note:

- **Due Process Requirements:** Requires notice to be served to the alleged offender and provides an opportunity to make a written representation before property confiscation.
- Specifies that **only a Tehsildar can order eviction of trespassers**, ensuring a formal process before property seizure.
- **Madhya Pradesh:** Governed by the Madhya Pradesh Municipalities Act, 1961.
 - **Due Process Requirements:** Allows demolition of buildings constructed without permission but mandates prior notice to the owner to show cause before any demolition action.
- **Uttar Pradesh:** Under the Uttar Pradesh Urban Planning and Development Act, 1973.
 - **Due Process Requirements:** Requires a notice to be issued to the property owner with a period of 15 to 40 days to respond before demolition. The owner has the right to appeal the order.
- **Delhi:** Regulated by the Delhi Municipal Corporation Act, 1957 (DMC Act).
 - **Due Process Requirements:** Allow removal of unauthorized structures without prior notice under certain conditions.
 - It also **mandates a reasonable opportunity for the owner to contest the demolition order** and provides an appeal mechanism before the Appellate Tribunal.
- **Haryana:** Governed by the Haryana Municipal Corporation Act, 1994.
 - **Due Process Requirements:** Similar to the DMC Act but provides a shorter period (three days) for initiating demolition. It also requires a reasonable opportunity for the owner to argue against the order.

Grading Report Highlights ITIs' Performance

Why in News?

The latest grading report for **Industrial Training Institutes (ITIs)** by the **Ministry of Skill Development and Entrepreneurship (MSDE)** has highlighted significant **improvements in their performance**, reflecting a positive trend in vocational education.

- This comes in the wake of the **Union Budget 2024-2025**, which **plans to skill two million youths over the next five years** and upgrade 1,000 ITIs in **hub-and-spoke arrangements**.

What are the Key Highlights of the Latest ITI Grading?

- **Grading Methodology:**
 - The grading uses a scale of 0-10 based on eight parameters, including admission rates, passing results, computer-based examination, and average marks obtained.
- **Key Highlights:**
 - **Improved Grading Scores:** 18.9% of the 15,000 ITIs graded in 2024 scored above 8 on a scale of 0-10, up from 12.4% in 2023. This increase indicates better overall performance among ITIs.
 - 142 ITIs received a grade of 9 and above for the academic year 2024-25.
 - **Top States in ITI Grading:** Among the top 25 ITIs, Uttar Pradesh had the most, followed by Odisha, Haryana, Andhra Pradesh, and Telangana.
 - The Government ITI for Girls (Andhra Pradesh), and the Government Industrial Training Institute (Odisha), scored the highest with a grade of 9.6 for the academic year 2024-25.

What are the Industrial Training Institutes?

- **About:** ITIs are training organisations in India that provide vocational education and training to students.
 - ITIs are under the administrative and financial control of state governments or union territories, with the **Directorate General of Training (DGT)**, under the MSDE, focusing on national-level development and coordination.
 - DGT frames overall policies, norms, and standards for vocational training, ensuring consistency and quality across ITIs.
- **Objectives:** Develop **skilled manpower for industries** and **enhance youth employability** through practical training. Additionally, the focus is on encouraging **self-employment** by equipping students with the skills to start their own businesses.
- **Initiatives to Promote ITIs:**
 - **Craftsmen Training Scheme (CTS):** Offers training in 150 trades, including courses for persons with

Note:

disabilities, through both government and private ITIs.

- **Apprenticeship Training Scheme (ATS):** Provides on-the-job training to enhance practical skills and meet industry needs.
- **Craft Instructor Training Scheme (CITS):** Trains instructors in effective teaching methods and hands-on skills.
- **Advanced Vocational Training Scheme (AVTS):** Offers specialised courses to upgrade the skills of existing workers.
- **Model ITI scheme:** Envisaged the upgradation of 35 selected government ITIs into Model ITIs with financial assistance of up to Rs. 10 crore per ITI for equipment upgradation and civil works. The scheme ended on 31st March 2024.
- **Enhancing Skill Development Infrastructure Scheme:** Funds upgrades for 22 ITIs, infrastructure support for 28 ITIs, and establishment of 34 new ITIs in the North Eastern states.
- **Skills Strengthening for Industrial Value Enhancement (STRIVE).**

Himachal Pradesh's Bill to Raise Women's Minimum Marriage Age to 21

Why in News?

Recently, the Himachal Pradesh (HP) Assembly passed the **Prohibition of Child Marriage (Himachal Pradesh Amendment) Bill, 2024**, which aims to **raise the minimum marriageable age for women from 18 to 21 years**.

- It seeks to amend the **Prohibition of Child Marriage Act, 2006 (PCMA 2006)** to advance gender equality and encourage higher education among women.
- This has sparked significant discussion due to its implications for gender equality and its **potential need for presidential assent.**

What does HP's Bill on Women's Minimum Marriage Age Entail?

- **Redefinition of 'Child':** Section 2(a) of the 2006 Act defines a "child" as a male under 21 years of age or a female under 18 years of age.

- The Bill removes this gender-based distinction, defining a "child" as anyone under 21 years of age, irrespective of gender.
- **Extension of Petition Period:** The Bill also extends the time period for filing a petition to **annul a marriage** (to declare a marriage invalid and legally void).
 - Under Section 3 of the 2006 Act, an individual **who was a minor at the time of marriage can file for annulment within two years** of attaining majority (before turning 20 for women and 23 for men).
 - The Bill extends this period to five years, allowing both women and men to file petitions before they turn 23, in accordance with the **new minimum marriageable age of 21 years.**
- **Precedence Over Other Laws:** A new provision, Section 18A, ensures that the Bill's provisions take precedence over existing laws and cultural practices, establishing a **uniform minimum marriageable age across Himachal Pradesh.**

Why is the Assent of the President Required?

- **Governor's Options:** Under **Article 200 of the Constitution**, after a Bill is passed by a State Legislative Assembly, the Governor can either grant assent, withhold assent, **return the Bill for reconsideration**, or reserve it for the President's consideration.
 - A Bill is reserved for the President's consideration if the Governor believes it could **undermine the authority of the High Court or conflict with central laws.**
- **Inconsistency with Central Law:** The Himachal Pradesh Bill proposes a different minimum marriageable age for women, potentially conflicting with the **central PCMA, 2006.**
- **Constitutional Considerations:** According to the **Seventh Schedule of the Indian Constitution**, marriage and divorce fall under the Entry 5 of this **Concurrent List**, allowing both central and state governments to regulate child marriages.
 - However, **if a state law conflicts with a central law**, it may be deemed "void" unless it receives the President's assent.
 - **Article 254 of the Constitution** establishes the **doctrine of repugnancy**, which deals with the conflict between central and state laws.

Note:

- The Parliament has exclusive powers to make laws for matters in the Union List, while the state legislature has powers for matters in the State List. **Both have powers for matters in the Concurrent List.**
 - Repugnancy arises when two laws are inconsistent, and if a state law is repugnant to a central law on a matter in the Concurrent List, the **central law prevails**, and the **state law is void to the extent of the inconsistency.**
- If the state law is reserved for the President and receives assent, it can prevail within the state, overriding the central law's provisions in that state.

What are the Concerns Regarding the HP's Women's Minimum Marriage Age Bill?

- **Legal Ambiguities:** The proposed legal framework could create inconsistencies, such as **permitting consensual sex from 18** but **restricting marriage until 21**.
- This discrepancy might lead to new issues, such as **complications related to reproductive rights and legal status.**
 - **Juvenile Justice Care and Protection and Integrated Child Protection Scheme** provide support only up to age 18, leaving **no space to support child brides/grooms aged 19-21.**
 - Critics raised concerns that it might also limit legal protections for women who **marry before the age of 21** and could potentially lead to increased policing of affected communities.
- **Opposition from Activists:** Child and women's rights activists argue that increasing the **marriage age might inadvertently strengthen parental control** and hinder the autonomy of young adults.
- They point out that the current law is sometimes misused to penalise daughters who choose partners against their families' wishes.

Why is there a Minimum Age for Marriage?

- **Preventing Child Marriages:** The minimum age of marriage is set to prevent the abuse of minors and **outlaw child marriages.**
- **Legal Standards:**
- **Hindu Marriage Act, 1955:** Sets 18 years as the minimum age for brides and 21 for grooms.

- **Islamic Law:** Considers the marriage of a minor who has attained puberty as valid.
 - **Special Marriage Act, 1954 & Prohibition of Child Marriage Act (PCMA), 2006:** Prescribe 18 years for women and 21 for men. PCMA 2006 also considers marriages below this **age as "voidable"** (something legal, but which can be annulled later by one party of a contract) **only if contested.**
- **Alternative Recommendations:** The **2008 Law Commission Report** and the **National Human Rights Commission's 2018** proposal both recommended setting a **uniform marriage age of 18 for both men and women**, which some argue could be a more equitable solution.
- Various **United Nations** bodies, including the **Committee on the Elimination of Discrimination Against Women**, advocate for a minimum marriage age of 18 years for both men and women, as they should have attained full maturity and capacity to act before assuming the important responsibilities of marriage.

Evolving Marriage Age Laws

Child marriages have deep roots in Indian society, even before **colonisation**. The **Child Marriage Restraint Act of 1929** set the **age limit at 14 for girls and 18 for boys**, but was ineffective due to low age limits.

- The Act was amended in 1978 to increase the **age limit to 18 for girls and 21 for boys**, but still failed to restrain child marriages.
- The **PCMA of 2006** aims to completely remove child marriage from society. The Act makes **child marriage illegal, offers victims' rights protection, and strengthens penalties** for those who aid, abet, promote, or solemnise such weddings. The legal age for marriage remained the same.
- The **Prohibition of Child Marriage (Amendment) Bill, 2021** was introduced in the Lok Sabha in December 2021 and referred to a Standing Committee, which received multiple extensions.
- However, with the dissolution of the 17th Lok Sabha, the Bill has now lapsed. **The Bill aimed to increase the minimum age of marriage for females to 21** years and override any other law, custom, or practice.

Note:

Why is the Government Re-examining the Age of Marriage?

- **Gender Neutrality:** One of the primary reasons for re-examining the marriage age is to ensure **gender parity**. By raising the minimum marriage age for women to 21, the government aims to align it with the existing age requirement for men, **thereby promoting equality**.
- **Health Impacts:** Addressing issues like early pregnancies which affect nutritional levels, **maternal and infant mortality rates (MMR & IMR)**, and overall health.
- **Educational and Economic Impact:** Reducing the **drop-off in education** and livelihood opportunities due to early marriages.
 - The **Jaya Jaitly Committee was established in June 2020** by the Ministry for Women and Child Development to assess the implications of increasing the marriage age.
 - The committee recommended increasing the **marriage age to 21**, **enhancing access to education**, skill training, and sex education.
- **Social and Economic Development:** The re-examination aligns with broader goals of social and economic development. By addressing early marriage, the government aims to **tackle associated issues like poverty and social stigma**, which often pressure families into early marriages.

Does Raising the Marriage Age Address Systemic Inequalities?

- **Superficial Equality:** Raising the marriage age to 21 aligns with the age for men, but this **alone does not guarantee gender equality or empowerment**. In a deeply **patriarchal society**, mere numerical parity does not address the systemic inequalities women face.
 - True empowerment involves **more than equal marriage ages**. It requires addressing broader issues such as **economic opportunities, education access, and societal attitudes towards women**.
 - Gender parity involves more than just age laws; it includes addressing issues like pay gaps, workplace discrimination, and access to healthcare.
- **Unaddressed Problems:** Increasing the marriage age does not tackle the **root causes of early marriages**, such as **dowry pressures, social stigma, and familial control**.

- These issues are driven by societal and economic factors that cannot be resolved by legal changes alone.
- **Health Concerns:** The amendment's proponents **suggest that raising the marriage age** will improve maternal and infant health.
 - However, existing data shows that average marriage ages are already higher in some states (Kerala women get married at 21.4 years on average), and **health outcomes are more closely linked to overall socio-economic conditions**.
- **Cultural Resistance:** In many tribal communities, **traditional norms and practices** may continue to drive early marriages despite legal changes. Addressing cultural resistance and changing mindsets are vital for the policy's success.

23rd Law Commission Set Up

Why in News?

Recently, the **Ministry of Law and Justice** set up the **23rd Law Commission** for a **three-year term**, from 1st September 2024 to 31st August 2027.

What are the Key Details About 23rd Law Commission?

- **Mandate:** In line with the terms of reference of the **22nd Law Commission** established in 2020, the newly constituted panel has been assigned the task of reviewing existing laws in the context of the **Directive Principles of State Policy**.
- Terms of Reference:
 - Examine existing laws in relation to the **Directive Principles of State Policy** and suggest reforms to align with the Directive Principles and Constitutional **Preamble** objectives.
 - Examine the impact of **globalisation** on food security and **unemployment**.
 - Recommend measures for the protection of the interests of the **marginalised**.
 - Review and enhance the **judicial administration** to make it more responsive and efficient.
 - The goals include reducing delays, simplifying High Court rules, and establishing a case flow management framework.

Note:

What is the Law Commission?

- **About:** It is a **non-statutory body** established through a notification from the Government of India's Ministry of Law and Justice to carry out research in the field of law for **legal reforms**.
 - It is established for a **fixed tenure** and works as an **advisory body**.
- **History of the Law Commission:** The first law commission was established in **1834** under the **Charter Act of 1833** under the chairmanship of **Lord Macaulay**.
 - It recommended the codification of the **Indian Penal Code** and the **Criminal Procedure Code**.
 - Subsequently, the **second, third, and fourth** Law Commissions were formed in **1853, 1861, and 1879**, respectively.
 - The **Indian Code of Civil Procedure, 1908, the Indian Contract Act, 1872, the Indian Evidence Act, 1872 and the Transfer of Property Act, 1882** were developed by the first four Law Commissions.
- **Formation of Law Commission After Independence:** The first Law Commission of Independent India established in **1955** with the then Attorney-General of India, **M. C. Setalvad**, as its **Chairman**.
 - Since then **23 Law Commissions** have been appointed, each with a **three-year term**.
- **Functions of the Law Commission:**
 - **Review/Repeal of Obsolete Laws:** Identify and recommend the repeal of obsolete and irrelevant laws.
 - **Law and Poverty:** Examines laws impacting the poor and conducts post-audits of socio-economic legislation.
 - **Propose New Laws:** Proposes new laws to implement Directive Principles and achieve the Preamble's objectives.
 - **Judicial Administration:** Reviews and provides recommendations on law and judicial administration issues referred by the Government.
- **Important Reports:** The Law Commission of India has submitted **289 reports** so far on various issues, some of the important reports are:
 - **Report No. 283 (September, 2023):** Age of Consent Under The Protection of Children From Sexual Offences Act, 2012.

- **Report No. 271 (July 2017):** Human DNA Profiling.
- **Report No. 273 (October 2017):** Implementation of the United Nations Convention against Torture.
- **Report No. 274 (April 2018):** Review of the Contempt of Courts Act, 1971

MoE Defines Literacy under NILP

Why in News?

Recently, the **Ministry of Education (MoE)** has defined 'literacy,' and what it means to achieve 'full literacy,' as part of its renewed focus on adult literacy under the **New India Literacy Programme (NILP)**.

What is the New India Literacy Programme (NILP)?

- **About:**
 - **New India Literacy Programme (NILP)** is a **centrally sponsored initiative** that aligns with the **National Education Policy (NEP) 2020**.
 - It is also known as **ULLAS (Understanding of Lifelong Learning for All in Society) Nav Bharat Saksharta Karyakram** (erstwhile known as **Adult Education**).
- **Vision:**
 - The vision of this scheme is to make India '**Jan Jan Saakshar**' and is based on the spirit of '**Kartavya Bodh**' (Duty) and is being implemented through volunteerism.
- **Objective:**
 - It aims to educate **1 crore non-literate per year aged 15 years and above** through **Online Teaching, Learning and Assessment System (OTLAS)**.
 - OTLAS is a **computer application** embedded in the Web Portal/Mobile App under **ULLAS** developed by the **National Informatics Centre (NIC)**.
 - It was launched for implementation during 5 years from **FYs 2022-23 to 2026-27** with a financial outlay of **Rs.1037.90 crore**.
 - It aims to achieve **UN Sustainable Development (UNSDG) Goal 4.6** (ensuring all youth and adults achieve literacy and numeracy by 2030)

Note:

➤ **Key Components of the Scheme:**

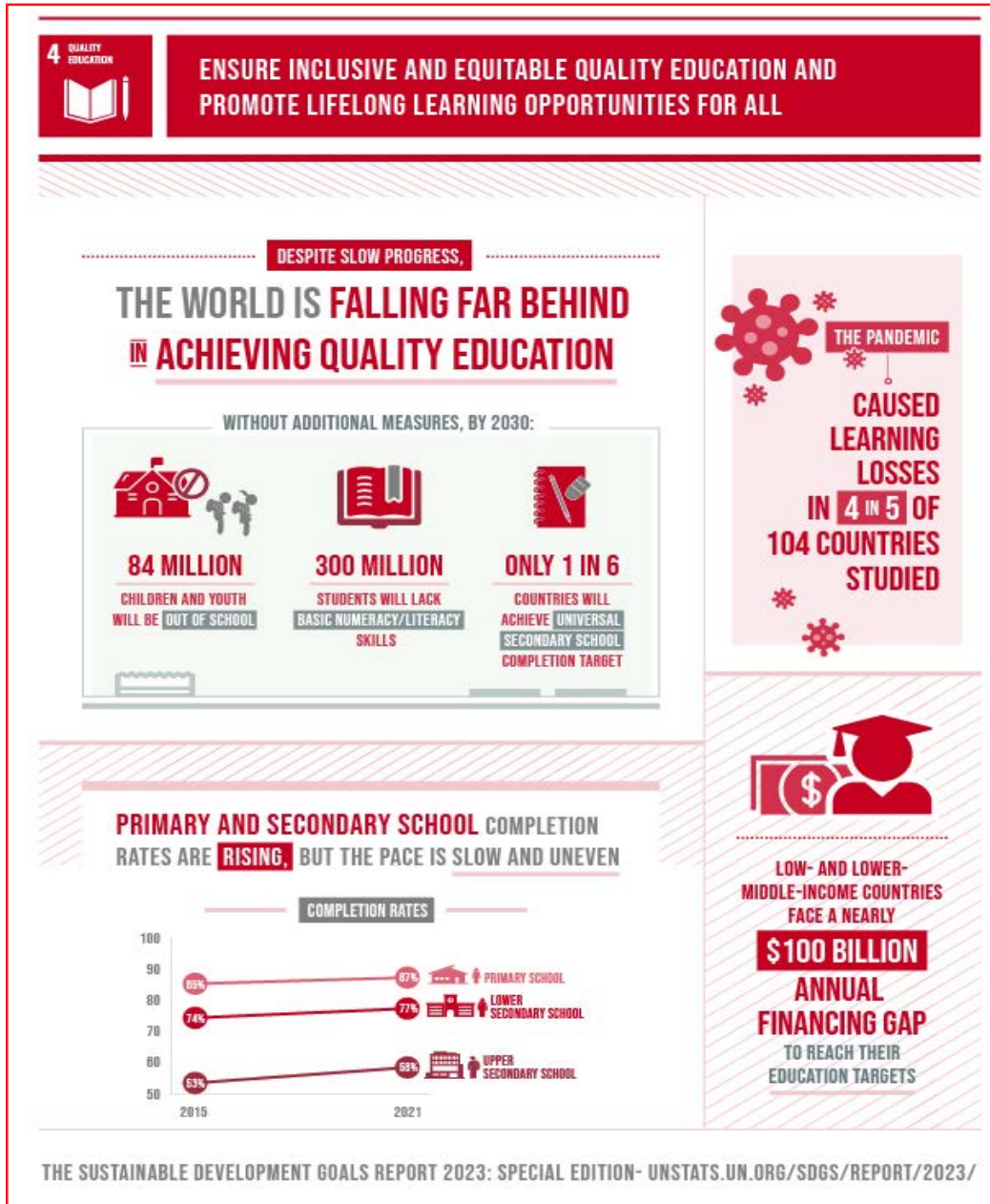
- [Foundational Literacy and Numeracy Assessment Test \(FLNAT\)](#)
- Critical Life Skills
- Vocational Skills Development
- Basic Education
- Continuing Education

➤ **Beneficiary Identification:**

- Beneficiaries are identified through **door-to-door surveys** via a mobile app, and non-literates can also self-register through the app.

➤ **Other Key Aspects:**

- The scheme heavily relies on **volunteerism for teaching and learning**, and volunteers can sign up via the mobile app.
- The NILP is primarily implemented through **online platforms and leverages** technology.
 - Educational materials and resources are made available on the [DIKSHA platform](#) of NCERT, accessible through mobile apps.
- Various modes, including **TV, Radio, and Samajik Chetna Kendra**, are utilised to disseminate foundational literacy and numeracy skills.



Note:

What is the Definition of Literacy under NILP?

- **Definition of Literacy:** According to the MoE, literacy encompasses the **ability to read, write, and perform arithmetic** with comprehension.
 - It also includes **identifying, understanding, interpreting, and creating content**, along with acquiring **critical life skills like digital and financial literacy**.
- **Full Literacy:** A State or Union Territory (UT) is considered fully literate when it achieves a **95% literacy rate**.
- **Criteria for Literacy Certification:** Under NILP, a non-literate person is considered literate if they pass the **FLNAT**.
 - **Foundational Literacy and Numeracy Assessment Test (FLNAT):**
 - This test evaluates **reading, writing, and numeracy skills** to assess foundational literacy.
 - It is conducted in all districts of participating States/UTs at District Institutes of Education and Training (DIETs) and government/aided schools.
 - It aims to **certify non-literate learners** and **promote multilingualism** by offering the test in regional languages, in line with the **NEP 2020**.
 - An individual is declared literate after successfully completing the **FLNAT**.
- In 2023, out of 39,94,563 adult learners who took the FLNAT, 36,17,303 were certified as literate. However, in 2024, only 85.27% were certified as literate in FLNAT.

What are the Challenges Related to Literacy in India?

- **Low Literacy Level:** According to the **2011 Census**, there were **25.76 crore non-literate** individuals in India aged 15 and above (9.08 crore males and 16.68 crore females).
 - Despite the progress made through the **Saakshar Bharat Programme (2009-10 to 2017-18)**, which certified 7.64 crore people as literate, an estimated **18.12 crore adults remain non-literate** in the country, highlighting the need for the NILP.
- **Lower Budget Allocation:** The budget allocation for the New India Literacy Programme (NILP) was reduced from **Rs 157 crore in 2023-24** to **Rs 100 crore** in the revised budget estimate, indicating financial constraints.

- **Gender Disparity:** There is a substantial gender gap in literacy rates, with women often having less access to education. Traditional gender roles, cultural norms, and economic factors contribute to this disparity. In many areas, girls are expected to prioritise household chores over education, leading to lower enrollment and higher dropout rates among female students.
 - This gender gap **hampers the overall development and empowerment** of women in society.
- **Quality of Education:** The quality of education in many Indian schools, especially in rural areas, is often poor. Inadequate teacher training, **outdated curricula**, and **a lack of teaching materials** contribute to low learning outcomes. Even students who complete primary and secondary education often lack basic literacy and numeracy skills, highlighting the gap between access to education and actual learning.
- **High Dropout Rates:** India faces a high dropout rate, particularly in rural areas and among economically disadvantaged groups. Economic pressures force many children to leave school early to contribute to the family income.
 - This is **especially prevalent among girls**, who may also drop out due to early marriage, domestic responsibilities, or concerns about safety and accessibility of schools.
- **Economic Constraints:** Poverty is a major barrier to literacy in India. Many families cannot afford to send their children to school, leading them to prioritise work over education. Even when children are enrolled in school, the costs of uniforms, books, and transportation can be prohibitive.
 - Economic constraints also affect the quality of education, as **underfunded schools struggle to provide adequate resources and support to students**.

What are the Government Initiatives Related to Educational Reforms?

- [National Programme on Technology Enhanced Learning](#)
- [Samagra Shiksha Abhiyan](#)
- [RAGYATA \(Plan- Review- Arrange- Guide- Yak \(talk\)- Assign- Track- Appreciate\)](#)
- [Mid Day Meal Scheme](#)
- [Beti Bachao Beti Padhao](#)
- [PM SHRI Schools](#)

Note:

Open Prisons in India

Why in News?

The **Supreme Court (SC) of India** has recently directed several states and Union Territories (UTs) to provide comprehensive details regarding the **functioning of open prisons** within their jurisdictions.

- This directive comes in the wake of ongoing concerns about **prison congestion**, a matter that has drawn the Court's attention.

Why is the Supreme Court Focused on Open Prisons?

- **Prison Overcrowding:** The SC sees open prisons as a potential solution to address the **chronic issue of overcrowding in traditional prisons**.
 - The concept aims to **reduce the psychological stress** that convicts face when reintegrating into normal life after incarceration.
 - By shifting some prisoners to open-air facilities, the overall population in high-security, closed prisons is reduced. This redistribution of inmates alleviates the **pressure on conventional jails, which often face severe overcrowding**.
- **SC's Role in Ensuring Compliance:** By emphasizing the need for comprehensive information on the functioning of open prisons, the **Supreme Court aims to ensure that states and UTs are actively implementing this model as part of their correctional systems**.
 - The Court's focus also reflects its broader mandate to oversee the protection of prisoners' rights and promote more effective prison management.

What are Open Prisons?

- **About:** Semi-open or open prisons (jails) are correctional facilities designed **without the traditional high walls, barbed wire, and armed guards**. Instead, they rely on inmate self-discipline and community engagement. Unlike traditional closed jails.
 - Open jails, based on the **reformatory theory of justice**, focus on **rehabilitating inmates rather than solely punishing them**. This approach emphasizes transforming prisoners into law-abiding citizens through self-discipline and community integration.

- **Historical Context:** The first open prison in India, **established in 1905 in the Bombay Presidency**, initially used prisoners as unpaid labour for public works.
 - Over time, the concept evolved, emphasising **reformation over deterrence**. **Post-independence, the first open prison annexe was set up in Lucknow in 1949**, leading to a full-fledged facility in 1953, where inmates helped build the Chandraprabha dam.
 - Post-independence, Constitutional Court rulings addressing **inhumane prison conditions** prompted a shift in prison management, **emphasising reform and rehabilitation**.
 - Courts urged states to **ensure fair wages and support reintegration, leading to the rise of open prisons** as a reformatory approach.
- **Features:** Inmates have the freedom to **leave the prison during certain hours** and are expected to support themselves and their families through work.
 - **Rajasthan Open Air Camp Rules, 1972** defines open prisons as "prisons without walls, bars, and locks." **Inmates must return before the second roll call after leaving the prison**.
- **Types of Open Prisons:** The Model Prison Manual classifies open prison institutions in India into three types:
 - **Semi-Open Training Institutions:** Attached to closed prisons with moderate security.
 - **Open Training Institutions/Work Camps:** Focus on public works and vocational training.
 - **Open Colonies:** Allow family members to live with inmates, with opportunities for employment and self-sufficiency.
- **Eligibility:** Every state law defines the eligibility criteria of inmates who can be in an open prison.
 - The principal rule is that an inmate eligible for **open air prison has to be a convict. Good conduct in prison and at least five years** spent in a controlled jail are the rules followed by the Rajasthan open prisons.
 - In West Bengal, a **committee of jail and police officials selects prisoners with a good conduct record** for transfer to open jails.

Note:

- **Legal Framework:** Prisons and prisoners are mentioned in **Entry No. 4 of List II (State List) of the 7th Schedule of the Constitution of India**, making them a State subject.
 - Prisons in India are governed by the **Prisons Act, 1894, and Prisoners Act, 1900** and each state follows their prison rules and manuals.
- **International Perspective:** Open prisons have been part of global correctional systems for centuries. Early examples include **Switzerland's Witzwill (1891) and the UK's New Hall Camp (1936)**.
 - The **UN General Assembly's Nelson Mandela Rules 2015** advocate for open prison systems to aid rehabilitation, emphasising prisoner rights to employment and outside contact.
- **Recommendations:** The Supreme Court, in the **Rama Murthy v. State of Karnataka case 1996**, endorsed the expansion of open jails. Various committees, including the **All India Prison Reforms Committee in 1980**, have recommended the establishment of open prisons across states.
 - The **National Human Rights Commission (NHRC)** advocated the need for open prisons and how they could solve prison overcrowding in several of its annual reports from 1994-95 and 2000-01.

What are the Pros and Cons of Open Prisons?

Category	Pros	Cons
Cost Efficiency	Reduces operational costs drastically compared to closed jails.	Open prisons are lacking modernisation and funds are insufficient .
Overcrowding	Helps in reducing overcrowding in closed jails.	Underutilisation of existing open jails due to poor awareness and acceptability.
Psychological Impact	Improves psychological and mental health of prisoners.	Some prisoners become dependent on the open prison environment , resisting vacating their premises even after completing their sentence.
Staffing	Requires 90% fewer staff compared to closed prisons.	Difficulty in reallocating staff from closed jails to open jails due to staff shortages in closed facilities.
Rehabilitation	Promotes reformatory punishment and successful integration into society.	Lack of modern laws and outdated legislation (The Prisoners Act of 1894) and there are no provisions for under-trial prisoners in many open prisons. As prisons are a State subject, there is a lack of uniformity in rules and guidelines for open prisons .
Recidivism	Lesser chances of recidivism.	Some critics argue that it does not significantly prevent recidivism.
Employment	Encourages prisoners to find employment.	Difficulty in finding local employment due to the remote locations of many open jails.
Socialisation	Increases socialisation and interaction with the outside world.	No open jails for female prisoners in many states.
Reformatory Potential	Reminiscent of Gandhian Ashrams with a focus on moral development and cooperative living.	Selection process for prisoners is sometimes opaque, leading to allegations of bias and corruption .
Community Impact	Benefits all participants, including survivors of crimes who see transformation in perpetrators.	Security and discipline challenges may still be present, and some view the system as too lenient.

Note:



Other Types of Prisons in India

- In India, there are **three levels of prisons: Taluka, district, and central (zonal/range) level**. The jails at these levels are known as **sub-jails, district jails, and central jails**, respectively.
 - There are also other types of jails, such as women's jails, Borstal schools, open jails, and special jails.
- **Central Jail:** The criteria for central jails vary across states, but they typically house prisoners sentenced to long-term imprisonment, often more than two years, including lifers and those who have committed heinous crimes.
 - The focus in these jails is on re-establishing the morality and integrity of the prisoners.
- **District Jail:** District jails are the main jails for those states and union territories where there is no central jail.
- **Sub Jail:** Smaller than district jails, serving at the sub-divisional level with well-organised and better-set-up prisons.
- **Special Jail:** These jails are **maximum security prisons** with special arrangements for prisoners of particular classes, such as those convicted of **terrorism, violent crimes, habitual offenders**, and serious prison discipline violations. They are known for housing violent and aggressive inmates.
- **Women's Jails:** These jails are exclusively for female prisoners, established to ensure their safety and staffed by women. According to the **2022 Prison Statistics from the National Crime Records Bureau (NCRB)**, out of India's **1,330 prisons, only 34 are designated as women's jails**.
 - Due to their limited capacity, many female prisoners are confined in other types of jails.
- **Borstal School:** It is a type of **youth detention centre** and is used exclusively for the **confinement of minors or juveniles**.
 - The primary objective of these schools are to **ensure care, welfare and rehabilitation of young offenders** in an environment which is suitable for children and keep them away from the infecting atmosphere of the prison.

- **Other Jails:** Jails which do not fall under the above mentioned categories then these jails come under the category of other jails. Only three states have other jails.
 - The name of these states is **Karnataka, Kerala and Maharashtra** and each state has one other jail.

Surety Shouldn't Dictate Bail: SC

Why in News?

Recently, the **Supreme Court of India (SC)** addressed the complexities of **bail in a case** where an accused, granted bail in 13 criminal cases, **faced difficulties in securing sufficient sureties**.

- The court recognised the challenges in securing sureties, often relying on close relatives or friends.
- The court emphasised balancing the accused's fundamental rights under Article 21 with ensuring his presence in court. **Article 21 protects the right to life and personal liberty**, applicable to both citizens and non-citizens.

What is Bail, Parole and Furlough?

- **Bail:** Bail is the **conditional/provisional release** of a person held **under legal custody**, by undertaking a **promise to appear in the Court as and when required**.
 - It signifies a **security/collateral deposited** before the Court for release.
 - In ***Supt. and Remembrancer of Legal Affairs v. Amiya Kumar Roy Choudhry (1973)*** case, the Calcutta High Court explained the principle behind giving Bail.
- **Types of Bail:**
 - **Regular Bail:** It is a direction given by the Court to release a person who is **already under arrest** and kept in police custody.
 - For such Bail, a person can file an application under **Section 437 and 439 of the CrPC** (now ***Bharatiya Nagarik Suraksha Sanhita (BNSS)***).
 - **Interim Bail:** Bail granted for a **temporary and short period** by the Court till the application seeking Anticipatory Bail or Regular Bail is pending before a Court.

Note:

- **Anticipatory Bail or Pre-arrest Bail:** It is a legal provision that allows an accused person to **apply for bail before being arrested**.
 - It is granted under **Section 438 of the CrPC (now BNSS)**. It is issued only by the Sessions Court and High Court.
- **Parole:** It is a system of **releasing a prisoner with suspension of the sentence**. The release is **conditional, usually subject to behaviour**, and requires **periodic reporting** to the authorities for a set period of time.
 - **Parole is not a right**, and is given to a prisoner for a **specific reason**, such as a death in the family or a wedding of a blood relative.
 - It **may be denied to a prisoner even when he makes out a sufficient case**, if the competent authority is satisfied that releasing the convict would not be in the interest of society.
- **Furlough:** It is **given in cases of long-term imprisonment**. The period of furlough granted to a prisoner is **treated as remission** of his sentence.
 - Unlike parole, furlough is seen as a **matter of right for a prisoner**, to be **granted periodically** irrespective of any reason, and **merely to enable the prisoner to retain family and social ties**, and to counter the ill-effects of prolonged time spent in prison.
- Both parole and furlough are considered as **reformatory processes**. These provisions were introduced with a view to humanising the prison system. Parole and furlough are covered under the **Prisons Act of 1894**.

75 Years of Supreme Court

Why in News?

Recently, the **President** unveiled the new **flag and insignia** of the **Supreme Court** (established - 26th January 1950) to mark the 75th year of its establishment.

- The flag features the **Ashoka Chakra**, the Supreme Court building and the book of the **Constitution of India**.
- Also, the Prime Minister released a **commemorative postage stamp** celebrating 75 years of the Supreme Court of India.

What are the Key Highlights of the Supreme Court's 75 Years Journey?

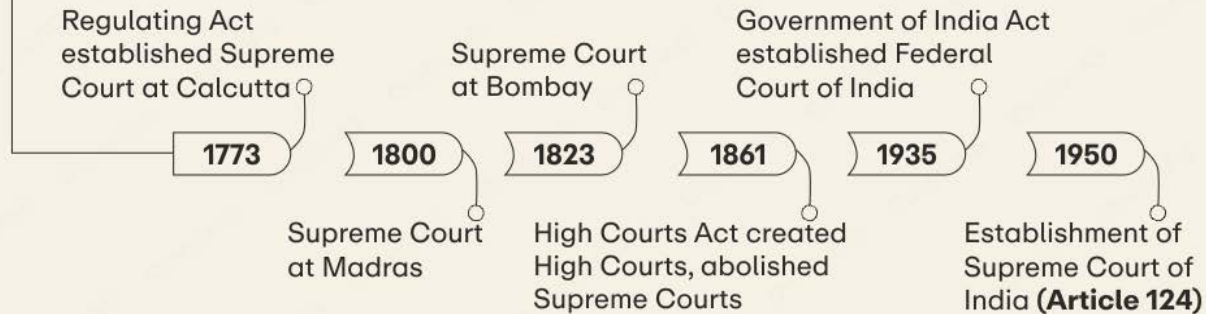
- **Role of Judiciary in Strengthening Democracy:** The judiciary in India has played a crucial role in safeguarding **democracy** and **liberal values** since independence.
 - It has acted as the **guardian of the Constitution**, a protector of the rights of the marginalised, and a **counter-majoritarian** institution of governance.
- **Evolution of Supreme Court (SC):** The journey of the SC and its role in strengthening democracy and protecting personal liberty can be classified into **four phases**.
 - **First Phase (1950- 1967):** It reflected adherence to **constitutional text and judicial restraint**.
 - **Focus on Judicial Review:** In the initial years post-independence, the judiciary maintained a **conservative approach**, limiting itself to interpreting the Constitution as written.
 - It exercised **judicial review** to check legislative actions **without overstepping** its boundaries.
 - **Avoidance of Ideological Influence:** The judiciary avoided being swayed by government ideologies like **socialism** and affirmative action.
 - For example, the **Kameshwar Singh case, 1952**, declared the abolition of **zamindari** as **illegal** but refrained from nullifying constitutional amendments passed by the Parliament.
 - **Respect for Legislative Supremacy:** Cases like the **Champakam Dorairajan case, 1951** show that while the judiciary struck down **reservations** in educational institutions as a violation of the right to equality, it avoided confrontation with **Parliament**, adhering to a positivist interpretation of the Constitution.
 - **Second Phase (1967-1976):** It exhibited **judicial activism** and confrontation with Parliament.
 - **Expansion of Fundamental Rights:** The **Golak Nath judgment, 1967** marked a shift towards a more **expansive interpretation of fundamental rights**, challenging the Parliament's legislative power and reasserting the power of judicial review.

Note:

SUPREME COURT OF INDIA

The Supreme Court of India is the apex judicial body under the Constitution of India.

HISTORY



COMPOSITION

- ④ **Strength:** 34 judges including CJI, appointed by the President
- ④ **Eligibility:** Indian Citizen; High Court judge for 5 years/Advocate for 10 years/Distinguished jurist
- ④ **Tenure:** Until age 65 (unless resigns/impeached by President)
- ④ **Salaries:** Determined by Parliament
- ④ **Impeachment:** By President on Parliament's approval with a special majority

JURISDICTION

Original, Writ, Appellate and Advisory Jurisdictions:

- ④ **Original:** Disputes between Government and States (Article 131); Constitutional Remedies (Article 32)
- ④ **Writ:** Powers to issue writs for enforcement of fundamental rights (Article 139)
- ④ **Appeals From HCs:**
 - ④ Constitutional Matters (Article 132)
 - ④ Civil Matters (Article 133)
 - ④ Criminal Matters (Article 134)
 - ④ Special Leave (Article 136; Discretionary Power)
- ④ **Advisory:** Presidential referrals (Article 143)

OTHER POWERS

Court of Record, Judicial Review, Constitutional Interpretation etc.

- ④ **Articles 129:** Powers to punish for contempt
- ④ **Article 137:** Supreme Court review of its judgments
- ④ **Article 141:** Supreme Court's decisions are binding on all courts
- ④ **Article 142:** Orders and decrees of the Supreme Court are enforceable
- ④ **Article 147:** SC is the **ultimate interpreter of the Constitution**

Acting Chief Justice, Ad Hoc Judge, & Retired Judge of SC

- **Acting Chief Justice:** Appointed by the President as needed
- **Ad Hoc Judge:** Appointed temporarily by the CJI for quorum issues
- **Retired Judge:** Chief Justice can reappoint retired judges temporarily



Note:

- In the ***Golak Nath judgement, 1967*** the Supreme Court ruled that the Parliament cannot take away or abridge any of the Fundamental Rights.
 - **Landmark Rulings on Constitutional Amendments:** The SC's decision in the ***Keshavananda Bharati case, 1973*** introduced the **'basic structure' doctrine**, which limited Parliament's power to amend the Constitution, setting the stage for a confrontation between the judiciary and the executive.
 - **Impact of the Emergency on Judicial Independence:** The national emergency and the supersession of three senior-most judges to appoint **Justice AN Ray** as the **Chief Justice of India** majorly contributed to the judicial surrender in the ***ADM Jabalpur vs. Shivkant Shukla, 1976 case*** which supported the government's act of suspending the right to life under **Article 21** of the fundamental rights.
 - This judgment marked a new low for **Constitutional democracy** in the country besides exposing the institutional vulnerability of the higher judiciary.
 - **Third Phase (1978- 2014):** It displayed judicial activism and expansion of **Public Interest Litigation (PIL)**.
 - **Course Correction Post-Emergency:** After the **Emergency**, the judiciary sought to regain its independence and credibility. The ***Maneka Gandhi case, 1978*** broadened the interpretation of **Article 21**, expanding the scope of the **right to life and personal liberty**.
 - **Rise of Public Interest Litigation (PIL):** The judiciary, through cases like ***Hussainara Khatoon case, 1979*** expanded access to justice by allowing public-spirited individuals to file petitions on behalf of marginalised groups.
 - PILs became a tool for **judicial activism**, addressing issues such as human rights, environmental protection, and governance.
 - **Collegium System:** The judiciary sought to maintain its autonomy by introducing the **collegium system** for the appointment of judges.
 - This system was later challenged by the **National Judicial Appointments Commission Act, 2014** which the judiciary struck down to protect its independence.
 - **Fourth Phase (2014-Present):** It focussed on the **liberal interpretation** of the constitution and considering the Constitution as a living document.
 - **Liberal Interpretation:** The Supreme Court has upheld the **revocation of Article 370** for full integration of J&K to the Indian Union.
 - **Sustaining Judicial Activism:** Despite criticisms, the judiciary has continued to assert its role in protecting constitutional rights. E.g., the opaque **electoral bonds scheme** was held invalid by the Supreme Court.
 - In 2018, the Supreme Court struck down **Section 497** of the Indian Penal Code which criminalised adultery as being violative of **Articles 14**.
- What are the Key Challenges Facing the Supreme Court of India?**
- **Volume of Pending Cases:** At the end of 2023, the Supreme Court was saddled with **80,439 pending cases**. This backlog contributes to substantial **delays in justice delivery** that undermine the efficiency and credibility of the judiciary.
 - **Dominance of Special Leave Petitions (SLPs):** **Special Leave Petitions** (preferred means for civil and criminal appeals) constitute the majority of the Supreme Court's case list, overshadowing other types of cases like **writ petitions** and constitutional challenges.
 - This concentration impacts the court's ability to address a diverse range of issues effectively.
 - **Selective Prioritization of Cases:** The **"pick and choose model"** allows certain cases to be prioritised over others, leading to perceptions of **preferential treatment**. For example, a high-profile bail application was given swift attention compared to other significant cases.
 - **Judicial Evasion:** The backlog has sometimes led to **"judicial evasion,"** where important cases are **avoided or delayed**. Notable examples include delays in addressing the **Aadhaar biometric ID scheme** challenge and the **electoral bonds case**.

Note:

- **Conflict of Interest and Integrity:** Allegations of **corruption** within the judiciary, including the Supreme Court, pose challenges to its **integrity** and public confidence.
 - E.g. Justice **Abhijit Gangopadhyay of Calcutta High Court resigned as the Judge and soon after entered politics** highlighting a possible conflict of interest.
- **Concerns of Appointment of Judges:** The process of judicial appointments, particularly the role of the **Collegium system**, has been a topic of contention.
 - There have been discussions on reforms like the **National Judicial Appointment Commission** to make the appointment process more transparent and accountable.



Note:

Economic Scenario

Highlights

- Government Approved 12 New Industrial Smart Cities
- Changing Food Consumption Patterns in India
- Differential Benefits of Rural Electrification
- Concerns in Asset Reconstruction Companies (ARCs)
- India Plans USD 15 Billion for Chipmaking
- India Becomes Net Importer of Maize
- Central Trade Unions (CTUs) Demand for Labour Welfare
- Evolving Household Savings in India
- Initiatives for Preservation of Indigenous Cattle Breeds
- DICGC Overcharging Commercial Banks
- 7 New Schemes to Boost Farmer Income
- De-hyphenating Rice-Wheat Production
- Strengthening India's Mineral Exploration Sector

Government Approved 12 New Industrial Smart Cities

Why in News?

Recently, the Union Cabinet, under the leadership of **Prime Minister** has approved the establishment of **12 industrial smart cities** across **6 major industrial corridors** in **10 states** under the **National Industrial Corridor Development Programme**.

- The **chosen cities for the industrial projects** are in Uttarakhand, Punjab, Maharashtra, Kerala, Uttar Pradesh, Bihar, Telangana, Andhra Pradesh, and Rajasthan.

What is an Industrial Smart City?

➤ About:

- An **Industrial Smart City** is an urban area that integrates **advanced technologies and data analytics** to enhance the efficiency of **industrial operations** and promote sustainable development.
- These smart industrial cities aim to **attract foreign investment, boost domestic manufacturing, and drive employment**.

➤ Objective:

- The development of new industrial cities in India aims to **strengthen the country's position in global value chains** by providing investors with **ready-to-allot land**.

- It aims to integrate advanced urban concepts like **'plug-and-play'** and **'walk-to-work'**.

- **Plug-and-play** industrial parks offer **ready-to-use infrastructure**, enabling businesses to **start operations immediately**.
- **"Walk-to-work"** is an urban planning strategy that **encourages people to live near their workplaces**, reducing car use and promoting walking

➤ Road Map for Development:

- The cities will be developed under the **National Industrial Corridor Development Programme (NICDP)**.
 - NICDP aims to **develop advanced industrial cities** that can compete with the **world's top manufacturing and investment destinations**.
 - It is designed to foster a vibrant **industrial ecosystem** by facilitating **investments from both large anchor industries and Micro, Small, and Medium Enterprises (MSMEs)**.
- The first industrial corridor, the **Delhi Mumbai Industrial Corridor**, was approved in **2007**.
 - The programme is implemented by the **National Industrial Corridor Development and Implementation Trust (NICDIT)** and the **National Industrial Corridor Development Corporation Limited (NICDC)**.


Note:

- These industrial nodes will **integrate residential and commercial setups**, functioning as **self-sustaining urban environments**.
- The government plans to partner with **Invest India** (India's national Investment Promotion & Facilitation Agency) for marketing these projects.
 - A **Special Purpose Vehicle (SPV)** will also be set up to implement the parks, with a **3-year completion timeline**, depending on state cooperation.

What are the Key Features of the Approved Industrial Smart Cities?

- Aligned with National Economic Goals & PM Gati-Shakti National Master Plan:
 - The development of these smart cities aligns with the government's goal of achieving **USD 2 trillion in exports by 2030**.
 - The projects will be aligned with the **PM's GatiShakti National Master Plan**, incorporating **multi-modal connectivity infrastructure** to enable seamless movement of people, goods, and services.
 - This infrastructure is crucial for improving logistical efficiency and streamlining supply chains nationwide.
 - The cities will be part of a '**necklace of industrial cities**' along the **Golden Quadrilateral**, enhancing connectivity and industrial growth.
- **Significance:**
 - These projects are designed to attract **Foreign Direct Investment (FDI)** from countries like Singapore and Switzerland.
 - These cities are expected to generate around **10 lakh direct jobs** and up to **30 lakh indirect jobs**, with an **investment potential of Rs 1.5 lakh crore**.
 - The cities developed under the **NICDP** will promote sustainability by **integrating ICT-enabled utilities** and **green technologies** to reduce environmental impact, while providing **ready-to-allot land parcels** to attract domestic and international investors, aiming to strengthen India's role in **global value chains**.


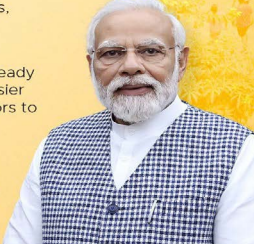
CABINET DECISION
28TH AUGUST, 2024



Grand necklace of Industrial Smart Cities

Salient features

- Industrial nodes to act as catalysts for achieving \$2 trillion in exports by 2030
- Cities to be developed as greenfield smart cities of global standards, built "ahead of demand" on the 'plug-n-play' and 'walk-to-work' concepts
- Projects to feature multi-modal connectivity infrastructure, ensuring seamless movement of people, goods, and services.
- Provision of developed land parcels ready for immediate allotment, making it easier for domestic and international investors to set up manufacturing units in India
- Creation of 1 million direct and up to 3 million indirect jobs being through planned industrialization

2/2

What are the Challenges Associated with Industrial Smart Cities Development?

- **Technological Integration and Infrastructure:** Upgrading outdated urban industrial infrastructure to support **IoT devices**, high-speed internet, and data centres demands significant investment and poses logistical challenges, especially in older cities.
- **Data Privacy and Security:** Ensuring the **protection of vast amounts of data** collected from smart devices against breaches requires robust security protocols and continuous monitoring.
- **Funding and Investment:** Securing substantial **financial investment from public or private sources is challenging**, requiring convincing stakeholders of the long-term benefits and **Return on Investment (ROI)**.
- **Public Acceptance and Awareness:** Addressing citizens' **concerns about privacy, job loss due to automation, and lifestyle changes** through effective communication and education is crucial for the success of industrial smart city projects.
- **Governance and Policy Issues:** Navigating changes in local laws, regulations, and policies is time-consuming and politically sensitive, complicating the implementation of smart city initiatives.

Note:

Changing Food Consumption Patterns in India

Why in News?

In a working paper, published recently by the **Economic Advisory Council to the Prime Minister (EAC-PM)**, India's average household expenditure on food has fallen to less than half for the first time since 1947.

- The paper titled '**Changes in India's Food Consumption and Policy Implications: A Comprehensive Analysis of Household Consumption Expenditure Survey 2022-23 and 2011-12**' analysed changes unfolding in India's food consumption pattern.

Economic Advisory Council to the Prime Minister (EAC-PM)

- It is an **non-constitutional, non-statutory, independent body** constituted to give advice on economic and related issues to the Government of India, specifically to the Prime Minister.
- The council serves to **highlight key economic issues** to the government of India from a neutral viewpoint.
 - It advises the Prime Minister on economic issues like **inflation, microfinance, and industrial output**.
- For administrative, logistic, planning and budgeting purposes, the **NITI Aayog** serves as the **Nodal Agency for the EAC-PM**.
- **Periodic Reports:**
 - Annual Economic Outlook.
 - Review of the Economy.

What are the Key Findings of the Report?

- The share of **total household expenditure on food has declined** substantially in rural and urban areas across all states and UTs.
 - This is the first time in modern India that the average household spends less than half of its total monthly budget on food.
- The share of spending on cereals has significantly dropped in both rural and urban areas, with the decrease being most noticeable among the poorest 20% of households.
 - The sharp drop in **spending on cereals has enabled families to diversify their diets**, leading to more spending on milk, fruits, and eggs, fish, and meat.

- The rise in dietary diversity, especially among the poorest 20%, shows that better infrastructure, transport, and storage have made fresh fruits, eggs, fish, meat, and dairy more accessible and affordable. This is a **positive sign** of inclusive growth in the country over the past decade.
- The average daily intake of micronutrients, such as iron and zinc, has declined from 2011-12 to 2022-23, particularly from cereals.
 - However, improved dietary diversity, especially among the poorest 20%, has been observed due to better access to a variety of foods.
- This trend **likely reflects the Indian government's effective food security policies**, which provide free food grains to millions of beneficiaries, particularly targeting the most vulnerable populations.

What do the Changing Food Consumption Patterns Imply for Various Policies?

- **Implications for Agricultural Policy and Food Security:** The move from cereals to more fruits, dairy, eggs, fish, and meat in diets calls for changes in agricultural policy, including increased support for these foods.
 - This shift also questions the future need for price support mechanisms like the **Minimum Support Price (MSP)**, which mainly focus on cereals.
- **Impact on Welfare Policies:** Welfare programs like the **Pradhan Mantri Garib Kalyan Yojana (PMGKY)**, which offer free food grains, have acted as a fiscal boost.
 - By lowering cereal costs, these programs have allowed households, especially the bottom 50%, to spend more on a varied diet, improving dietary diversity.
- **Nutrition and Micronutrient Policy:** The findings stress the need for promoting dietary diversity in nutrition policy.
 - While fortifying cereals to increase iron intake has had limited success in tackling anaemia, focusing on a varied diet might be more effective. This includes better consumer education and improved access to diverse foods.
- **Targeted Nutritional Interventions:** The large differences in micronutrient intake and dietary diversity across various income groups and states highlight the need for targeted interventions.

Note:

- Even among wealthier groups, many people have insufficient iron intake and dietary variety, increasing their risk of anemia. Nutrition programs need to be customized to meet the specific needs of these groups for better results.

How Shifting Food Expenditure Patterns Affect Nation's Health and Nutrition Strategies?

- Nutritional Balance and Health Outcomes:
 - The increased diversity in diets is likely to improve overall nutritional balance, potentially **addressing deficiencies in micronutrients and contributing to better health outcomes.**
- Policy Adjustments:
 - The change in expenditure patterns necessitates a reevaluation of agricultural and food security policies. **Policymakers may need to support the production and supply chains of diverse foods to meet the new demand and ensure food security.**
- Focus on Dietary Diversity:
 - The shift highlights the **importance of promoting dietary diversity as part of health and nutrition strategies.**
 - There is a need to **continue infrastructure improvements**, such as better storage and transportation, and continue to facilitate access to a variety of nutritious foods.
 - Government agencies should **update dietary guidelines to reflect the evolving food consumption patterns** and emphasize the importance of dietary diversity.

What are the Various Food Security Policies Launched by Government?

- [National Food Security Act \(NFSA\) 2013](#)
- [National Food Security Mission](#)
- [Antyodaya Anna Yojana](#)
- [National Food Processing Mission](#)
- [Minimum Support Prices \(MSP\) for Agricultural products](#)

Differential Benefits of Rural Electrification

Why in News?

Recently, a study based on the 2011 **census** examined the effects of the 'Rajiv Gandhi Grameen Vidyutikaran

Yojana (RGGVY)' programme, which aimed to electrify over 400,000 villages across India.

- RGGVY (launch-2005) was renamed as the **Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY)** in 2014.

What are the Key Highlights of the Study?

- **Disproportionate Benefits to Larger Villages:** Larger villages (around 2,000 people) experienced **substantial economic benefits** from full electrification than smaller villages (300 people).
 - Smaller villages experienced a **"zero return"** on electrification even after **20 years.**
 - Larger villages showed a much **higher return of 33%**, with a **90% chance** that the **economic benefits** would outweigh the electrification costs.
- **Impact on Per-Capita Monthly Expenditure:** In **smaller villages**, **per-capita monthly expenditure** showed minimal change after electrification, indicating limited economic benefits.
 - In contrast, **larger villages** saw a significant increase in per-capita monthly expenditure, which doubled due to full electrification. This increase amounted to approximately **Rs 1,428 (about USD 17) per month.**

What is Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)?

- **About:** It is a **rural electrification** scheme of the **Ministry of Power (MoP)** that aims to provide continuous **24x7 electricity supply** in rural areas, aligning with the government's broader vision of **energy access for all.**
- **Components of the DDUGJY:**
 - To ensure **judicious distribution** of electricity to agricultural and non-agricultural consumers.
 - Metering of distribution **transformers, feeders, and consumers** to reduce electricity losses and improve efficiency.
 - Establishment of **microgrid and off-grid** to ensure electricity reaches **remote and isolated areas.**
- **Nodal Agency:** The **Rural Electrification Corporation Limited (REC)** serves as the **nodal agency** responsible for the implementation of DDUGJY under the overall guidance of the **Ministry of Power.**

What are Other Initiatives for Electrification?

- [Saubhagya Scheme](#)
 - [Integrated Power Development Scheme \(IPDS\)](#)
 - [Ujwal Discom Assurance Yojana \(UDAY\)](#)
 - GARV (Grameen Vidyutikaran) App
- Read More: [Saubhagya Scheme](#)

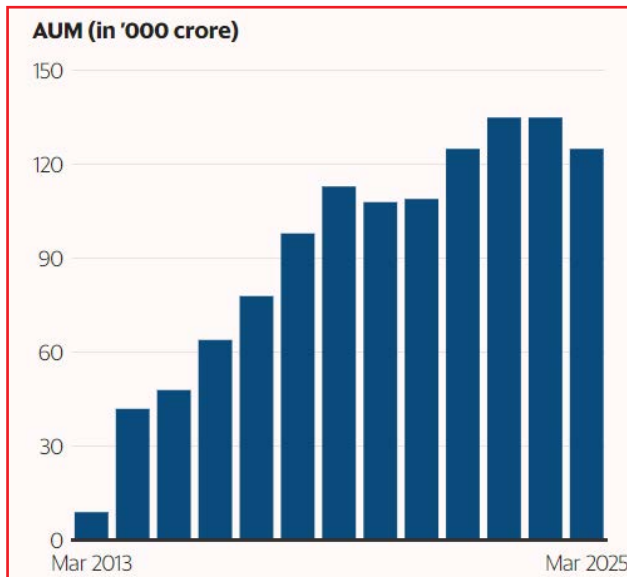
Note:

Concerns in Asset Reconstruction Companies (ARCs)

Why in News?

Recently, **Asset Reconstruction Companies (ARCs)** have experienced a slowdown in growth due to **Non Performing Asset (NPAs)** reaching a **12-year low of 2.8%** in March 2024.

- Ratings agency **Crisil** projects that **assets under management (AUM)** by ARCs will **contract by 7-10%** in 2024-25 after remaining unchanged in 2023-24.



What are the Concerns of Asset Reconstruction Companies (ARCs)?

- **Low Business Potential:** The decrease in new non-performing corporate assets has driven ARCs to focus on smaller, less profitable retail loans.
 - Despite this shift, there has not been a notable increase in **retail NPAs**, which further restricts opportunities for ARCs.
- **Increased Investment Mandate:** In October 2022, the **Reserve Bank of India (RBI)**, directed ARCs to invest at least 15% of bank investments in security receipts or 2.5% of the total security receipts issued, whichever is higher.
- **Net Owned Funds Requirements:** In October 2022, the RBI raised the **minimum net owned funds** requirement

for ARCs from Rs 100 crore to **Rs 300 crore** to ensure that ARCs have robust balance sheets.

- This decision imposed additional constraints on ARCs' capital usage, with many struggling to meet the ₹300 crore requirement, leading to potential mergers or exits.
 - Net-owned funds are similar to net worth and are defined as the difference between what a company owns and owes.
- **Competition from NARCL:** The establishment of the state-owned **National Asset Reconstruction Company Ltd (NARCL)** represents a significant challenge as NARCL offers **security receipts** that are guaranteed by the **government** which are more lucrative to financial institutions.
- **Regulatory Challenges:** The RBI also mandated that ARCs must obtain approval from an **independent advisory committee** for all settlement proposals.
 - This measure has led to **delays** in the approval of settlements, especially in retail loans, as advisory committees are cautious to **avoid future scrutiny**.
 - Increased RBI scrutiny has hit major ARCs, with **Edelweiss ARC** banned from new loans for bypassing regulations through related group loans.
- **Trust Deficit:** A **trust deficit** seems to have emerged between the regulator (RBI) and ARCs.
 - The RBI has expressed concerns that some transactions may be helping defaulting **promoters** to regain control of their assets which amounts to circumventing the provisions of **Section 29A of the Insolvency and Bankruptcy Code (IBC)**.
 - Section 29A of IBC bars defaulting promoters from bidding for their insolvent firms.

Why is RBI upset?

Some ARCs used "innovative ways" to structure transactions to circumvent regulations

Allowed themselves to be a conduit to evergreen distressed assets

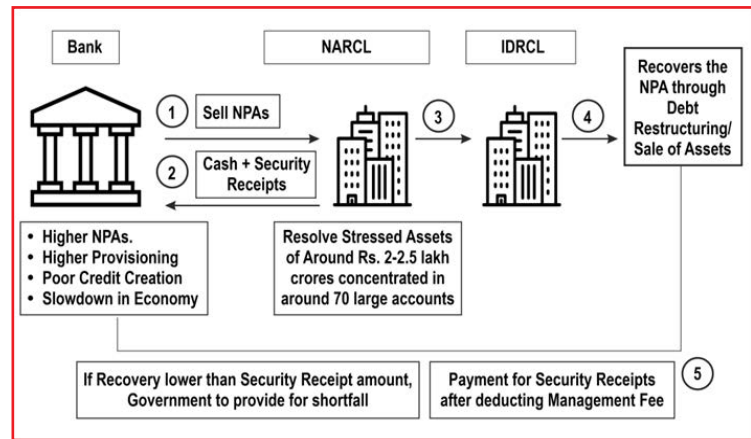
Frequently used one-time settlements with borrowers to resolve stress

ARC route being used by "tainted promoters" to regain control after default

Note:

What are ARCs?

- **About:** An **asset reconstruction company (ARC)** is a special type of financial institution that **buys the debts** of the bank at a mutually agreed value and **attempts to recover the debts or associated securities** by itself.
- **Background of ARCs:** The concept of ARCs was introduced by the **Narsimham Committee – II (1998)**, leading to the establishment of ARCs under the **Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (SARFAESI Act, 2002)**.
 - Presently, **27 ARCs** are registered with the RBI, including notable ones like **NARCL, Edelweiss ARC, and Arcil**.
- **Registration and Regulation of ARCs:** ARC is registered under the **Companies Act, 2013** and must also be registered with the RBI under **section 3 of the SARFAESI Act**.
 - They function as per the **SARFAESI Act** and guidelines issued by the **Reserve Bank of India**.
- **Funding for ARCs:** The required funds to purchase such debts (NPAs) can be raised from **Qualified Buyers (QBs)**. QBs are the sole entities from whom an ARC can raise funds.
 - **QBs include** insurance companies, banks, state financial and industrial development corporations, trustees or ARCs registered under SARFAESI, and asset management companies registered with SEBI.
- **Working of the ARCs:**
 - **Asset Reconstruction:** It involves acquiring a bank's or financial institution's rights in **loans, advances, debentures, bonds, guarantees**, or other credit facilities for recovery purposes, collectively referred to as **'financial assistance'**.
 - ARCs buy distressed loans at a discount for cash or a combination of cash and security receipts, which can be redeemed **within eight years**.
 - **Securitisation:** It involves acquiring financial assets by issuing security receipts to Qualified Buyers.



Non-Performing Asset (NPA)

- **About:** A loan is classified as an **NPA** when the loan payments have not been made for a **minimum period of 90 days**.
 - For **agriculture**, a loan is classified as an NPA if the principal or interest is not paid for **two cropping seasons**.
- **Types of NPAs:** Banks classify NPAs into **three categories** based on how long the asset has been non-performing and the likelihood of recovering the dues.
 - **Sub-standard Assets:** A substandard asset is an asset classified as an NPA for a period **less than or equal to 12 months**.
 - **Doubtful Assets:** A doubtful asset is an asset that has been non-performing for a period **exceeding 12 months**.
 - **Loss Assets:** Assets that are uncollectible and where there is little, or **no hope of recovery** and that need to be fully **written off**.

Recent Changes in ARCs Regulations by RBI

- **Strengthening Governance Structure:** RBI mandated that the chair of the board and at least half the directors in a board meeting must be independent directors to enhance corporate governance at ARCs.
- **Enhancing Transparency:** ARCs must disclose their track record of returns generated for security receipt investors and collaborate with rating agencies for schemes launched over the past eight years to increase transparency.
- **Revised Investment Requirements:** ARCs must invest in security receipts (SRs) at **least 15%** of the transferors' investment or **2.5%** of the total receipts issued, whichever is higher, replacing the previous requirement of 15% of all receipts.

Note:

What Measures Can Be Taken to Address the Challenges Faced by ARCs?

- **Diversification of Asset Portfolios:** ARCs should diversify their asset portfolios by exploring opportunities beyond traditional corporate and retail loans.
 - This could include sectors like **infrastructure, MSMEs, and stressed sectors** that still have potential for recovery.
- **Improving Regulatory Transparency and Collaboration:** ARCs should work closely with the **RBI** and other regulatory bodies to ensure transparent operations and compliance with all guidelines.
 - Establishing a **standard code of conduct** could also help improve trust and accountability.
- **Enhancing Efficiency in Settlements:** To counter delays caused by the mandatory approval from independent advisory committees ARCs can employ technology such as **AI-driven analytics** which could help in faster evaluation, thus minimising delays while maintaining compliance.
- **Adopting Strategic Competition with NARCL:** Private ARCs should focus on **differentiating their services** by offering specialised **solutions tailored to niche markets** or by focusing on faster recovery mechanisms.

India Plans USD 15 Billion for Chipmaking

Why in News?

India is set to **invest USD 15 billion** for the second phase of **chip manufacturing incentive policy (under India Semiconductor Mission)**. It had previously committed USD 10 billion for the first phase of the scheme.

- The government has also approved three assembly and testing plants, referred to as **Assembly, Testing, Marking, and Packaging (ATMP)** and **Outsourced Semiconductor Assembly and Test (OSAT)** in chip parlance, which are less complex than fabrication plants.

What are Semiconductor Chips?

- A Semiconductor Chip is a tiny electronic device made of semiconductor material (usually silicon or

germanium) which serves as the **basic building block** of most electronic circuits.

- These chips can contain billions of **microscopic switches** on a chip smaller than a fingernail.
- The basic component of a semiconductor chip is a **silicon wafer** etched with tiny transistors that control the flow of electricity according to various computational instructions.
 - It performs various functions, such as **processing data**, storing information, or controlling electronic devices.
- **Fabrication Technology:** It refers to the **process of creating semiconductor devices** like chips and transistors and involves several key steps, including **wafer preparation**, photolithography, etching, doping, and packaging.

What is the State of the Semiconductor Chips Industry?

- Globally, **Taiwan and the US** dominate the market of the **Semiconductor Chips Industry**.
 - The **US** has implemented a **semiconductor incentive scheme** with an allocation of approximately USD 50 billion.
 - Similarly, the **European Union** has also **announced an incentive program** of comparable scale to that of the US.
- **India presently has an almost negligible presence** in the semiconductor chip manufacturing sector.
 - Need for Developing India's Chipmaking Industry:
 - **Domestic fabrication plants are critical for bolstering India's economic and strategic interests**, given that chips are used in practically all downstream industries from rockets to power steering in cars to kitchen toasters.
 - The US and China are two of the most pivotal nations in the global technology value chain. Amidst **escalating geopolitical tensions on the global stage, India seeks to capitalise on emerging opportunities** to strengthen its domestic industry through government-funded initiatives.

Note:

SEMICONDUCTORS

Semiconductors are materials having conductivity between conductors and insulators

EXAMPLES

- **Pure Elements:** Silicon and Germanium
- **Compounds:** Gallium Arsenide and Cadmium selenide

SIGNIFICANCE

- Essential to almost all sectors of the economy - **aerospace, automobiles, communications, clean energy, information technology** and **medical devices** etc.

SEMICONDUCTORS AND INDIA

- **India Imports from:** China, Taiwan, USA and Japan
- **Indian Semiconductor Market:** Expected to reach **USD 55 bn** by 2026

SCHEMES

- ↳ **Production-Linked Incentive (PLI) scheme**
- ↳ **Design Linked Incentive (DLI) Scheme**
- ↳ Scheme for Promotion of Manufacturing of Electronic Components and Semi-conductors (SPECES)

OBJECTIVES

- ↳ Encourage semiconductor and display manufacturing in the country.
- ↳ Nurture >20 domestic companies in semiconductor design
Achieve a turnover of > Rs.1500 crore in next 5 years
- ↳ Manufacture electronics components and semiconductors

INDIA'S SEMICONDUCTOR MISSION (ISM)

VISION

- Build a **vibrant semiconductor and display design and innovation ecosystem**

LAUNCHED

- 2021

NODAL MINISTRY

- Ministry of Electronics and Information Technology (MeitY)

TOTAL FINANCIAL OUTLAY

- Rs 76,000 crore

COMPONENTS

- Scheme for setting up of Semiconductor Fabs
- Scheme for setting up of Display Fabs
- Scheme for setting up of Compound Semiconductors/Silicon Photonics/Sensors (including MEMS) Fabs/ Discrete Semiconductors Fab and Semiconductor ATMP/OSAT
- DLI Scheme



Note:

Recent Developments in India Regarding Chipmaking

- India recently signed a chip deal with Singapore, which has expertise in memory chips and logic processors. These are used in many electronic devices and automobiles.
- Tata is collaborating with **Taiwan's Powerchip Semiconductor Manufacturing Corporation (PSMC)** to build **India's first commercial fabrication plant**.
- Earlier in 2023, US-based Company – Micron Technology signed a **Memorandum of Understanding (MoU)** with the state government of Gujarat to establish a **Semiconductor Unit worth Rs 22,500 crore near Ahmedabad**.
 - The project aims to contribute to India's **Self-Reliance** in memory chip manufacturing.

What are the Challenges of India Semiconductor Chipmaking Industry?

- **High Capital Requirements:** Semiconductor fabrication plants, or fabs, require substantial capital investments. The **high cost of setting up and maintaining these facilities** deters domestic players and limits the industry's expansion.
- **Technology and Expertise Deficit:** The semiconductor industry demands cutting-edge technology and a highly skilled workforce. **India currently lags behind in advanced semiconductor research, design, and fabrication capabilities, leading to a dependence on foreign technology.**
- **Inadequate Infrastructure:** The absence of robust infrastructure, including reliable power supply, water resources, and logistics, hampers the establishment and smooth functioning of semiconductor fabs. Additionally, the lack of specialised industrial zones for electronics manufacturing poses a significant hurdle.
- **High Barrier Entry:** The **high barriers to entry in chip manufacturing** are evident, as **technology** for producing cutting-edge chips is still **underdeveloped in India**, and competitors like **Taiwan Semiconductor Manufacturing Company Ltd (TSMC)** hold a significant advantage.

India Becomes Net Importer of Maize

Why in News?

Recently, India's push towards increasing **ethanol production**, particularly **Corn (Maize) -based ethanol**, has transformed the country from **Asia's top maize exporter to a net importer**.

- This significant shift is impacting local industries and altering global maize supply chains.

What are the Key Facts About Maize?

- **About:** Maize (*Zea mays L.*) is a highly versatile crop known as the "queen of cereals" due to its high genetic yield potential.
 - Globally, maize contributes significantly to grain production, with the **USA being the largest producer** and having the highest productivity.
 - In India, maize is the **third most important food crop**, contributing around 9% to the national food basket and adding more than Rs. 100 billion to the agricultural GDP.
 - The crop is used in various sectors including **food, animal feed, and industrial products**.
- **Growing Conditions:** Maize thrives in a range of soils from **loamy sand to clay loam**, with optimal conditions being **well-drained soils with high organic matter and neutral pH**.
 - Avoiding fields with **poor drainage and high salinity** is crucial for maintaining productivity.
 - **Rainfall:** 50-100 cm.
- **Seasonal Cultivation:** In India, Maize can be grown in Kharif, Rabi, and Spring seasons.
 - Kharif maize has lower productivity **due to rainfed conditions and biotic/abiotic stresses**, compared to rabi maize.
- **Global Ranking:** India is the 5th Largest producer (as of December 2023) and 14th Largest exporter of Maize in the world (2022).
 - India's strategic advantages for maize supply include year-round production, a robust seed network, and accessible seaports. However, high domestic demand limits its current export significance.

Note:



- **Major Producing States:** Karnataka, Madhya Pradesh, Bihar, Tamil Nadu, Telangana, Maharashtra, Andhra Pradesh.
- **Initiatives:**
 - [National Food Security Mission \(NFSM\)](#)
 - [Waxy Maize Hybrid](#)
 - All India Coordinated Maize Improvement Project (AICMIP)
 - **India Maize Summit 2022**

Why has India Become a Net Maize Importer?

- **Ethanol Blending Goals:** India's push to increase the ethanol content in gasoline **20% by 2025-26** has driven up the demand for maize-based ethanol.
 - [National Policy on Biofuels \(NPB\) 2018](#) permits blending of maize and grain-based ethanol, boosting ethanol production capacities to meet the rising demand.
- **Shift from Sugarcane to Maize:** Due to a drought, the government **curbed the use of sugarcane for fuel**, prompting **ethanol distilleries to turn to maize** as an alternative.
 - **India produced 34.6 million tonnes (mt) of maize in 2023-24**, with plans to double production to bridge the supply-demand gap.
- **Impact on Domestic Supply:** The shift to using maize for ethanol has caused a shortfall in the poultry and starch industries, leading to the **country's first maize imports in decades**.

How is Excess Import of Maize Impacting Local Industries?

- **Competition for Maize:** Traditionally, **India's poultry and starch industries have been the primary consumers** of the country's maize production. However, with ethanol distilleries entering the market, these industries now face stiff competition for supplies.
- **Soaring Maize Prices:** The increased demand for maize has **pushed local prices far above global benchmarks**, squeezing poultry producers who are heavily dependent on maize for feed.

- **Poultry Industry at Risk:** Rising feed costs, which account for **three-fourths of production expenses**, have driven poultry growers into financial distress.
 - The **All India Poultry Breeders Association** has called for the **removal of import duties** and the approval of **Genetically Modified (GM) maize for feed**.
 - With production costs outpacing the selling price of poultry, the industry is at risk of unsustainable losses. Small-scale Poultry farmers are resorting to alternative feed sources, such as **broken rice and wheat stalk waste, to cut costs**.
- **Incentives for Corn Cultivation:** High maize prices are **encouraging farmers to increase their maize acreage**, with the area under summer-sown maize rising by 7% from 2023.
 - Farmers are benefitting from the current high prices, **but small poultry farmers are forced to scale back production** until prices stabilise with the new season's supply.

What are the Global Implications due to India's Excess Import of Maize?

- **Shift in Trade Dynamics:** India, once Asia's top maize exporter, is now importing maize, primarily from **Myanmar and Ukraine**. This has had a significant impact on global maize prices, which were previously trading at near four-year lows.
- **Increased Prices in Exporting Countries:** The surge in Indian demand has lifted maize prices in Myanmar from USD 220 to around USD 270 per metric ton, encouraging farmers there to plant more corn.
 - However, the rising costs are challenging domestic industries that have traditionally relied on affordable maize supplies.
- **Supply Chain Adjustments:** Traditional buyers of Indian maize, such as Vietnam, Bangladesh, Nepal, and Malaysia, are now turning to **South America and the United States** for their supplies, as Indian maize has become too expensive.
- **Permanent Importer Status:** [NITI Aayog](#) projects that India's ethanol production capacity needs to expand to meet the expected demand of **1,016 crore litres for Ethanol Blended Petrol (EBP) by 2024-25**.

Note:

ETHANOL AS A FUEL

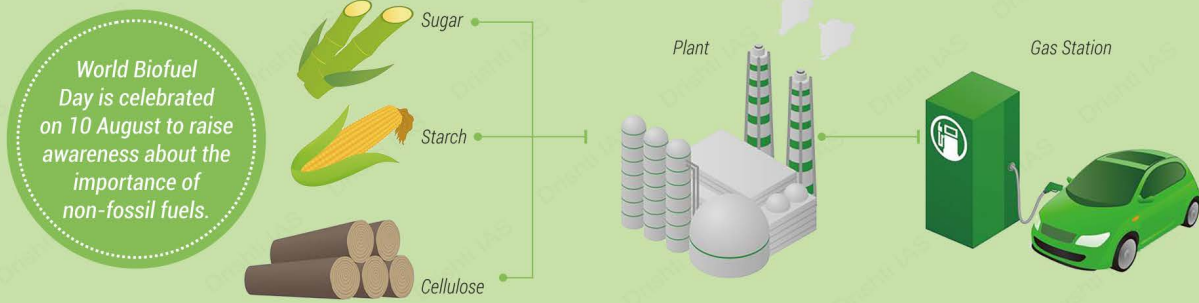


About Ethanol

- One of the principal biofuels
- Also called ethyl alcohol (C₂H₅OH)

Produced

- Naturally by fermentation of sugar (or corn, rice etc)
- By petrochemical processes (ethylene hydration)



Ethanol Blending

Blending ethanol with petrol to burn less fossil fuel while running vehicles.

Blending Target

- 20% ethanol blending in petrol (E20) by 2025
- Currently, ethanol makes up 10% of the petrol used in vehicles.

Significance

- Reduce oil imports
- Equivalent efficiency at a lower cost than petrol
- Burns completely and cleaner than petrol
- Ethanol produced from farm residue to boost farmers' income

Challenges in Success

- High land requirement for sugarcane (+ consequent food prices issue)
- High water requirement of biofuel crops

Related Initiatives

- Roadmap for Ethanol Blending in India (Report by NITI Aayog) (2021)
- E100 Pilot Project (Network for production and distribution of ethanol) (2021)
- Pradhan Mantri JI-VAN Yojana (to boost 2G ethanol projects) (2019)
- The National Policy on Biofuels (2018)

- This will require significant contributions from corn-based ethanol, positioning maize as a critical resource for India's biofuel industry. Experts predict that **India will continue to import corn annually** due to the rapid rise in demand that outpaces domestic production capabilities.

What Steps are Needed to Enhance Maize Production in India?

- Technological Adoption:** India's diverse agro-ecological conditions require tailored technological solutions to

increase maize productivity across different regions and seasons.

- By adopting **biotech traits**, particularly those resistant to pests like **fall armyworm (FAW)**, and increasing the area under **high-yielding single-cross hybrids**, India can potentially double its maize productivity.
 - The US has achieved record maize yields with **100% coverage of biotech traits**, harvesting over **11 tonnes per hectare**, while **India** despite

Note:

having 110 lakh hectares under maize cultivation, India's average yield is only 3.3-3.8 tonnes per hectare, nearly half the global average.

- **Diversification and Intensification:** Maize offers a future-focused solution as **continuous cultivation of rice cultivation depletes water tables** in the Indo-Gangetic plain.
 - Switching to maize in **irrigated areas like Punjab, Haryana, and Western UP** can conserve resources and increase the production, as **maize needs up to 90% less power and 70% less water than rice**.
 - Maize cultivation with long duration single cross **hybrid in less than 1,200 mm rainfall areas** with existing irrigation systems can offer high returns and save government subsidies on power and water.
- **Government Support:** The E20 blending target demands a significant amount of maize 165 lakh tonnes, almost half of India's current production.
 - To meet this demand without diverting existing maize supplies, India needs to increase production **from 346 lakh tonnes to 420-430 lakh tonnes by 2024-25 and further to 640-650 lakh tonnes by 2029-30**.
 - Offering a reasonable **Minimum Support Price (MSP)**, procurement assurances, and transportation concessions can incentivize farmers to boost maize cultivation.
 - Engaging **mega cooperatives in the maize value chain** with assured procurement could spark a **cooperative revolution** similar to that in the **milk (White Revolution)** sector.
- **Poultry and Animal Feed:** Maize can help achieve targets by being used more as a multigrain cereal, supporting the **growing demand for poultry and animal feed**.
 - By producing high-protein **distiller's dried grains with soluble (DDGS)** from ethanol, maize can also meet the **E20 ethanol requirement**, contributing to sustainable food, feed, and fuel security.
 - **DDGS is the major byproduct of ethanol production**, and is a good protein and energy feed for cattle.

Central Trade Unions (CTUs) Demand for Labour Welfare

Why in News?

Recently, the Union government held a **round table meeting** with **Central Trade Unions (CTUs)** and has agreed to hold further discussions on the implementation of the **four Labour Codes**.

- Additionally, the CTUs called for the restoration of the **old pension scheme** requested the convening of the **Indian Labour Conference (ILC)**, and sought increased support for the **informal sector**.

What are the Key Demands of Central Trade Unions (CTUs)?

- **Reinstatement of the Indian Labour Conference (ILC):** The CTUs demand the immediate convening of the **Indian Labour Conference (ILC)**, a tripartite body that has not met since **2015**.
 - They argue that significant changes in labour laws, including the codification of 29 central laws and the passage of **four labour codes** occurred without proper consultation with the **ILC**.
- **Review and Revision of the Four Labour Codes:** CTUs argue that the new Labour Codes favour **large corporations** and **dilute workers' rights**. such as, the new codes make it simpler for companies, especially those with fewer than 300 employees, to **hire and fire** workers without requiring government permission.
 - They demand further discussions on these Codes to address their concerns regarding **job security**, collective bargaining, work hours, **social security provisions**, and compliance requirements.
- **Halt to Privatization and Disinvestment of Public Sector Enterprises:** They oppose the **National Monetisation Pipeline (NMP)** which is seen as a move to transfer national assets to private corporations.
 - The CTUs demand an immediate halt to the **privatization, disinvestment**, and sale of **Public Sector Undertakings (PSUs)** and **Public Sector Enterprises (PSEs)**, such as Indian Railways.
- **Implementation of Fair Minimum Wages:** The CTUs call for a **minimum wage** of at least **Rs 26,000 per month**,

Note:

based on the 15th ILC (1957) recommendation and the Supreme Court's ruling in the *Raptakos case, 1991*.

- They demand regular **wage revisions every five years**, indexed to inflation.
- **Employment Generation and Job Security:** To address growing **unemployment**, the CTUs demand the withdrawal of **fixed-term employment policies**, which create job insecurity particularly in migrant workers.
 - They called for the abolition of the **Agnipath scheme** and adherence to the **International Labour Organization (ILO) Convention No. 1** which mandates an **8-hour workday**.
 - Detailed discussions were held on the **Employment Linked Incentive scheme (ELI) schemes**, which are projected to create two crore jobs in the country.
- **Restoration of Old Pension Scheme (OPS):** The CTUs call for the restoration of the non-contributory **Old Pension Scheme**, which they believe provides better social security to retired workers.
 - They demand a minimum **pension of Rs 9,000 per month** for those covered under the **Employees' Pension Scheme (EPS) 1995** and **Rs 6,000 per month** for those not covered under any scheme.

Registration Provision For Trade Union In India

- **Registration Provisions :** A registered trade union must have **at least 10% or 100 workers**, whichever is less, with a **minimum of 7 members** from the relevant establishment or industry.
- **Exemption from Forming Trade Unions:** There are certain organisations that are exempted from forming trade unions to ensure operational efficiency.
 - Some of the organisations which cannot form trade unions are:
 - **Armed Forces:** Employees of the Indian **Armed Forces (Army, Navy, and Air Force)** are not eligible to form trade unions.
 - This is governed by the **Armed Forces Act, 1950**, which restricts the formation of trade unions within the armed forces.
 - **Police and Law Enforcement Agencies:** The **Police Forces (Restriction of Rights) Act, 1966** prohibits non-gazetted police employees below the rank of Inspector from forming any kind of union or group.

What is the Indian Labour Conference (ILC)?

- ILC is the apex level **tripartite consultative committee** in the **Ministry of Labour & Employment** consisting of
 - **Central Trade Union Organisations:** Representing the **workers**.
 - **Central Organisations of Employers:** Representing the **employers**.
 - **Government Representatives:** Including the **Ministry of Labour & Employment**, State Governments, Union Territories, and relevant **Central Ministries/Departments**.
- It **advises** the Government on the issues concerning the **working class** of the country.
- The first meeting of the **Indian Labour Conference** (then called the **Tripartite National Labour Conference**) was held in **1942**.

What are the Four Labour Codes?

- **Four Labour Codes:** The government has amalgamated **29 labour laws** and codified them into **4 Labour Codes** namely:
 - **Code on Wages, 2019:** It universalised the provisions of **minimum wages** and timely payment for all employees to ensure the **"Right to Sustenance"** for every worker.
 - It mandates that monthly **salaried employees** be paid by the **7th** of the following month, weekly wage workers by the **week's end**, and daily wage earners on the **same day**.
 - **Industrial Relations Code, 2020:** It provides a framework to protect the rights of workers to form **trade unions**, reduce the **friction** between employers, and workers and provide regulations for the settlement of **industrial disputes**.
 - The Code aims to achieve **industrial peace** and harmony by effectively resolving industrial disputes.
 - **Code on Social Security, 2020:** It includes self-employed, home-based, wage, migrant, **unorganised sector** and **gig workers** under social security schemes, such as life and disability insurance, health and **maternity benefits**, and provident fund.

Note:

- **Occupational Safety, Health and Working Conditions Code, 2020:** It emphasises the health, safety, and welfare of workers employed in various sectors like industry, manufacturing, factory etc.
 - This Code is applicable in the following areas:

- Factories having **20 or more workers** where the manufacturing process is being carried on with the **aid of power**.
- Factories having **40 or more workers** where the manufacturing process is being carried on **without the aid of power**.

What Steps are Needed to Fulfill the Demands of CTUs?

- **Inclusive Consultation and Dialogue:** The government should **schedule and conduct** the **ILC** to discuss ongoing and future labour reforms, maintaining a tripartite dialogue among government, employers, and labour unions regarding four labour code implementations.
- **Job and Social Security:** Reconsider **fixed-term employment** policies that contribute to job insecurity and assess the **Agnipath scheme's** impact on job stability.
- **National Policy for Migrant Workers:** The unions demand the formulation of a comprehensive national policy for **migrant workers** should be considered along with the strengthening and effective implementation of the **Interstate Migrant Workmen Act, 1979**.
- **Ratification of ILO Convention:** The unions call for the ratification of the **ILO Convention C177** on home-based workers to ensure their rights to fair wages, social security, and health coverage.

Evolving Household Savings in India

Why in News?

Recently, the **Reserve Bank of India (RBI)** Deputy Governor at the **Financing 3.0 Summit of the Confederation of Indian Industry (CII)** highlighted that **Indian households are rebuilding financial savings post-pandemic**, with significant implications for the broader economy and financial system.

Note: The CII is a **non-government, not-for-profit, industry-led and industry-managed organisation** that works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society.

What is the Current Trend in Household Savings?

- **Recovery of Household Savings:** The net **financial savings of households nearly halved from 2020-21** levels due to the unwinding of pandemic-era careful savings and a **shift to physical assets like housing instead of savings**.
 - Households have now begun to restore their financial savings **driven by rising incomes** after a decline during the **Covid pandemic**.
 - Financial assets have increased from 10.6% of **Gross Domestic Product (GDP)** (2011-17) to 11.5% (2017-23, excluding the pandemic year).
 - Physical savings have increased to **over 12% of GDP in the post-pandemic years** and could continue to rise. However, this is **still lower than the 16% of GDP recorded in 2010-11**.
- **Future Prospects:** As incomes continue to rise, households are expected to rebuild **financial assets to levels similar to the early 2000s**, potentially reaching around 15% of GDP.
- **Impact of Household Savings on the Economy:**
 - **Interest Rates:** Changes in household savings behaviour can influence **monetary policy**, including interest rates. Lower financial savings **might prompt demands for higher interest rates to encourage savings**, and vice versa.
 - **Enhanced Lending Capacity:** As households regain financial strength, they are likely to **become the primary net lenders in the economy**, providing crucial funding for other sectors, especially as corporate borrowing needs rise.
 - **Corporate Sector Borrowing:** The corporate sector has decreased net borrowings. However, anticipated increases in **capital expenditure (capex)** may lead to higher borrowing needs.
 - With a projected rise in corporate borrowing, **households are expected to fill the financing gap**, supporting economic growth and investment.

Note:

- **Economic Stability:** Higher physical savings contribute to **economic stability by diversifying investment portfolios** and potentially **increasing long-term wealth**, though it might also limit liquidity.
- **Implications for External Financing:** As domestic savings rise, the need for **external financing may decrease**, though external debt sustainability will remain a priority.
 - **Changes in external financing composition could** occur as the economy's capacity to absorb foreign resources evolves.
 - The public sector's net dissaving has moderated but remains a net borrower, reflecting the need for continued fiscal policy support.

What are Household Savings?

- **About:** Household (HH) savings in India consist of two parts, net financial savings (NFS) and physical savings.
 - HH NFS is arrived at after **deducting financial liabilities** (known as annual borrowing) from **gross financial savings (GFS)**.
 - **GFS includes seven key areas:** Currencies; deposits (bank and non-bank); insurance; **provident and pension funds (P&PF)**, including the **public provident fund (PPF)**; shares and debentures (S&D); claims on government (small savings); and others.
 - HH physical savings primarily **constitute residential real estate** (accounting for about two-thirds) and machinery and equipment (owned by producers within the HH sector).
- **Household Savings to GDP Ratio:** It is the **sum of its net financial savings to GDP ratio**, physical savings to GDP ratio and gold and ornaments.
- **Trends in Household Savings:** There is a growing trend towards investing in riskier financial assets like **stocks and debentures**.
 - A growing proportion of savings is being allocated to physical assets (real estate) rather than financial instruments.
- **Pandemic and Impact on Household Savings:** During the Covid-19 pandemic, **households saved more due to limited spending opportunities**. This resulted in a high financial savings rate (Rs 23.3 lakh crore in 2020-21).
 - However, as **restrictions eased**, spending surged, reducing savings. Post-pandemic, many households

have shifted their savings from financial assets to physical assets such as real estate and gold. This shift has **reduced net financial savings**.

- Net financial savings of households **fell to Rs 14.2 lakh crore in 2022-23 from Rs 17.1 lakh crore in 2021-22**. This is a notable drop from Rs 23.3 lakh crore in 2020-21.
- Savings in real estate and gold have surged, with physical asset savings reaching Rs 34.8 lakh crore and gold savings hitting Rs 63,397 crore in 2022-23.
- Many households overextended financially to purchase homes, **often with high Equated Monthly Instalment (EMI) payments and reduced liquidity**.
- Increasing expenses for healthcare and education have further squeezed household savings.
- The younger generation prioritises lifestyle and experiences over savings, encouraged by easy **online shopping and borrowing options** led to further decline in Household Savings and contributed to increase in **household debt**.
- **Household Debt:** It is defined as **all liabilities of households** (including non-profit institutions serving households) that require payments of interest or principal by households to the creditors at a fixed date in the future.

What are the Initiatives Related to Household Savings?

- [Sukanya Samridhi Account Scheme](#)
- [Senior Citizens' Savings Scheme](#)
- [Kisan Vikas Patra Scheme](#)
- [Mahila Samman Savings Certificate](#)
- [Employees Provident Fund \(EPF\)](#)
- [National Pension System \(NPS\)](#)
- [Public Provident Fund \(PPF\) and National Savings Certificate \(NSC\)](#)
- **Post Office Monthly Income Scheme (POMIS):** It is a Government of India-backed small savings scheme that allows residents of India above 10 years of age to invest a specific amount monthly.
 - There is a **5-year lock-in period**, and **premature withdrawal is allowed** after one year with a penalty. Income from the scheme is not subject to **Tax Deduction at Source (TDS)**.

Note:

Initiatives for Preservation of Indigenous Cattle Breeds

Why in News?

The **National Institute of Animal Biotechnology (NIAB)** is working on a number of initiatives for preservation and sustainable development of the **livestock sector**.

National Institute of Animal Biotechnology

- **National Institute of Animal Biotechnology (NIAB)** is an autonomous institute under the **Department of Biotechnology**, Ministry of Science and Technology.
- NIAB is aimed to harness **novel and emerging biotechnologies** and take up research in the **cutting edge areas** for improving animal health and productivity.
- Its mission is development of a **sustainable and globally competitive livestock industry** through innovative technology.
- The Institute's focus of research is on **Animal Genetics and Genomics, Transgenic Technology, Reproductive Biotechnology, Infectious Diseases, Bioinformatics and Nutrition Enrichment**.

What are NIAB's Initiatives for Conservation of Indigenous Cattle Breeds?

- **Genetic Sequencing of Indigenous Cattle:** NIAB is using **Next Generation Sequencing (NGS)** data and genotyping technology to establish **molecular signatures** for registered **cattle breeds**.
 - Molecular signatures help in accurately identifying and maintaining the **purity of indigenous cattle breeds** and conserving unique **genetic traits**.
- **Vaccine Development:** NIAB is focussing on developing new-generation **vaccines** against diseases like **brucellosis** to improve animal health and reduce economic losses.
 - Efforts are aligned with the **'BioE3 (Biotechnology for Economy, Environment, and Employment)'** policy to enhance biomanufacturing.
- **Advanced Research and Models:** NIAB is focussing on development of **'bio-scaffolds'** for **tissue repair** and drug delivery using natural and **3D-printed materials**.

- Scaffold is a **base material** in which cells and growth factors are embedded to construct a substitute tissue.

- A bovine lung cell-based 3D model has been created for tuberculosis drug screening and disease modelling.

- **Promoting Sustainable Bio-Economy:** NIAB is working in line with **six thematic areas** set by the Department of Biotechnology (DBT) to promote a **circular bio-based economy**, focusing on alternative proteins and sustainable biomanufacturing.

- **Alternatives to Antibiotics:** NIAB has plans to use **bacteriophages** and their **'lytic' proteins** as antibiotics alternatives to target bacteria such as **staphylococci, E. coli and streptococci**.

- **Bacteriophages**, also known as phages, are viruses that infect and replicate only in **bacterial cells**. Bacteriophages kill bacteria.

- Phage lytic proteins are a clinically advanced class of **enzyme-based antibiotics**, so-called **enzymiotics**.

- **Biomarkers for Nutritional Stress:** A **biomarker** (metabolite and protein) has been developed for early assessment of nutritional stress which may lead to decreased productivity and infertility in cattle population.

- **Community Outreach and Sustainable Farming:** NIAB promotes sustainable livestock farming through community engagement and programs like **MILAN**, which connects with livestock farmers to demonstrate new technologies.

What is Next-Generation Sequencing (NGS)?

- NGS is a new technology used for **DNA and RNA sequencing** and **variant/mutation detection**.
- NGS can sequence hundreds and thousands of genes or **whole genome** in a **short period** of time.
- It involves **DNA fragmentation, massive parallel sequencing, bioinformatics analysis**, and variant/mutation annotation and interpretation.
- NGS is also known as **massively parallel sequencing or deep sequencing**.

Note:

What is BioE3 Policy and Biotechnology in India?

- In **August 2024**, the Union Cabinet approved the proposal '**BioE3 (Biotechnology for Economy, Environment and Employment) Policy**' of the **Department of Biotechnology**.
- BioE3 is designed to enhance **biomanufacturing**, focusing on producing **bio-based products** like **fuel additives** across multiple sectors.
- It supports national objectives like achieving a '**Net Zero**' **carbon economy** and **Mission LiFE (Lifestyle for environment)** through a **circular bioeconomy**.
- It focuses on **R&D** innovation and entrepreneurship, sets up **Biomanufacturing and Bio-AI hubs**, and seeks to expand India's biotechnology workforce.
- **Precision Biotherapeutics** (precision medicine) to improve healthcare outcomes is one of the **core themes** of the BioE3 Policy.

What are Government Schemes for Development of the Livestock Sector?

- [Rashtriya Gokul Mission](#)
 - [Animal Husbandry Infrastructure Development Fund \(AHIDF\)](#)
 - [National Animal Disease Control Programme](#)
 - [National Artificial Insemination Programme](#)
 - [National Livestock Mission](#)
 - [National Kamdhenu Breeding Centre](#)
- Read More: [Long Read Sequencing](#)

DICGC Overcharging Commercial Banks

Why in News?

The [Deposit Insurance and Credit Guarantee Corporation \(DICGC\)](#), a subsidiary of the [Reserve Bank of India \(RBI\)](#) is under scrutiny for its **premium structure**, which appears to **overcharge commercial banks** while disproportionately **benefiting cooperative banks**.

- This raises concerns about the **fairness and efficiency of the current system**, prompting calls for a **reevaluation of premiums based on the risk profiles** of different banking institutions.

How are the Commercial Banks Being Overcharged for Deposit Insurance?

- **Disproportionate Premium Burden:** DICGC collects **94% of premiums from commercial banks**, which account for **1.3% of net claims**, while **cooperative banks contribute 6% of premiums and claim 98.7% of net claims**.
 - Since 1962, commercial banks have filed gross claims of Rs 295.85 crore, with net claims totaling Rs 138.31 crore.
 - In contrast, **cooperative banks have filed gross claims** of Rs 14,735.25 crore, with net claims amounting to Rs 10,133 crore.
 - This means that **well-managed commercial banks are effectively subsidising the higher risks associated with cooperative banks**, which require a significant portion of claims.
- **Implications for Overcharging Commercial Banks:**
 - **High Compliance Costs:** The **uniform premium rate** of 12 paise per Rs 100 insured, **regardless of risk profile**, imposes **high compliance costs on commercial banks** which can affect their **operational efficiency and profitability**, ultimately impacting their ability to lend and serve customers effectively.
 - **Inequitable Risk Assessment:** Commercial banks, which generally have **lower risk profiles**, are penalised **through higher premiums**, undermining the principles of risk evaluation that should guide insurance pricing.
 - **Impact on Financial Stability:** The high premiums can lead to **reduced financial stability** for commercial banks, as they may need to pass on these costs to depositors and borrowers.
 - This could **result in higher interest rates for loans** and **lower returns for depositors**, affecting the overall banking ecosystem.
 - **Encouragement of Poor Management Practices:** By requiring **commercial banks to bear the costs associated with cooperative bank failures**, the current structure may **inadvertently encourage poor management practices** within cooperative banks, as the **consequences of defaults are shifted to more stable institutions**.

Note:

What are the Key Facts About DICGC?

- **About:**
 - It came into existence in **1978** after the merger of **Deposit Insurance Corporation (DIC)** and **Credit Guarantee Corporation of India Ltd. (CGCI)** after passing of the **Deposit Insurance and Credit Guarantee Corporation Act, 1961** by the Parliament.
 - It serves as a **deposit insurance and credit guarantee for banks** in India.
 - It is a **fully owned subsidiary** of and is governed by the **Reserve Bank of India (RBI)**.
- **Funds Managed by DICGC:**
 - **Deposit Insurance Fund:** Provides **insurance to bank depositors** in case the **bank fails financially and has no money to pay its depositors** and has to go in for liquidation.
 - It is funded by premiums from banks.
 - **Credit Guarantee Fund:** It is the guarantee that often provides for a specific remedy to the creditor if his debtor does not return his debt.
 - **General Fund:** It covers DICGC's **operational expenses**, funded by **surplus from its operations**.

What is the Deposit Insurance Scheme of DICGC?

- **Limit for Deposit Insurance:** Currently, a depositor has a claim to a **maximum of Rs 5 lakh per account** as insurance cover. This amount is termed '**deposit insurance**'. The cover of Rs 5 lakh per depositor is provided by the **DICGC**.
 - Depositors having **more than Rs 5 lakh in their account have no legal recourse** to recover funds in case a **bank collapses**.
 - Premium for the insurance has been raised from 10 paise for every Rs 100 deposit, to **12 paise** and a limit of 15 paise has been imposed.
 - The premium for this insurance is **paid by banks to the DICGC**, and not be passed on to depositors.
 - The Insured banks pay **advance insurance premiums** to the corporation semi-annually within 2 months from the beginning of each financial half year, based on their deposits as at the end of previous half year.

- **Coverage:**
 - **Banks**, including **regional rural banks**, **local area banks**, **foreign banks** with branches in India, and **cooperative banks**, are mandated to take deposit insurance cover with the DICGC.
 - **Primary cooperative societies** are **not insured** by the DICGC.
- **Types of Deposits Covered:** DICGC insures **all bank deposits**, such as saving, fixed, current, recurring, etc. **except** the following types of deposits.
 - Deposits of foreign Governments.
 - Deposits of Central/State Governments.
 - Inter-bank deposits.
 - Deposits of the **State Land Development Banks** with the State co-operative banks.
 - Any amount due on account of any deposit received outside India.
 - Any amount which has been specifically exempted by the corporation with the previous approval of the **RBI**.
- **Need of Deposit Insurance:**
 - Troubles for depositors in getting immediate access to their funds in banks in recent cases such as **Punjab & Maharashtra Co-operative (PMC) Bank**, **Yes Bank** and **Lakshmi Vilas Bank** had put spotlight on the subject of deposit insurance.

Why is there Need to Reevaluate Deposit Insurance Premiums by DICGC?

- **Proposal:** There has been a proposal to **reduce the premium for commercial banks** from 12 paise to 3 paise per Rs 100 insured, which could relieve these banks of approximately Rs 20,000 crore in FY26.
 - Conversely, **premiums for cooperative banks** could remain **at 12 paise or increase** to 15 paise.
- **Benefits:**
 - **Risk-Based Premiums:** Aligning **premiums with the risk profiles of banks** sends a clear message that **insurance costs should reflect actual risk**.
 - **Economic Efficiency:** Lower **compliance costs for commercial banks** can enhance **their operational efficiency**, **benefiting depositors** and borrowers.
 - **Encouraging Good Management:** By **not penalising well-managed banks**, the system promotes better banking practices.

Note:

7 New Schemes to Boost Farmer Income

Why in News?

Recently, the **Union Cabinet** announced seven new schemes with a total outlay of nearly Rs 14,000 crore for the **agriculture and allied sectors**.

- The schemes are centered on advancing **research and education**, enhancing **climate resilience**, optimising natural resource management, **promoting digitization within the agriculture sector**, and development of **livestock** and **horticulture**.

- The overarching objective of these initiatives is to equip farmers with the necessary capabilities for adopting climate-resilient agricultural practices.

AGRI PUSH			
₹2,817 cr for digital agriculture mission to use tech for improving farmers' lives	₹3,979 cr for crop science for food and nutritional security	₹2,291 cr for strengthening agricultural education, management and social sciences	
₹1,702 cr for sustainable livestock health and production	₹860 cr for sustainable development of horticulture	₹1,202 cr for strengthening Krishi Vigyan Kendras	₹1,115 cr for natural resource management

Digital Agriculture Mission

Using Technology for Improving Farmers' Lives

Two foundational pillars

Agri Stack


- 🚗 Farmers registry
- 🚗 Village land maps registry
- 🚗 Crop Sown Registry

Krishi Decision Support System

- 🚗 Geospatial data
- 🚗 Drought/flood monitoring
- 🚗 Weather/satellite data
- 🚗 Groundwater/water availability data
- 🚗 Modelling for crop yield and insurance

Mission's Total Outlay

Rs. 2,817 Crores



What are the Key Schemes?

- **The Digital Agriculture Mission (DAM):** The **Digital Agriculture Mission** has two foundation pillars which are **Agri Stack** and **Krishi Decision Support System**.
 - **Agri Stack:** It is a **collection of technologies and digital databases** that focuses on **farmers and the agricultural sector**.
 - AgriStack will create a **unified platform** for farmers to provide them end to end services across the agriculture food value chain.
 - **Under the programme**, each farmer will have a **unique digital identification (farmers' ID)** that contains personal details, information about the land they farm, and production and financial details.
 - Each ID will be linked to the individual's **digital national ID Aadhaar**.

AGRISTACK: KISAN KI PEHCHAAN



- **Krishi Decision Support System:** It aims to integrate and store in a standardised form **relevant geospatial and non-geospatial data**, such as remote-sensing data, weather data, soil data, crop signature

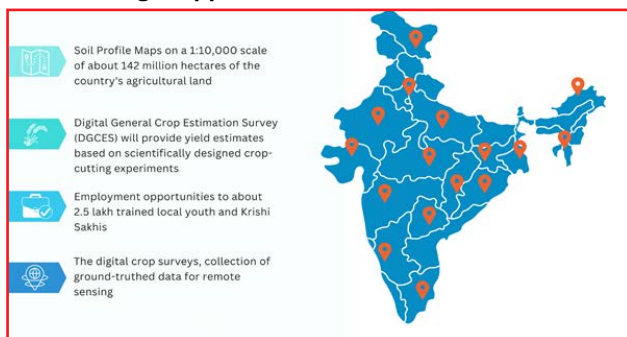
Note:

library, reservoir data, groundwater data, and data pertaining to Government schemes.



➤ Soil Profile Mapping:

- Under this, detailed **soil profile maps on a 1:10,000 scale** for approximately 142 million hectares of agricultural land have been envisaged, with 29 million hectares of **soil profile inventory already being mapped**.



- **The Crop Science for Food and Nutritional Security programmes:** These are anchored on **six key pillars**, advancing **research and education**, managing plant genetic resources, **genetic enhancement of food and fodder crops**, improvement of pulse and oilseed crops, research on **entomology, microbiology, and pollination**, as well as the **advancement of commercial crop varieties**.

- **Strengthening Agricultural Education, Management and Social Sciences:** It aimed at bolstering agricultural education, management, and social sciences under the aegis of the **Indian Council of Agricultural Research (ICAR)**.

- This initiative seeks to modernise agricultural research and education in alignment with **the New Education Policy 2020**.
- The programme will emphasise on cutting-edge technologies such as **Digital DPI, AI, big data, and remote sensing**. Additionally, it will encompass components focused on **natural farming and climate resilience**.

- **Sustainable livestock health and production:** This scheme was dedicated to **enhancing sustainable livestock health and production**, with the objective of **augmenting farmers' income from livestock and dairy sectors**.

- This scheme will prioritise areas such as animal health management, **veterinary education**, advancements in **dairy production** and technology, **animal genetic resource management** and improvement, as well as animal nutrition and the **development of small ruminants**.

- **Sustainable development of Horticulture:** The Cabinet has also approved a significant scheme focused on the **sustainable development of horticulture**.

- This initiative aims to **enhance farmers' income through the cultivation of horticultural crops**.
- The programme encompasses a wide range of crops, including **tropical, subtropical, and temperate horticultural varieties; root, tuber, bulbous, and arid crops; as well as vegetables, floriculture, mushroom crops, plantation crops, spices, medicinal, and aromatic plants**.

- **Krishi Vigyan Kendras (KVKs):** **Krishi Vigyan Kendras** aim to bolster agricultural **extension services** and sustainable resource management practices nationwide.

- KVK aims to **evaluate location specific technology modules** in agriculture and allied enterprises through technology assessment, refinement and demonstration.

- **Natural Resource Management (NRM):** NRM scheme was also **approved by the cabinet**.

- It is the **sustainable use of natural resources** to meet current needs while ensuring future generations can meet their own needs.

What is the Role of Technology in the Agricultural Sector of India?

- **Crop Preparation Stage:**

- **Soil Health Monitoring:** Advanced soil sensors and remote sensing technologies enable **precise monitoring of soil health and nutrient levels**. This allows for **targeted application of fertilizers and soil amendments**, enhancing soil fertility and sustainable agricultural practices.
- **Agricultural Machinery:** Mechanisation has been a critical driver of productivity in the agrarian sector. The **adoption of modern agricultural machinery**

Note:

has significantly **increased operational efficiency and reduced labour costs**, contributing to higher agricultural output.

- **Biotechnology:** It has facilitated the **development of genetically modified crops** that are resistant to pests and diseases, drought-tolerant, and yield-enhanced. These innovations have led to **increased agricultural productivity, reduced crop losses**, and improved crop quality.

➤ **Cultivation Stage:**

- **Role of Drones:** Drones, or **Unmanned Aerial Vehicles (UAVs)**, have emerged as transformative tools in agriculture. They are extensively used for **aerial seeding, precision pesticide spraying, and remote data collection**, facilitating research and enhancing farm management practices.
- **Role of Agri-Tech Startups:** Agri-tech startups play a pivotal role in driving agrarian change by introducing **innovative technologies and modern agricultural practices**.
 - They contribute to advancements in farming techniques, improve efficiency, and enhance access to finance, thus revolutionizing the agriculture sector.
- **Climate Adaptation Technologies:** Innovations such as climate-resilient crop varieties and weather **prediction tools help farmers adapt to changing climatic conditions**.
 - These technologies support the development of strategies for mitigating climate-related risks and ensuring crop survival.
- **Renewable Energy Integration:** The adoption of renewable energy technologies, such as **solar-powered irrigation systems and biogas production**, supports sustainable agricultural practices. T
 - These innovations reduce dependence on fossil fuels and lower energy costs for farmers.

➤ **Harvesting Stage and Food Processing:**

- **Supply Chain Optimization:** Technology-driven solutions, such as **blockchain and IoT (Internet of Things)**, **enhance the transparency and efficiency of agricultural supply chains**. These technologies

improve traceability, reduce transaction costs, and ensure timely delivery of products.

- **Precision Livestock Farming:** Technologies such as wearable sensors and monitoring systems for livestock provide **real-time data on animal health, behavior, and productivity**. This allows for improved management of livestock and enhanced animal welfare.
- **Food Processing and Preservation:** Technological **advancements in food processing and preservation** have ensured that food remains safe and has an **extended shelf life**.
 - These techniques have minimised food wastage and improved the efficiency of food storage and transportation, enhancing overall food security.
- **Market Access:** Technology has revolutionized market access for farmers, enabling them to reach both local and international markets.
 - The rise of the **internet and e-commerce platforms** has **empowered farmers to connect directly with buyers**, bypassing intermediaries and increasing profitability.
- **Digital Platforms for Knowledge Sharing:** Digital platforms and online forums facilitate the **dissemination of agricultural knowledge and best practices**.
 - Farmers can access **expert advice, educational resources, and peer support**, leading to better-informed agricultural decisions.

What are the Key Initiatives Related to Agriculture?

- [Pradhan Mantri Fasal Bima Yojana \(PMFBY\)](#)
- [Soil Health Card Scheme](#)
- [Pradhan Mantri Krishi Sinchai Yojana \(PMKSY\)](#)
- [e-National Agriculture Market \(e-NAM\)](#)
- [Paramparagat Krishi Vikas Yojana \(PKVY\)](#)
- [Digital Agriculture Mission](#)
- [Unified Farmer Service Platform \(UFSP\)](#)
- [National e-Governance Plan in Agriculture \(NeGP-A\)](#)
- [Mission Organic Value Chain Development for North Eastern Region \(MOVCNDR\)](#)

Note:

De-hyphenating Rice-Wheat Production

Why in News?

Recently, the policymakers called for **de-hyphenating** the production of **rice and wheat** due to changes in their production and consumption.

- In **rice**, there is a **surplus production** while **wheat** is suffering from a **deficit in production** and increased consumption.

What is the Need to De-hyphenate Rice and Wheat Production?

➤ Contrasting Surplus Situations:

- **Rice Surplus:** India exported **21.21 million tonnes (mt)** of cereal grain (basmati plus non-basmati) in 2021-22, 22.35 mt in 2022-23, and 16.36 mt in 2023-24.
 - Despite the record shipments, **rice stocks** in government godowns were at an all-time high at **45.48 mt** in August 2024.
- **Wheat Deficit:** Wheat exports plunged from a peak of 7.24 mt in 2021-22 to 4.69 mt in 2022-23 and **0.19 mt** in 2023-24.
 - The government banned wheat exports in May 2022, yet **wheat stocks** were at a **low** of 26.81 mt in **August 2024**, one of the lowest in recent years.

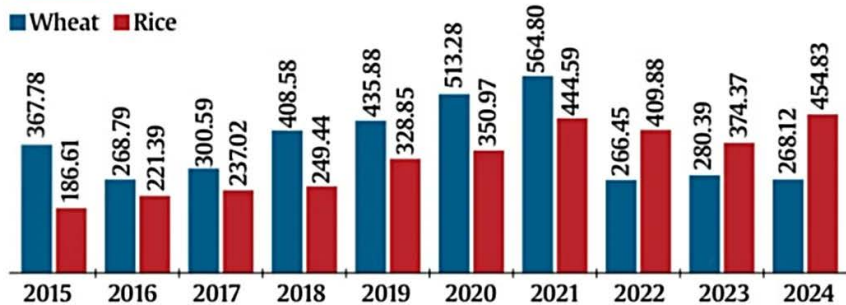
➤ Differences in Production Areas:

- **Rice:** Rice is grown both during the **kharif (southwest monsoon)** and **rabi (winter-spring)** seasons. In West Bengal, farmers grow three crops of rice called **aus (summer)**, **aman (rainy season)** and **boro (winter)**.
 - Moreover, it is cultivated across a **wide geography** with **16 states contributing over 2 mt each**. E.g., North (Punjab, UP) to South (Tamil Nadu, Telangana), Central (MP, Chhattisgarh), East (West Bengal, Assam), and West (Maharashtra, Gujarat).

- **Wheat:** Wheat has a **single rabi cropping season** and only **eight states** producing 2 mt-plus each mainly in the northern, central, and western regions.
 - The top **four states** (UP, MP, Punjab, Haryana) account for **76% of output**.
- **Production Volatility:** Wheat is more volatile due to its **seasonal and geographical constraints**, making it more susceptible to production fluctuations.
- **Limiting Factor:**
 - **Rice: Water availability** is the main limiting factor which can be **easily managed**. E.g. States like Telangana have increased rice output significantly due to improved **irrigation** and **minimum support price (MSP)** assurances.
 - **Wheat:** Wheat has become vulnerable to winters getting shorter, warmer and less predictable due to **climate change** adapting to which is long and difficult.
 - Temperature increase in **March (grain formation)**, and higher temperatures in **November-December (sowing period)** have reduced yields in recent years, leading to lower government stocks.
- **Diverging Consumption Trends:**
 - **Wheat: Official household expenditure survey data 2022-23** shows **per capita monthly wheat consumption** at **3.9 kg** in rural and **3.6 kg** in urban India, translating to roughly **65 mt** for a population of 1,425 million.
 - A significant portion of wheat is consumed in **processed forms (maida, sooji/rava)** for bakery items, convenience foods, and sweets, which is expected to rise with urbanisation and higher incomes.
 - Today, most **South Indians** consume **wheat** daily in **at least one meal**, while **rice** has **not** become as **popular** in the North as wheat has in the South.
 - **Rice: No similar upward trend in rice consumption.** Innovations in rice-based convenience foods are limited, suggesting stable **consumption patterns**.

Note:

CHART STOCK IN CENTRAL POOL ON AUGUST 1 (Lakh tonnes)



*Includes rice equivalent of un-milled paddy lying with Food Corporation of India and State agencies.
Source: Department of Food and Public Distribution.

TABLE 2 TOP WHEAT PRODUCERS (million tonnes), All-India: 109.73*

Uttar Pradesh	34.46	Rajasthan	10.69
Madhya Pradesh	20.96	Bihar	6.32
Punjab	16.85	Gujarat	3.42
Haryana	11.37	Maharashtra	2.07

Note: Figures are average of five years from 2019-20 to 2023-24; *Includes production from other states.
Source: Department of Agriculture and Farmers' Welfare.

TABLE 1 TOP RICE PRODUCERS

(million tonnes),

West Bengal	15.95
Uttar Pradesh	15.64
Punjab	12.97
Telangana	12.51
Odisha	8.97
Chhattisgarh	8.29
Andhra Pradesh	7.92
Bihar	7.13
Tamil Nadu	6.92
Madhya Pradesh	5.59
Assam	5.03
Haryana	4.99
Karnataka	3.96
Maharashtra	3.53
Jharkhand	2.41
Gujarat	2.22

All-India: 129.03*

What are the Government Initiatives to Support Rice and Wheat Cultivation?

- [National Food Security Mission](#)
- [Hybrid Rice Seed Production](#)
- [Rashtriya Krishi Vikas Yojana](#)
- [Minimum Support Price](#)
- [Agriculture Infrastructure Fund \(AIF\)](#)
- [Pradhan Mantri Krishi Sinchai Yojana \(PMKSY\)](#)
- Crop Diversification Programme (CDP)

What are Key Facts about Rice and Wheat?

Basis	Rice	Wheat
Temperature	Between 22-32°C with high humidity	Between 10-15°C (Sowing time) and 21-26°C (Ripening & Harvesting) with bright sunlight
Rainfall	Around 150-300 cm	Around 75-100 cm
Soil Type	Deep clayey and loamy soil	Well-drained fertile loamy and clayey
Top Producers	West Bengal >Uttar Pradesh >Punjab	Uttar Pradesh >Madhya Pradesh >Punjab
India's Global Position	Second largest producer of rice in the world after China	Second largest producer of wheat in the world after China

What are the Recommendations to Reduce Rice-Wheat Consumption Divergence?

- **Wheat Policy:** Rising consumption and geography/climate-imposed production challenges can make India an importer of wheat in the short term.
 - For the long term, the government needs to focus on boosting per-acre yields and breeding [climate-smart varieties](#).

Note:

- **Rice Policy:** Domestic consumption of rice is not keeping pace with production.
 - The government should **lift the ban on exports** of white non-basmati rice.
 - The **20% duty** on parboiled non-basmati and the USD 950/tonne floor price on basmati shipments should be removed.
 - Need for innovation in rice-based food processing to increase its consumption such as **breakfast cereals, soup, baby food, packaged mixes**, etc.
- **De-hyphenation of Policy:** The time has come to **de-hyphenate rice-wheat**, and not conflate one with the other. The two cereals are different in terms of issues faced, both current and for the future.

Strengthening India's Mineral Exploration Sector

Why in News?

The Ministry of Mines thoroughly reviewed the performance of the **National Mineral Exploration Trust (NMET)** at the 6th Governing Body meeting of NMET.

- During the meeting, the **Annual Report of NMET** for 2023-24 was officially released.

What are the Key Developments?

- **Enhancement of NGDR Portal:** The upgradation of the **National Geoscientific Data Repository (NGDR) portal** was initiated.
 - It aims to facilitate seamless collaboration for **geoscientific data sharing** for optimising it for the nation's benefit.
- **Reimbursement Schemes:** A revised scheme for **Partial Reimbursement of Exploration Expenses**, raising the reimbursement ceiling for **Composite License (CL)** holders has been approved.
- **Support for Left Wing Extremism-Affected Districts and Start-ups:** NMET is actively promoting mineral exploration in districts affected by **Left Wing Extremism** by providing 1.25 times the **standard Schedule of Charges** for fieldwork.
- **Incentives for Critical and Strategic Mineral Exploration:** A 25% exploration incentive for agencies

engaged in discovering **Critical and Strategic Minerals** has been announced.

- **Encouraging State-Level Mineral Exploration:** States were advised to establish State Mineral Exploration Trusts, similar to NMET, to encourage exploration of minor minerals.
- **Focus on Start-ups and Emerging Technologies:** The importance of establishing start-ups in the mining sector, especially in areas like **AI**, automation, and drone technology was emphasised.

Rules to Boost Offshore Mineral Exploration and Production

- **About:** The Centre has introduced the **Offshore Areas Mineral Trust Rules, 2024**. It is the first-ever framework to oversee mineral exploration and production in India's offshore areas.
 - Offshore area means the territorial waters, continental shelf, exclusive economic zone and other maritime zones of India under the **Territorial Waters, Continental Shelf and Exclusive Economic Zone**.
 - Under the new rules, **holders of production leases of offshore mines are required to contribute to the Offshore Areas Mineral Trust** by paying **10%** of their **royalty** payments to the government.
 - This sum will be deposited in the **Public Account of India**, providing a financial backbone for the Trust's initiatives.
- **Offshore Areas Mineral Trust:** It is a **fund** established to manage and allocate **revenues** generated from **offshore mineral resources**, ensuring sustainable development and promoting mineral exploration and production.

National Mineral Exploration Trust (NMET)

- **Establishment:** NMET was established under Section 9C of the **Mines and Minerals (Development and Regulation) Act, 1957**, with the aim to accelerate mineral exploration in India.
- **Objectives:** The **Trust supports regional and detailed mineral exploration** in the country and other activities approved by the Governing Body. **Its objectives include:**
 - **Special studies and projects to identify, explore, extract**, beneficiate and refine deep seated and concealed mineral deposits

Note:

- Studies on mineral **development, sustainable mining, mineral extraction and metallurgy adopting advanced scientific and technological practices.**
- **Governance Structure:** NMET has a two-tier structure.
- **Governing Body:** The apex body is the Governing Body, **chaired by the Hon'ble Minister of Mines.** It holds the overall control of the Trust.

- **Executive Committee:** The Executive Committee, **chaired by the Secretary, Ministry of Mines,** administers and manages its activities.
- **Funding Mechanism:** The NMET Fund is established to **implement the Trust's activities.**
- The Fund receives contributions from holders of mining leases or prospecting **license-cum-mining leases, amounting to 2% of the royalty paid as per the MMDR Act, 1957.**



Note:

International Relations

Highlights

- India's Push for Reducing Cross-Border Remittance Costs at WTO
- International Cooperation on Green Hydrogen
- Turkmenistan-Afghanistan-Pakistan-India Pipeline
- First Legally Binding International AI Treaty
- India's Hesitancy in Joining RCEP
- India-UAE Relations
- Prime Minister's Visits to Singapore and Brunei Darussalam
- Forum on China-Africa Cooperation Summit
- Deepening India-Brazil Relations
- OPEC+ Plans Production Cuts

India's Push for Reducing Cross-Border Remittance Costs at WTO

Why in News?

India's proposal to **lower the costs of cross-border remittances**, presented at the **World Trade Organization's (WTO) 13th Ministerial Conference 2024** held earlier in **Abu Dhabi**, has gained backing from countries like Morocco and Vietnam.

- However, it has also faced resistance from some WTO members, highlighting the ongoing challenges in achieving global consensus on this critical issue.

Costs of Cross-border Remittances

- Remittance costs are the **fees charged when someone sends money internationally**. Fees can vary based on the amount sent and the method used.
- The current global average remittance cost is 6.25% of the amount sent, according to the **International Monetary Fund (IMF)**.
 - For smaller remittances under USD 200, remittance fees typically average 10% and can be as high as 15-20% of the principal in smaller migration corridors.

Note:

- In 2016, the **G20** integrated the **UN's 2030 Agenda by adopting the target of reducing remittance costs to below 3%** (as outlined in SDG 10.c.) and eliminating remittance corridors with costs above 5% by 2030.
- In 2021, reaffirming this commitment, the **G20** emphasised its dedication to SDG 10.c through the **G20 Roadmap for Enhancing Cross-Border Payments**, aiming to lower the average cost of remittances to less than 3%.

What is India's Proposal About Costs of Cross-border Remittances?

- **Proposal:** The draft proposal submitted by India in March 2024 at the WTO's 13th Ministerial Conference, the proposal aims to **reduce the global average cost for sending remittances which is currently more than double the Sustainable Development Goal (SDG) target of 3%**.
 - India suggests that **digital remittances, with an average cost of 4.84%**, are significantly cheaper and **should be promoted**.
 - India has also proposed initiating a work programme to make concrete recommendations on reducing remittance costs.
- **India's Need for Remittance Cost Cut:** India received the **highest remittance inflows globally in 2023, amounting to USD 125 billion**.

Note:



- Reducing remittance costs could further **increase the inflow of funds**. In 2023, India spent around **USD 7-8 billion** on remittance fees.
- As remittance costs decrease, making transfers cheaper and faster, the **dependence on hawala will likely diminish as well**.
 - The hawala refers to an informal channel for transferring funds from one location to another through service providers (known as hawaladars) regardless of the nature of the transaction and the countries involved.
- **Support and Challenges:** Nations like Morocco and Vietnam have expressed strong support for India's proposal, recognizing the importance of reducing remittance costs.
 - Countries such as the US and Switzerland have opposed the proposal, citing concerns about their **own financial institutions' revenue from remittance fees**.

Remittance Inflow in India

- In 2023, India topped in remittances inflow list, followed by Mexico (USD 66 billion), China (USD 50 billion), the Philippines (USD 39 billion), and Pakistan (USD 27 billion).
- In FY23-24, Indians abroad sent a record **USD 107 billion in remittances to India** surpassing **USD 100 billion** for the **second consecutive year**.
- The net remittance amount nearly doubles the combined total of **USD 54 billion** from **foreign direct investments (FDI)** and portfolio investments during the same period.
 - Gross remittances from the Indian diaspora reached **USD 119 billion** in FY24. After accounting for repatriation of income and related expenses, net private transfers amounted to **USD 107 billion**.
- According to a **Reserve Bank of India (RBI)** survey, the **United States** was the primary contributor, accounting for **23%** of the total remittances. Most remittances are intended for familial support, with some allocated to investments such as deposits.
- Remittance volumes are influenced by migration levels, employment conditions in origin countries, and the cost of remitting funds.

What are the Benefits from a Remittance Cost Cut?

- **Global Indian Diaspora:** Lower costs ensure that more money goes to the sender's family and less to intermediaries.
 - **Non-Resident Indians (NRI) community, and overseas travellers** would find it easier and cheaper to transfer funds to and from India.
- **Benefit to Indian MSMEs:** Reduced foreign exchange costs would **make Indian goods and services more competitive**, leading to higher profit margins.
 - Reduced remittance costs would make cross-border transactions more efficient, aligning with the **Indian government's goal to improve ease of doing business**.
- **Domestic Economy and UPI Transactions:** Increased remittance inflows at lower costs could marginally strengthen the domestic currency and improve personal consumption patterns.
 - The remittance cost cut could serve as a catalyst for expanding **Unified Payments Interface (UPI)** penetration in global markets.
- **Financial Inclusion:** Lower remittance costs can improve access to **financial services for underserved populations**, fostering greater financial inclusion.
 - Since 78% of total remittance flows in 2023 went to **Low and Middle-Income Countries (LMICs)**, reducing transaction costs is crucial for decreasing **inequality both within and among countries**.
- **Bridging Socio-Economic Disparities:** Lower transaction costs ensure that **more of the remittance amount reaches those in need**, helping to bridge economic disparities and support development in these regions.
 - Lower costs mean that senders retain more of their money, which can lead to increased savings and investment in their home countries.

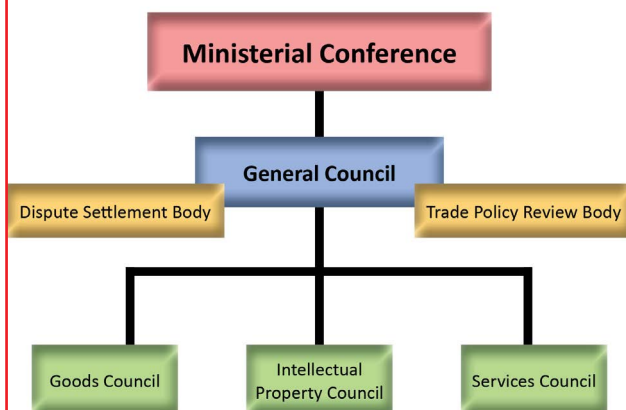
What are the Key Facts About the World Trade Organization?

- **Origins:** The **Marrakesh Agreement**, signed in 1994, established the **WTO**, which officially began on 1st January 1995.
 - It succeeded the **General Agreement on Tariffs and Trade (GATT)** and was part of the **Uruguay Round negotiations (1986-94)** to create a more comprehensive global trade organisation.

Note:

- **Members:** WTO has 166 members, including India (since 1995 and a member of GATT since 1948), accounting for **around 98% of world trade**.
- **WTO Secretariat:** The WTO Secretariat, based in **Geneva, Switzerland**, supports the organisation's functions but **does not itself have decision-making powers**.
 - The Secretariat is led by the **Director-General**, who oversees its operations
- **Key WTO Principles:**
 - **Most-Favoured-Nation (MFN):** It requires that any favourable trading terms offered to one member must be extended to all other WTO members.
 - **National Treatment:** This principle mandates that once a product, service, or intellectual property enters a market, it should receive non-discriminatory treatment compared to domestic products.
 - **Charging customs duty** on an import is not a violation of national treatment.
- **WTO Ministerial Conference:** It is the organization's **top decision-making body**, meeting every two years with all members involved in decisions on matters covered under multilateral trade agreements.
- **Important Agreements of the WTO:**
 - [General Agreement on Trade in Services \(GATS\)](#)
 - [Trade-Related Aspects of Intellectual Property Rights \(TRIPS\)](#)
 - [Trade-Related Investment Measures \(TRIMS\)](#)
 - [Agreement on Sanitary and Phytosanitary Measures \(SPS\)](#)
 - [Agreement on Agriculture \(AoA\)](#)

Structures of WTO



International Cooperation on Green Hydrogen

Why in News?

Recently, the Prime Minister (PM) virtually addressed the second [International Conference on Green Hydrogen 2024 \(ICGH-2024\)](#) being held at [Bharat Mandapam, New Delhi](#).

- The PM emphasised the need for **international cooperation** to scale up **green hydrogen production**, **reduce costs**, and promote **research and development**.

What are Key Highlights of ICGH-2024?

- **Counting India's Achievements:** India is among the first [G20 nations](#) to fulfil its [Paris commitments](#) on green energy. India's commitments were fulfilled **9 years ahead** of the target of 2030.
 - India pledged to increase **non-fossil energy capacity to 500 GW (gigawatts)** and **reduce the total projected carbon emissions by 1 billion tonnes** by 2030.
 - **Installed non-fossil fuel capacity** in India increased by nearly **300%** over the past decade.
- **Emerging Importance of Green Hydrogen:** Green Hydrogen is identified as a key component in the global energy landscape, with potential to **decarbonise difficult-to-electrify sectors** such as refineries, fertilisers, steel, and heavy-duty transportation.
 - It can also serve as a **storage solution for surplus renewable energy**.
- **Investment in Research:** The conference called for investments in **cutting-edge research and development**, partnerships between industry and academia and encouragement for **start-ups and entrepreneurs** of the Green Hydrogen.
 - PM urged the **domain experts** and the scientific community to lead the way in [Green Hydrogen adoption](#).
- **G20 Summit Insights:** PM underlined the [New Delhi G-20 Leaders' declaration](#) that adopted five high-level **voluntary principles on Hydrogen** that are helping in the creation of a **unified roadmap**.
- **Critical Questions:** PM asked about ways to improve electrolyser efficiency, use seawater and [municipal](#)

Note:

wastewater for production, and explore **Green Hydrogen's role** in public transport, shipping, and waterways.

Note:

- India has announced an exclusive partnership with the **European Hydrogen Week**, set to take place in November 2024.
- It highlights India's intent to address the **green regulations** of the **European Union**.
- Also, **Indian Railways** plans field trials of the first **hydrogen fuelled train** in January 2025.
 - A **1200 KW DEMU (Diesel Electric Multiple Unit)** will be converted into a **hydrogen fuel cell-based DPRS (Distributed Power Rolling Stock)** for the trials.

Why International Cooperation is Needed in Promotion of Green Hydrogen?

- **High Production Costs:** According to the **International Energy Agency (IEA)**, the cost of producing **green hydrogen** can range from **USD 3 to USD 8 per kilogram**, significantly higher than **grey hydrogen** produced from fossil fuels.
- **Technology and Infrastructure Investment:** The cost of **alkaline electrolyzers** has decreased by **40% between 2014 and 2019**, but further **cost reductions** are **needed** to make green hydrogen **competitive**.
- **Electrolysis Costs:** Green hydrogen is produced through **electrolysis**, which requires substantial amounts of electricity. As of 2023, the **production cost of green hydrogen remains high** compared to conventional hydrogen.
- **Efficiency of Electrolyzers:** According to India's **Ministry of New and Renewable Energy**, current electrolyzers are **not yet efficient enough** for widespread adoption. Research and development are required to improve efficiency and reduce costs.
- **Resource Availability:** According to the **European Commission**, the availability of **rare materials** for electrolyser and **fuel cells** presents another challenge.
 - The need for metals like **platinum and iridium** can constrain the scalability of green hydrogen technologies.
- **Scaling Up Production:** Scaling up production to meet global demands poses a significant challenge.

- The **EU's Hydrogen Roadmap** indicates that achieving the necessary scale for green hydrogen production requires coordinated efforts across industries and governments.

How can International Cooperation Help in Promotion of Green Hydrogen?

- **Scaling Up Production:** An estimate from a recent **Hydrogen Council report** suggests that Asia will require **USD 90 billion** investment in hydrogen projects by 2030.
 - According to the **IEA**, **joint ventures** and cross-border **collaborations** can significantly accelerate the scaling of green hydrogen production technologies by leveraging diverse **technological capabilities** and **manufacturing resources**.
- **Economies of Scale:** The **European Commission** highlights that joint international initiatives can drive down costs through shared investments and bulk purchasing of materials.
 - For example, a group of 30 pioneering European energy companies officially launched "**HyDeal Ambition**" with the aim of delivering **100% green hydrogen** across Europe at a low cost of **Euro 1.5/kg**.
- **Shared Infrastructure:** Shared infrastructure for green hydrogen production, storage, and distribution can lower investment costs and make the technology more economically viable.
 - Collaborative infrastructure projects, like the **Asia-Pacific Hydrogen Association's** regional networks, illustrate how shared facilities can decrease costs.
- **Innovation Through Partnerships:** Global partnerships drive innovation by bringing together diverse research perspectives and funding sources.
 - E.g., the **Global Hydrogen Coalition** is a prominent example of a platform that brings together **governments, industry leaders, and research institutions** to drive innovation in hydrogen technologies.
- **Unified Policies and Regulations:** International collaboration helps in developing **cohesive policies and regulations** that support green hydrogen development.
 - The 2023 G20 Summit, under India's presidency, adopted **voluntary principles for green hydrogen** which would help in creating a **common roadmap**.

Note:

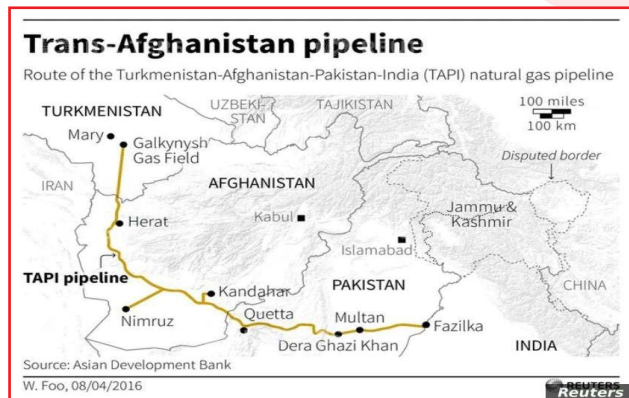
- **Investment and Funding:** Joint **funding initiatives and investment** from international sources can accelerate research and deployment.
 - E.g., Several research and innovation projects on hydrogen are ongoing within **Horizon Europe**, the EU's Framework Programme for Research and Innovation.
 - These projects are managed through the **Clean Hydrogen Partnership (2021-2027)**, a joint public-private partnership supported by the European Commission.

Turkmenistan-Afghanistan-Pakistan-India Pipeline

Why in News?

Afghanistan is set to begin work on the long-awaited **Turkmenistan - Afghanistan - Pakistan - India (TAPI) pipeline**, a landmark USD 10 billion project that promises to enhance regional energy connectivity and drive economic development.

- This development comes after **years of delays primarily due to security concerns in Afghanistan**.



What is the TAPI Pipeline?

- **About:** The TAPI pipeline is a major infrastructure project designed to transport **natural gas from the Galkynysh gas field** in Turkmenistan through Afghanistan, Pakistan, and India.
 - The pipeline will span approximately **1,814-kilometres** and is expected to deliver around **33 billion cubic metres (BCM) of natural gas annually**.

- It will supply gas to Afghanistan (5%), Pakistan (47.5%), and India (47.5%) during its 30-year operational period.
- The pipeline is also known as the **'Peace Pipeline'** due to its potential to foster regional cooperation and stability.
- The project's origins trace back to the 1990s, with significant progress made in 2003, supported by the **Asian Development Bank (ADB)**. **India joined the initiative in 2008**, marking a major milestone in its development.
- The **TAPI Pipeline Company Limited (TPCL)**, is responsible for the construction and operation of the pipeline. The company is a joint venture of Turkmenistan, Afghanistan, Pakistan, and India, each holding shares in the project.

➤ Significance:

- **Environmental Impact:** The pipeline offers a **crucial alternative to coal, reducing carbon dioxide emissions** compared to coal-fired energy.
 - For **India, which relies heavily on coal**, TAPI could facilitate a **transition to cleaner energy sources** and help meet its ambitious **emission reduction goals (Net-Zero Emissions Target)**.
 - TAPI pipeline has the potential to alleviate **air pollution issues in major cities** like Delhi, Mumbai, Karachi, and Islamabad by providing a cleaner energy alternative.
- **Economic Benefits:** Beyond energy supply, the pipeline offers opportunities for economic growth in Afghanistan and Pakistan through **transit fees and job creation**. It could also spur investment in **renewable energy** sources in these countries.
- **Strategic Influence:** TAPI is a key element in the broader geopolitical competition for influence in Central Asia. The US sees the pipeline as a strategic counter to the **Iran-Pakistan-India (IPI) pipeline**, which is supported by Iran and Russia.
 - For Turkmenistan, TAPI represents a chance to diversify its export markets and reduce dependency on existing routes to China and Russia.
 - China's investment in the **CPEC** highlights the competitive nature of energy infrastructure projects in the region. TAPI could serve as a

Note:

counterweight to Chinese influence, particularly in Pakistan.

- The pipeline enhances cooperation among Central and South Asian countries, potentially fostering collaborations in energy, communication, and transportation.
- For India the pipeline positions **Turkmenistan as a crucial energy partner**, enhancing **India's connectivity with Central Asia**. It aligns with India's broader strategy of improving regional connectivity and energy security.

What are the Challenges Regarding the TAPI Pipeline?

- **Security Concerns:** Most of the pipeline will traverse Afghanistan, a region known for its challenges like **political instability**, and **humanitarian crisis**. Ensuring the smooth implementation of the project has been a recurring issue.
- **Financing and Administration:** Securing **adequate funding remains a major hurdle**. The Asian Development Fund is expected to contribute a small portion, with the rest to be sourced from private investors.
 - Additionally, the administration of the pipeline is complicated by the involvement of four separate pipeline companies, one for each participating country.
- **Investment Climate:** Turkmenistan's closed economy and limited integration into the global market pose significant obstacles to attracting investment. **Corruption and governance issues** further complicate the investment landscape.
- **India's Conflicts with Pakistan:** India's own conflicts with Pakistan raise questions about its long-term commitment to the TAPI pipeline. **Political tensions between the two countries could hinder cooperation and smooth operation of the project.**
- **Environmental Concerns:** While natural gas is cleaner than coal (natural gas emits 50 to 60% less CO₂ than coal burned in a comparable plant), it is not without environmental issues.
 - The extraction and transportation of natural gas involve risks such as water and soil pollution, and the potential for earthquakes from fracking.

India's Other Bilateral/Multilateral Energy Infrastructure Projects

- [India-Bangladesh Friendship Pipeline](#)
- [Motihari-Amlekhgunj Pipeline \(India-Nepal\)](#)
- [Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation \(BIMSTEC\)](#)
- [International North-South Transport Corridor \(INSTC\)](#)

How is India Enhancing its Influence in Central Asia?

- **Securing Trade Routes:** Central Asia's strategic location makes it a focal point for global powers. India's involvement aims to enhance its **regional influence and secure vital trade routes**.
 - The region's resources are crucial for India's growing economy, and strengthening ties with **Central Asian countries aligns with its economic interests and long-term growth strategies**.
- **Enhancing Economic Presence:** The 10-year **Chabahar Port Agreement with Iran** enables India to bypass traditional maritime chokepoints, facilitating trade through Iran to the **South Caucasus and Central Asia**.
 - This strategic move aims to improve logistical efficiency and expand economic ties in the region.
 - India is pursuing a free trade agreement with the **negotiations with the Eurasian Economic Union (EAEU)** to strengthen economic relations and access Eurasian markets.
 - This effort reflects India's commitment to integrating more deeply into regional trade networks and leveraging economic opportunities with EAEU member states.
 - Global crises such as **Covid-19**, the **political instability in Afghanistan**, and the **Russia-Ukraine Conflict** have prompted India to reassess its trade routes and strategies.
 - The development of the **International North-South Transport Corridor (INSTC)** and potential EAEU membership are central to India's efforts to diversify and secure trade routes.
- **Military and Security Initiatives:** India maintains military bases in Tajikistan (Farkhor Air Base, and Ayni Air Base) and conducts regular joint exercises with countries like Uzbekistan (**Exercise DUSTLIK**), highlighting its strategic interests in the region and efforts to build defence partnerships.

Note:

- **Challenges and Geopolitical Considerations:** China's **Belt and Road Initiative (BRI)** poses a challenge with its extensive infrastructure projects in Central Asia, potentially overshadowing India's investments.
 - China's growing trade relations with Central Asian countries, may impact India's competitive edge in the region.
 - Strained relations with neighbouring rivals Pakistan and China limit India's overland trade routes, necessitating reliance on alternative maritime paths and regional alliances.

First Legally Binding International AI Treaty

Why in News?

According to the **Council of Europe**, the first legally binding **international treaty on Artificial Intelligence (AI)** will be open for signing by the participating nations, including **European Union members, the United States, and the United Kingdom**.

Council of Europe (COE)

- The Council of Europe (COE) is an international organisation **founded in 1949** and **headquartered in Strasbourg, France**.
- It is distinct from the European Union (EU) and consists of **46 member states**, including most European countries.
- The COE's primary mission is to **uphold and promote democracy, human rights, and the rule of law** across its member states.

What are the Key Facts about the AI Convention?

- **About:**
 - **"The Framework Convention on Artificial Intelligence and Human Rights, Democracy, and the Rule of Law"**, primarily emphasises the protection of human rights for individuals impacted by AI systems and operates independently of the **EU AI Act**.
 - The EU AI Act establishes comprehensive regulations **governing the development, deployment, and use of AI systems** within the EU's internal market.

- The AI Convention has been **under development for several years** and was **adopted in May 2024** following deliberations among 57 countries.
- It aims to **mitigate the risks associated with artificial intelligence** while fostering responsible innovation.
- **The Conditions for the Treaty:**
 - **Human-Centric AI:** The treaty mandates that **AI systems** must be designed and operated in **alignment with human rights principles**, ensuring they support and uphold democratic values.
 - **Transparency and Accountability:** The treaty stipulates that AI systems, particularly those interacting with humans, must **operate transparently**.
 - It also **requires governments to provide legal recourse when AI systems** infringe on human rights.
 - **Risk Management and Oversight:** The treaty establishes frameworks for assessing and managing the risks associated with AI, along with oversight mechanisms to **ensure adherence to safety and ethical standards**.
 - **Protection Against Misuse:** The treaty incorporates safeguards to **prevent AI from being used to undermine democratic processes**, including the preservation of judicial independence and ensuring public access to justice.
- **Key Enforcement Mechanisms:**
 - **Legal Accountability:** Signatory nations are required to **enact legislative and administrative measures** to ensure AI systems adhere to the treaty's principles like human rights and accountability in AI deployment.
 - **Monitoring and Oversight:** The treaty establishes **oversight mechanisms to monitor compliance** with AI standards.
 - **International Cooperation:** The treaty promotes **collaboration among signatories** to harmonise AI standards, share best practices, and address transnational AI issues, recognizing the global nature of AI technologies.
 - **Adaptability:** The framework is **designed to be technology-neutral**, enabling it to evolve alongside advancements in AI, ensuring that standards remain relevant and enforceable as AI technologies rapidly progress.

Note:



- **Exception in the Treaty:** The treaty applies to all AI systems except those used in national security or defense, though it still requires that these activities respect international laws and democratic principles.

Artificial Intelligence(AI)

AI is the simulation of human intelligence in machines programmed to think and learn like humans, capable of problem-solving, reasoning, and adapting to new information.

AI Timeline - Major Milestones



Applications of AI

- **Healthcare:** Personalised medicine
- **Finance:** Algorithmic trading
- **Transportation:** Autonomous vehicles
- **Marketing & Customer Service:** Targeted advertising, chatbots
- **Education:** Adaptive learning systems, personalised tutoring
- **Agriculture:** Crop monitoring
- **Cybersecurity:** Threat detection
- **Energy:** Smart grid management, consumption forecasting

Concerns

- Deepfakes & misinformation
- Algorithmic bias
- Automation & job displacement
- Privacy issues
- Data ownership & liability issue
- Ethical decision-making complexes

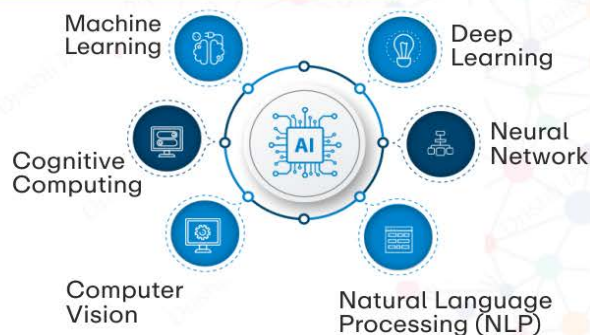
Regulating AI

- **Global Partnership on AI (GPAI)** launched in 2020
- **Bletchley Declaration (2023):** Enhance Global Collaboration on AI
- **G20 New Delhi Leaders' Declaration (2023):** Harnessing AI responsibly for good and for all
- **Hiroshima AI Process (2023)** by G7

India and AI

- **National Strategy For AI 2018**
- **AI For All:** Self-learning online program
- **GPAI Summit 2023** hosted by India
- **IndiaAI Mission 2024**
- **US India Artificial Intelligence (USIAI) Initiative:** AI cooperation in critical areas
- **AIRAWAT** (AI Research, Analytics and Knowledge Assimilation Platform): Supercomputer

KEY COMPONENTS OF AI



What is the Significance of the AI Convention?

- **Comprehensive Drafting:** The treaty was meticulously drafted adopting a risk-based approach to the design, development, use, and decommissioning of AI systems.
- **Broad Applicability:** It applies to AI systems across both the public sector, and the private sector, with enforcement across various geographical regions.
- **Global Legal Standard:** The Framework Convention on Artificial Intelligence represents a first-of-its-kind, globally binding treaty designed to respond to the need for an international legal standard endorsed by states across different continents with shared values.
- **Balancing Innovation and Risk:** The treaty aims to promote the responsible use of AI by harnessing its benefits while effectively mitigating associated risks, ensuring that AI development aligns with human rights, the rule of law, and democratic principles.

What are the Issues and Concerns of the AI Convention?

- **Concerns Over Enforcement:** Despite being labelled as “legally binding,” the treaty has raised concerns due to its lack of provisions for punitive sanctions, such as penalties or fines, which weakens its deterrent effect from an enforcement perspective.
- **Reliance on Monitoring:** Compliance with the treaty is primarily ensured through “monitoring” mechanisms, which may not be sufficient to effectively enforce the treaty’s provisions.
- **Balancing Regulation and Innovation:** Striking the right balance between stringent regulations and fostering innovation is a critical concern. Excessive regulatory burdens may stifle the development of AI technologies, particularly for small and medium-sized enterprises (SMEs) and start-ups, thereby affecting competitiveness in the global AI market.
- **National Sovereignty vs. International Standards:** The convention’s provisions may conflict with national laws, creating tensions between state sovereignty.
- **Addressing National Security Concerns:** While the convention attempts to balance AI governance with national security interests, the intersection of AI with defense and intelligence activities presents challenges. Ensuring that national security is not compromised while maintaining ethical AI practices requires a delicate balancing act, which the convention may struggle to achieve.

India's Hesitancy in Joining RCEP

Why in News?

Recently, the **World Bank's** latest India Development Update: India's Trade Opportunities in a Changing Global Context suggested India to re-consider joining **Regional Comprehensive Economic Partnership (RCEP)**.

- An Indian think tanks rejected the idea saying it is based on flawed assumptions and outdated projections.

What is the World Bank's Analysis of India Opting out of the RCEP?

- **Income Gains:** According to a World Bank study, India's income will increase by **USD 60 billion annually** if it rejoins the agreement and will **fall by USD 6 billion** if it does not.
 - These gains would span various sectors, including raw materials, light and advanced manufacturing, and services.
- **Export Growth:** Expected export gains from joining RCEP could include **17% in services** like computing, finance, and marketing.
- **Denial of Economic Gains:** RCEP (without India) will add **USD 186 billion** to the world economy and increase the **GDP** of its members by **0.2% on a permanent basis**.
 - The major beneficiaries would be **China (USD 85 billion)**, **Japan (USD 48 billion)**, and **South Korea (USD 23 billion)**.
 - India will miss a major portion of economic gain which may accrue from RCEP.
- **Trade Diversion Risks:** By staying out of RCEP, **India could face trade diversion**, as the trade bloc members could shift supply chains and **increase competition among themselves**, potentially **harming India's exports to RCEP countries**.
- **Potential New Members:** South Asian countries such as **Bangladesh and Sri Lanka**, have recently indicated interest in joining **RCEP**.
 - In effect, India cannot fully remain out of the influence of RCEP as India has an **FTA with countries like Sri Lanka**.

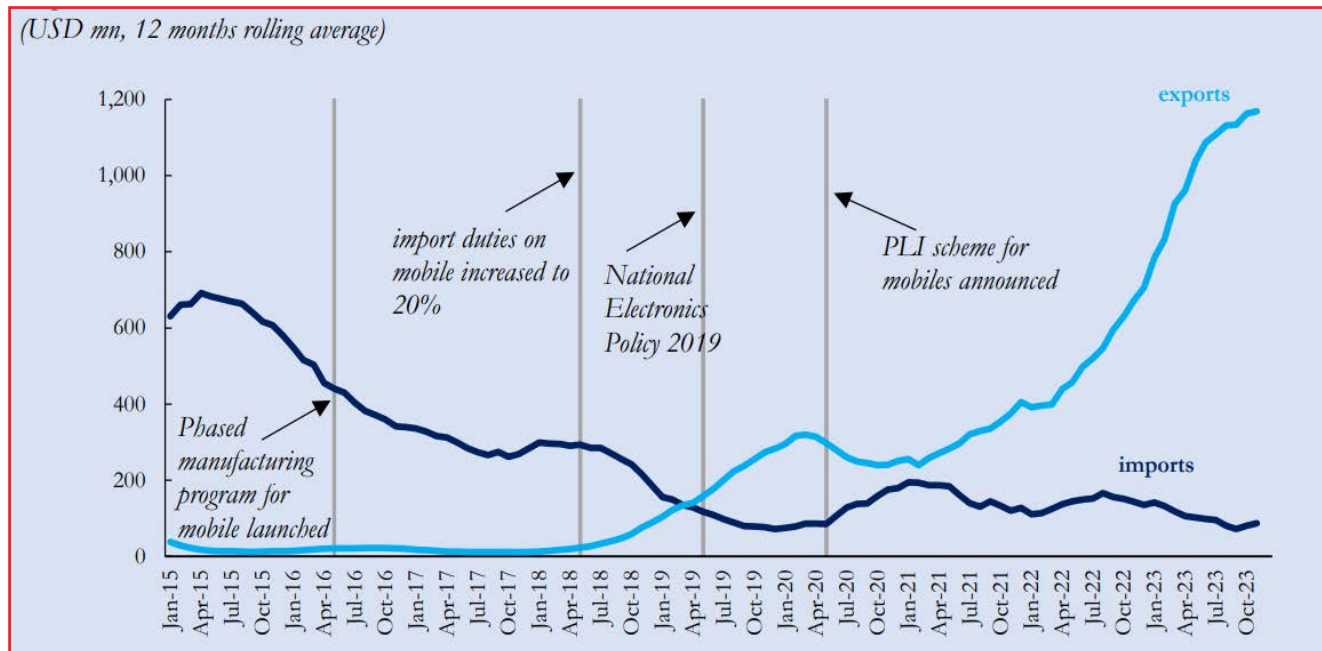
Note:

What is the World Bank's Evaluation of India's Export Strategy and Trade Policy?

- **Need for Export Diversification:** Over the years, India's trade in goods as a percentage of GDP has declined, and its participation in **Global Value Chains (GVCs)** has decreased.
 - **Diversification** can be achieved by expanding into more labour-intensive sectors such as **textiles, apparel, leather and footwear**.
 - India's share in global exports of Apparel, Leather, Textiles, and Footwear (ALTF) initially grew from **0.9% in 2002** to a peak of **4.5% in 2013**, but it subsequently declined to **3.5% in 2022**.
- **Increased GVC Participation:** By integrating into **GVCs**, India can:
 - **Expand the variety** of what it produces by participating in the production of higher-added value goods.
 - Enhance its **competitiveness** by gaining access to advanced technologies and global markets.
 - Increase flows of **FDI** by multinationals seeking to produce in India.
- **Balancing Liberalisation and Protectionism:** India's trade policy includes both **liberalising and protectionist** measures. For instance, initiatives like the **National**

Logistics Policy 2022 and **digital reforms** aim to lower logistics costs and improve trade facilitation.

- Conversely, there has been a resurgence in protectionist measures, such as increased **tariffs and non-tariff barriers**, which restrict India's trade openness.
- **Trade Agreements:** Recent **Free Trade Agreements (FTAs)** with countries like the UAE and Australia indicate a shift towards **preferential trade agreements**. However, India has avoided joining large trade blocs, like the **Regional Comprehensive Economic Partnership (RCEP)**, despite potential benefits.
- **Reevaluating India's Tariffs and Industrial Policies:** India has become a **net exporter of mobile phones** as exports have surged amid falling imports due to policies like **National Electronics Policy 2019, Production Linked Incentives (PLI) scheme 2020**.
 - However, recent **hikes in import tariffs on key intermediary inputs**, which brought average tariffs from 4% to 18% between 2018 and 2021, **threaten the sector's competitiveness**.
- **Opportunities for India:** Heightened perceptions of **geopolitical risks** have prompted companies to diversify their sourcing strategies.
 - This presents an opportunity for countries like India with an **abundant workforce** and a growing **manufacturing base**.



Note:

Why is India Hesitant to Reconsider Joining RCEP?

- **Flawed Assumptions in World Bank's Suggestion:** The World Bank study projected income gains of **USD 60 billion by 2030**, but it does not consider that most of these gains would come from **increased imports**, leading to **trade imbalances**.
- **Trade Deficits Among RCEP Members:** Since the RCEP became operational, **ASEAN's** trade deficit with China grew from **USD 81.7 billion in 2020 to USD 135.6 billion in 2023**.
 - Similarly, **Japan's** trade deficit with China increased from **USD 22.5 billion** in 2020 to **USD 41.3 billion** in 2023.
 - South Korea may also face a trade deficit with China for the first time in the year 2024.
- **Overdependence on China-Centric Supply Chains:** The rising trade deficits of RCEP members highlight a growing dependence on **China-centric supply chains**.
 - This dependency presents significant risks, especially in the context of global supply chain disruptions, such as those experienced during the **Covid-19 pandemic**.
- **Unfair Competition:** By not joining RCEP, India maintained the flexibility to explore other trade agreements that do not disproportionately favour China or threaten its **economic interests**.
 - India's trade deficit with China rose to **USD 85 billion** in 2023-24
- **Alternative Trade Agreements:** India already has several functional **Free Trade Agreements (FTAs)** with 13 out of 15 RCEP members, **except New Zealand and China**.
- **"China Plus One" Strategy:** India's decision to not join RCEP aligns with the global trend of adopting the **"China Plus One" strategy** to mitigate risks associated with dependence on China.

What is Regional Comprehensive Economic Partnership (RCEP)?

- RCEP is a **trade agreement** between the **10 ASEAN countries** and their five Free Trade Agreement (FTA) partners: **China, Japan, South Korea, Australia, and New Zealand**.

- RCEP was introduced during the **19th ASEAN Summit in November 2011**, and negotiations began in **November 2012**.
 - RCEP entered into force on **1st January 2022**.
- It is the **world's largest FTA** when measured by **combined GDP (26 trillion dollars)**, **population (2.27 billion)** and **total export value (5.2 trillion dollars)** of signatory parties.

15 Countries Sign World's Biggest Free Trade Deal

Key facts about the Regional Comprehensive Economic Partnership free trade deal



India-UAE Relations

Why in News?

Recently, **India** and the **United Arab Emirates (UAE)** held bilateral talks with the aim to deepen ties and enhance their **Comprehensive Strategic Partnership**.

- The crown prince of **Abu Dhabi** was hosted by India's Prime Minister at Hyderabad House in New Delhi. Both countries inked several pacts to **expand energy ties**.

What are the Key Agreements Signed During the Visit?

- **Civil Nuclear Cooperation:** India and UAE signed a Memorandum of Understanding (MoU) for **civil nuclear cooperation**.
 - The deal involves the **Nuclear Power Corporation of India Limited (NPCIL)** and the **Emirates Nuclear Energy Company (ENEC)** for operation and maintenance of **Barakah Nuclear Power Plant**.
 - The Barakah Nuclear Energy Plant is situated in **Al Dhafra**, within the **Emirate of Abu Dhabi** in UAE. It is the Arab world's first nuclear power plant.

Note:

- **Energy:**
 - **LNG Supply:** An MoU was signed for long-term **Liquefied Natural Gas (LNG)** supply between UAE and India.
 - **Strategic Petroleum Reserve (SPR):** An MoU was signed with **India Strategic Petroleum Reserve Limited (ISPRL)** for supply of petroleum.
 - SPRs are **stockpiles of crude oil** maintained by countries ensuring a stable supply of crude oil even during times of geopolitical uncertainty or supply disruptions.
- **Food Parks:** A MoU was signed with the **Government of Gujarat** on **food parks** development in India.
 - India and the UAE are part of the **I2U2 grouping** under which food parks in **Gujarat and Madhya Pradesh** were envisaged.



Why is the UAE Important for India?

- **Strategic Political Partnership:** The elevation of India-UAE relations to a '**comprehensive strategic partnership**' and the establishment of a '**strategic security dialogue**' reflect the growing **political and strategic alignment** between the two countries.
- **Bilateral Trade:** The UAE is India's **third-largest** trading partner.
 - The **Comprehensive Economic Partnership Agreement (CEPA)** signed in 2022 has further boosted trade, with bilateral trade having increased from **USD 72.9 billion** (April 2021-Mar 2022) to **USD 84.5 billion** (April 2022-Mar 2023) registering a year-on-year increase of **16%**.
- **Foreign Direct Investment (FDI):** UAE emerges as **fourth largest investor** in India during FY23.

- In FY23, **FDI** from the UAE to India surged over three-fold to **USD 3.35 billion** from USD 1.03 billion in 2021-22.
- **Energy Security:** The UAE is a key **oil supplier** for India and plays a critical role in India's **Strategic Petroleum Reserve (SPR)** which is vital for India's **energy security**.
- **Finance:** The introduction of **India's RuPay card** and **Unified Payments Interface (UPI)** in the UAE highlights the growing financial collaboration.
 - Both countries agreed for a **Local Currency Settlement (LCS)** System to promote the use of **Indian Rupee and AED (United Arab Emirates Dirham)** for cross-border transactions.
- **Space Exploration:** **ISRO** and **UAE Space Agency (UAESA)** signed an MoU regarding cooperation in the **exploration and use of outer space** for peaceful purposes .
- **Defence and Security Cooperation:** The UAE and India have strengthened their **defence and security** cooperation, focusing on counter-terrorism, intelligence sharing, and joint military exercises. E.g., **Exercise Desert Cyclone**.
 - Additionally, the UAE's interest in Indian defence products such as **BrahMos missiles**, Akash air defence systems, and the Tejas fighter jet gained momentum during this period.
- **Multilateral Engagements:** The formation of the **I2U2 grouping (India-Israel-UAE-US)** and the UAE's participation in the **India-Middle East-Europe Economic Corridor (IMEC)** reflect the strategic and economic significance of the UAE in regional and global multilateral engagements.
- **Regional Stability:** The UAE's role in the **Abraham Accords** and the subsequent normalisation of diplomatic relations with Israel underline the UAE's importance in fostering regional harmony and stability.
 - Stability in the **Middle East** is crucial for India as India is **heavily dependent on Gulf nations for its energy needs** (oil and gas imports).
- **Cultural and Diaspora Links:** The large **Indian diaspora** in the UAE, comprising about **3.5 million people**, forms a crucial link between the two nations.

Note:

- Initiatives like the inauguration of the first **Hindu temple in Abu Dhabi** reflect the shared values of **tolerance and coexistence**, enhancing cultural ties between India and the UAE.
- **Cooperation During Covid-19:** During the **Covid-19 pandemic**, both countries provided each other with medical supplies, equipment, and **vaccines**.
 - This collaboration in the healthcare sector has strengthened their partnership and demonstrated their commitment to supporting each other in **times of crisis**.

What are the Challenges in India-UAE Relations?

- **Limited Diversification of Trade Categories:** Despite **CEPA** boosting overall trade, there is insufficient progress in expanding into new categories.
 - The trade remains **concentrated** in a few sectors, such as **gems and jewellery, petroleum, and smartphones**, which hampers broader economic benefits and reduces trade diversification.
- **Rising Import Costs:** Imports from the UAE have increased significantly, **growing by 19%** year-on-year to **USD 53,231 million in FY23**.
 - This rise in imports, coupled with the **high dependency** on certain categories, affects the **trade balance** and puts pressure on India's trade surplus.
- **Non-Tariff Barriers:** Indian exports face hurdles like mandated **Halal certification**, which affects the export volume of processed foods. These **non-tariff barriers** can limit India's market access and competitiveness in the UAE.
- **Human Rights Concerns:** Issues related to the **Kafala system**, particularly concerning the rights of **migrant labourers**, are a significant concern.
 - The **kafala (sponsorship system)** gives citizens and companies in **Gulf countries** almost total control over migrant workers' employment and immigration status.
- **Diplomatic Balancing Act:** The need to navigate regional conflicts, such as the **Israel-Hamas war** and tensions between **Iran and Arab nations**, poses additional challenges to India.
- **Financial Support to Pakistan:** The UAE's financial assistance to Pakistan raises concerns about **potential misuse** for anti-India activities.

- This support can create friction between India and the UAE, complicating diplomatic efforts.

Prime Minister's Visits to Singapore and Brunei Darussalam

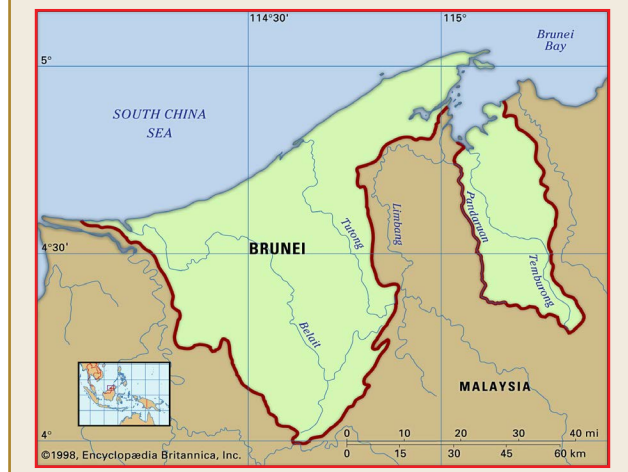
Why in News?

Recently, Prime Minister of India's visits to **Brunei Darussalam** and **Singapore** have marked significant advancements in India's diplomatic and strategic engagements in Southeast Asia.

What are the Key Facts About Singapore and Brunei Darussalam?

➤ Brunei Darussalam:

- **Location:** Situated on the north-west of the island of Borneo. with a coastline of about 161-km along the South China Sea. It is bounded on the North by the South China Sea and on all the other sides by Malaysia.
- **Economy:** Revenue is generated predominantly from crude oil and natural gas, with efforts towards economic diversification.
 - Third-largest oil producer in Southeast Asia; fourth-largest liquefied natural gas producer globally.
- Brunei Darussalam's main exports consist of three major commodities - crude oil, petroleum products and liquefied natural gas - **sold largely to Japan, the US and ASEAN countries**.



Note:



➤ Singapore:

- **Geography:** Singapore is an island nation, consisting of one main island (Pulau Ujong) and 62 smaller islands. Its neighbors include Malaysia to the north and Indonesia to the south.
- **Historical Background:** Originally known as Tumasik, meaning “sea,” the island was a key stop for traders. During the 14th century, Tumasik earned its new name, “**Singapura**” (meaning “**The Lion City**”).
 - Singapore officially came under British rule in 1826. The Japanese took control of Singapore in 1942 during WW-II but handed back ownership to the British once they lost the war.
 - In 1959, Singapore became self-governing, though Britain still controlled the country’s military. The country finally gained full independence as the Republic of Singapore in 1965.
- **Government and Economy:** Parliamentary republic. It is one of the strongest economies in Southeast Asia with significant sectors in banking and manufacturing.

What were the Key Outcomes of PM’s Visit to Brunei Darussalam?

- The PM visited the iconic **Omar Ali Saifuddien Mosque in Bandar Seri Begawan**, a symbol of Brunei’s Islamic heritage and is named after the 28th Sultan of Brunei.
- India appreciated Brunei’s support in hosting **ISRO’s Telemetry Tracking and Telecommand (TTC) Station**, with discussions on furthering cooperation under the renewed MoU.

- Both nations underscored the importance of peaceful dispute resolution in the **South China Sea** in line with international law, particularly the **UNCLOS 1982**.
 - Agreed to strengthen cooperation in multilateral fora like **ASEAN-India Dialogue Relations**, **East Asia Summit**, and the **United Nations**.
- Both leaders stressed the urgent need to address climate change, with India supporting Brunei’s efforts, including hosting the **ASEAN Centre for Climate Change**.
- Earlier, India reduced its oil imports from Brunei in favor of Russian supplies. Now, discussions on long-term cooperation in **liquefied natural gas (LNG)** have been initiated.

What were the Key Outcomes of PM’s Visit to Singapore?

- **Semiconductor Ecosystem Partnership:** An MoU was signed to develop a resilient **semiconductor** supply chain, marking a new area of bilateral cooperation. The MoU holds great geo-strategic significance due to the global importance of semiconductor chips in various technologies.
 - Singapore’s semiconductor industry has been thriving since the 1970s, accounting for approximately **10% of global semiconductor output and 20% of semiconductor equipment production**.
- **Comprehensive Strategic Partnership:** India and Singapore have agreed to elevate their bilateral relationship to a ‘**Comprehensive Strategic Partnership**,’ broadening cooperation across various sectors.
- **Cooperation in Sustainability:** Both nations are set to collaborate on **green hydrogen** and **ammonia** projects, with a framework being developed to support these initiatives.
 - India has agreed to grant an exemption for **exporting non-Basmati white rice to Singapore**, addressing Singapore’s food security needs.
- **Digital Technologies:** A MoU on digital technologies has been signed, aiming to deepen cooperation in data, **AI**, and **cybersecurity**. The establishment of a **Cyber Policy Dialogue** and the renewal of the MOU on **Cybersecurity Cooperation** are in progress.
- **Fintech Cooperation:** **India’s UPI and Singapore’s PayNow** and **TradeTrust initiative** are recognised for their role in facilitating paperless transactions and enhancing trade efficiencies.

Note:

- **Cultural Linkages:** India also announced the upcoming inauguration of the **Thiruvalluvar Cultural Centre in Singapore**, celebrating the legacy of the Tamil saint **Thiruvalluvar**.
 - There is a mutual commitment to enhance cultural and people-to-people ties, recognizing the contributions of the Indian community in Singapore.

How are India's Relations with Brunei Darussalam and Singapore?

- **Brunei Darussalam:**
 - **Political Relations:** Diplomatic relations between India and Brunei Darussalam were established in 1984. Both nations share strong ties through cultural linkages and memberships in organizations like the **United Nations, Non-Aligned Movement (NAM), Commonwealth**, and ASEAN.
 - The Sultan of Brunei, Sultan Haji Hassanal Bolkiah, is a strong advocate for close India-Brunei relations and has supported **India's 'Look East' and 'Act East' policies**.
 - Brunei has also supported India's international candidatures and played a key role in strengthening **India-ASEAN relations** as the ASEAN Country Coordinator from 2012 to 2015.
 - **Commercial Relations:** India's main exports to Brunei include automobiles, transport equipment, rice, and spices. India is a major importer of **crude oil from Brunei**, with imports valued at approximately **USD 500-600 million annually**.
 - **Indian Community:** The Indian diaspora in Brunei Darussalam spans well over decades, with the first arrivals in the 1930s with more than half being semi and unskilled workers in industries such as oil & gas, construction, and retail.
- **Singapore:**
 - **Historical Connect:** India and Singapore have deep historical ties spanning commerce, culture, and people-to-people connections over a millennium.
 - The modern relationship traces back to **Stamford Raffles** (British East Indian administrator and founder of the port city of Singapore) **establishing a trading post in Singapore in 1819**, which later became a British colony **governed from Kolkata until 1867**.

- India was one of the first countries to recognise Singapore's independence in 1965.
- **Trade and Economic Cooperation:**
 - **Trade:** Singapore is **India's 6th largest trade partner, with a share of 3.2% of India's overall trade**.
 - **Investments:** Since 2018-19, Singapore has been the largest contributor of **FDI** into India with top sectors being Services, Computer Software & Hardware, Trading, Telecommunications, and Drugs & Pharmaceuticals.
 - **Fintech:** Commercial and technical arrangements have been made for **RuPay card acceptance** in Singapore. **UPI-Paynow Linkage** is a landmark cross-border Fintech development.
- Singapore is the first nation with which India has begun this **cross-border Person-to-Person (P2P) payment facility**.
 - **Science and Technology Cooperation:** The **ISRO** has launched several Singaporean satellites, including **Singapore's first indigenous built micro-satellite in 2011**.
 - **Multilateral Cooperation:** Singapore has joined the **International Solar Alliance** and **Global Bio-fuel Alliance**. The two are also part of multilateral groups like **Indian Ocean Rim Association (IORA)**.
 - **Indian Community:** Ethnic Indians make up about 9.1% of Singapore's 3.9 million residents. **Tamil is one of the four official languages of Singapore**.

What is the Importance of Southeast Asian Countries for India's Strategic Interests?

- **Act East Policy:** PM's visit to Southeast Asian countries, aligns with India's broader **Act East Policy** which seeks to strengthen ties with **ASEAN countries** and enhance India's strategic footprint in Southeast Asia.
 - India is deepening its defense relationships in Southeast Asia, exemplified by agreements with the **Philippines and collaborations with other nations like Vietnam and Indonesia**.
- **Geostrategic Location:** Southeast Asia sits at a pivotal juncture in the Indo-Pacific region, a **major hub for maritime trade routes like Maritime Silk Road**. This strategic location is vital for India's vision of a free, open, and inclusive Indo-Pacific.

Note:

- **Counterbalancing China:** The region's proximity to China makes it crucial for India's efforts to counterbalance China's growing influence. Strengthening ties with Southeast Asian countries helps India maintain a strategic edge and support regional stability.
- **Economic Interests:** Southeast Asia is home to some of the world's fastest-growing economies (Malaysia, the Philippines, Thailand, and Vietnam), the region presents substantial economic opportunities for India.
 - India has been ASEAN's leading trade partner. Key projects like the **India-Myanmar-Thailand Trilateral Highway** and the **Mekong-India Economic Corridor** further enhance economic integration.
- **Challenges Faced by India Face in SE Asia:**
 - China's assertive policies in the South China Sea complicate India's efforts to promote regional stability and secure maritime routes critical for its trade.
 - China's proximity and economic power give it a natural advantage, making it challenging for India to match its influence in Southeast Asia.
 - SE Asia's political landscape is diverse, with **varying degrees of alignment and resistance to China's influence**, making a one-size-fits-all approach difficult for India.
 - While India is working on improving connectivity with Southeast Asia, existing infrastructure remains underdeveloped, hampering trade and people-to-people connections.

Forum on China-Africa Cooperation Summit

Why in News?

Recently, the China hosted **Forum on China-Africa Cooperation (FOCAC) summit** in Beijing, attended by 53 African nations, showcased China's evolving approach amidst economic pressures and its efforts to strengthen its partnership with Africa.

What is the Forum on China-Africa Cooperation?

- **Origins:** It was established in **2000 to formalise the strategic partnership between China and African**

nations, with a summit conducted every three years, with host alternating between China and an African member.

- **Participants:** The FOCAC counts **53 African nations as its members**, with the exception of **Eswatini**, which has diplomatic ties with Taiwan against China's **"One China" Policy**.
 - The **African Union Commission**, the continental bloc tasked with ensuring cooperation and economic integration across its member countries, is also a member.
- **Highlights of 2024 Summit:** The summit's **theme is "Joining Hands to Advance Modernization and Build a High-Level China-Africa Community with a Shared Future."**
 - Summit aims to address key issues such as governance, industrialization, agricultural upgradation, and furthering **China's Belt and Road Initiative (BRI) projects**.
 - China pledged approximately USD 51 billion of funding to African countries, supporting 30 infrastructure projects across the continent.
 - The summit adopted the **Beijing Declaration and the FOCAC-Beijing Action Plan (2025-27)**, focusing on deepening the China-Africa partnership.

China's Relations with Africa

- In 2023, trade between Africa and China reached USD 282 billion, according to the **International Monetary Fund (IMF)**.
 - China accounts for 20% of Africa's exports (primarily primary commodities like metals, mineral products and fuel) and 16% of African imports (mainly manufactured goods, electronics, and machinery).
 - The **Tanzania-Zambia Railway**, a transnational railway was **China's first major infrastructure project in Africa**, marking a significant step in its engagement with the continent.
- China's investments in Africa, particularly under the BRI, have been significant. African nations have often turned to China for funding due to fewer constraints compared to Western loans, **but concerns about "debt trap diplomacy"** have emerged, with critics alleging that China's massive loans could lead to geopolitical leverage.

Note:

What is India's Current Engagement with Africa?

- **India-Africa Forum Summit (IAFS):** The **IAFS** aimed at strengthening ties, has not **been held since 2015**. The **Covid-19 pandemic** delayed the fourth summit, initially planned for 2020.
- **Recent Initiatives:** The 2018 guiding principles for Africa focus on prioritising Africa in Indian foreign policy and promoting trade, digital innovation, and climate cooperation.
 - The **African Union (AU)** has been made a permanent member of the **G20 during India's 2023 G20 Presidency**.
 - Since the G20 presidency India has been hosting the **Voice of the Global South Summit (VOGSS)**, which sees the participation of all African countries.
 - Three editions of the VOGSS have been held so far during and after India's G20 presidency.
- **Defence and Security:** The **India-Africa Defence Dialogue (IADD)** highlights India's commitment to security cooperation.
- **Economic Relations:** India is the **fourth largest trading partner for Africa** with a bilateral trade of about USD 100 billion and cumulative investments of more than USD 75 billion.
 - The **African Continental Free Trade Area Agreement (AfCFTA)** opens up prospects for a deeper economic integration. India is the first developing country to provide **non-reciprocal duty-free market access to Least Developed Countries (LDCs)** through its **duty-free tariff preference (DFTP) scheme**.
- **Digital and Technological Cooperation:** India is focusing on leveraging its expertise in **digital public infrastructure** to support Africa's digital transformation.

Read more: [New Pathways in India-Africa Collaborations](#)

Deepening India-Brazil Relations

Why in News?

The **India-Brazil strategic partnership** has **deepened and diversified over the years**, spanning a wide range of

domains including **defence, space, security, technology** and **people-to-people relations**.

- In another development, **India** and **Brazil**, two key players in global sugar production, have resolved their **World Trade Organization (WTO) trade dispute over sugar subsidies**. This resolution coincides with their **growing collaboration in ethanol technology** and addresses global sugar surplus issues, which affect prices.



What is India-Brazil Sugar Subsidies Issue?

- **Background:**
 - In 2019, Brazil, along with Australia and Guatemala, challenged India's sugar subsidy measures at the **WTO**, claiming they were inconsistent with various articles of the WTO's **Agreement on Agriculture**.
 - The US and Australia also highlighted a crucial absence in India's reporting claiming that India hadn't included sugarcane or its derivatives in any domestic support notifications since the marketing year 1995-96.
- **India's Stand:**
 - India defended its position by stating that sugarcane procurement is managed by private mills, not the government, thereby aligning with fair trade practices.
 - India pointed out the error and said that US-Australia analysis uses the entire sugarcane production in India in a given year for calculating the subsidies, regardless of whether or not the sugarcane was actually delivered to sugar mills for crushing under the **Sugarcane (Control) Order**.

Note:

What are the Major Areas of Cooperation Between India and Brazil?

- **Institutional Level Engagements:** India and Brazil have a very close and multifaceted relationship, both bilaterally and in various multilateral forums such as **BRICS, IBSA, G4, G20, BASIC, International Solar Alliance (ISA)**, WTO, **UNESCO**, and WIPO. Bilateral engagements include:
 - **Strategic Dialogue**, led by **National Security Advisors** (NSA), addresses key regional and global issues of mutual interest.
 - **India-Brazil Business Leaders Forum**, focuses on trade, investment, and economic cooperation opportunities.
 - **Trade Monitoring Mechanism (TMM)**, tracks and resolves issues in bilateral trade.
 - **Economic and Financial Dialogue**, covers cooperation on investment, trade, and monetary policy.
 - **Joint Defence Commission**, facilitates defence cooperation, including joint exercises, equipment procurement, and intelligence sharing.
 - **Joint Committee on Science & Technology**, fosters cooperation in research, development, and knowledge exchange.
- **Trade and Investment:**
 - India became Brazil's **5th largest trading partner in 2021**, with bilateral trade increasing from USD 7.05 billion in 2020 to USD 11.53 billion.
 - It grew further to USD 15.2 billion in 2022 and saw India's exports to Brazil at USD 6.9 billion and imports at USD 4.7 billion in 2023.
 - **Major Indian exports to Brazil:** Agrochemicals, synthetic yarns, auto components and parts, and imports include crude oil, gold, vegetable oil, sugar, and bulk mineral and ores.
 - India and Brazil have witnessed investments in various sectors such as automobiles, IT, mining, energy, biofuels, and footwear.
 - India also signed a Preferential Trade Agreement (PTA) with **MERCOSUR (Brazil, Argentina, Uruguay, Paraguay)** in 2004.
- **Defence & Security Cooperation:** India and Brazil signed a defence cooperation agreement in **2003**, with **Joint Defence Committee (JDC)** meetings institutionalising this collaboration.

- In 2006, they established a strategic dialogue led by India's National Security Advisors (NSA) to address regional and global issues.
- Additionally, an MoU on Cyber Security between CERT-In and its Brazilian counterpart was signed during the Brazilian President's visit in January 2020.
- **Cooperation in Science and Technology:**
 - India and Brazil's 2004 agreement on space led to collaboration in data sharing and satellite tracking.
 - The Brazilian Minister visited India in 2021 to witness the launch of the **Amazonia-1 satellite**.
 - **Ayurveda and Yoga** are also recognised in Brazil's health policy. An MoU on Traditional Medicine and Homeopathy was signed in January 2020.
- **Energy Security:**
 - Signed an MoU in January 2020 between **Indian Oil Corporation and Brazil's CNPEM** to establish a research institution in India for **bioenergy**.
 - The two countries, along with the US, jointly launched the **Global Biofuel Alliance (GBA) during the G20 summit** in India in 2023 to enhance biofuel output and demand.
 - **Ethanol Blending Programme:** Brazil, a pioneer in ethanol production since 1975, has provided technological support to India with the aim to facilitate technology transfer and boost India's biofuel production.
 - **Brazil has achieved a 27% ethanol blending in gasoline**, with 84% of its vehicles equipped with flexible-fuel engines capable of running on varying proportions of gasoline and ethanol.
 - As of July 2024, **India has achieved a 15.83% ethanol blending rate in petrol**, with a **goal of reaching 20% by the 2025-26 supply year**.

What are the Challenges in India-Brazil Relations?

- **Trade Deficit and Competitions:** India has consistently maintained a **trade deficit** with **Brazil** due to Brazil's dominance in agricultural products and India's reliance on imports of commodities like soybeans and sugar.
 - Both countries have implemented **protectionist measures**, such as tariffs and subsidies, to **protect domestic industries, creating trade frictions and hindering the growth of bilateral trade**.

Note:

- **Diverging Interests in International Forums:** India and Brazil have **differing priorities on climate change** and within multilateral institutions.
 - India focuses on reducing emissions intensity, economic development and energy access while Brazil prioritises Amazon deforestation reduction to combat climate change.
 - Similarly, their priorities diverge in organisations like the **UN** and the **World Trade Organization**.
- **Limited People-to-People Contact:** India and Brazil have relatively few people-to-people interactions, including in business, cultural, and educational exchanges.
- **Role of China:** Additionally, concerns exist that China's status as Brazil's largest trading partner could influence the relationship between India and Brazil.

OPEC+ Plans Production Cuts

Why in News?

The recent announcement of **Organization of the Petroleum Exporting Countries (OPEC)+** countries to **cut oil production** has raised concerns regarding global oil markets and India's energy security.

- With India's fuel consumption which is around **4.8 million barrels per day in 2024** is expected to reach **6.6 million barrels per day by 2028**, these cuts may push Indian refiners to source more crude **from the Americas**, highlighting **shifts in global oil trade**.

What is the Organization of the Petroleum Exporting Countries (OPEC)?

- **About:**
 - The **Organization of the Petroleum Exporting Countries (OPEC)** is a permanent, intergovernmental organisation, established at the **Baghdad Conference in 1960**, by **Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela**.
 - Its headquarters is located in **Vienna, Austria**.
- **Objective:**
 - OPEC aims to **coordinate and unify petroleum policies** among its member countries to **ensure fair and stable prices for producers**, provide an **efficient and regular supply of petroleum** to consumers, and **deliver a fair return on investment** for those involved in the industry.

Members:

- Currently, the Organization has a total of **12 Member Countries: Algeria, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, United Arab Emirates and Venezuela**.
 - Qatar terminated its membership on 1 January 2019. Angola withdrew its membership effective 1 January 2024.
- OPEC nations produce about **30% of the world's crude oil**.
 - Saudi Arabia is the biggest single oil supplier within the group, producing more than 10 million barrels a day.
- OPEC reports that its member countries represent approximately **49% of global crude oil exports** and possess about **80% of the world's proven oil reserves**.

OPEC+:

- In **2016**, in reaction to declining oil prices caused by a surge in **US shale oil production**, OPEC formed an alliance with **10 additional oil-producing nations**, leading to the establishment of **OPEC+**.
 - OPEC+ now includes the 12 OPEC member countries along with **Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan**.
- OPEC+ countries produce about **40% of all the world's crude oil**.

Why is OPEC+ Planning to Cut Oil Production?

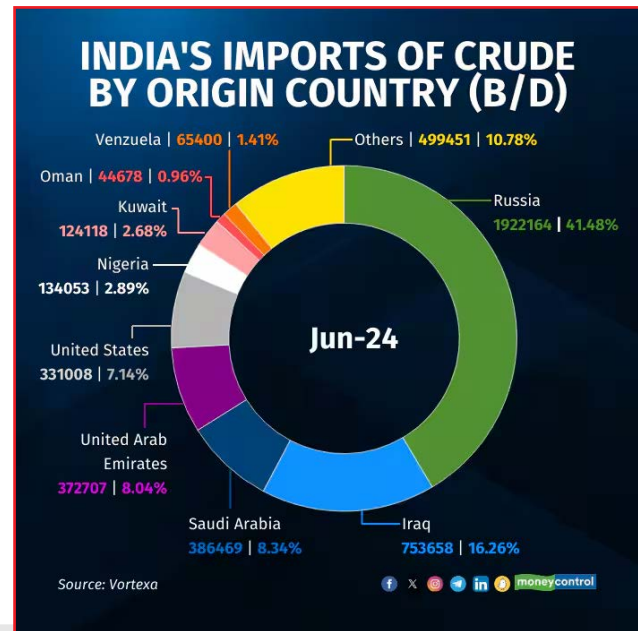
- **Market Stabilisation:** OPEC+ aims to **stabilise and boost oil prices** by cutting production, addressing fluctuating demand and oversupply.
 - This strategy is intended to **enhance revenue for oil-producing countries** amid economic uncertainties and geopolitical tensions.
- **Response to Non-OPEC Supply Increases:** The **International Energy Agency (IEA)** forecasts a significant increase in non-OPEC+ crude supply, particularly from the **US, Canada, Brazil, and Guyana**.
 - This influx challenges OPEC's market share, prompting the group to implement cuts to maintain price stability.

Note:

- **Respond to Geopolitical Tensions:** Rising geopolitical tensions, such as **conflicts in the Middle East** and **disruptions in shipping routes**, ongoing **sanctions on Russian crude exports** have impacted oil supply and prices.
 - OPEC+ aims to address these challenges through coordinated output cuts.
- **Long-term Strategy:** OPEC+ aims to **ensure sustainable production levels** and **prevent market crashes**, which can occur when supply exceeds demand. By controlling output, they are attempting to create a more predictable and stable market environment.

What are the Implications of OPEC+ Oil Production Cuts?

- **Global Oil Prices:**
 - A reduction in OPEC+ output is likely to lead to **higher oil prices globally**. This can result in **increased costs for importing countries**, impacting **inflation rates** and **economic growth**.
- **Implications for India:**
 - **Shift in Supply Dynamics:** With OPEC+ reducing production, India may **increase crude oil imports from non-OPEC+ countries** like the US, Canada, Brazil, and Guyana. This shift could **diversify India's import sources**, reducing reliance on West Asian crude oil.
 - This diversification strategy is crucial as West Asian imports have already declined from 2.6 mb/d in 2022 to 2 mb/d in 2023.
 - **Potential for Price Volatility:** For India, diversifying the range of suppliers can **enhance energy security**, but increased reliance on non-OPEC sources may expose India to **price fluctuations** in these markets, potentially leading to **higher import bills** and impacting the trade balance.
 - India is the world's **third-largest consumer of crude oil** (after the US and China) with a **high import dependency** level of over **85%**.
 - **Economic Growth:** Higher oil prices can strain the Indian economy, particularly sectors reliant on oil. This could lead to increased transportation costs and inflation, affecting overall economic stability.



What are the Projected Trends in India's Liquid Fuels Consumption and Capacity Expansion?

- **Growing Fuel Consumption:** India's **consumption of liquid fuels** is expected to **grow** significantly, with projections indicating an increase from **5.3 mb/d in 2023 to 6.6 mb/d by 2028**, a rise of 26% over five years.
 - This growth is attributed to various economic factors, including **population growth**, **GDP growth**, and **rising GDP per capita**.
 - The EIA estimates that annual growth in liquid fuels consumption will average between **4% and 5% until 2037**.
- **Capacity Expansion:** India has **expanded its refining capacity by 1.3 mb/d between 2011 and 2023** and plans further expansions to meet rising domestic fuel demand.
 - By 2028, **11 new crude oil capacity projects** are expected, including the 1.2 mb/d **Ratnagiri mega project**.

What are the Major Challenges in India's Energy Sector?

- **Energy Security and Import Dependency and Geopolitics:** India relies on **imports for over 75%** of its oil needs which is **projected to exceed 90% by 2040**. This growing dependency on **volatile international markets** poses significant risks.

Note:

- Increasing dependence on imported oil has placed India's energy security under severe strain, and geopolitical disruptions such as **Russia-Ukraine war** and US, UK and EU **sanctions over Russia** have exacerbated the problem. Russian crude accounted for nearly 36% of India's oil imports in FY24.
- India's energy transition to **renewable energy faces challenges**, including its **dependency on China for renewable technologies** and related raw materials.
- **Domestic Production Decline:** India's **crude oil production has declined since 2011-12** due to insufficient investment in exploration and ageing oil fields.
 - It declined from **32.2 million tonnes in 2019-20 to 29.2 million tonnes in 2022-23**, according to government data.
- **Infrastructure Bottlenecks: Limited pipeline infrastructure and storage facilities** hinder the efficient transport and distribution of crude oil in India.
 - It also includes issues such as land acquisition bottleneck, disinvestment, demand surge, lack of management skills, delay in regulatory clearances, climate change, under-investment bottleneck, etc.
- **Rising Import Bill:** India's economy is susceptible to global oil price fluctuations, resulting in rising import bills that threaten fiscal stability.
 - India's net oil import bill is projected to reach **USD 101-104 billion in FY25**, up from **USD 96.1 billion in FY24** which could **negatively impact the economy** by widening the **current account deficit (CAD)** and potentially causing higher **inflation** and **fiscal deficits** if not properly managed.



Note:

Social Issues

Highlights

- SBM Reduced Infant and Child Mortality
- 7th Rashtriya Poshan Maah 2024
- Ovarian Cancer Awareness Month
- Lancet Study on Micronutrient Inadequacies
- West Bengal "Aprajita" Anti-Rape Bill
- Government Measures for LGBTQIA+ Community
- Religious Composition of the World's Migrants Report

SBM Reduced Infant and Child Mortality

Why in News?

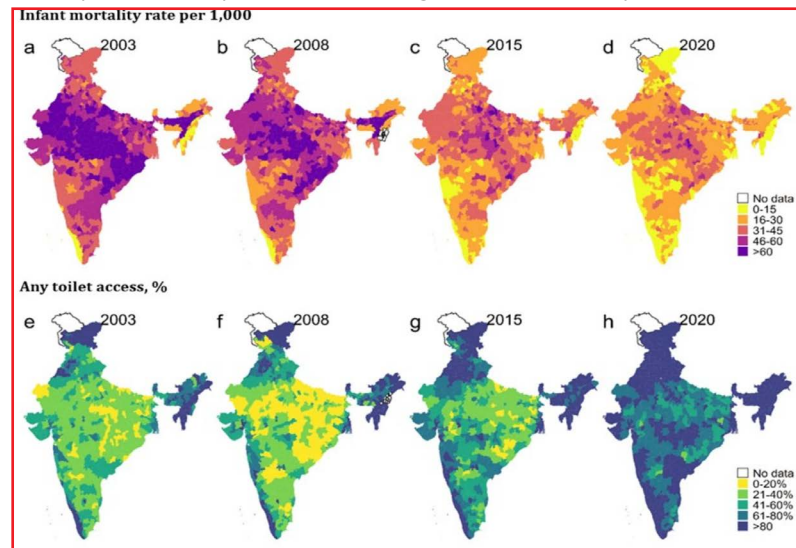
Recently, Science journal **Nature** has published a study titled 'Toilet construction under the Swachh Bharat Mission (SBM) and infant mortality in India'.

- It analysed data from **35 states/Union territories** and over 600 districts between **2011 and 2020**.

What are the Key Findings of the Study?

- **Reduction in Infant Deaths:** The **Swachh Bharat Mission (SBM)** potentially averted **60,000-70,000** infant deaths annually between **2011-2020**.
 - Districts with over **30% of toilets** constructed under SBM experienced **5.3 fewer infant deaths** and **6.8 fewer child deaths** per 1,000 births.
 - Every **10% increase** in district-level toilet access after SBM correlated with a reduction in **Infant Mortality Rate (IMR)** by **0.9 points** and **Under-Five Mortality Rate (U5MR)** by **1.1 points** on average.
- **Accelerated Decline in IMR:** During the post-SBM period, IMR reductions accelerated, with an **8-9% annual decline**, compared to a **3% annual decline** in the pre-SBM period (2000-2014).

- **Toilet Availability:** The availability of **toilets increased twofold**, and open defecation declined from 60% to 19% in the first five years of SBM.
 - From 2014 to 2020, the government constructed **109 million household toilets** and declared that more than **600,000 villages are open defecation free (ODF)**.
- **Additional Benefits of Improved Sanitation:** Enhanced access to toilets has broader benefits, including **women's safety**, financial savings due to reduced medical expenses, and overall improved quality of life.
 - Families in ODF villages **saved an average of Rs 50,000 annually on health costs**.
- **SBM's Unique Approach:** SBM's approach of combining toilet construction with substantial investments in **IEC (Information, Education, and Communication)** and community engagement represent comprehensive strategies to deal with open defecation.



What is the Swachh Bharat Mission?

- **About SBM:** It is a national-level cleanliness campaign announced by the Prime Minister on **Independence Day 2014** and launched on **2nd October 2014**, coinciding with **Gandhi Jayanti**.

Note:

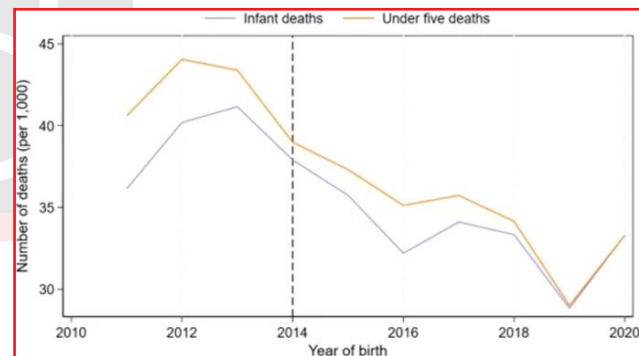


- It is considered **India's largest-ever cleanliness drive**, involving 3 million government employees, school, and college students.
- In February 2020, Phase-II of SBM was approved focusing on **sustaining ODF status and Solid and Liquid Waste Management (SLWM)**.
- **Key Principles and Goals:**
 - **Toilet Construction:** Building individual, cluster, and community toilets to eliminate or reduce open defecation, a major cause of child mortality.
 - **Monitoring Usage:** Establishing an accountable mechanism to monitor toilet use, not just construction.
 - **Public Awareness:** Promoting awareness about the drawbacks of open defecation and encouraging toilet use.
 - **Behavioural Change:** Aiming to change people's attitudes, mindsets, and behaviours toward sanitation through dedicated ground staff and campaigns.
 - **Clean Villages:** Maintaining cleanliness in villages and ensuring effective solid and liquid waste management through **gram panchayats**.
 - **Water Supply:** Installing water pipelines to ensure water supply to all households.
- **Funding and Budget Allocation:** SBM had an average annual budget of approximately **1.25 billion USD from 2015 to 2020**, reflecting the government's substantial investment in improving national sanitation and public health outcomes.
- **Financial and Technical Support:** Financial incentives provided by the central government to state governments for sanitation efforts, including toilet construction and waste management.
 - **Swachh Bharat Kosh** allows for public, corporate, and individual contributions for infrastructure purposes.
 - **Swachh Bharat Preraks**, volunteers recruited by Tata Trusts, monitor the progress of sanitation activities.

What is the Significance of the Swachh Bharat Mission (SBM)?

- **Key Public Health Intervention:** Improved sanitation has been linked to significant declines in IMR globally, with similar trends observed in the **United States** and other Western countries in the early 1900s.

- The research confirms that improved sanitation under SBM has been a **critical factor** in reducing IMR and U5MR in India.
- **Addressed the 'Asian Enigma':** The study supports prior research on the **'Asian Enigma,'** where India's **high child stunting rates**, despite **economic progress**, were linked to widespread **open defecation**.
 - The reduction in open defecation under SBM addresses this issue by improving sanitation, which is expected to have a long-term impact on reducing child stunting rates.
- **Economic Benefits:** **UNICEF** reports that **every rupee** invested in SBM yields a return of **Rs. 4.3** due to **reduced healthcare costs**, increased productivity etc.
 - If SBM achieved its aim of ending open defecation, with improved sanitation, the **damage costs** would be reduced to **2.7% of GDP**. It would save **Rs 8.1 trillion** from the current situation.



What are the Challenges in Successful Implementation of SBM?

- **Behaviours Changes:** Open defecation is viewed by many in rural India as **healthier, cleaner**, and sometimes **religiously acceptable**.
 - Children, particularly those under 15, practice open defecation more frequently.
- **Non-Functional Toilets:** Empirical data suggest that toilets remain **non-functional** precisely because of **inadequate or no water facility**.
- **Pit Based Toilet:** Most of these toilets are connected to a **pit or a septic tank**. The pit fills up in **five to six years** of continuous usage and **cleaning of faecal material** remains a challenge.
 - **Unsafe stool disposal** in open places is a major factor contributing to higher rates of **diarrhoea and stunting**.

Note:

- **Ignorance to Hand Hygiene:** Hand hygiene is an essential cost-effective public health intervention, but its practice is **inconsistent** due to the lack of facilities (water, soap, handwashing space).
- **Challenges Faced by Marginalised Communities:** Disadvantaged sections, including **landless people**, **migrant labourers**, and disabled persons, often lack access to toilets or find existing toilets inaccessible.

7th Rashtriya Poshan Maah 2024

Why in News?

Recently, the **Ministry of Women and Child Development** launched the **Rashtriya Poshan Maah 2024** in **Dhar district** of Madhya Pradesh on 1st September 2024.

- Also, the Ministry of Women and Child Development received the **National Award for e-Governance 2024 (Gold)** for the **Poshan Tracker initiative**.

National Awards for e-Governance

- The awards are **presented annually, since 2003**, by the **Department of Administrative Reforms and Public Grievances (DARPG)**, Ministry of Personnel, Public Grievances and Pensions.
- **Purpose of Award:**
 - Recognize achievements in the area of e-Governance.
 - Disseminate knowledge on effective methods of designing and implementing sustainable e-Governance initiatives.
 - Encourage incremental innovations in successful e-Governance solutions.
 - Promote and exchange experiences in solving problems, mitigating risks, resolving issues and planning for success.
- All Central Ministries/Departments, State/UT Governments, Districts, Local Bodies, Central & State Government PSUs, Academic/Research Institutions (Government and Non –Government) are eligible to apply for these awards.

What is Rashtriya Poshan Maah?

- **About Rashtriya Poshan Maah:** It is an **annual campaign** aimed at addressing **malnutrition** and promoting **better nutrition** and health practices.

- It is celebrated in the month of **September** every year under **Poshan Abhiyan** (PM's Overarching Scheme for Holistic Nourishment).
- **Key Focus Areas:** It focuses on enhancing awareness about **nutrition, improving dietary practices, and combating malnutrition** among vulnerable groups, including **children, adolescents, pregnant women, and lactating mothers**.
 - It is in line with the national vision of a 'Suposhit Bharat.'
- **Activities:** Various activities are conducted, such as **plantation drives**, distribution of nutritional supplements, community outreach programs, exhibitions, and educational sessions.
 - E.g., **Rashtriya Poshan Maah 2024** began with a nationwide plantation drive titled "Ek Ped Maa Ke Naam".
- **Key Themes of Rashtriya Poshan Maah 2024:** **Anaemia**, Growth Monitoring, Complementary Feeding, **Poshan Bhi Padhai Bhi**, Technology for Better Governance, and **Ek Ped Maa Ke Naam**.

What is POSHAN Abhiyaan?

- **About:** It was launched in **March 2018** to address malnutrition by focusing on the **nutritional needs** of adolescent girls, pregnant women, lactating mothers, and children up to 6 years old.
 - It is implemented by the Ministry of Women and Child Development.
- **Objectives:** It targets to reduce **stunting, under-nutrition, anaemia** (among young children, women and adolescent girls) and reduce **low birth weight** by **2%, 2%, 3% and 2% per annum** respectively.
 - Targeting children aged **0-6 years** to reduce stunting and underweight prevalence.
 - Reducing Anaemia prevalence among young children (6-59 months) and among women and adolescent girls aged 15-49 years.
- **Components of POSHAN Abhiyaan:**
 - **Village Health Sanitation Nutrition Day (VHSND):** It promotes coordination through target-setting, sector meetings, and **decentralised planning**.
 - **ICDS-CAS (Common Application Software):** It employs software and growth monitoring tools to **track nutritional status**.

Note:

What is Poshan Tracker?

- It is a **mobile app** that tracks and **monitors the health and nutrition** of children and pregnant women in India.
- It serves as an essential tool for **Anganwadi Workers (AWWs)** that reflects the progress and impact of their interventions and enables real-time monitoring.
- It is an interactive tool that measures a child's growth using **World Health Organization (WHO)** standards and provides suggestions for corrective action based on the inputs.
- AWWs can register **6 types of beneficiaries**:
 - Pregnant Women, Lactating Mothers, Children between 0-6 months, Children between 6 months to 3 years, Children between 3-6 years and Adolescent Girls aged 14-18 years (specifically for Aspirational Districts).

Anaemia

- It is characterised by a **lower-than-normal number of red blood cells** or a reduced concentration of haemoglobin within these cells.
 - **Haemoglobin**, a protein in red blood cells, is essential for oxygen transport throughout the body.
- **Cause**: Inadequate intake or absorption of essential nutrients, notably **iron**, but also including folate, **vitamins B12**, and **vitamin A**, is a significant cause.
- **Global Prevalence**: An estimated **40% of children** aged 6–59 months and approximately **37% of pregnant women** suffer from anaemia.
- **Prevalence in India**: According to the **NFHS 5 (2019-21)**, it affects **31.1%** of adolescent boys (15-19 years), **59.1%** of adolescent girls, **52.2%** of pregnant women (15-49 years), and **67.1%** of children (6-59 months).

Ovarian Cancer Awareness Month

Why in News?

The **American Association for Cancer Research**, the world's oldest and largest professional organization dedicated to cancer research, has **recognized September as Ovarian Cancer Awareness Month**.

- This month is dedicated to **raising awareness** about this deadly gynecological cancer.

Note:

- **National Cancer Awareness Day is celebrated in India on 7th November every year to raise awareness about cancer** and encourage early detection.

What are the Key Facts Related to Ovarian Cancer?

- **About:**
 - Ovarian cancer is a **cancerous tumor that forms in the tissues of an ovary**. The ovaries are a pair of **female reproductive glands** that **make eggs and female hormones**.
 - **Cancer** is a disease in which **abnormal cells in the body grow out of control** and form a tumor.
- **Epidemiology**: Ovarian cancer contributes to **6.6% of all women's cancers in India**. The disease is particularly problematic due to late diagnosis, which significantly impacts survival rates.
 - In India, **ovarian cancer ranks among the top 3 cancers** (after **breast** and **cervix cancer**) affecting women.
 - In 2022, India reported **47,333 new ovarian cancer cases** and **32,978 deaths**.
- **Symptoms**: Common symptoms include bloating, pelvic or abdominal pain, loss of appetite, feeling full quickly, frequent urination, indigestion, constipation, back pain, persistent fatigue, weight loss, and postmenopausal vaginal bleeding.
 - These **symptoms often lead to misdiagnosis** or delayed treatment.
- **Type of Ovarian Cancer:**
 - **Type I**: Less common, typically **diagnosed early, and has a better prognosis**.
 - **Type II**: More aggressive, usually **diagnosed at an advanced stage**, and responsible for the majority of ovarian cancer deaths.
- **Survival Rates**: The survival rate is heavily **dependent on the stage at which the cancer is detected**.
 - Research indicates that about **20% of patients with advanced ovarian cancer** who receive optimal treatment can be disease-free at 10 years.
- **Screening Challenges**: Unlike breast or cervical cancer, there are **no effective screening tests** for ovarian cancer.

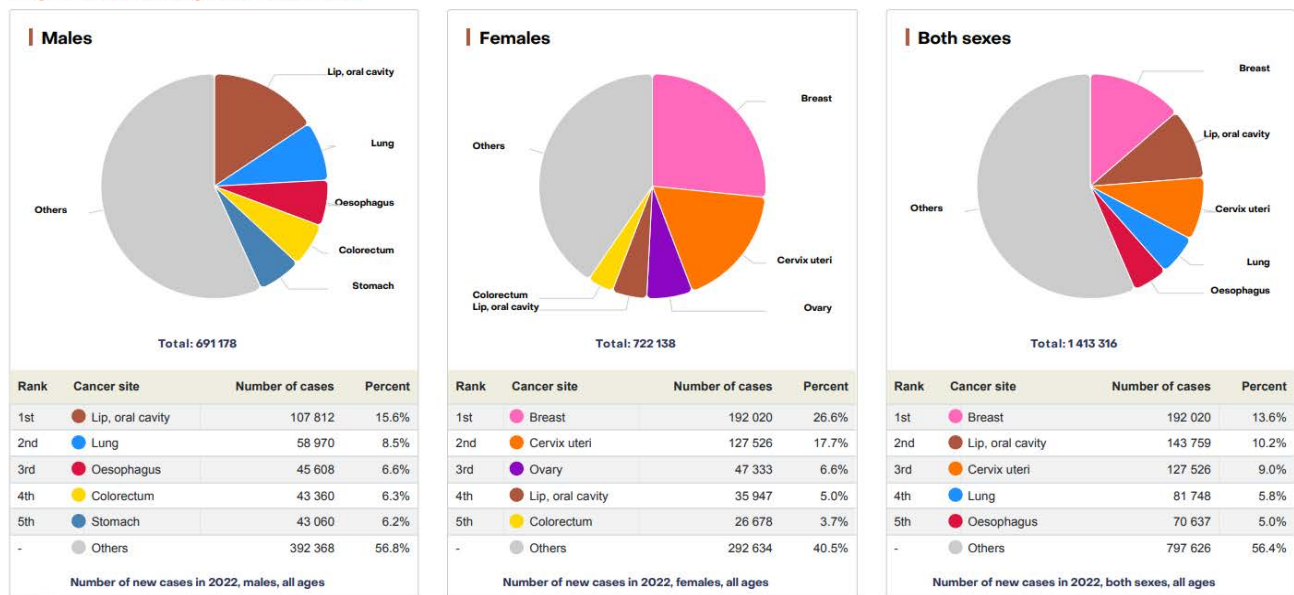
Note:

- The **CA125 blood test**, while useful for monitoring diagnosed cases, is not recommended for routine screening due to its **limited specificity and potential for false positives**.
 - The CA 125 test measures a **blood protein** to diagnose or monitor ovarian, fallopian tube, or primary peritoneal cancer.
- **Genetic Factors:** Ovarian cancer has a **strong hereditary component**, with **65-85% of hereditary cases linked to mutations** in the **BRCA1 and BRCA2 genes**.
 - Women with these mutations face significantly higher risks of developing ovarian cancer.
 - BRCA1 and BRCA2 genes help repair **DNA** and **regulate cell division**. Mutations in these genes **raise the risk of breast, ovarian, and other cancers**.
- **Lifestyle Factors:** Certain lifestyle choices, including **talcum powder usage and exposure to chemicals in**

hair products, have been discussed as **potential risk factors** for ovarian cancer.

- Additionally, **Hormone Replacement Therapy (HRT)** has been associated with an increased risk.
- HRT is commonly used to **treat menopausal symptoms** like hot flashes and vaginal discomfort.
- **Reducing Risk:**
 - Genetic counseling is crucial for women with a **family history or genetic mutation (BRCA1/BRCA2) linked to ovarian or breast cancer**, providing tailored guidance on **risk management and preventive measures**.
 - A **diet rich in fruits, vegetables, whole grains**, and antioxidants may help reduce ovarian cancer risk.
 - Maintaining a **healthy weight** through diet and exercise may lower the risk.
 - **Regular gynecological check-ups** can help monitor reproductive health and detect potential issues early.

Top 5 most frequent cancers**



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What are the Government Initiatives Related to Cancer Treatment?

- [National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke](#)
- [National Cancer Grid](#)
- [National Cancer Awareness Day](#)
- [HPV Vaccine](#)

Read More: [Rising Cancer Concerns](#).

Note:

Lancet Study on Micronutrient Inadequacies

Why in News?

Recently, a study published in Lancet Global Health highlighted the global inadequacy of **micronutrient**

What are Key Findings of the Study?

Category	Nutrient(s)	Key Findings
Global Findings	Iodine, Vitamin E, Calcium	Over 5 billion people worldwide have inadequate intakes.
	Iron, Riboflavin, Folate, Vitamin C	More than 4 billion people have insufficient intakes.
Gender Differences	Iodine, Vitamin B12, Iron, Selenium, Calcium, Riboflavin, Folate	Women have higher inadequacies.
	Magnesium, Vitamin B6, Zinc, Vitamin C, Vitamin A, Thiamin, Niacin	Men have higher inadequacies.
India-Specific Findings	Riboflavin, Folate, Vitamin B6, Vitamin B12	India experiences high levels of inadequacies in these nutrients

intake, particularly for iodine, vitamin E (tocopherol), calcium, iron, riboflavin (vitamin B2), and folate (vitamin B9) across different regions and age groups.

- As the **first global estimate based on dietary intake data**, it underscores the need for nutritional interventions **such as dietary modifications, biofortification, fortification, and supplementation.**

What are Micronutrients?

- **About Micronutrients:** Micronutrients include **vitamins and minerals** required by the body in **very small amounts**. E.g., Iron, Vitamin A, Iodine etc.

- They are crucial for producing **enzymes, hormones**, and other substances necessary for normal growth and development.

- **Impact of Micronutrient Deficiencies:**

- **Severe Conditions:** Deficiencies in micronutrients can lead to **serious health issues**, particularly in children and pregnant women. E.g., **Anaemia**.
- **General Health:** Lack of micronutrients can cause less visible but significant health problems such as **reduced energy levels, mental clarity, and overall capacity**.
- **Long-Term Effects:** These deficiencies can impact **educational outcomes**, work productivity, and increase susceptibility to other diseases and health conditions.

- **Types:**

- **Undernutrition:**

- **Wasting:** Low weight-for-height is known as wasting. It occurs when a person has not had enough food to eat and/or they have had an infectious disease.

- **Stunting:** Low height-for-age is known as stunting. It often occurs due to insufficient calorie intake, leading to a low weight for a given height.

- **Underweight:** Children with low weight-for-age are known as underweight. A child who is underweight may be stunted, wasted, or both.

- **Micronutrient-related Malnutrition:**

- **Vitamin A Deficiency:** Insufficient intake of vitamin A can lead to vision impairment, weakened immunity, and other health issues.

- **Iron Deficiency:** Causes anaemia, impacting the body's ability to transport oxygen, leading to fatigue and weakness.

- **Iodine Deficiency:** Results in thyroid-related disorders, affecting growth and cognitive development.

- **Obesity:** Excessive calorie intake, often coupled with a sedentary lifestyle, can lead to obesity. It is characterised by an accumulation of excess body fat, posing health risks like cardiovascular diseases and diabetes.

- In adults, **overweight is defined as a Body Mass Index (BMI) of 25 or more**, whereas obesity is a BMI of 30 or more.

- **Diet-related Noncommunicable Diseases (NCDs):** It encompasses cardiovascular diseases, such as

Note:

heart attacks and strokes, often associated with high blood pressure, primarily stemming from unhealthy diets and inadequate nutrition.

WHO's Role in Preventing Micronutrient Deficiencies

➤ Key Programmes and Interventions:

- **Ambition and Action in Nutrition:** WHO works with Member States and partners to prevent micronutrient deficiencies through various programmes.
 - The approach is guided by the **WHO's Ambition and Action in Nutrition 2016–2025**, which aims for 'a world free from all forms of malnutrition where all people achieve health and well-being.
- **Iron and Folic Acid Supplementation:** Provides essential nutrients to prevent deficiencies and related health issues, particularly in vulnerable populations like pregnant women.
- **High-Dose Vitamin A Supplementation:** Aims to prevent **vitamin A** deficiency, which is crucial for vision and immune function, especially in children.
- **Fortification of Foods:**
 - **Salt Iodization:** Effective in reducing iodine deficiency globally.
 - **Wheat Flour Fortification:** Includes iron and folic acid to combat anaemia.

What is the Status of Malnutrition in India?

- **Undernourishment:** As per the '**State of Food Security and Nutrition in the World' (SOFI)** report released in 2024, India is home to 194.6 million (19.5 crore) undernourished people, the **highest** in any country in the **world**.
- **Child Malnutrition:** India is home to one-third of the world's malnourished children.
 - According to the **National Family Health Survey (NFHS-5) 2019-21**, approximately **36%** of children under the age of five are stunted, **19%** are wasted, **32%** are underweight, and **3%** are overweight.
- **Global Hunger Index 2023:** India's 2023 **GHI score** is **28.7**, considered serious according to the GHI Severity of Hunger Scale.
 - India's child wasting rate, at 18.7, is the **highest child wasting rate** in the report.

- **National Family Health Survey 5:** The prevalence of malnutrition varies significantly across different groups:
 - **25.0%** in men aged 15-49 years, **57.0%** in women aged 15-49 years, **31.1%** in adolescent boys aged 15-19 years, **59.1%** in adolescent girls, **52.2%** in pregnant women aged 15-49 years, and **67.1%** in children aged 6-59 months.
- **Regional Disparities:** Bihar, Gujarat, Madhya Pradesh, Andhra Pradesh, and Jharkhand have high rates of malnutrition.
 - Mizoram, Sikkim, and Manipur are **relatively better than other Indian states**.

What are the Consequences of Malnutrition?

➤ Health Effects:

- **Impaired Growth:** Malnutrition in children can lead to inadequate growth, affecting both their physical development and cognitive abilities.
- **Compromised Immunity:** Those suffering from malnutrition often have weakened immune systems, making them more susceptible to diseases and increasing morbidity and mortality rates.
- **Nutrient Deficiencies:** Insufficient intake of essential micronutrients can cause deficiencies in iron, vitamin A, and zinc, undermining overall health and immunity.

➤ Educational Impacts:

- **Cognitive Delays:** Poor nutrition during early childhood can result in cognitive delays, affecting learning capabilities and academic performance.
- **Higher Dropout Rates:** Children with malnutrition issues are more likely to experience difficulties in regular school attendance and have a higher likelihood of dropping out, which impacts their educational achievements.

➤ Economic Consequences:

- **Reduced Productivity:** Malnutrition can lead to diminished productivity throughout life, adversely affecting national economic output.
- **Rising Healthcare Expenses:** The high incidence of malnutrition increases the burden on healthcare services, leading to greater medical costs for both individuals and the government.

➤ Intergenerational Effects:

- **Maternal and Infant Health:** Anemic mothers are more likely to have anemic babies, continuing the cycle of poor nutrition across generations.

Note:

- **Long-term Health Challenges:** Malnourished children are at greater risk of facing health problems in adulthood, affecting their overall well-being and contributing to long-term public health issues.
- **Social Ramifications:**
 - **Exacerbated Inequality:** Malnutrition predominantly impacts marginalised and economically disadvantaged groups, intensifying social inequalities.
 - **Social Stigma:** Individuals experiencing malnutrition may face stigma and discrimination, which can affect their mental health and overall quality of life.
- **Impact on National Progress:**
 - **Hindered Human Capital Development:** Malnutrition impedes the growth of human capital, limiting opportunities for economic and social advancement.
 - **Increased Strain on Healthcare:** The prevalence of malnutrition contributes to a greater strain on healthcare resources, diverting focus and funds from other crucial health initiatives.

How can Nutrient Deficiency in India Be Addressed?

- **Food Fortification:** It is the addition of key **vitamins and minerals** such as **Iron, Iodine, Zinc, Vitamins A & D** to staple foods such as rice, wheat, oil, milk and salt.
 - It is a key tool in the fight against **malnutrition** because it increases the **nutritional value of staple foods** by adding vitamins and minerals.
- **Strengthening Integrated Child Development Services (ICDS):** Provide continuous and comprehensive training for **Anganwadi workers** to improve their skills in monitoring child growth, delivering nutritional education, and engaging **community support**.
- **Special Nutrition Programme (SNP):** Ensure that SNP provides adequate nutritional supplements, including calories and proteins, consistently across all areas, particularly in tribal and slum regions.
- **Creches for Working and Ailing Women:** Expand the number of **creches** to cover more children, particularly in areas with high numbers of **migrant workers** and low-income families.

- **Wheat Based Supplementary Nutrition Programme:** Explore innovative ways to utilise **wheat-based products** to ensure timely and adequate supply of wheat-based supplements to the targeted populations.
- **UNICEF Assistance:** Ensure that **UNICEF's** support covers a comprehensive range of services, including health, nutrition, education, and sanitation, to address the multifaceted nature of malnutrition.

What are the Initiatives Taken to Combat Malnutrition in India?

- [Mission Poshan 2.0](#)
- [Integrated Child Development Services \(ICDS\) Scheme](#)
- [Pradhan Mantri Matru Vandana Yojana \(PMMVY\)](#)
- [Mid-Day Meal Scheme](#)
- [Scheme for Adolescent Girls \(SAG\)](#)
- [Mother's Absolute Affection \(MAA\)](#)
- [Poshan Vatikas](#)

West Bengal "Aprajita" Anti-Rape Bill

Why in News?

The West Bengal Assembly has passed the **Aparajita Women and Child (West Bengal Criminal Laws Amendment) Bill, 2024** which aims to address issues of violence against women.

- It includes provisions for **capital punishment** and the **harshest penalties for rape and sexual harassment**.

What are the Key Provisions of the Aprajita Bill 2024?

- **Proposes Amendment to BNS 2023, BNSS 2023 and POCSO 2012 Act:** The proposed bill aims to amend several legal provisions, including those in the **Bharatiya Nyaya Sanhita (BNS) 2023**, the **Bhartiya Nagrik Suraksha Sanhita (BNSS) 2023**, and the **Protection of Children from Sexual Offences Act 2012 (POCSO)**. It is intended to apply to survivors and victims across all age groups.
- **Death Penalty for Rape:** The Bill proposes **capital punishment** for individuals convicted of rape if the act results in the victim's death or leaves her in a **vegetative state**.

Note:

- Under **BNS Laws**, the penalties for rape are as follows: a fine and a minimum of **10 years imprisonment for rape**; a minimum of **20 years imprisonment for gang rape**, which may extend to life imprisonment; and a **minimum of 20 years of rigorous imprisonment for rape resulting in the victim's death or a vegetative state**, with the possibility of life imprisonment or the death penalty.
- **Time-Bound Investigations and Trials:** Investigations into rape cases are mandated to be **completed within 21 days of the initial report and trial to be completed within 30 days**. Extensions are permissible only with written justification from a senior police officer.
 - Under **BNS laws**, the time limit for investigation and trial is **2 months** from the date of FIR.
- **Establishment of Fast-Track Courts:** It also mandates the **creation of 52 special courts** dedicated to expediting the handling of **sexual violence cases**.
- **Aparajita Task Force:** The Bill calls for the establishment of a **specialized task force at the district level**, led by a **deputy superintendent of police** dedicated to investigation of rape and other atrocities against women and children.
- **Stricter Penalties for Repeat Offenders:** The legislation proposes **life imprisonment for repeat offenders, with the possibility of the death penalty** if the circumstances warrant it.
- **Protection of Victims' Identities:** The Bill includes provisions to **protect the identities of victims**, ensuring their privacy and dignity during the legal process.
- **Penalties for Delaying Justice:** It introduces **penalties for police and health officials** who fail to act promptly or tamper with evidence. This aims to hold authorities accountable for any negligence in the judicial process.
- **Publication Restrictions:** The Bill imposes strict penalties for **unauthorised publication of court proceedings** related to sexual offences, with potential imprisonment of 3 to 5 years.

What are the Challenges Related to Aparajita Bill 2024?

- **Constitutional Validity:** The **Aparajita Women and Child (West Bengal Criminal Laws Amendment) Bill, 2024** seeks to amend central laws, raising concerns about its constitutional validity and jurisdictional issues.

- Under **Article 246** of the Indian Constitution, **states have the authority to legislate on issues listed in the State List**. However, the **concurrent jurisdiction** over criminal laws introduces complexity. If the bill overrides the central law, it needs a President's assent.
- **Unrealistic Timeframe:** Completing investigations **within 21 days** is a significant challenge given the complexity of rape cases and the existing backlog in the legal system.
- **Legal Challenges:** There have been many instances in which state amendments to central laws have been contested in Courts. For instance:
 - **State of West Bengal v. Union of India (1964):** In this the **Supreme Court** invalidated the **West Bengal Land Reforms Act, 1955**, for conflicting with the central **Land Acquisition Act, 1894**, affirming Parliament's supremacy.
 - **KK Verma v. Union of India (1960):** In this case the **Supreme Court** struck down the **Madhya Pradesh Agricultural Produce Markets Act, 1958**, for **inconsistency with central laws**.
 - These cases underline the judiciary's stance on central legislation's supremacy over state amendments.
- **Implementation Challenges:** The Bill's effective implementation may face hurdles, requiring upgrades to law enforcement infrastructure and specialised training for police and judicial officers.
- **Overburdened Courts:** Indian courts face severe delays, with cases taking an average of over 13 years to resolve. This backlog could hinder timely trials following the expedited investigations.
- **Legal Rights of the Accused:** The legal framework guarantees the right to a fair trial for the accused, which can prolong the process through appeals and mercy petitions.

Note:

- **Criminal law** in India is **regulated by both state and central governments**, as it falls under the **concurrent list** of the Constitution, enabling both levels to legislate on the subject.

Note:

WB legislation versus existing law



Punishment for rape and murder

WB Bill: Death sentence if the victim dies or is left in a vegetative state

Existing law: Under BNS, if rape results in the victim's death or leaves her in a vegetative state, death penalty is only one of the punishments besides life term or minimum 20 years in jail

Fast-track courts

WB Bill: Establishment of special courts for cases of sexual violence

Existing law: Under a centrally sponsored scheme, the department of justice provides funds to states for setting up fast track special courts for trial of cases relating to sexual offences

Probe deadlines

WB Bill: Investigation must be concluded within 21 days of the initial report

Existing law: Under BNSS, investigation must be concluded within two months of the filing of FIR. For trial, it specifies framing of charge within 60 days from the first hearing and judgment within 30 days (maximum of 60 days) after arguments conclude

Junior doctors continue their protest in Kolkata.

SAMIR JANA/HT

Disclosing victim's identity

WB Bill: Imprisonment of 3 to 5 years

Under BNS: 2 years imprisonment and fine



What are the Laws Related to Rape in India?

- **Criminal Law (Amendment) Act 2013:** This was enacted for effective legal deterrence against sexual offences.
 - Under the Act, the minimum sentence for rape was altered from 7 years to 10 years. Furthermore, in cases that resulted in the death of the victim being left in a vegetative state, the minimum sentence has been duly increased to 20 years.
 - Further, the Criminal Law (Amendment) Act, 2018 was enacted to prescribe even more stringent penal provisions including the death penalty for the rape of a girl below the age of 12 years.
- **Protection of Children from Sexual Offences Act, 2012 (POCSO):** The Act was enacted to protect children from sexual assault, sexual harassment, and pornography.
 - The Act raised the age of consent to 18 years (which was 16 till 2012) and criminalises all sexual activities for those under 18 even if consent was factually present between two minors.
 - This Act was also amended in 2019 to make provisions for enhancement of punishment for various offences to ensure safety, security & dignity of a child.

➤ Rights of a Rape Victim:

- **Right to Zero FIR:** The term **Zero FIR** means that the person can file an FIR in any police station, irrespective of the place of incident of the jurisdiction.
- **Free Medical Treatment:** According to section 357C of code of Criminal Procedure (**Bharatiya Nagarik Suraksha Sanhita (BNSS)**), no private or government hospitals can charge fees for the treatment of rape victims.
- **No two-Finger Test:** No doctor shall possess the right to do **Two Finger Tests** while doing the medical examination.
- **Right to Compensation:** A new provision has been introduced as section 357A of the CrPC, which provides some amount as compensation to victims.

What are the Challenges in Addressing Security of Womens?

- **High Incidence of Crimes Against Women:** Data from **National Crime Record Bureau (NCRB)'s** 'Crime in India' reports shows reported crimes against women increased from 3.37 lakh in 2014 to 4.45 lakh in 2022, a rise of over 30%.

Note:



drishti

- The Crime Rate (crimes per lakh women) also increased from 56.3 in 2014 to 66.4 by 2022.
- **Patriarchal Mindset:** Deep-rooted patriarchy fosters **male dominance and entitlement, objectifying women** and creating a hostile environment.
 - This cultural mindset is a major barrier to women's safety and equality.
- **Objectification in Media:** Media portrayals **often commodify women**, undermining their autonomy and **contributing to a culture that disregards women's rights**. This objectification reinforces harmful stereotypes and societal attitudes.
- **Delayed Justice and Legal Challenges:** The **slow legal process and infrequent death penalty impositions** exacerbate trauma for victims.
 - Timely justice remains a critical issue, with ongoing debates about capital punishment's effectiveness.
- **Lack of Awareness and Education:** **Inadequate sex education** and discussions about consent and **gender sensitivity** perpetuate harmful stereotypes and ignorance, preventing effective intervention.
- **Infrastructure and Safety Measures:** Poorly lit streets, **inadequate public transport**, and a lack of safe public toilets increase women's vulnerability. Improving infrastructure and safety measures is essential.

Government Measures for LGBTQIA+ Community

Why in News?

Recently, the **Department of Social Justice and Empowerment (DoSJE)** has sought inputs from the stakeholders and public at large to **enhance inclusivity in policies for the LGBTQIA+ community**.

- This effort follows key actions by the Government of India in response to the **Supreme Court(SC) directives given in 2023**, to protect **queer rights** and clarify their entitlements.

Note: LGBTQIA+ is an acronym that represents **lesbian, gay, bisexual, transgender, queer, intersex, and asexual**. The "+" represents the many other identities that are still being explored and understood.

What was the Supreme Court's Directives Regarding LGBTQIA+ Rights?

- The SC's directives, issued in its judgement regarding the **recognition of same-sex marriages(Supriyo@Supriya vs. Union, 2023)**, focused on **expanding entitlements and rights for LGBTQIA+ individuals**, particularly in areas where they faced discrimination.
 - The **Supreme Court refused to recognize same-sex marriages** but noted the government's plan to form a committee to examine entitlements for LGBTQIA+ people and couples in Queer relationships.
- In response to the Supreme Court's directives, the government formed a **committee chaired by the Cabinet Secretary in April 2024 to tackle discrimination in social welfare, healthcare, public services, and policing**.
 - A sub-committee under the Home Secretary was also established to oversee and implement these measures.

What Interim Measures Has the Government Taken Regarding LGBTQIA+ Rights?

- **Ration Card Advisory:** The **Department of Food and Public Distribution** advised States/UTs to **treat partners in queer relationships as part of the same household for ration card purposes**.
 - Further, States/UTs have been asked to take necessary measures to ensure that partners in queer relationships are **not subject to any discrimination in the issuance of ration cards**.
- **Banking Rights:** The **Department of Financial Services** confirmed that there are **no restrictions for persons of the queer community to open a joint bank account** and also to nominate a person in queer relationship as a nominee to receive the balance in the account, in the event of the death of the account holder.
- **Healthcare Initiatives:** The **Ministry of Health and Family Welfare** has rolled out multiple initiatives, including the **prohibition of conversion therapy, planning of awareness activities**, ensuring the availability of **sex reassignment surgery**, and revising medical curricula to include queer-related health issues.
 - The **Directorate General of Health Services** has issued letters to State Health Departments to **reduce discrimination and ensure accessible healthcare** for the LGBTQIA+ community.

Note:

- Guidelines have been framed for medical intervention in **infants/children with intersex conditions to ensure a medically normal life.**
 - Additionally, the Ministry is working on guidelines to address **mental health** and well-being specific to the queer community.
- **Prison Visitation and Law & Order Advisory:** The Ministry of Home Affairs issued advisories to all states/UTs regarding prison visitation rights for the queer community and on law and order measures to ensure their safety from violence, harassment, or coercion.

What Other Measures Taken Regarding LGBTQIA+ Community?

LGBTQI+

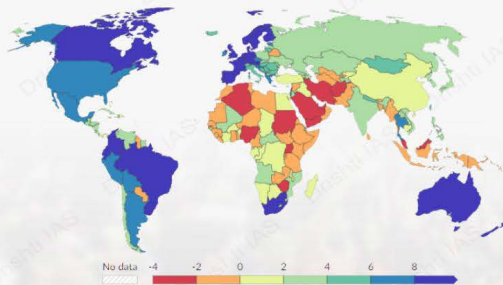
LGBTQI+ refers to a broad category of people, including those who identify as lesbian, gay, bisexual, transgender, intersex, and queer. The terminology used varies widely depending on historical, cultural, and societal contexts.

Discrimination Against LGBTQI+ based on

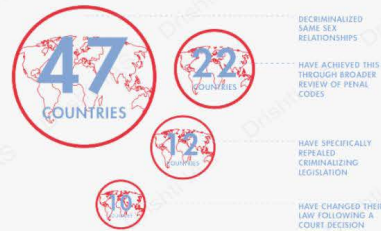
- ⌵ Sexual orientation
- ⌵ Gender expression
- ⌵ Gender identity
- ⌵ Sex characteristics

State of LGBTQI+ Rights Globally

- ⌵ **LGBTI+ rights index, 2019:** The index captures to which extent lesbians, gay, bisexual, transgender and other people outside traditional sexuality and gender categories have the same rights as straight and cisgender people. It combines 18 individual policies, such as the legality of same-sex sexual acts, marriage, and gender marker changes. Higher values indicate more rights, negative values regressive policies.



SINCE 1982...



TODAY...



- ⌵ **Pride Month:** June
- ⌵ **11th October:** National Coming Out Day

History of LGBTQI+ Rights in India

- ⌵ 1992: First-ever protests demanding rights for gay individuals
- ⌵ 1994: An NGO challenged the constitutional validity of Section 377 of IPC. Dismissed in 2001
- ⌵ 1999: India's first pride parade (Also South Asia's first)
- ⌵ 2009: Naz Foundation vs. Govt. of NCT Delhi Case (In Delhi HC) - Treating gay sex between consenting adults as a crime gross violation of the fundamental right to privacy
- ⌵ 2013: Suresh Kumar Koushal vs. Naz Foundation- SC overturned Delhi HC ruling
- ⌵ 2015: A private member's bill in Lok Sabha seeking decriminalizing homosexuality was introduced
- ⌵ 2017: Justice K. S. Puttaswamy vs. Union of India (UoI)- SC ruled privacy a fundamental right
- ⌵ 2018: Navtej Singh Johar vs. UoI- SC ruled Section 377 unconstitutional
- ⌵ 2019: Transgender Persons (Protection of Rights) Act- To provide protection of rights of transgender persons and their welfare.

Present status of Same-Sex Marriage

- ⌵ 2023: Supriyo vs. UoI- SC refused to grant legal status to same-sex marriage and denied same-sex marriage as a fundamental right



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Note:

- **National Portal for Transgender Persons**
- **Garima Greh**
- **Transgender Persons (Protection of Rights) Rules, 2020**
- **Support for Marginalised Individuals for Livelihood and Enterprise (SMILE) scheme**
- **National Council for Transgender Persons**
- **Swachh Bharat Mission(Urban)**: It has included dedicated toilets for transgender persons in their policy guidelines.
- **Ayushman Bharat TG Plus Card**: It provides the transgender community access to over 50 free health facilities by linking the SMILE scheme with the **Ayushman Bharat Scheme**.

Note: Supreme Court Decriminalizes Homosexuality:

The five-judge Bench of SC in the case of **Navtej Singh Johar & Ors vs Union of India case, 2018** partially struck down **Section 377 of the Indian Penal Code, decriminalising same-sex relations between consenting adults**. LGBT individuals are now legally allowed to engage in consensual intercourse.

Religious Composition of the World's Migrants Report

Why in News?

Recently, the **Pew Research Center** published a report titled **The Religious Composition of the World's Migrants** based on data from the **United Nations** and **270 censuses and surveys**.

- More than **280 million people**, or **3.6%** of the world's population, were living as **international migrants** in 2020.
- **Religion** plays a significant role in **migration patterns**, influencing both the departure from the homeland and the reception in the destination country.

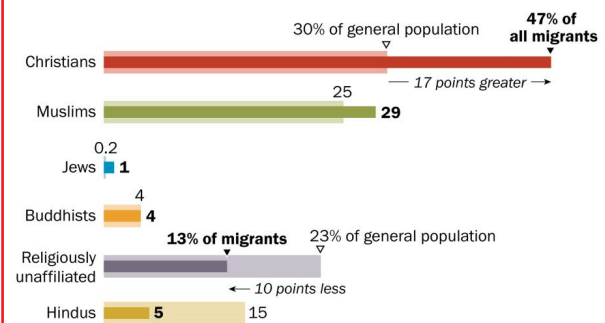
What are the Key Findings of the Report?

- **Trend among Hindu Migrants**: In 2020, India emerged as the **top country** both for **Hindu emigrants** (out-migrants) and **immigrants** (in-migrants).
 - **7.6 million Hindus** born in India were living **abroad**.
 - About **3 million Hindus** born in other countries were residing in **India**.

- **Trend among Christians**: Christians represent the **largest share** of the global migrant population at **47%**.
- **Migration Trends among Religious Minorities in India**: Indian emigrants are **disproportionately** from **religious minorities**.
 - **Christians** constitute **16%** of Indian emigrants but only **2%** of India's population.
 - **Muslims** represent **33%** of all Indian-born migrants but only **15%** of India's population.
 - **India is the second-largest source of Muslim migrants**, with 6 million Muslims living majorly in UAE (1.8 million), Saudi Arabia (1.3 million), and Oman (720,000).
- **Trend among GCC Countries**: The migrant population in the **Gulf Cooperation Council (GCC)** countries has grown by **277%** since 1990.
 - The majority of GCC migrants are **Muslims** (75%), while Hindus and Christians account for 11% and 14%, respectively.
 - GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE) host **9.9 million Indian migrants** as of 2020.
- **Trends in Global Migration**: From 1990 to 2020, the number of **international migrants increased by 83%**, significantly outpacing the global population growth of 47%.
 - Migrants travel an **average distance of 2,200 miles**.
- **Religious Alignment and Migration Patterns**: Migrants often relocate to countries where their **religion aligns** with that of the **source country population**.
 - This trend may be driven by **cultural and religious familiarity**, influencing both the choice of destination and the integration process.

Christians, Muslims and Jews make up higher shares of migrants than of the overall population

% of global and migrant populations who are ...



Note:

What is Hindu Migration Pattern and Trends?

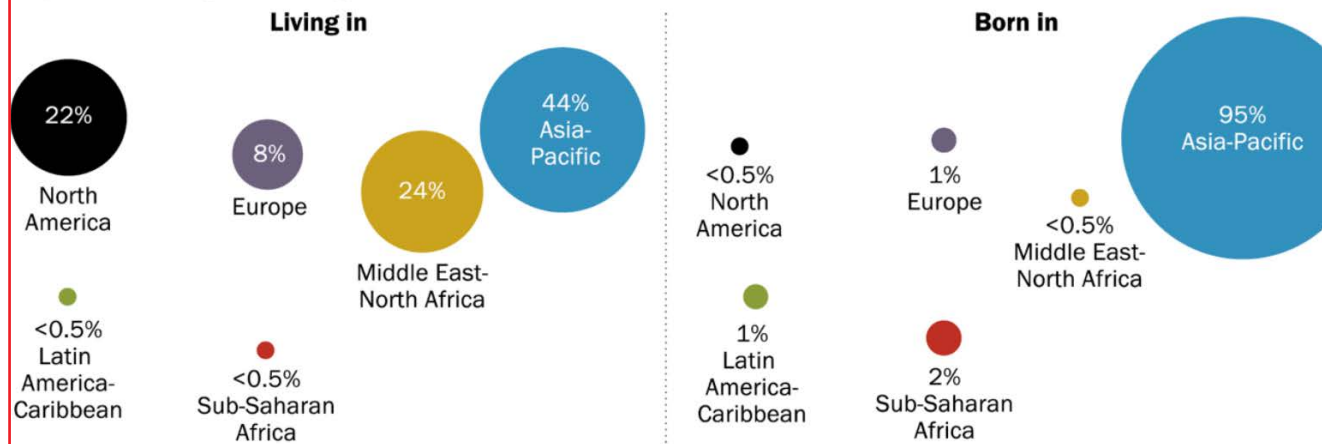
- **Global Underrepresentation:** Hindu migrants make up a small share (5%) of all international migrants, with **13 million Hindus** living outside their country of birth as of **2020**.
 - This is significantly lower than their proportion of the **global population (15%)**.
- **Distance Travelled:** Hindu migrants tend to travel longer distances, averaging **3,100 miles** from their

country of origin, compared to the **global average of 2,200 miles** for all migrants.

- This is the **longest average distance** traveled among all religious groups who originate from Asia.
- **Regions of Destination for Hindu Migrants:** The **Asia-Pacific region** hosts the largest share of **Hindu migrants (44%)**, followed by the **Middle East-North Africa (24%)**, and **North America (22%)**.
 - Smaller proportions reside in **Europe (8%)**, with very few in **Latin America** or **sub-Saharan Africa**.

Regions where Hindu migrants now live and where they came from

% of all Hindu migrants living/born in ...



- **Regions of Origin for Hindu Migrants:** The vast majority of **Hindu migrants (95%)** originate from the **Asia-Pacific region**, particularly **India**, which accounts for **57%** of the **world's Hindu migrants** and is **home to 94%** of the global Hindu population.
 - Other significant sources include **Bangladesh (12% of Hindu migrants)** and **Nepal (11%)**.
- **India as Destination for Hindu Migrants:** **India** is the leading destination for Hindu migrants, hosting **22% (3 million)** of all Hindu migrants.
 - This is largely due to historical events, particularly the partition of **British India** in 1947 and their subsequent **persecution** in their new homelands like Pakistan and Bangladesh.
- **Notable Country Pairs for Hindu Migration:**
 - **India to the United States:** The most **common migration route** for Hindus is from **India to the US**, with 1.8 million Hindus taking this path. These migrants often seek employment, higher education and income levels.

- **Bangladesh to India:** The second most common route involves migration from **Bangladesh to India**, with 1.6 million Hindus moving along this path, driven by historical, social, and economic factors.

How Diaspora Communities Boost Home-Country Growth?

- **Substantial Financial Inflows:** Diaspora communities significantly contribute to their home countries by sending **remittances**.
 - In 2022, migrants from emerging and developing countries sent **USD 430 billion**, which is **three times more than these countries receive in financial aid** from other nations or international institutions.
- **Impact on GDP:** Remittances constitute a substantial portion of **Gross Domestic Product (GDP)** in several countries like 37% in Tajikistan, 30% in Nepal, and around 25% in Tonga, Liberia, and Haiti.
- **Diaspora Investments:** Diasporas often invest in home-country businesses and **government bonds**, increasing financial capital.

Note:

- **Knowledge Transfer and Expertise:** Diasporas transfer **knowledge and expertise** gained abroad back to their home countries.
 - This can enhance productivity by improving education quality and developing better business and governance practices.
- **Bridging Knowledge Gaps:** Diaspora members use their **skills, global contacts, and understanding of local customs** to help home-country businesses navigate challenges, improve efficiency, and expand into new markets.
 - For example, Indian executives in US technology companies have facilitated outsourcing to India.



Note:

Science & Technology

Highlights

- Neuromorphic Computing
- High Altitude Pathogens
- Fecal Microbiota Transplantation
- WHO Guidelines on Antimicrobial Resistance (AMR)
- National Blockchain Framework Launched
- Use of Ayurvedic Whole System in Rheumatoid Arthritis
- Reusable Launch Vehicle - RHUMI-1
- Ambipolar Electric Field
- BioE3 Policy and Biotechnology in India

Neuromorphic Computing

Recently, the researchers at the **Indian Institute of Science (IISc)** have developed a **neuromorphic** or **brain-inspired analog computing**.

- This system is capable of storing and processing data in **16,500 states** using **molecular film**.

What is Neuromorphic Computing?

➤ About:

- Neuromorphic computing is a process designed to **mimic the structure and function of the human brain** using **artificial neurons and synapses**.
- It represents a significant shift from **traditional binary computing** to **neuromorphic computing**, allowing systems to **learn from the environment**.

➤ Working Mechanism:

- It involves the use of **Artificial Neural Networks (ANN)** made up of millions of **artificial neurons**, similar to those in the human brain.
- These neurons **pass signals to each other in layers**, converting input into output through **electric spikes or signals**, based on the architecture of **Spiking Neural Networks (SNN)**.
 - This allows the **machine to mimic the neurobiological networks** in the human brain and perform tasks efficiently and effectively, such as visual recognition and data interpretation.

➤ Key Features:

- **Brain-Inspired Design:** Neuromorphic systems replicate the brain's architecture, particularly the **neocortex**, which is responsible for higher cognitive functions such as **sensory perception and motor commands**.

- **Spiking Neural Networks:** These systems use spiking neurons that communicate through electrical signals, closely resembling biological neuronal behavior. This design allows for parallel processing and real-time learning.
- **Integration of Memory and Processing:** Unlike traditional von Neumann architecture, which separates memory from processing, neuromorphic systems integrate these functions, enhancing computational efficiency.

➤ Advantages:

- It **allows computers to process information more efficiently**, enabling **faster problem-solving, pattern recognition, and decision-making** compared to traditional computing systems.
- It has the ability to **revolutionise AI hardware, enabling complex tasks** like training **Large Language Models (LLMs)** on personal devices, addressing hardware limitations and energy inefficiencies.
 - Current **AI tools** are restricted to **resource-heavy data centers** due to a **lack of energy-efficient hardware**.

➤ Integration with Molecular Film:

- **Molecular films** are ultrathin layers of molecules that can be engineered to **exhibit specific electrical and optical properties**, enabling the creation of brain-inspired data storage and processing devices.
- This film acts as a neuromorphic accelerator, simulating brain-like parallel processing to quickly handle complex tasks like matrix multiplication and improve computer performance when combined with silicon chips.
- The recent advancement involves a molecular film offering **16,500 possible states**, surpassing traditional binary systems.

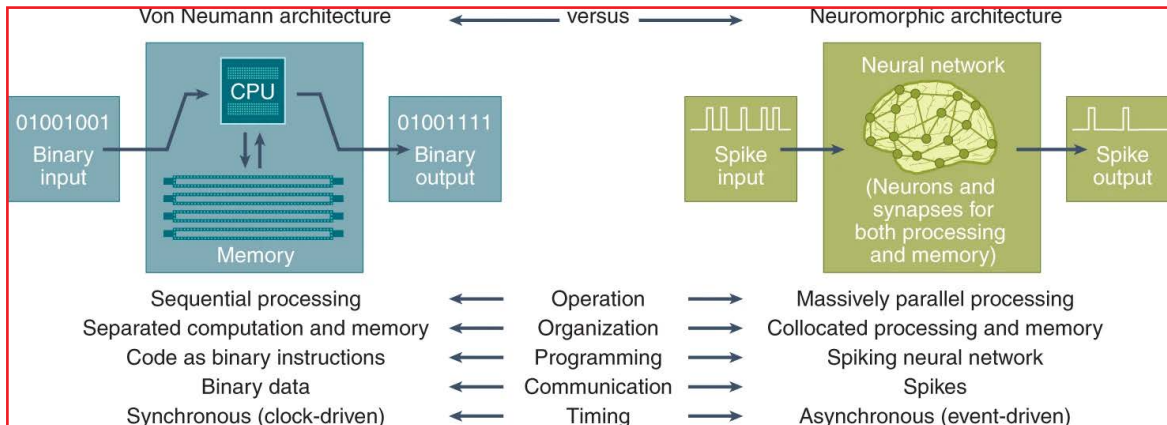
Note:

- This film utilizes **molecular and ionic movements** to represent memory states, mapped via precise electrical pulses, creating a **“molecular diary”** of states.

➤ Differences from Traditional Computing:

- **Parallel Processing:** Neuromorphic computers can **process multiple streams of information simultaneously**, unlike traditional computers that operate sequentially.

- **Energy Efficiency:** They **consume less power** by computing only when relevant events occur, making them ideal for applications requiring real-time data processing.
- **Traditional binary computing** operates with **bits in two states: 0 or 1**, similar to a light switch being on or off. In contrast, **analog computing uses continuous values**, similar to a dimmer switch with a range of brightness levels.



High Altitude Pathogens

Why in News?

Recently, studies over **Japan** at altitudes up to 10,000 feet, have found different **bacteria** and **fungi** types in the air, **which could be the cause of Kawasaki diseases**.

- Scientists have been studying **airborne microbes** since the 1920s, capturing **spores** and other biological particles floating in the atmosphere.

What are the Key Facts about the Study?

- **Air Sampling Over Japan:** Researchers conducted flights to collect **airborne particles** over the **Sea of Japan**, focusing on **air masses** from China.
 - The samples contained a rare mineral called **hafnium**, likely originating from Chinese mines.
 - Northeastern China could be a significant source of airborne pathogens due to extensive farming, **livestock** operations, and **soil erosion**.
- **Connection to Kawasaki Disease:** The study was inspired by research linked to **Kawasaki disease**.
 - It was observed that Kawasaki disease cases in Japan increased when winds blew from **northeast China**. This suggests that winds may transport

pathogens or other elements that contribute to the disease.

Hafnium

- Hafnium is a **good absorber of neutrons** and is used in the **control rods of nuclear reactors**.
- Hafnium is also used in **vacuum tubes** as a **getter**, a material that combines with and removes trace gases from vacuum tubes.
- Hafnium has been used as an **alloying agent** in iron, titanium, niobium and other metals.

What is Kawasaki Disease?

- **About:** Kawasaki disease, or Kawasaki syndrome, is an **inflammation**, in the walls of **blood vessels** that carry blood throughout the body.
 - The inflamed blood vessels increases the risk of tearing or narrowing, **limiting blood flow** to tissues and organs.
- **Prevalence:** It primarily affects children aged **6 months to 5 years**.
 - It occurs in about **10 to 20 per 100,000 children** under 5 in the US and Canada, while in Japan, Korea, and Taiwan, it affects **50 to 250 per 100,000 children** under 5.

Note:

- **Causes:** The exact cause of Kawasaki disease is unknown, but it is suspected to be linked to **bacterial or viral infection**, environmental factors, or genetics.

Fecal Microbiota Transplantation

Why in News?

The concept of using **fecal matter as a medical treatment**, known as **fecal microbiota transplantation (FMT)**, has gained attention as a game-changer for treating **gut disorders**, despite its initial unsettling nature.

- India has made progress in this field, and the treatment is reshaping lives, though it still faces challenges.

What is Fecal Microbiota Transplantation?

- **About:** FMT involves the transfer of fecal material from a healthy donor into the **gastrointestinal tract** of a patient with an imbalanced or **unhealthy gut microbiota**.
- **Benefits:** The human gut is home to a diverse community of microorganisms that play crucial roles in **digestion, immune function, and protection against harmful pathogens**.
 - FMT helps to correct disruptions in the gut microbiome, often caused by factors such as **antibiotics, steroids, or infections like *Clostridium difficile*** (a bacterium that can cause diarrhoea, colitis, and serious bowel problems).
 - By introducing healthy bacteria, FMT aims to restore balance and enhance overall gut function.
- **Challenges and Limitations:** FMT is not yet regulated by **central health authorities like the Indian Council of Medical Research (ICMR)**, which raises concerns about standardisation and safety.
 - The process requires **stringent donor screening to avoid risks**, including infectious diseases and microbiome diversity.
 - The 'yuck' (disgust) factor linked with fecal material remains as a barrier for many patients, despite the treatment's efficacy.
- **Future of FMT:** Researchers stress that more studies are needed to fully understand the role of microbiomes and establish FMT as a standard care practice.

- Trials and studies are essential to refine protocols and ensure the safety and effectiveness of FMT. Comprehensive guidelines and protocols are needed to standardise the practice and address ethical concerns.

WHAT IS FMT?

■ **Faecal Microbiota Transplantation (FMT)** is a procedure that delivers a healthy human donor's stool to another person via colonoscopy, enema or nasogastric (NG) tube. It can come in the form of pills which is an easier way to perform FMT. Last year, US FDA approved a pill for C diff infections



WHAT IS IT USED TO TREAT?

■ **Mainly debilitating gastrointestinal infections** that keep recurring despite antibiotic therapy. Doctors in India have found it to be useful treatment for alcohol-associated hepatitis, autism

Gut Microbiota

- It refers to the **vast collection of trillions of microorganisms**, including bacteria, viruses, fungi, and protozoa, that **inhabit the human gastrointestinal tract**. This diverse community plays a crucial role in maintaining overall health and supporting various bodily functions.
- It helps in breaking down complex food components and produces essential vitamins like B12 and K. Beneficial microbes prevent harmful bacteria from colonising the gut.
- **Metabolism & Energy Balance:** Influences fat storage, energy absorption, and has links to obesity, metabolic disorders and including **Autism**.
- **Gut-Brain Connection:** Affects mood and mental health through the gut-brain axis, linked to anxiety and depression.

Note:

WHO Guidelines on Antimicrobial Resistance (AMR)

Why in News?

Recently, the [World Health Organization \(WHO\)](#) published “**Guidance on wastewater and solid waste management for manufacturing of antibiotics**” to tackle the threat of Antimicrobial Resistance (AMR).

What are the Key Highlights of the Guidance?

- **About:** The document provides a **scientific framework for regulators, industry, and other stakeholders** to effectively control **antibiotic resistance**.
- **Objective:** The guidance aims to offer a scientific foundation for **setting and incorporating targets** into policies and regulations to prevent antibiotic resistance.
- **Non-binding Nature:** The guidance is **not legally binding**. However, it helps ensure consistency across policies and market instruments, promoting transparency and avoiding fragmented approaches.
- **Principles and Best Practices:**
 - **Risk Management Plans:** Includes best practices for developing **risk management plans**, based on proven methods in other sectors like food and water safety.
 - **Audit and Transparency:** Emphasises the importance of internal and external **audits and public transparency**.
 - **Progressive Implementation:** Encourages a stepwise approach with progressive improvement, recognising the need for **global supply protection** and equitable access to quality antibiotics.
- **Target Audiences:**
 - **Regulatory Bodies:** National or regional authorities responsible for overseeing **pharmaceutical manufacturing** and waste management.
 - Third-party organisations conducting **audits and inspections** of antibiotic production and waste management.
 - **Generic Substitution and Reimbursement Entities:** Bodies responsible for decisions related to **generic drugs** and their reimbursement.

- **Industrial Actors:** Companies involved in any stage of **antibiotic production** and their collective organisations.
- **Waste Management Services:** Entities managing the **disposal of antibiotic waste and wastewater**.
- **Scope of the Guidance:**
 - **Human Health-Based Targets:** Focuses on reducing the risk of **antibiotic resistance**.
 - **Ecotoxicological Risks:** Addresses risks to **aquatic life** from antibiotic pollution.
 - **Coverage:** Includes all stages of antibiotic production, from manufacturing **active pharmaceutical ingredients (APIs)** to finished products and primary packaging.
 - **Waste Focus:** Applies to both liquid and solid waste, emphasising liquid effluents, run-offs, and land discharges.
 - **Assessment Needs:** Requires separate risk assessments for manufacturing sites producing multiple APIs or products, considering both **pre- and post-dilution risks** in water bodies and the release of resistant bacteria.

What is Antimicrobial Resistance (AMR)?

- **About AMR:** AMR occurs when **bacteria, viruses, fungi and parasites** no longer respond to **antimicrobial medicines**.
 - As a result of drug resistance, antibiotics and other antimicrobial medicines become **ineffective** and infections become **difficult or impossible to treat**, increasing the risk of disease spread, severe illness, disability and death.
- **Prevalence of AMR:** AMR is one of the top **global public health** and development threats.
 - It is estimated that bacterial AMR was directly responsible for **1.27 million global deaths in 2019** and contributed to **4.95 million deaths**.
- **Economic Cost of AMR:** The [World Bank](#) estimates that AMR could result in **USD 1 trillion additional healthcare costs by 2050**.
 - It can lead to **USD 1 trillion to USD 3.4 trillion gross domestic product (GDP)** losses per year by 2030.
- **Reasons for Increasing AMR:**
 - **Individual Practices:** Many people have a tendency to use antibiotics even for viral infections. An

Note:

antibiotic is of no use for viral infections such as **influenza**, but consuming it can drive up resistance in the population.


- **Medical Practices:** Doctors prescribe **broad-spectrum antibiotics** that work against a wide range of infections.
 - Overuse of broad-spectrum antibiotics leads to increased resistance as antibiotics may not be required in the body.
- **Diagnostic Challenges:** Doctors often prescribe antibiotics based on **symptoms alone** instead of prescribing **diagnostic tests** to identify the exact cause of the infection.
- **Pharmaceutical Manufacturing:** Pharmaceutical **waste from antibiotic manufacturing** can facilitate

the emergence of new drug-resistant bacteria, which can spread globally and threaten our health.

➤ **Common Resistant Pathogens in India:**

- **E. Coli (Gut infections):** It demonstrated a decrease in susceptibility to most antibiotics, with susceptibility to **carbapenem (antibiotics)** reducing from **81.4% in 2017 to 62.7% in 2023**.
- **Klebsiella Pneumoniae (Pneumonia and Urinary Tract Infections):** Its susceptibility to two different medicines from the carbapenem class reduced from **58.5% to 35.6%** and **48% to 37.6%** between 2017 and 2023.
- **Acinetobacter Baumannii (Hospital Acquired Infections):** While no significant change was found in susceptibility, it is **highly resistant** to even strong antibiotics.

ANTIMICROBIAL RESISTANCE



The ability of microorganisms to resist the effects of antimicrobial drugs

CAUSES OF ↑ AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in K. pneumoniae
- AMR Mycobacterium tuberculosis causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

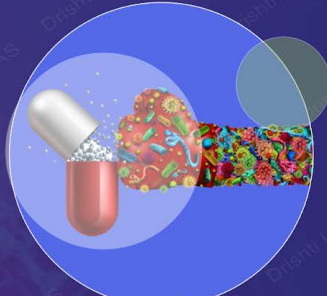
RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistance and Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing TB, Vector Borne diseases, AIDS etc.
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive



Note:

How can AMR be Tackled?

- **Public Awareness Campaign:** A well-executed long-term **public campaign** could significantly reduce antimicrobial prescriptions by addressing patient demands and over-the-counter purchases.
- **Improved Sanitation:** Enhanced sanitation measures, like **regular handwashing**, waste management, and clean surroundings, **help break the chain of transmission of both common and resistant pathogens**.
- **Reduce Unnecessary Use of Antimicrobials:** Doctors should ensure **appropriate use** of antibiotics and reserve the more potent ones for hospital based patients.
- **Promote New and Rapid Diagnostics:** Develop and use **rapid diagnostic tests** to avoid unnecessary antibiotic prescriptions.
- **Vaccine Development and Alternative Therapies:** Investing in new **vaccines** and alternatives like **phage therapy, probiotics, and antibodies** will help reduce antibiotic dependency.
- **New Drug Development:** Incentivizing pharmaceutical companies to develop **new antibiotics** is essential, given the uncertainties and current effectiveness of existing treatments.

National Blockchain Framework Launched

Why in News?

Recently, the **Ministry of Electronics and Information Technology (MeitY)** launched the **National Blockchain Framework (NBF)**.

- **Vishvasya-Blockchain Technology Stack, National Blockchain Framework Lite (NBFLite), Praamaanik** and **National Blockchain Portal** were also launched.

What is the National Blockchain Framework?

- **About NBF:** It is an online platform that aims to secure **digital governance** with blockchain technology, promising transparency and trust in public service.
- **Other Related Launches:**
 - **Vishvasya-Blockchain Technology Stack:** It offers **Blockchain-as-a-Service** with a **geographically distributed infrastructure** designed to support various Blockchain-based applications.

- **NBFLite (Lightweight Blockchain Platform):** It is a **Blockchain sandbox platform** that is designed specifically for startups and academia to enable **rapid prototyping, research, and capacity building** in blockchain applications.
- **Praamaanik:** It is an innovative blockchain-enabled solution for verifying **mobile app origin**.
- **National Blockchain Portal:** It was launched to facilitate access and **integration** with various blockchain resources.

Benefits of NBF:

- **Boosting Security and Transparency:** The NBF aims to enhance **security, trust, and transparency** in delivering citizen-centric services. It aligns with the Government of India's efforts to provide trusted digital service delivery.
- **Transforming Governance with Blockchain:** MeitY called for scaling the NBF's applications across various states and departments and for exploring **new applications and platforms** to be integrated into the framework.
- **Addressing Research and Development Challenges:** MeitY explained that the NBF is designed to tackle **several challenges**, including:
 - The need for skilled manpower to build blockchain-based applications.
 - Research challenges related to **security, interoperability, and performance**.

What are the Components of the Vishvasya-Blockchain Technology Stack?

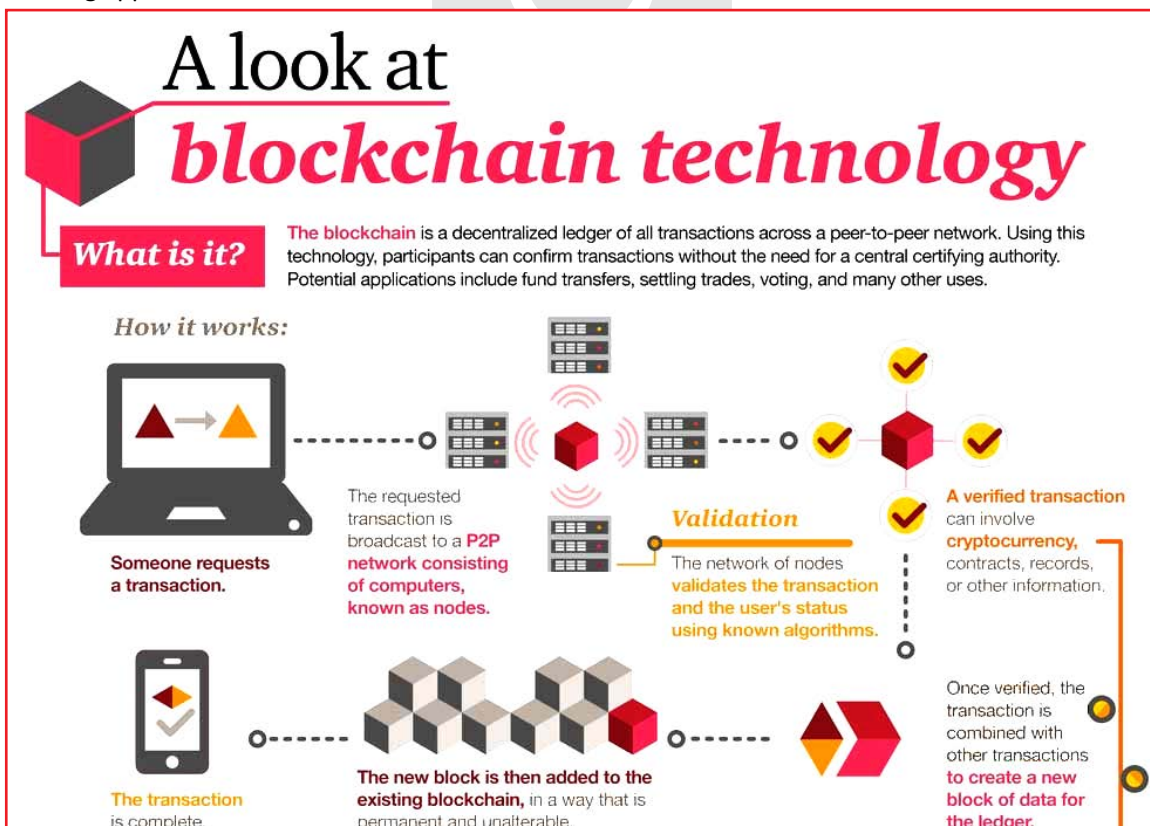
- **Distributed Infrastructure:** It is hosted on geographically distributed **NIC** Data Centers (**Bhubaneswar, Pune, Hyderabad**).
- **Core Framework Functionality:** It provides fundamental blockchain operations and services.
- **Smart Contracts & API Gateway:** It facilitates the creation and management of **smart contracts** and application interfaces.
- **Security, Privacy & Interoperability:** It focuses on maintaining **data integrity** and secure communication across platforms.
- **Applications Development Offering BaaS:** It supports the development and deployment of blockchain applications with the **BaaS model**.

Note:



What is Blockchain as a Service (BaaS)?

- **About BaaS:** Blockchain-as-a-service (BaaS) refers to **third-party cloud-based infrastructure** and management for companies **building and operating blockchain apps**.
- **Benefits of BaaS:**
 - **Simplification of Task:** Companies can use the **BaaS platform** to swiftly create and **deploy blockchain apps** without managing complex infrastructure.
 - **Cost Saving:** It enables **cost-effective and efficient blockchain use**, fostering **secure and transparent innovation** and service improvement.
 - **Operational Agility and Scalability:** BaaS ensures blockchain infrastructure is flexible and scalable to meet evolving application and user needs.



Read more: [Open Source Software Platform](#)

Note:

Use of Ayurvedic Whole System in Rheumatoid Arthritis

Why in News?

Recently, a study highlighted the effectiveness of the **Ayurvedic Whole System (AWS)** in managing **Rheumatoid Arthritis (RA)**, a chronic autoimmune disorder.

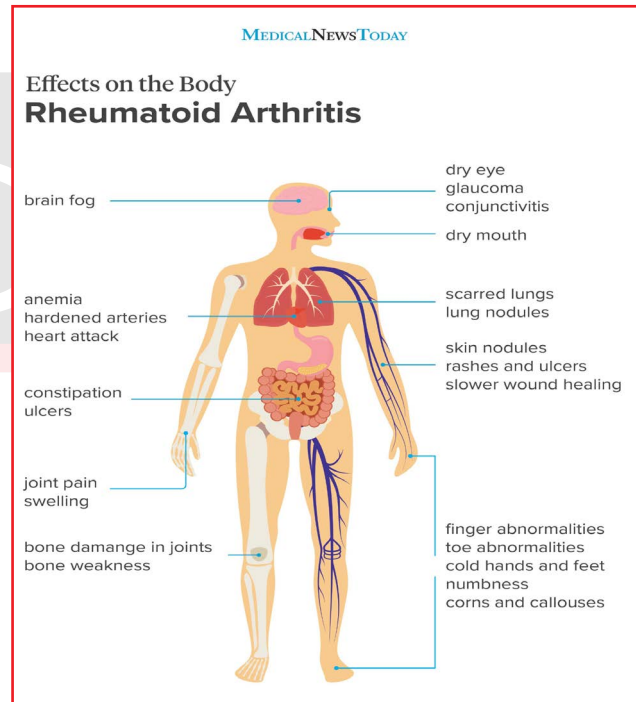
- The research shows that the AWS not only reduces RA symptoms but also helps **restore a normal metabolic balance** in patients.
- It presents a promising **complementary approach** to conventional medical treatments.

What are Key Facts About Rheumatoid Arthritis?

- **About:** RA is a **chronic inflammatory disorder** that affects the **lining of joints**, causing a painful swelling that can eventually result in **bone erosion and joint deformity**.
 - In some people, the condition can damage a wide variety of body systems, including the **skin, eyes, lungs, heart and blood vessels**.
 - It is an **autoimmune disorder**. It happens when the immune system doesn't work properly and **attacks the lining** of the joints, called the **synovium**.
- **Significance of the Study:** It supports the Ayurvedic concept of '**Samprapti Vighatan**,' where the disease-causing process is **dismantled**, and the body's '**Doshas**' (**bio-energies**) are brought back to **balance**.
 - The research is pivotal as it explores the potential for pathology reversal in RA using an Ayurvedic whole-system approach.
- **Key Clinical Improvements Observed:**
 - **Disease Activity Reduction:** There was a notable reduction in the **Disease Activity Score**, a critical measure for assessing RA severity.
 - **Decrease in Joint Inflammation:** Both the total number of **swollen** and tender joints were reduced among patients receiving AWS treatment.
 - **Reduction in Toxins:** The **Ama Activity Measure (AAM) Score**, which evaluates **toxins** in the body,

showed significant reduction post-intervention, indicating decreased systemic inflammation and toxicity.

- **Metabolic Profile Shifts:** Post-AWS treatment, imbalanced metabolic markers began to shift towards **normal** levels observed in healthy controls, suggesting a return to a more balanced metabolic state.
- **First-of-its-Kind Evidence:** This study is the first to clearly demonstrate the clinical efficacy of AWS in managing RA.
 - It highlights the **dual benefit** of symptom reduction and metabolic normalisation, potentially leading to long-term positive outcomes for patients.



What is the Ayurvedic Whole System?

- **About:** Ayurveda is the time tested **traditional system of medicine** of India.
 - The term '**Ayurveda**' meaning '**the knowledge of life**' comprises two Sanskrit words viz '**Ayu**' meaning '**Life**' and '**Veda**' meaning '**Knowledge**' or '**Science**'.
 - Ayurveda is a **whole-body (holistic) system** of medicine. It takes a natural approach to all aspects of health and well-being.

Note:

- **Ayurvedic Strategy:** Ayurveda is based on the idea that each person has certain **life forces (doshas)** and everything in the universe is connected.
 - An **imbalance in one area can affect another**.
 - When the imbalance is not fixed, **disease and illness can occur**.
 - Ayurveda mostly uses **nutrition, lifestyle changes, and natural treatments**.
 - These are used to **support balance and a return to health**.
- **Three Principal Energies (Doshas):** Ayurveda identifies **three basic types of energy or functional principles** that are present in everyone and everything.
 - **Vata:** It governs functions like **breathing, blinking, muscle movement**, and the circulation of fluids.
 - **Pitta:** It governs **digestion, absorption, nutrition**, and body temperature.
 - **Kapha:** It governs the body's structural components, **lubricates joints**, moisturises the skin, and maintains immunity.

Reusable Launch Vehicle - RHUMI-1

Why in News?

India recently launched its **first reusable hybrid rocket, RHUMI-1**, developed by the Tamil Nadu-based **start-up Space Zone India**, to collect data for research purposes on **global warming** and **climate change**.

- The rocket, carrying 3 **Cube Satellites** and 50 **PICO Satellites**, was launched into a suborbital trajectory using a mobile launcher.

Note:

- **Cube satellites** are nano satellites that weigh between 1 to 10 kg.
- **Pico satellites** are smaller satellites, with weights ranging from 0.1 to 1 kg.

What are the Key Features of RHUMI-1?

- **Hybrid Propulsion System:** The RHUMI-1 integrates both solid and liquid propellants, enhancing efficiency and lowering operational costs.

- **Adjustable Launch Angle:** The engine allows for **precise trajectory control** with adjustable angles ranging from 0 to 120 degrees.
- **Electrically Triggered Parachute System:** It has **advanced and eco-friendly** descent mechanism that ensures safe recovery of rocket components, offering both cost-effectiveness and environmental benefits.
- **Environmentally Friendly:** It is entirely free of **pyrotechnics (fireworks) and TNT (Trinitrotoluene)**, an odourless yellow solid used in explosives, highlighting its commitment to sustainability.

Note:

- **Dr. A.P.J Abdul Kalam Students Satellite Launch Mission:** In 2023, this mission involved over 2,500 students from government, tribal, and public schools across India who contributed to designing and constructing a student satellite launch vehicle capable of carrying a payload of 150 Pico Satellites research experiment cubes.

What are Reusable Launch Vehicles (RLVs)?

- **About:**
 - Reusable Launch Vehicles (RLVs) are spacecraft designed to be **launched, recovered, and launched again multiple times**.
- **Advantages:**
 - **Cost Savings:** Up to **65% cheaper** than building a new rocket for every launch.
 - **Reduce Space Debris:** By minimising discarded rocket components.
 - **Increased Launch Frequency:** Lesser turnaround time enables the rocket to be used more frequently.
- **Different from Multi-Stage Rocket:**
 - In a typical multi-stage rocket, the **first stage is discarded after its fuel is exhausted** to reduce weight, allowing the remaining stages to continue propelling the payload into orbit.
 - However, **RLVs recover and reuse the first stage**. After separating from the upper stages, the first stage descends back to Earth using engines or parachutes for a controlled landing.

Note:

ISRO LAUNCH VEHICLES

BACKGROUND

◆ First rocket developed by ISRO - SLV (Satellite Launch Vehicle)

◆ Successor of SLV - Augmented Satellite Launch Vehicle (ASLV)

Polar Satellite Launch Vehicle (PSLV)

◆ About

- The **Workhorse of ISRO**
- 3rd gen, 4-Stage launch vehicle (1st, 3rd stages - solid fuel; 2nd, 4th stages - liquid fuel)

◆ Capacity

- Delivers **earth-observation/remote-sensing satellites**
- Used to launch satellites of lower mass (~1400 Kg)

◆ 4 Variants:

- PSLV-CA
- PSLV-QL
- PSLV-DL
- PSLV-XL

◆ Launches Satellites in

- Low inclination LEO
- Sub-GTO
- GTO

◆ Important Launches

- First successful launch - October 1994
- Chandrayaan-1 (2008)
- Mars Orbiter Spacecraft (2013)

PSLV is 1st Indian launch vehicle to be equipped with liquid stages



Geosynchronous Satellite Launch Vehicle (GSLV)

◆ About

- 4th Gen, 3-staged launched vehicle
- Much more powerful rocket, carries satellites much deeper into space
- Has an **indigenous Cryogenic Upper Stage**

◆ Capacity

- Delivers **communication-satellites**
- Carries heavier satellites (~2200 kg to GTO)
- Carries 10,000-kg satellites to LEO

◆ Launches Satellites in

- Primarily Geosynchronous Transfer Orbit (GTO) (~36000 Km altitude)

◆ Important Launches:

- Chandrayaan-2
- Upcoming Gaganyaan



Launch Vehicle Mark-III

◆ About

- Aka **GSLV Mk-III**
- 3-stage launch vehicle (2 solid propellant and 1 core stage comprising liquid and cryogenic stages)

◆ Capacity

- 4,000-kg of satellites into **GTO**
- 8,000 kg of payloads into LEO

◆ Launches Satellites in

- GTO
- Medium Earth orbit (MEO)
- LEO
- Missions to moon, sun

Mk-III versions have made ISRO entirely self-sufficient in launching its satellites



Small Satellite Launch Vehicle (SSLV)

◆ About

- Developed specifically for **small and micro-satellites**

◆ Capacity

- Satellites up to 500 kg

◆ Launch Limit

- 500 km planar orbit (LEO) from Satish Dhawan Space Centre



Read More: [Reusable Launch Vehicle-Technology](#)

Ambipolar Electric Field

Why in News?

Recently, the [National Aeronautics and Space Administration \(NASA\)](#) has, for the first time, detected **Earth's hidden ambipolar electric field**, which plays a crucial role in driving the "**polar wind**" that propels charged particles into space at supersonic speeds.

- The discovery, published in the *journal Nature*, marks a significant advancement in our understanding of [Earth's ionosphere](#) and its interactions with space.

What is the Ambipolar Electric Field?

- **Definition:** The ambipolar electric field is a **weak, planet-wide electric field** that affects the movement of **charged particles in Earth's atmosphere**. It was proposed to be as fundamental as **gravity** and **magnetism**. The ambipolar field was first hypothesized in the 1960s.
- **Mechanism:** The electric field, generated at about **150 miles altitude**, interacts with charged particles (ions and electrons). It prevents the separation of charges and helps lift some ions high enough to escape into space.

Note:

- The ambipolar field is **bidirectional**, meaning it works in both directions (lifting ions into space while pulling electrons downward), effectively tethering them together and the net effect of the ambipolar field **extending the height of the atmosphere**.
- **Detection:** The discovery was made using a NASA suborbital rocket launched as part of the **Endurance mission** that confirmed the existence of the ambipolar field and quantified its strength.

How does the Ambipolar Field Affect Earth's Atmosphere?

- **Increased Scale Height:** The ambipolar field increases the "scale height" of the ionosphere by 271%. This means the **ionosphere remains denser at greater altitudes than it would without the field**. The increased density contributes to the polar wind, driving charged particles into space.
 - **Ionosphere**, a layer of the upper atmosphere where charged particles are abundant.
 - The polar wind is an **ambipolar (bidirectional) outflow of thermal plasma** from the high-latitude ionosphere to the **magnetosphere (region around a planet dominated by the planet's magnetic field)**, consisting primarily of Hydrogen, Helium, and Oxygen ions and electrons.
- **Effect on Hydrogen Ions:** The field **exerts a force 10.6 times stronger than gravity** on hydrogen ions. This significant force propels them into space at supersonic speeds, enhancing atmospheric escape.
- **Broader Implications:** Understanding this field provides insights into Earth's **atmospheric evolution and can be applied to other planets with atmospheres**, such as **Venus** and **Mars**. It may also help to understand which planets could be hospitable to life.

Endurance Mission

- It was a NASA-funded mission conducted through the Sounding Rocket Program at NASA's Wallops Flight Facility in Virginia.
- The primary goal is to measure Earth's global electric potential, which is believed to be very weak. This electric potential is crucial for understanding why Earth can support life, unlike other planets such as Venus.

BioE3 Policy and Biotechnology in India

Why in News?

- Recently, the Union Cabinet approved the proposal '**BioE3 (Biotechnology for Economy, Environment and Employment) Policy for Fostering High-Performance Biomanufacturing**' of the **Department of Biotechnology**.
- Alongside the **BioE3 Policy**, the **Union Cabinet also merged three schemes of the Science & Technology Ministry** into a single scheme, called **Vigyan Dhara**, with a financial outlay of Rs 10,579 crore until 2025-26.

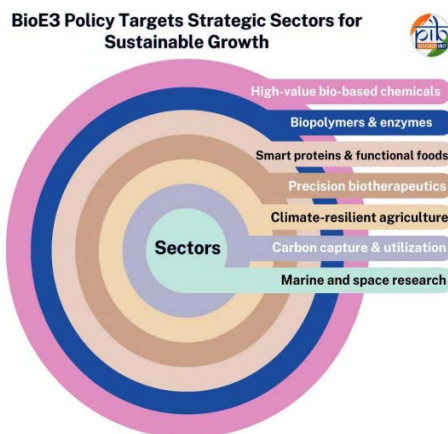
What is BioE3 Policy?

- **About:** The BioE3 is aimed at fostering high-performance **biomanufacturing**, which involves the production of **bio-based products across various sectors**.
 - The policy aligns with broader **national goals such as achieving a 'Net Zero' carbon economy** and promoting sustainable growth through a **circular bioeconomy**.
- **Objectives:** The BioE3 policy emphasizes innovation in research and development (R&D) and entrepreneurship, establishes **Biomanufacturing & Bio-AI hubs** and **Biofoundries**, aims to expand India's skilled biotechnology workforce, aligns with '**Lifestyle for Environment**' programs, and targets the development of regenerative bioeconomy models.
 - The BioE3 Policy aims to **generate significant employment**, especially in **tier-II and tier-III cities** through the establishment of biomanufacturing hubs.
 - These hubs will utilise local **biomass**, fostering regional economic growth and equitable development.
 - The policy also **emphasizes ethical biosafety and global regulatory alignment** to boost India's global competitiveness while ensuring responsible biotechnology development.
- **Core Themes of the BioE3 Policy:**
 - **Bio-Based Chemicals and Enzymes:** Development of advanced bio-based chemicals and enzymes to reduce environmental impact.
 - **Functional Foods and Smart Proteins:** Innovations in functional foods and smart proteins to enhance nutrition and food security.

Note:

- **Precision Biotherapeutics:** Advancing precision medicine and biotherapeutics to improve healthcare outcomes.
- **Climate Resilient Agriculture:** Promoting agricultural practices that are resilient to climate change, ensuring food security.
- **Carbon Capture and Utilization:** Fostering technologies for efficient carbon capture and its utilization in various industries.
- **Futuristic Marine and Space Research:** Expanding research in marine and space biotechnology to explore new frontiers in biomanufacturing.

The policy's scope is broad and ambitious, encompassing several strategic sectors:



What is the Vigyan Dhara Scheme?

- **Background:** The **Department of Science & Technology (DST)** acts as the nodal department for organising, coordinating, and promoting science, technology, and innovation activities in the country.
 - The **three** (Science and Technology (S&T) Institutional and Human Capacity Building, R&D and Innovation, and Technology Development and Deployment) **central sector umbrella schemes implemented by DST** have been **merged** into the **unified scheme 'Vigyan Dhara'**.
- **Objectives and Goals:** The merging of the three schemes into Vigyan Dhara is designed **to improve fund utilisation and synchronisation** among various sub-schemes and programs.
 - Vigyan Dhara Scheme aims to expand the R&D base in the country and increase the Full-Time Equivalent (FTE) researcher count.

- Focused interventions will enhance the **participation of women in Science, Technology, and Innovation (STI)** fields, with the goal of achieving gender parity.
- All programs under Vigyan Dhara align with the 5-year goals of DST and are directed towards the larger vision of **"Viksit Bharat 2047" a developed India by 2047.**
- **Complementing the BioE3 Policy:** Enhancing S&T institutional infrastructure and developing a critical human resource pool.
 - Promotes **basic and translational research in sustainable energy**, water, and other critical areas.
 - Supports **innovations from school to industry levels and increases collaboration** between academia, government, and industries.

What is Biotechnology?

- **About:** Biotechnology, a field that intertwines biology with technology, harnesses **cellular and biomolecular processes** to create products and technologies that enhance our lives and safeguard our planet.
- **Benefits:**
 - **Healthcare Advancements: Medical Biotechnology (Red Biotech)** enables the development of advanced drugs, vaccines, and therapies, including personalised medicine, **gene therapy**, and **targeted cancer treatments.**
 - It also facilitates rapid vaccine production, as seen during the **Covid-19 pandemic.** **Stem cell** research and **tissue engineering** offer the potential to regenerate damaged tissues and organs, opening doors to treatments for previously untreatable conditions.
 - **Agricultural Improvements: Agricultural Biotechnology (Green Biotech)** involves **genetic modification** and engineering in plants that can produce crops that are more resistant to pests, diseases, and environmental stressors like drought, thus improving food security.
 - Biotech allows for the development of crops with enhanced nutritional profiles, such as **Golden Rice**, which is fortified with vitamin A to combat **malnutrition.**
 - **Environmental Sustainability:** Biotechnology uses microorganisms to clean up pollutants (**bioremediation**) like oil spills, heavy metals, and

Note:

plastics, helping to restore ecosystems and reduce environmental damage.

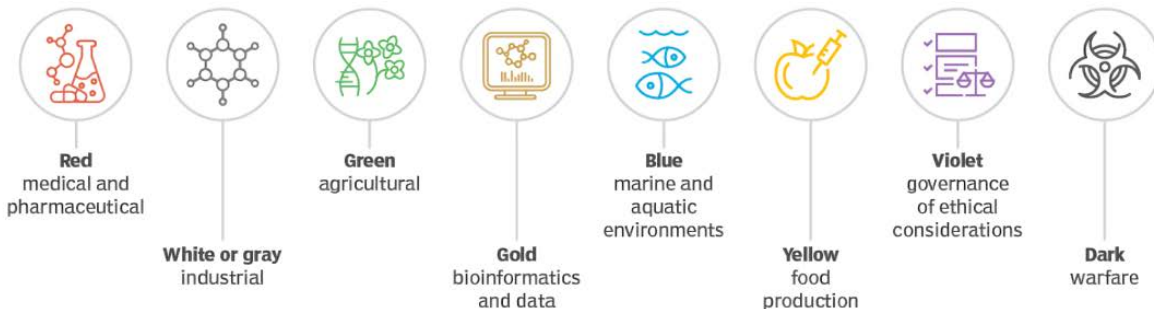
- **Industrial Biotechnology (White Biotech)** applies biotechnology to industrial processes, such as the production of **biofuels, bioplastics,** and biodegradable materials.

- It focuses on **reducing environmental impact and promoting sustainability through** cleaner production methods.
 - Biotechnological innovations help recycle and upcycle waste materials, contributing to a **circular economy and reducing landfills.**
 - **Economic Growth:** The biotech industry drives economic growth by creating jobs in research, development, and manufacturing sectors.

- Countries investing in biotechnology lead in cutting-edge innovations, giving them a competitive edge in global markets and trade.

- **Climate Change Mitigation:** Certain biotechnologies can **capture and utilize carbon dioxide** from the atmosphere, helping to mitigate the effects of **climate change.**
- Biotechnology aids in the production of cleaner biofuels, reducing reliance on **fossil fuels** and decreasing **carbon footprints.**
- **Innovation in Materials:** Biotechnology enables the engineering of novel materials, including **bio-based fibers and high-performance bio-composites,** which have applications in industries ranging from fashion to aerospace.

Types of biotechnology



What is the Current State of Biotechnology in India?

- **Biotechnology Hub:** India ranks among the **top 12 biotechnology destinations** globally. The Covid-19 pandemic accelerated the growth of biotechnology in India, leading to advancements in vaccines, diagnostic tests, and medical devices.
 - In 2021, India saw a record number of biotech startup registrations, with 1,128 new entries, the highest since 2015. The total number of biotech startups reached 6,756 by 2022, with expectations to hit 10,000 by 2025.
- **Bioeconomy:** India's bioeconomy has seen a meteoric rise, from **USD 10 billion in 2014 to over USD 130 billion in 2024,** with projections to reach USD 300 billion by 2030.

- **Biopharma remains the largest segment of India's bio-economy,** accounting for 49% of its total value, estimated at USD 39.4 billion. The vaccination market is projected to be worth Rs. 252 billion (USD 3.04 billion) by 2025.
- **Bioresources:** India's vast biodiversity, especially in the **Himalayas,** and the 7,500 km long coastline provide a significant advantage in biotechnology.
 - The **Deep Sea Mission** aims to explore the biodiversity beneath the seas.
- **Government Initiatives:**
 - **National Biotechnology Development Strategy 2020-25**
 - **National Biopharma Mission**
 - **Biotech-KISAN Scheme**
 - **Atal Jai Anusandhan Biotech Mission**

Note:

- [One Health Consortium](#)
- [Biotech Parks](#)
- [Biotechnology Industry Research Assistance Council \(BIRAC\)](#)
- [Genome India Project](#)
- **Recent R&D Achievements in Applied Biotechnology:**
 - **ADVIKA Chickpea Variety:** A drought-tolerant [chickpea variety](#) was developed with enhanced seed weight and yield under drought conditions.
 - **Accel Breed Facility:** A state-of-the-art speed breeding facility at Punjab Agricultural University (PAU), Ludhiana, accelerates crop improvement programs.
 - **Indigenous Vaccines:** India developed several pioneering vaccines, including the [quadrivalent Human Papilloma Virus \(qHPV\) vaccine](#), [ZyCoV-D \(DNA vaccine\)](#), and additionally, [GEMCOVAC-OM](#), an mRNA-based Omicron booster, was introduced.
 - **Gene Therapy:** [India's first gene therapy clinical trial for Hemophilia A received approval.](#)
 - **Novel Blood Bag Technology:** Researchers at [inStem, Bengaluru](#) created special sheets that **protect stored red blood cells from damage.**
 - This technology could help make better blood bags and reduce problems during transfusions.
- **Future Outlook:**
 - The biotechnology industry is set to reach **USD 150 billion by 2025** and has the potential to grow to USD 300 billion by 2030.
 - The sector is expected to contribute around **3.3-3.5% of India's Gross Domestic Product (GDP) by 2025.**
 - The market for diagnostic and medical devices is predicted to grow significantly, with the therapeutics sector expected to **generate USD 15 billion in bioeconomic activity by 2025.**
 - The expansion of **biotech incubators and support for startups** is anticipated to drive further growth and innovation across various sectors, including health, agriculture, and industrial processes.

What are the Challenges for Biotechnology in India?

- **Strategic Roadmap Development:** There's a lack of a comprehensive strategic roadmap for biotechnology that outlines **competitive areas and industry-specific R&D needs.**

- The biotechnology sector requires a revolution similar to the **Green and White Revolutions** to achieve significant advancements in crop improvement and therapeutics.
- **Bio-Networking:** Effective bio-networking is needed to enhance **interaction among biotechnology businesses**, address **intellectual property rights**, and ensure **biosafety and bioethics.**
- **Human Resources:** There is a need for more specialised human resources in biotechnology, particularly in remote regions.
- **Regulatory Burden:** India's regulatory environment for biotechnology is complex and slow, particularly for **genetically modified organisms (GMOs).**
 - The approval process is cumbersome, with multiple agencies and the **Review Committee on Genetic Manipulation (RCGM)** leading to overlapping jurisdictions and delays.
- **Funding and Investment:** Although there is government funding for biotechnology projects, under the **Biotechnology Industry Partnership Programme (BIPP)**, further investment is needed to support high-risk, leading-edge research.
- **IT Integration and Data Management:** Biotechnology research requires extensive IT support for data management, including challenges related to data integration and the establishment of technical standards.

Hyderabad as a Case Study for Biotechnology Development

- Hyderabad has secured over USD 700 million in investments and aims to reach USD 250 billion by 2030, reflecting significant financial backing for biotechnology.
- Major infrastructure projects such as **Genome Valley, Medtech Park, and Pharma City** are underway, enhancing Hyderabad's biotech ecosystem.
- The life sciences sector in Hyderabad has generated over **450,000 jobs in recent years, contributing to significant economic growth.**
- Telangana accounts for **1/3rd of global vaccine output** and Hyderabad is regarded as the **vaccine capital of the world.** Also, the State contributes to about **35% of India's pharmaceutical production.**
- Hyderabad offers **affordable human resources and lower real estate costs** compared to other global markets, attracting biotech firms.



Note:

Environment and Ecology

Highlights

- Teal Carbon Study at Keoladeo National Park
- What is Teal Carbon?
- India as the World Largest Plastic Polluter
- Adverse Effects of Lithium Mining

Teal Carbon Study at Keoladeo National Park

Why in News?

Recently, India's first study on 'teal carbon' was undertaken at **Keoladeo National Park (KNP)** in Rajasthan's Bharatpur district.

- Research has **found elevated methane emissions**, leading to a recommendation to use specialized **biochar to reduce these levels**.
- It highlighted the importance of **wetland conservation** in addressing climate adaptation and resilience challenges. The pilot project aimed to develop **nature-based solutions** to address climate change.

Note:

- **Biochar** is a **carbon-rich material** that enhances soil fertility, water retention, and crop productivity.
- It is made through **pyrolysis**, which involves heating biomass with little or no oxygen.

What is Teal Carbon?

- **About:**
 - Teal carbon refers to **carbon stored in freshwater (non-tidal) wetlands**, including vegetation, microbial biomass, and dissolved and particulate organic matter.
- **Types of Carbon:**
 - **Teal Carbon** is categorised based on its **role in ecosystems and its location**, distinguishing it from **black carbon** and **brown carbon**.
 - Unlike **black and brown carbon**, which are formed from the **incomplete combustion of organic matter** and contribute to **climate change**,

teal carbon focuses on **carbon sequestration within wetland ecosystems**.

- **Black Carbon:** It is a sooty black material emitted from the burning of fossil fuels, comprising a significant portion of **particulate matter** air pollution.
- **Brown Carbon:** Produced from the incomplete combustion of organic materials like biomass. It absorbs **UV and visible** solar radiation, contributing to global warming.
- **Blue Carbon:** Carbon stored in the **atmosphere and oceans**.
- **Green Carbon:** Carbon sequestered in **terrestrial plants** through the process of **photosynthesis**.
- **Gray Carbon:** Emitted from **industrial processes and stored in fossil fuels** such as coal, oil, and biogas.
- **Red Carbon:** Released by **biological particles found on snow and ice**.
- **Role in Climate Change:**
 - Teal carbon ecosystems can play a crucial role in mitigating climate change by **sequestering carbon**, raising groundwater levels, **reducing urban heat islands**, controlling greenhouse gasses and mitigating floods.
- **Primary Reservoirs:**
 - The primary reservoirs of teal carbon include **peatlands, freshwater swamps, and natural freshwater marshes**. These ecosystems are major contributors to the global carbon sequestration total.
 - The global storage of teal carbon across ecosystems is estimated at approximately **500.21 petagrams of carbon (PgC)**.
- **Threat:**
 - They are highly **vulnerable to degradation** due to pollution, land use changes, water extraction, and landscape modifications which threaten their ability to store carbon and maintain ecological balance.

Note:

About Keoladeo National Park

- It is a wetland and bird sanctuary and a **UNESCO World Heritage Site** located in **Bharatpur, Rajasthan**.
 - **Chilika Lake** (Orissa) and Keoladeo National Park (Rajasthan) were recognized as the first **Ramsar Sites** of India in **1981**.
 - Currently, Keoladeo National Park and **Loktak Lake (Manipur)** are in the **Montreux Record**.
- It is known for its **rich avian diversity** and abundance of **waterbirds** and is home to over **365 species of birds**, including several **rare and threatened species**, such as the Siberian crane.
- **Fauna:** Animals such as Jackals, Sambar, Nilgai, wild cats, hyenas, wild boar, porcupine and mongoose can be found in the region.
- **Flora:** The principal vegetation types are tropical dry deciduous forest dominated by Acacia nilotica intermixed with dry grassland.
- **River:** **Gambhir** and **Banganga** are two rivers that flow through this National Park.

What are Wetlands?

- Wetlands are areas where **water covers the soil**, or is **present either at or near the surface** of the soil **all year or for varying periods** of time during the year, including during the growing season.
- Initiative Taken for Conservation of Wetland:
 - Global Level:
 - **Montreux Record**
 - **World Wetlands Day**
 - National Level:
 - **Wetlands (Conservation and Management) Rules, 2017**.
 - **National Plan for Conservation of Aquatic Ecosystems (NPCA)**
 - **Amrit Dharohar Capacity Building Scheme**
 - **National Wetland Conservation Programme (NWCP):** It was launched in 1985, to tackle threats to vulnerable wetland ecosystems and enhance their conservation.

RAMSAR CONVENTION

About

- Also known as the Convention on Wetlands.
- An intergovernmental treaty, adopted in 1971, in Ramsar, Iran.
- Entered into force in 1975.
- Wetlands that are of international importance are declared as Ramsar sites.
- **Largest Ramsar Site in World:** Pantanal: South America

Montreux Record

- Adopted in Montreux (Switzerland) in 1990.
- Identifies Ramsar sites that need priority conservation attention at national or international level.

Wetlands

- A place in which the land is covered by water – salt, fresh, or somewhere in between – either seasonally or permanently.
- Take many forms including rivers, marshes, bogs, mangroves, mudflats, ponds, swamps, billabongs, lagoons, lakes, and floodplains.
- **World Wetlands Day:** 2nd February



India & Ramsar Convention

- Came into force in India: **1982**
- **Total Number of Ramsar Sites: 75**
 - Chilika Lake (Odisha), Keoladeo National Park (Rajasthan), Harike Lake (Punjab), Loktak Lake (Manipur), Wular Lake (Jammu and Kashmir), etc.
- **Related Framework in India**
 - The Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified Wetlands (Conservation and Management) Rules, 2017 under the provisions of the Environment (Protection) Act, 1986 as regulatory framework for conservation and management of wetlands.
 - The 2017 Rules decentralise wetlands management and provide for the constitution of the State Wetlands Authority or Union Territory Wetlands Authority.

Key Facts

- **Largest Ramsar Site:** Sunderbans, West Bengal
- **Smallest Ramsar Site:** Vembannur Wetland Complex, Tamil Nadu
- **State with the maximum number of Ramsar Sites:** Tamil Nadu (14)
- **Wetlands in Montreux Record:**
 - Keoladeo National Park: Rajasthan
 - Loktak Lake: Manipur



Note:

India as the World Largest Plastic Polluter

Why in News?

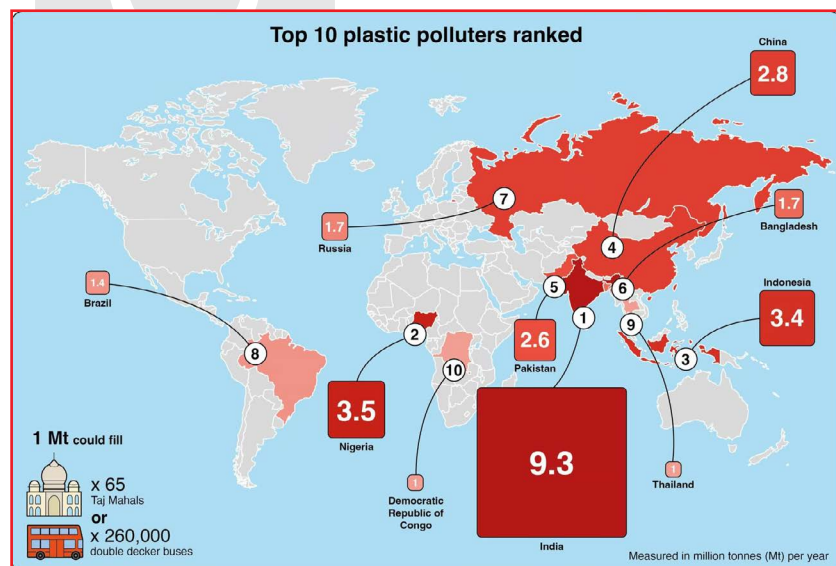
A recent study published in the journal *Nature* has revealed that India is the **highest contributor to global plastic pollution**.

- India accounts for approximately **one-fifth** of the total plastic waste generated worldwide.

What are the Key Findings of the Study?

- **Plastic Waste Generation:** India generates approximately **9.3 million tonnes of plastic pollution** annually. Out of this, 5.8 million tonnes (mt) are incinerated, while 3.5 million tonnes are released into the environment as debris.
 - This figure is significantly **higher than Nigeria (3.5 mt), Indonesia (3.4 mt), and China (2.8 mt)**.
 - India's waste generation rate is approximately **0.12 kilograms per capita per day**.
- **Global North-South Divide:** Plastic waste emissions are highest across countries in **Southern Asia, Sub-Saharan Africa and South-eastern Asia**. There is a clear divide in plastic pollution sources.
 - **Global South countries**, such as India, often rely on **open burning** for waste management, while the **Global North** uses **controlled systems**, leading to **less unmanaged waste**.

- **Disparity Between High and Low Income Countries:** Globally, 69% or 35.7 Mt per year of plastic waste emissions come from 20 countries.
 - In the Global South, plastic pollution mainly comes from **open burning due to poor waste management**, while in the Global North, it's mostly from **uncontrolled debris**.
 - **High-income countries** have higher plastic waste generation rates but **are not among the top 90 polluters due to 100% collection coverage** and controlled disposal.
- **Criticism of Research:**
 - **Narrow Focus:** The study **overemphasised waste management, neglecting the need to reduce plastic production**.
 - **Misplaced Priorities:** It could divert attention from upstream solutions like phasing out single-use plastics.
 - **Industry Support:** Endorsement by plastics industry groups raises concerns about **aligning with industry interests rather than broader environmental goals**.
 - **Undermining Comprehensive Solutions:** The study's focus on waste management might **weaken efforts to address production and recycling issues**.



What are the Reasons for High Plastic Pollution in India?

- **Rapid Population Growth and Urbanization:** India's rising population and affluence drive **higher consumption and waste generation**. Urbanisation intensifies the problem by increasing the demand for plastic products and packaging.
- **Inadequate Waste Management Infrastructure:** India's **waste management infrastructure is insufficient** to handle the large volumes of waste, with

Note:

more uncontrolled dumping sites than sanitary landfills, reflecting **poor disposal facilities and practices**.

- **Discrepancies in Waste Collection Data:** India's official waste collection rate is overstated at 95%, while research suggests the actual rate is around 81%, revealing a significant gap in efficiency.
- **Open Burning of Waste:** India **burns approximately 5.8 million tons of plastic waste** each year, worsening pollution and releasing toxic pollutants that pose health and environmental risks.
- **Informal Sector Recycling:** The unregulated informal **recycling sector handles much plastic waste not accounted for in official statistics**, complicating the understanding of plastic pollution levels.

What are the Issues Associated With Mismanaged Plastic Waste in India?

- **Environmental Degradation:** Plastic waste clogs waterways, leading to flooding and marine pollution. It harms marine life through ingestion, while burning it releases toxic pollutants, worsening air quality.
- **Public Health Concerns: Microplastics** in water and food pose **potential long-term health risks**.
 - Plastic waste creates **breeding grounds for disease vectors**, increasing the spread of diseases like **dengue and malaria**.
 - Burning plastic also releases harmful substances affecting respiratory health.
- **Economic Challenges:** According to a FICCI report, India could lose over **USD 133 billion worth of material value** used in plastic packaging by 2030, with uncollected plastic packaging waste accounting for USD 68 billion of this loss.
- **E-commerce and Packaging Waste:** Rapid **e-commerce** growth has led to increased plastic packaging waste, much of which is difficult to recycle and ends up as litter or in landfills.
- **Regulatory and Enforcement Challenges:** Inconsistent enforcement of plastic waste regulations and issues with the **Extended Producer Responsibility** system hamper effective waste management.

○ India is among the top contributors to global plastic waste.

- **Microplastic Pollution in Agriculture:** Plastic use in agriculture and inadequate wastewater treatment lead to microplastics accumulating in soil, impacting soil health and food safety.
- **Technological and Infrastructure Gaps:** Inadequate **waste segregation and processing facilities**, along with **limited advanced recycling technology**, hinder effective plastic waste management. A lack of **comprehensive waste tracking** further complicates efforts.

What are the Regulations Related to Plastic Waste Management in India?

- **Plastic Waste Management Rules, 2016**
- **Plastic Waste Management (Amendment) Rules, 2018:** Applies phasing out of multi-layered plastic (MLP) to those that are non-recyclable, non-energy recoverable, or have no alternate use.
 - Establishes a central registration system by the **Central Pollution Control Board (CPCB)** for producers, importers, and brand owners.
- **Plastic Waste Management Amendment Rules, 2021: Prohibits specific single-use plastic items by 2022** due to low utility and high littering potential.
 - Enforces collection and environmental management of plastic packaging waste through **EPR**.
 - Increases plastic carry bag thickness from 50 microns to 75 microns by September 2021 and to 120 microns by December 2022.
- **Plastic Waste Management (Amendment) Rules, 2022**
- **Plastic Waste Management (Amendment) Rules, 2024**
- **Other Initiatives:**
 - **Swachh Bharat Mission**
 - **India Plastics Pact**
 - **Project REPLAN**
 - **Un-Plastic Collective**
 - **GoLitter Partnerships Project**

Note:

Adverse Effects of Lithium Mining

Why in News?

According to a new study, land subsidence is occurring in Chile's **Atacama salt flat** due to lithium mining.

What are the Key Revelations of the Study?

➤ Findings:

- **Rate of Sinking:** The Atacama salt flat in Chile is sinking at a rate of 1 to 2 centimetres per year due to **lithium brine extraction**.
 - Lithium brine extraction involves **pumping salt-rich water** to the surface and into evaporation ponds to obtain **lithium**.
 - The sinking is caused by the extraction of lithium-rich brine at a rate faster than the natural recharge of **aquifers**, leading to subsidence.

➤ Lithium Mining Impact on the Environment:

- **Water Usage:** The process requires massive amounts of fresh water, with **2,000 tons of water** needed to produce **one ton of lithium**.
- **Water Scarcity:** This extraction exacerbates **water scarcity** in the **Atacama Desert**, affecting both local communities and ecosystems.
- **Chemical Contamination:** Chemicals like **sulfuric acid and sodium hydroxide** used in **lithium extraction contaminate soil and water**, harming ecosystems and endangering species.
- **Impact on Wildlife:** A 2022 study highlighted a decline in **flamingo** populations in the Atacama region due to reduced water levels, which affect their reproduction rates.

➤ Potential Impact of Lithium Mining in Reasi (J&K):

- **Water Crisis:** Many villages in Reasi are struggling to access enough water, after **perennial streams dried up** following the construction of the **Chenab Rail Bridge**.
 - Water-intensive lithium mining can further **worsen** the situation.
- **Threat to Biodiversity:** The **Himalayan region** in J&K is a **biodiversity hotspot** and a **eco-sensitive**

region, and mining could lead to a significant loss of biodiversity.

- It can hamper **the habitat of migratory birds like Common Teal, Northern Pintail** etc who come every year to stay in lakes, marshes and **wetlands** of Jammu and Kashmir.
- **Food Insecurity:** Mining and processing lithium can further jeopardise **food security** through its excessive **carbon emissions**, water, and land use methods.
- **Pollution:** The Himalayas are the source of so many rivers and mining activity may pollute the entire **riparian ecosystem**.

What are the Key Facts about Lithium?

➤ **About:** It is a **soft, silvery metal**. It has the lowest density of all metals.

- It has **high reactivity, low density and excellent electrochemical properties**.
- Its ores are **Petalite, Lepidolite and Spodumene**. It is also known as the "**white gold**".

➤ Applications:

- **Batteries:** The most important use of lithium is in **rechargeable batteries** for mobile phones, laptops, digital cameras and **electric vehicles**.
 - Lithium is also used in **some non-rechargeable batteries** for things like **heart pacemakers**, toys and clocks.
- **Alloys:** A magnesium-lithium alloy is used for **armour plating**.
- **Air Conditioning:** Lithium chloride and lithium bromide are used in **air conditioning and industrial drying systems** due to their **hygroscopic properties**.
- **Lubricants:** Lithium stearate is used as an all-purpose and **high-temperature lubricant**.

➤ **Reserves:** **Chile** holds the **largest lithium reserves** globally, accounting for **36%** of the total, and is the **second-largest producer**, contributing **32%** to the world's supply.

- Chile is a part of the "**lithium triangle**" along with **Argentina and Bolivia**.
- **Australia and China** are the **first and third** largest producers of Lithium globally.

Note:



Atacama Desert

- **Location:** The Atacama Desert is located in **Chile** between the **Cordillera de la Costa** mountain range and the **Andes Mountains**.
- **Climate:** The desert is shielded from rainfall by the **Andes Mountains** to the east and experiences atmospheric conditions that prevent cloud formation due to **cold water upwelling (Peru/Humboldt Current)** from the Pacific Ocean.
- **Temperatures:** Unlike other deserts, the Atacama has a **mild average** temperature of about **18 degrees Celsius** due to **the temperate climate** and **upwelling of cold water**.

➤ Mineral Resources:

- **Salt Deposits:** The desert's core is covered in thick salt deposits called **playas**.
- **Nitrate Belt:** The desert contains **nitrate minerals**, historically mined for use in explosives and fertilisers.
- **Mineral Richness:** It is rich in other materials like **lithium, copper, and iodine**.
- **Protected Areas:** **Pan de Azúcar National Park** is the only large national protected area within the ecoregion.



Read More: [India's Lithium Mining Challenges](#)



Note:



drishti

Art and Culture

Highlights

- Journey of Sanchi Stupa to Europe

Journey of Sanchi Stupa to Europe

Why in News?

Recently, India's External Affairs Minister visited the replica of the **East Gate of Sanchi Stupa** standing in front of **Humboldt Forum museum** in Berlin, Germany.

- It is a **1:1 reproduction** of the original structure standing at almost **10 metres high and 6 metres wide**, and weighing roughly 150 tonnes.

Journey of East Gate of Sanchi Stupa to Europe

- The **East Gate of Sanchi Stupa** was cast in plaster by **Lieutenant Henry Hardy Cole** for the **Victoria and Albert Museum** in the **late 1860s**.
- **Multiple copies of this cast were later made**, and displayed across Europe.
 - A plaster cast of the original gate was on **display** in the entrance hall of the **Königliches Museum für Völkerkunde Berlin** from **1886**.
 - A cast of this preserved copy was made of **artificial stone in 1970**.
- The latest Berlin replica too traces its origin to this original cast.
 - It was made with the help of **3D scanning**, modern robots, skilled German and Indian sculptors, and enlarged photos of the **original torana** for aid.

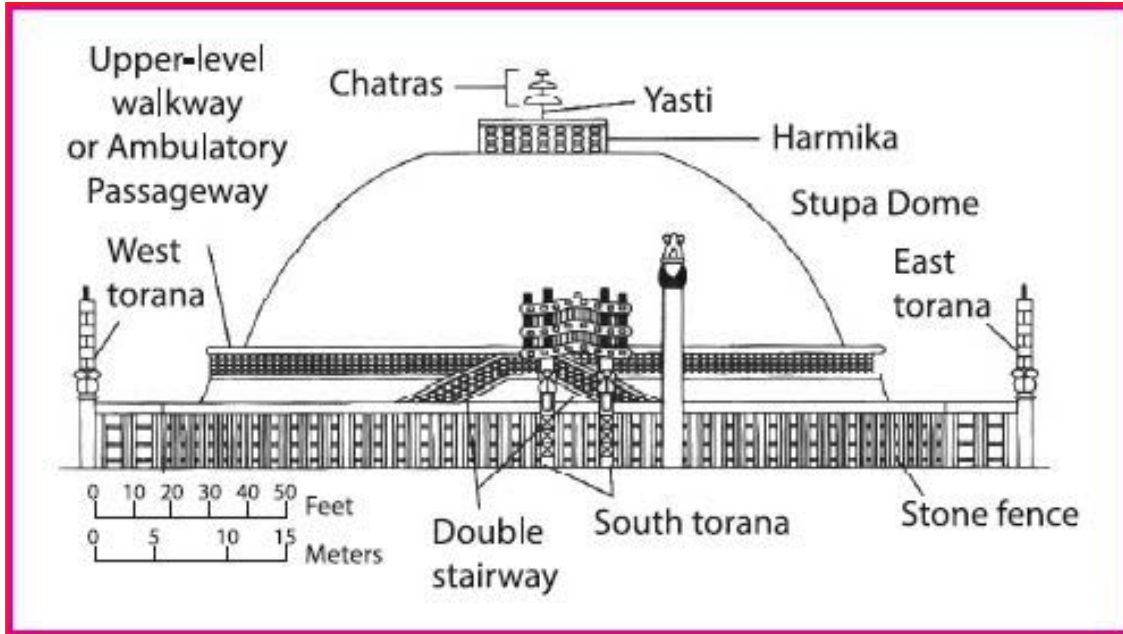
What are Key Facts about the Sanchi Stupa?

- **Construction of Sanchi Stupa:** It was built by **Ashoka** in the **third century BC**.
 - Its construction was overseen by **Ashoka's wife Devi**, who hailed from the nearby trading town of **Vidisha**.
 - The development of the Sanchi complex was supported by patronage from Vidisha's **mercantile community**.

- **Expansion:** During the **2nd century BC (Shunga period)**, the stupa was enlarged with sandstone slabs, a **circumambulatory walkway**, and a **harmika** with a **chattra (umbrella)**.
 - From the **1st century BC to the 2nd century AD**, four stone gateways or **toranas** were added, adorned with detailed carvings depicting Buddhist iconography and stories.
- **Rediscovery of Sanchi Stupa:** It was in abject ruins when it was **discovered** by British officer **Henry Taylor in 1818**.
 - **Alexander Cunningham** led the **first formal survey** and excavations at Sanchi in **1851**.
- **Preservation Efforts:** In **1853**, **Sikander Begum of Bhopal** offered to send Sanchi gateways to **Queen Victoria**, but the removal plans were delayed due to the **1857 revolt** and transportation issues.
 - In 1868, the Begum renewed the offer, but the colonial authorities declined it, opting for **in-situ preservation**. A **plaster cast** of the eastern gateway was created instead.
 - The site was restored to its present condition by **Archaeological Survey of India (ASI)** director-general **John Marshall in the 1910s** with funding from the begums of nearby Bhopal.
 - Marshall's efforts led to the creation of a **museum in 1919** at the site to preserve artefacts and manage conservation.
- **Architecture of Sanchi Stupa:**
 - **Anda:** It is a **hemispherical mound** built on earth.
 - **Harmika:** **Square railing** on top of the mound. It is believed to be the living place of god.
 - **Chattra:** It is the **umbrella** built on the top of the dome.
 - **Yashti:** It is the **central pillar** supports a triple umbrella structure called chattra.

Note:

- **Railing:** It surrounds the stupa, demarcating the sacred area and providing a physical boundary between the holy space and the external environment.
- **Pradakshinapatha (Circumambulatory Path):** It is a walkway around the stupa that allows devotees to walk in a clockwise direction as a form of worship.
- **Torana:** Torana is a monumental gateway or entrance structure in Buddhist stupa architecture.
- **Medhi:** It refers to the base which forms a platform on which the main structure of the stupa stands.



- **UNESCO Recognition:** Sanchi Stupa was inscribed as a [UNESCO World Heritage site](#) in 1989.

What are the Key Features of the Gateways of Sanchi Stupa?

- **Construction:** The **four gateways (toranas)**, oriented to the four cardinal directions, were constructed in the **first century BCE**.
 - Gateways were built over a period of a few decades during the **Satavahana dynasty's rule**.
- **Structure:** These gateways are made of **two square pillars** which support a superstructure comprising **three curved architraves (or beams)** with spirally-rolled ends.
- **Engravings:** The pillars and the architraves are adorned with beautiful **relief and sculptures** depicting scenes from the **Buddha's life**, stories from the **Jataka tales**, and other Buddhist iconography.
 - It includes the **shalabhanjika** (a fertility emblem represented by a **yakshi** grasping the branch of a tree), elephants, winged lions, and peacocks.
 - However, the gates **do not represent the Buddha** in his human form.
- **Philosophical Significance:** The three curved architraves (or beams) have the following philosophical significance.
 - **Upper Architrave:** It represents the **seven Manushi Buddhas** (previous Buddhas incarnation).
 - **Middle Architrave:** It depicts the scene of the **Great Departure**, when prince **Siddhartha** leaves **Kapilavastu** to live as an ascetic in search of **enlightenment**.
 - **Lower Architrave:** It depicts **Emperor Ashoka** visiting the **Bodhi tree** under which the **Buddha** attained enlightenment.

Note:

GAUTAM BUDDHA

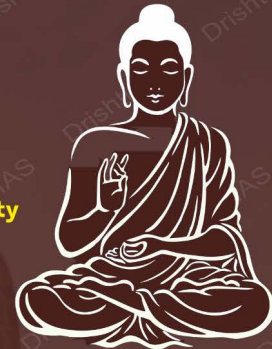
Believed to be 9th of the 10 incarnations of Lord Vishnu (Dashavatar)

BIRTH

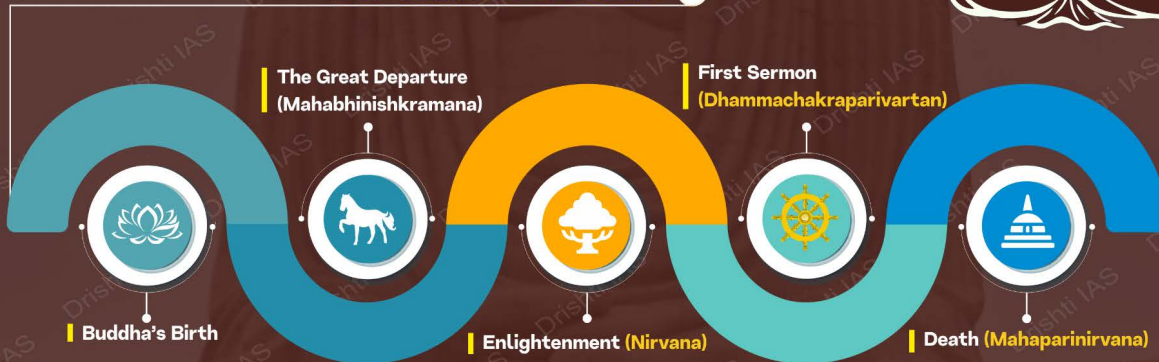
- ▶ Born as Siddhartha (563 BC)
- ▶ Birthplace - **Lumbini** (Nepal) near **Kapilavastu**

PARENTS

- ▶ Father - elected ruler of Kapilvastu; headed **Shakya republican clan**
- ▶ Mother - princess from **Koshalan dynasty**



IMPORTANT EVENTS



Buddha referred to himself as **Tathagata** (one who has thus come/gone) and has been addressed as **Bhagavat** (in Buddhist texts)

CONTEMPORARIES

- ▶ Vardhaman Mahavira
- ▶ Bimbisara
- ▶ Ajatshatru

OTHER IMPORTANT PLACES ASSOCIATED WITH BUDDHA

- ▶ **Bodh Gaya** (Enlightenment) (named Buddha after attaining enlightenment)
- ▶ **Sarnath** (first sermon)
- ▶ **Vaishali** (last sermon)
- ▶ **Kushinagara** (death place (483 BC))



Note:

Geography

Highlights

- La Niña Predictions
- Uncommon Cyclones in the Arabian Sea

La Niña Predictions

Why in News?

Recently, all major global meteorological agencies have notably missed the mark in their predictions for **La Niña** in 2024.

- India had relied on this crucial climate phenomenon to bring increased rainfall during August-September 2024.

What is La Niña?

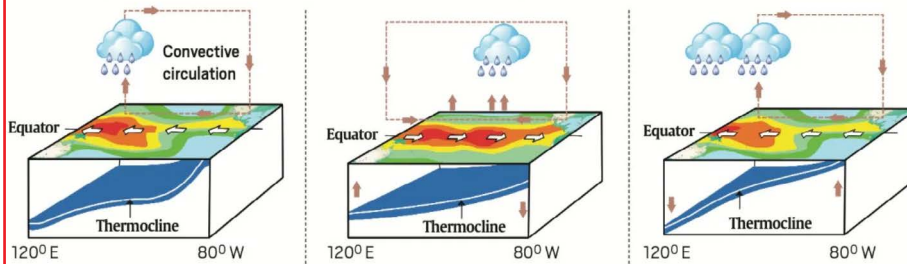
- **La Niña**, meaning “The Little Girl” in Spanish, is a phase of the **El Niño Southern Oscillation (ENSO)**, a phenomenon that significantly drives global natural climate variability.
 - ENSO is characterized by **fluctuations in sea surface temperatures** across the **tropical Pacific Ocean**, resulting from atmospheric variations above.
 - These **changes disrupt global atmospheric circulation** and have widespread impacts on weather patterns across the world.
- The ENSO occurs in **irregular cycles** ranging from two to seven years and comprises **three phases**: warm (El Niño, or “The Little Boy” in Spanish), cool (La Niña), and neutral.
- During the **neutral phase**, **the eastern Pacific** (near the northwestern coast of South America) is **cooler than the western Pacific** (around the Philippines and Indonesia).
 - This **temperature difference arises due to** prevailing **trade winds**, driven by Earth’s rotation, which move from east to west between 30 degrees north and south of the equator, pushing warmer surface water westward.
 - As a result, **cooler waters from below rise to the surface** to replace the displaced warm water.
- During the **El Niño phase**, **trade winds weaken**, resulting in **less displacement of warm waters** along the American coasts, causing the eastern Pacific to warm more than usual.
- In the **La Niña phase**, **trade winds strengthen**, pushing larger volumes of water toward the western Pacific, leading to **cooler temperatures in the eastern Pacific**.
 - In India, **El Niño** is typically linked to **reduced rainfall during the monsoon season**, while **La Niña tends to enhance monsoon activity**.
 - The most recent El Niño event occurred between June 2023 and May 2024, following one of the longest recorded La Niña episodes, which lasted from 2020 to 2023.
- The **impacts of both El Niño and La Niña-related hazards**, including extreme temperatures, heavy rainfall, and droughts, have been intensified by **anthropogenic climate change**.

Note:



THE THREE PHASES OF EL NIÑO SOUTHERN OSCILLATION (ENSO)

The illustrations show the Pacific Ocean around the equator and the trade winds above it. The heat map shows water temperature. Thermocline is the layer of water separating the warmer surface water and cooler water below



Neutral phase
 Eastern Pacific is cooler than Western; thermocline indicates upwelling in the east as trade winds carry surface water westward; normal rainfall in Asia

El Niño phase
 Difference in temperature between East and West Pacific decreases; lesser upwelling in east; rain clouds get pulled towards the Americas, Asia gets less rain

La Niña phase
 Eastern Pacific is much cooler than Western; considerable upwelling in the east as more surface water heads westward; heavy rainfall in Asia

El Niño Southern Oscillation (ENSO)

Describes the fluctuations in temperature between the ocean and atmosphere in the east-central Equatorial Pacific

Significance:

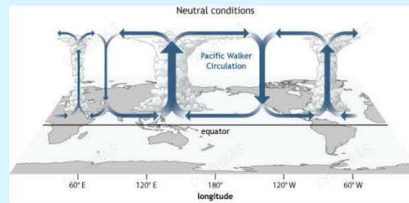
- Ability to change the global atmospheric circulation, influencing temperature and precipitation worldwide

States of ENSO:

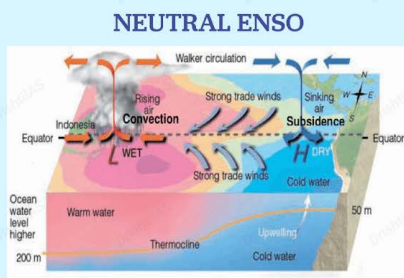
- The two opposite phases - El Niño and La Niña
- The middle of the continuum - Neutral

Walker Circulation (WC)

- An atmospheric system of air flow in the equatorial Pacific Ocean
 - The trade winds across the tropical Pacific flow from east to west: air rises above the warm waters of the western Pacific, flows eastward at high altitudes, and descends over the eastern Pacific
- WC and ENSO:
 - A weak/reverse WC produces El Niño
 - Stronger WC results in La Niña



Normal (non ENSO) Conditions in the Pacific Ocean



- Trade winds (easterlies) blow west along the equator, taking warm water from S. America towards Asia
- To replace that warm water, cold water rises from the depths — a process called upwelling
 - El Niño and La Niña are two climate patterns that break these normal conditions
- During an El Niño, sea level pressure tends to be lower in the eastern Pacific and higher in the western Pacific while the opposite tends to occur during a La Niña
 - This see-saw in atmospheric pressure between the eastern and western tropical Pacific is called the Southern Oscillation (SO)



Note:



What did Global Weather Models Predict in 2024?

- One of the strongest **El Niño events** on record concluded in **June 2024**, after which the **ENSO entered a neutral phase**.
 - Initial forecasts from multiple global weather models predicted the onset of La Niña conditions around July. However, by mid-July, it became evident that La Niña would be delayed.
- The US-based **NOAA** indicated that the transition from neutral to positive sea surface temperatures, signaling the **shift from ENSO neutral to La Niña**, would likely occur between **August and October**.
 - Similarly, the **Bureau of Meteorology (BoM) in Australia** maintained a La Niña 'watch' in July 2024, predicting the development of **cooler-than-usual sea surface conditions** in the latter half of the year.
 - Since its initial Long Range Forecast issued in mid-April, the **India Meteorological Department (IMD)** consistently projected the emergence of La Niña.
- Crucially, **La Niña was expected to enhance rainfall in August and September 2024**, with seasonal prediction hinging on La Niña's development, which was anticipated to result in 'above normal' rainfall during the final two monsoon months.

El Niño and La Niña

El Niño

- Warming of the ocean surface/ Above average **sea surface temp. (SST)**
- Easterly winds either **weaken** or start blowing in the **opposite direction**
- First noticed by **Peruvian fishermen** in the 1600s
- **More frequent** than La Niña

Impacts

- **Drastically higher rainfall** in **S. America** (coastal flooding and erosion)
- **Droughts** in **Indonesia and Australia**; wildfires
- **Weaker monsoons** and even **droughts** in **India and SE Asia**
- **Reduces the upwelling** of cooler, nutrient-rich waters from the deep - along the west coast of South and Central America.

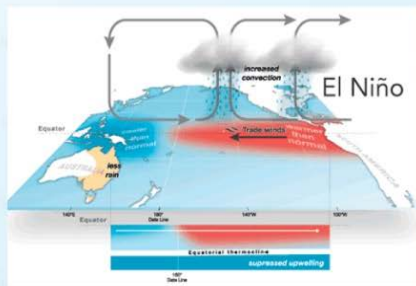


Fig. 1 - Depiction of El Niño Phenomenon

La Niña

- Also called **El Viejo**, anti-El Niño, or simply "a cold event"
- **Normal easterly winds** along the equator become **even stronger**
- **May last 1-3 years**, unlike El Niño (which usually lasts no more than a year)

Impacts

- **Heavier rains** in **SE Africa**, catastrophic floods in **Australia**
- **Drier-than-normal conditions** in **S. America**
- **Summer Monsoon rainfall** - greater than normal rainfall in **India**; beneficial for agriculture dependent Indian economy
- Off the west coast of the Americas, **upwelling increases**, bringing cold, nutrient-rich water to the surface.

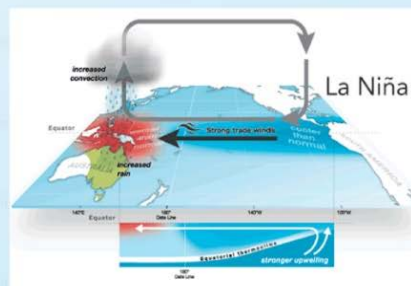


Fig. 2 - Depiction of La Niña Phenomenon

Oceanic Niño Index (ONI)

- It is a measure of the departure from normal sea surface temperature in the east-central Pacific Ocean.
- It is the **standard means** by which each El Niño episode is determined, gauged, and forecast.

Note:

Why were Initial Predictions off the Mark?

- The reason cited by weather meteorologists for the error in predicting La Niña's onset is its **expected mild intensity**.
 - **Weather models** tend to detect signals **more accurately during strong La Niña** (or El Niño) phases, but are **less precise with weaker ones**.
- Additionally, various factors influence surface and subsurface conditions across the Pacific Ocean, including **inter-seasonal variability in atmospheric conditions, winds, and pressure**.
 - These are closely linked to the movement of **the Madden Julian Oscillation (MJO)**, an **eastward-moving band of rain-bearing winds and clouds**.
 - The **interaction of these** different weather systems **complicates predictions**.
- Recent forecasts suggest that the first signs of La Niña's onset will likely appear by late September or early October, with **La Niña peaking in November and continuing throughout the winter in the northern hemisphere**.

What will be La Niña's Impact on Indian Weather?

- La Niña is typically **associated with enhanced rainfall during India's southwest monsoon**.
 - However, since 2024 monsoon season is nearly over and **La Niña conditions have yet to develop in the equatorial Pacific Ocean**, this climatic phenomenon will not directly influence the country's rainfall at present.
- If La Niña begins by late September or October, it may **influence rainfall during the northeast monsoon season** (October-December), which primarily affects Tamil Nadu, coastal Andhra Pradesh, Rayalaseema, southern interior Karnataka, and Kerala.
 - Climatologically, **La Niña is not favorable for northeast monsoon rainfall**, although there have been exceptions in the past.
- The north Indian Ocean basin, including the **Bay of Bengal and the Arabian Sea**, typically **experiences cyclone** development during **March to May and**

October to December, with peak activity in May and November.

- **During La Niña years**, there is a **higher likelihood of frequent cyclogenesis**, with storms potentially being more intense and longer-lasting.
- La Niña years have historically been associated with **harsher and colder winters**.

Uncommon Cyclones in the Arabian Sea

Why in News?

Recently, the **Arabian Sea** witnessed a rare August cyclone, named **Asna**, which stirred considerable interest due to its unusual timing and origin.

- The **north Indian Ocean**, which includes the Arabian Sea and the Bay of Bengal, is **typically less active** in terms of cyclones compared to global oceanic regions. However, Asna's emergence has brought attention to the growing influence of climate change on **cyclogenesis** in this region.

Note: Cyclogenesis refers to the development or strengthening of cyclonic circulation in the atmosphere, often leading to the formation of cyclones and associated weather phenomena.

What are the Factors Contributing to Cyclogenesis in the North Indian Ocean?

- **Oceanic Tunnels:** The Indian Ocean has unique oceanic tunnels connecting it to the **Pacific and Southern Oceans**.
 - The **Pacific Tunnel (Indonesian Throughflow)** introduces warm water to the upper 500 meters of the Indian Ocean, contributing to higher **sea surface temperatures (SSTs)** in the Arabian Sea, potentially enhancing convection and moisture availability.
 - Warm SSTs can provide energy for cyclone development, but the impact may be moderated by other factors.

Note:

- The **Southern Ocean Tunnel** brings cooler waters **below 1 kilometer depth**, which can stabilise the lower ocean layers and limit vertical mixing of warmer surface waters.
 - The cooler waters may also reduce SSTs and **limit the energy available for cyclone formation**, potentially suppressing cyclonic activity.
- **Pre and Post-Monsoon Cyclones:** The north Indian Ocean, encompassing the Arabian Sea and the Bay of Bengal, experiences **two distinct cyclone seasons, pre-monsoon (April to June) and post-monsoon (October to December)** unlike other regions that typically have one.
 - The region's unique climatic and oceanographic conditions, including the monsoonal circulation and dramatic seasonal wind reversals, contribute to these dual cyclone seasons.
 - During the **pre-monsoon season**, cyclogenesis can occur in **both the Arabian Sea and the Bay of Bengal** due to warming and increased convection.
 - In the **post-monsoon season (October-December)**, the northeast monsoon and dry continental air ends up cooling the Arabian Sea, reducing the likelihood of cyclone formation, while the **Bay of Bengal remains more favourable for cyclones**.
 - However, the **Climate change** is altering the patterns and intensity of cyclones in the Indian Ocean.
- **Oceanic and Atmospheric Circulation:** Unique patterns such as the **Madden-Julian Oscillation (MJO)**, **Indian Ocean Dipole (IOD)** and **El Niño-Southern Oscillation (ENSO)** influence the frequency and intensity of cyclones in the Indian Ocean. These phenomena can either suppress or enhance cyclone activity depending on their phase and strength.

Note: The **Arabian Sea has fewer cyclones than the Bay of Bengal** due to stronger **vertical wind shear and less convective activity**.

- Despite rapid warming before the monsoon, cooling during the monsoon and persistent cooler temperatures reduce cyclonic development.
- Recent warming trends affect both regions, but the Arabian Sea remains less active.

How does Climate Change Impact the Indian Ocean?

- **Rapid Warming:** Climate change is causing the **Indian Ocean to warm rapidly**. Increased heat from the **Pacific Ocean** and warmer waters pushed in from the **Southern Ocean** contribute to this trend.
 - Changes in **atmospheric winds and humidity**, driven by global climate shifts, further intensify the warming of the Indian Ocean.
- **Global Influence:** The Ocean's rapid warming is affecting the heat uptake by the Pacific Ocean and the sinking of heavy waters in the north Atlantic Ocean.
 - The Indian Ocean is acting like a clearinghouse (modulates global climate variability and contributes to the overall heat balance) for ocean warming during climate change.
- **Cyclogenesis Impact:** The rapid warming and associated climate changes impact **cyclone formation, frequency, and behavior**, highlighting the region's unique response to global warming.

Cyclone Asna

- Cyclone Asna, a **rare August cyclone**, has drawn significant attention as the first North Indian Ocean cyclone in August since 1981.
 - The name Asna, which means "the one to be acknowledged or praised", has been given by Pakistan.
- Cyclone Asna originated from a powerful **land-based low-pressure system**, which is typical as most such systems **form over the Bay of Bengal** and bring heavy monsoon rains to India.
 - The system transitioned into a **cyclone upon moving into the warm Arabian Sea**, which was fueled by global warming and regional weather patterns, provided the necessary **energy for Asna to intensify**, but it eventually dissipated due to dry desert air entering the cyclone's circulation.
- Climate change is making cyclones in the Indian Ocean more unpredictable, with factors like **global warming, El Niño, and underwater volcanic eruptions** contributing to extreme weather events in India, where the monsoon season has become increasingly erratic with unpredictable rainfall patterns.

Note:



CYCLONE



Cyclones are rapid **inward** air circulation around a **low-pressure** area.

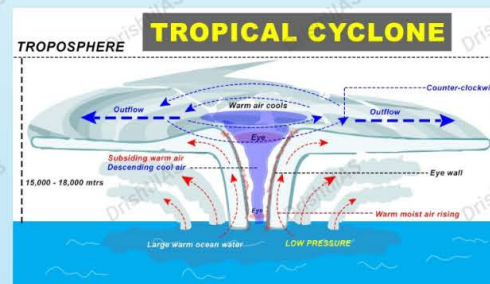


Cyclone v/s Anticyclone

Pressure System	Pressure Condition at the Center	Pattern of Wind Direction	
		Northern Hemisphere	Southern Hemisphere
Cyclone	Low	Anticlockwise	Clockwise
Anticyclone	High	Clockwise	Anticlockwise

Classification

- **Tropical Cyclones;** originate between the **Tropics of Capricorn and Cancer**
- **Extra Tropical/ Temperate Cyclones;** originate in the **Polar Regions**



Conditions for Formation

- Large sea surface with temperature $>27^{\circ}\text{C}$.
- Presence of the **Coriolis force**
- Small **variations in the vertical wind speed**
- **A pre-existing weak low- pressure area**
- **Upper divergence** above the sea level system

Different Names for Tropical Cyclones

- **Typhoons** - Southeast Asia and China
- **Hurricanes** - North Atlantic and eastern Pacific
- **Tornados** - West Africa and southern USA
- **Willy-willies** - Northwest Australia
- **Tropical Cyclones** - Southwest Pacific and Indian Ocean

Nomenclature

- Nodal Authority - **World Meteorological Organization (WMO)**
- Indian Ocean Region - **Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand** contribute to naming cyclones that occur in this region.

Cyclones in India

- **Bi-annual Cyclone Season** - March to May and October to December
- Recent Cyclones - **Tauktae, Vayu, Nisarga and Mekanu** (in Arabian Sea) and **Asani, Amphan, Fani, Nivar, Bulbul, Titli, Yaas and Sitrang** (in Bay of Bengal)



Note:

Disaster Management

Highlights

- Loss and Damage Fund
- The Disaster Management (Amendment) Bill 2024

Loss and Damage Fund

Why in News?

In the aftermath of the **catastrophic landslides** that recently impacted Kerala's Wayanad district, a critical discourse has arisen regarding the eligibility of subnational entities to claim compensation through the **Loss and Damage Fund (LDF)** under the **United Nations Framework Convention on Climate Change (UNFCCC)**.

Note:

- The Wayanad district of Kerala experienced a **devastating landslide disaster in early July 2024** due to **heavy rainfall and fragile ecological conditions**.
- The **landslides in Chooralmala and Mundakkai villages** killed at least 144 people and injured 197, after the district received over **140 mm of rain in 24 hours**, saturating the soil and weakening its binding to the underlying hard rocks.

What is the Loss and Damage Fund?

- **Establishment and Goal:** The **Loss and Damage Fund (LDF)** was established at the **27th UNFCCC Conference of Parties (COP27)** held in **Egypt** to provide financial support to regions suffering both economic and non-economic losses caused by climate change.
 - In **COP28**, member countries reached an agreement to operationalize the Loss and Damage (L&D) fund.
 - The Fund addresses losses resulting from **extreme weather events and slow-onset processes**, such as rising sea levels.
- **Governance:** The **LDF** is governed by a **Governing Board**, which is responsible for:
 - Determining the allocation of the Fund's resources.
 - The **World Bank** serves as its interim trustee.
 - The Governing Board is currently developing mechanisms to facilitate access to the Fund's resources, including **Direct access, Small grants, Rapid disbursement options**.
- **Concerns:**
 - Despite its intended purpose, there are ongoing concerns that:
 - Climate funds, including the LDF, may be too slow to be immediately accessible following a disaster.
 - This issue is particularly acute **for local communities at the sub-national level**.
 - It is anticipated that the **LDF** may face similar challenges in **ensuring timely access** to its resources.

Note:





UNFCCC

Conference of Parties (COP)

- **Supreme decision-making body** of UNFCCC
- **Meets every year** (unless the Parties decide otherwise)
- Meets in **Bonn**, the Secretariat (**unless a Party offers to host the session**)
- First COP – held in **Berlin**, Germany (1995)

COPs and Their Major Outcomes

COP 3 (1997)

Kyoto, Japan

Adopted Kyoto Protocol (legally binded developed countries to reduce emission targets)

COP 7 (2001)

Marrakech, Morocco

Marrakech Accords signed (set stage for ratification of Kyoto Protocol)

COP 8 (2002)

New Delhi, India

Delhi Declaration (development needs of the poorest countries)

COP 13 (2007)

Bali, Indonesia

Bali Road Map and Bali action plan

COP 19 (2013)

Warsaw, Poland

- Warsaw Framework for REDD Plus
- Warsaw International Mechanism for Loss and Damage

COP 18 (2012)

Doha, Qatar

Doha Amendment to Kyoto Protocol (reducing GHG emissions by 18% compared to 1990 levels)

COP 16 (2010)

Cancun, Mexico

- Cancun Agreements (assist developing nations in dealing with Climate Change)
- Estd: Green Climate Fund

COP 15 (2009)

Copenhagen, Denmark

Developed countries pledged up to \$30 billion in fast-start finance (for 2010-12)

COP 21 (2015)

Paris, France

- Paris Agreement (global temp. well below 2°C above pre-industrial times)
- Climate finance by rich countries (yearly \$100bn funding pledge)

COP 26 (2021)

Glasgow, UK

- India announced Net Zero Targets 2070
- India called for "phase-down" of coal-based power
- Glasgow Breakthrough Agenda (by 41 countries + India)

COP 28 (2023)

Dubai, UAE

- USD 700 mn pledged by UAE, Germany, UK, EU, & Japan for the **Loss & Damage Fund**
- Phase out fossil fuels to achieve net zero by 2050
- Reach 11,000 GW of RE by 2030
- 66 nations to cut cooling emissions by 68% by 2050
- Triple global nuclear energy capacity by 2050
- **India led Initiatives at COP 28:**
 - **Green Credit Initiative:** Issues credits for eco-friendly actions like planting on degraded lands
 - **LeadIT 2.0:** Supports fair industry transitions & low-carbon technology
 - **Global River Cities Alliance (GRCA):** Promotes sustainable river development & best practice sharing
 - **Quad Climate Working Group (QCWG):** Enhances local & regional sustainability efforts

COP 27 (2022)

Sharm-el-Sheikh, Egypt

- Loss & Damage Fund
- USD 3.1bn plan for early warning systems
- G7-led 'Global Shield Financing Facility' for countries suffering climate disasters
- African Carbon Market Initiative
- Action for Water Adaptation and Resilience (AWARe) initiative
- Mangrove Alliance (in partnership with India)
- India's Long-Term Low Emission Development Strategy

COP 29
to be held in
Baku, Azerbaijan
in November,
2024



Note:

India's Role in Climate Finance

- India has incurred damages exceeding USD 56 billion due to weather-related disasters between 2019 and 2023.
 - India's **National Climate Action Policy** and budgets have predominantly emphasised mitigation efforts rather than adaptation.
- As per **Union Budget 2024**, the Government will come up with a **taxonomy for climate finance** for enhancing the availability of capital for climate adaptation and mitigation.
 - In the absence of clear guidelines for accessing loss and damage funds within India, **frontline communities remain at risk.**
- **India's Initiatives regarding Climate Finance include:**
 - **National Adaptation Fund for Climate Change (NAFCC):**
 - **National Clean Energy Fund:** It was created to promote clean energy, and funded through an initial **carbon tax** on the use of coal by industries.
 - **National Adaptation Fund:** It was established in 2014 with a corpus of Rs. 100 crores with the aim of bridging the gap between the need and the available funds.

CLIMATE FINANCE

Climate finance refers to local, national or transnational financing—drawn from public/ private/alternative sources of financing—to support mitigation and adaptation actions against climate change.

PRINCIPLES OF CLIMATE FINANCE

- ⊙ Polluter Pays
- ⊙ Common but Differentiated Responsibility and Respective Capability (CBDR-RC)

Multilateral Climate Funds Coordinated by UNFCCC

- ⊙ **Global Environment Facility (GEF):** Operating entity of financial mechanism (1994)
- ⊙ **Kyoto Protocol (2001):**
 - ▶ **Adaptation Fund (AF):** Gives developing countries full ownership of adaptation projects
 - ▶ **Clean Development Mechanism (CDM):** To carry out emission-reduction projects in developing nations
- ⊙ **Green Climate Fund (GCF):** estd. - 2010 (COP 16)
 - ▶ Funds under it - **Least Developed Countries Fund (LDCF)** and **Special Climate Change Fund (SCCF)**
- ⊙ **Long-Term Climate Finance:**
 - ▶ **Cancun Agreements (2010):** Mobilize and provide scaled-up funds in short and long term
 - ▶ **Paris Agreement (2015):** Developed nations agreed to establish new collective goal of at least \$100 billion/year by 2025
- ⊙ **Loss and Damage Fund (2023) (COP27 & COP28):** Financial assistance to nations most vulnerable and impacted by effects of climate change

Climate Investment Funds (CIFs) under World Bank

- ⊙ Clean Technology Fund
- ⊙ Strategic Climate Fund

INDIA'S INITIATIVES REGARDING CLIMATE FINANCE

Fund	Objective
<ul style="list-style-type: none"> ■ National Adaptation Fund for Climate Change (NAFCC) (2015) ■ National Clean Energy Fund (2010-11) ■ National Adaptation Fund (2014) ■ Intended Nationally Determined Contributions (INDCs) (2015) ■ Climate Change Finance Unit (2011) 	<ul style="list-style-type: none"> ■ For vulnerable Indian states ■ Advancing clean energy (started with initial carbon tax on industrial coal use) ■ Bridging gap between required and available funds ■ Nationally binding targets adopted under UNFCCC ■ Leads on global climate finance issues

Challenges to Climate Finance

- ⊙ Gap between national needs and climate finance under NDCs
- ⊙ Least Developed Countries receive much less approved funding in per-capita terms from the multilateral climate funds
- ⊙ Slow rate of approvals
- ⊙ Failure in securing viability-gap funding

Note:

The Disaster Management (Amendment) Bill 2024

Why in News?

Recently, the central government introduced the **Disaster Management (Amendment) Bill, 2024** in the Lok Sabha, to amend the existing **Disaster Management Act, 2005**.

- However, the proposed amendments have sparked debate over the increasing centralisation of disaster management processes and their implications for effective disaster response.

What are the Key Provisions of Disaster Management (Amendment) Bill, 2024?

- **Preparation of Disaster Management Plans:** Under the 2005 Act, the **National Executive Committee (NEC)** and **State Executive Committees (SECs)** were responsible for assisting the **National Disaster Management Authority (NDMA)** and **State Disaster Management Authorities (SDMAs)** in preparing disaster management plans.
 - The Bill proposes that **NDMA and SDMA directly prepare their respective national and state disaster management plans**, bypassing the NEC and SECs.
 - The NDMA's responsibilities will be expanded to include periodic assessments of disaster risks.
- **National and State Disaster Database:** The Bill mandates the creation of a comprehensive disaster database at both national and State levels.
 - This database will cover **aspects such as disaster assessment, fund allocation, expenditure, preparedness plans**, and risk registers.
- **Appointments to NDMA:** Currently, the central government appoints officers and employees to NDMA.
 - The Bill allows NDMA to specify its own staffing needs and appoint experts with central government approval.
- **Urban Disaster Management Authority:** The Bill introduces **Urban Disaster Management Authorities (UDMA)** for **state capitals and large cities**, except for the **National Capital Territory of Delhi** and Union territory of Chandigarh.
 - These authorities will be led by municipal commissioners and district collectors, focusing

on urban disaster management planning and implementation.

- **State Disaster Response Force:** The 2005 Act provides for a National Disaster Response Force (NDRF) for specialised disaster response.
 - The Bill empowers state governments to **create State Disaster Response Forces (SDRFs)** with defined functions and terms of service, enhancing local response capabilities.
- **Statutory Status to Existing Committees:** The Bill grants **statutory status to the National Crisis Management Committee (NCMC)** and the **High-Level Committee (HLC)**, which will handle major disasters and financial assistance respectively.
 - The NCMC will be led by the **Cabinet Secretary**, and the HLC by the Minister overseeing disaster management.
- **Penalties and Directives:** The Bill seeks to insert a new **Section 60A to empower the Central and State governments** to direct any person to take any action or refrain from taking any action for **reducing the impact of a disaster and to impose a penalty not exceeding Rs 10,000**.

What are the Concerns Regarding the Disaster Management (Amendment) Bill, 2024?

- **Centralisation of Power:** The Bill further centralises an already **heavily-centralised Disaster Management Act, 2005**, creating **more authorities and committees** at various levels, complicating the chain of action and **leading to delayed disaster response, contrary to the Act's intent**.
 - The Bill dilutes the **National Disaster Response Fund (NDRF)** by removing specific usage guidelines, exacerbating concerns about centralisation in disaster response.
 - The centralisation has previously led to **delays, as seen with the slow disbursement of funds to Tamil Nadu and Karnataka**.
- **Inadequate Local Resources:** The Bill does not address the **potential lack of resources and funding at the local level** for setting up and **maintaining UDMAs**.
 - This gap could undermine the effectiveness of these new entities in disaster management.
- **Ensuring Disaster Relief as a Legal Right:** The Bill **does not address the need to make disaster relief a justiciable right (can be enforced in court if they are**

Note:

violated), despite the moral obligation of the state to provide relief.

- Relief measures vary significantly across states and even within states for similar disasters.
- **Integrating Climate Change:** The Bill lacks provisions to **fully integrate climate change impacts into disaster risk management**. Despite international agreements like the **Sendai Framework** and **Paris Agreement 2015**, the Bill falls short in addressing climate-induced risks.
- **Integration Issues:** The transition of responsibilities from the National Executive Committee and State Executive Committees to the NDMA and SDMAs could face integration issues, particularly in aligning new roles with existing frameworks.
 - In the proposed bill **there is no clear mechanism for effective collaboration among various stakeholders**, including government agencies, **Non-governmental Organizations (NGOs)**, private sectors, and the general public.
 - Recent disasters highlight the need for better governance and coordination to handle complex and emerging risks.
- **Restricted Definition of 'Disaster':** The government currently does not plan to **classify heatwaves as a notified disaster** under the Disaster Management Act, 2005, despite the increasing frequency and impact of **heatwaves** in India.
 - The definition of **"disaster" in the Act remains restricted and static**, failing to adequately address climate-induced disasters like **heatwaves**, which display regional variability and gradation.
- **Impact on Federal Dynamics:** The Bill may exacerbate tensions between central and State governments by centralising decision-making and financial management.
 - **States may become overly dependent on the central government** for funds and decision-making, limiting their autonomy in disaster management and response.

What are the Shortcomings of the Disaster Management Act, 2005?

- **Institutional Shortcomings:** The position of **Vice-Chairperson of the NDMA has been vacant for about a decade**. This absence has deprived the NDMA of necessary leadership and political influence.

- The NDMA lacks independent administrative and financial powers, requiring all decisions to be routed through the **Ministry of Home Affairs, which leads to inefficiencies and delays**.

- **Bureaucratic Inefficiencies:** The Act suffers from excessive bureaucracy, creating a **top-down approach where decision-making is centralised and local authorities are sidelined**.
 - This has led to **delayed responses during disasters**, as seen with the incidents like the **2018 Kerala floods** and **2013 Kedarnath floods**.
- **Vagueness:** The Act includes vague definitions of key terms like **"disaster" and "calamity."** For example, it initially defined disasters as any **"catastrophe, mishap, calamity or grave occurrence"** from natural or man-made causes, but it did not clearly differentiate between types of disasters or specify their scope, leading to confusion.
- **Funding:** Allocated funds are often **insufficient for addressing the needs during large-scale disasters**, leading to delays in response and recovery.

Disaster Management Act, 2005

- The DM Act, 2005 was enacted in the aftermath of the **devastating 2004 tsunami** the idea for such legislation was in the works at least since the **1998 Odisha super cyclone**.
- The Act led to the creation of the **NDMA, SDMAs at the state level, a National Disaster Response Force (NDRF), and a National Institute of Disaster Management (NIDM)** (an institute meant for disaster-related research, training, awareness, and capacity building).
- The Act was followed by a **National Disaster Management Policy in 2009** and a **National Disaster Management Plan in 2016**.
 - This institutional framework has served India in dealing with natural disasters. Over the years, it has saved thousands of lives, and provided relief, rescue and rehabilitation services.
- **Growing incidents of natural disasters**, exacerbated by **climate change**, have made agencies such as NDMA more important than ever, requiring the assignment of greater responsibilities and resources.



Note:



drishti

Security

Highlights

- Peace Pact in Tripura
- DAC Granted Acceptance of Necessity for Defence Acquisition Proposals

Peace Pact in Tripura

Why in News?

Recently, the **Central Government**, the **state government of Tripura**, and two major **insurgent groups** namely the **National Liberation Front of Tripura (NLFT)** and the **All Tripura Tiger Force (ATTF)** signed a **peace agreement to end violence in the state**.

- This agreement will end a 35-year-long conflict in the state, renouncing violence and committing to build a prosperous and developed Tripura.

What are the Key Highlights of Peace Agreement?

- **Reintegration of Armed Cadres:** Over 328 armed cadres from NLFT and ATTF will **surrender and reintegrate into society**.
- **Financial Package:** A special financial package of **Rs 250 crore** has been approved for the **development of Tripura's tribal population**.
- **Broader Initiative:** This is part of a larger effort, with **12 significant agreements signed** in the Northeast between 2014 and 2024, including 3 related to Tripura.

NLFT and ATTF

- **National Liberation Front of Tripura (NLFT)** was formed in 1989.
 - The purported objective of the NLFT is to establish an **'independent' Tripura through an armed struggle** following the liberation from **'Indian neo-colonialism and imperialism'** and furtherance of a **'distinct and independent identity'**.
 - There were multiple splits within the NLFT due to personal ambitions of leaders and parochial religious considerations.

- It was outlawed in April 1997 under the **Unlawful Activities (Prevention) Act, 1967**, and is also proscribed under the **Prevention of Terrorism Act (POTA), 2002**.
- The NLFT split into two groups in February 2001, one headed by **Biswamohan Debbarma** and the other by **Nayanbasi Jamatiya**.
- **Tripura Tiger Force (ATTF)** was founded in 1990.
 - It demands removal of illegal migrants from electoral rolls and implementation of the 1949 Tripura Merger Agreement.
 - It operated in **North and South Tripura districts** and emerged as a formidable terrorist group by 1991.
 - It was banned in April 1997 under the Unlawful Activities (Prevention) Act, 1967.

What is the Significance of the Peace Pact Between the Government And Insurgent Groups in Tripura?

- **Restoration of Peace and Stability:** The armed groups pledging to end violence, is a key step toward peace and stability in Tripura, aiming to break the violence cycle and foster a safer environment for development.
- **Mainstream Integration:** The agreement facilitates the integration of former insurgents into mainstream society, addressing issues of alienation and disenfranchisement among tribal communities. It provides an opportunity for these individuals to positively contribute to society.
- **Development Initiatives:** The Central Government has approved a special development package **for the tribal population in Tripura**. This financial commitment highlights the government's focus on socio-economic development as a strategy to prevent future conflicts.

Note:

- **Cultural Preservation:** The pact supports the preservation of the cultural heritage, languages, and identities of Northeast tribal groups. This is crucial for fostering a strong sense of belonging and community among these populations.

What are the Reasons for Insurgency in North East India Including Tripura?

- **Inter-Tribal Conflicts:** Changes in the religious composition of tribal groups, particularly the Jamatias, fueled newer inter-tribal tensions, compounding existing tribal-non-tribal conflicts.
- **Demographic Changes:** The mass **migration from East Pakistan (now Bangladesh)** post-1947 altered Tripura's demographic profile, turning a predominantly tribal region into one **dominated by Bengali-speaking plainsmen**. This demographic inversion fueled **discontent among the indigenous tribes**.
- **Proximity to Mizoram Insurgency:** Tripura's geographical proximity to Mizoram exposed the state to the **"side effects" of the insurgency** there, further exacerbating local tensions.
- **Formation of Insurgent Groups:** Discontent over land and demographic changes led to the formation of **insurgent groups** like the **Tripura Upajati Juba Samiti (TUJS)** in 1971, the **Tripura National Volunteers (TNV)** in 1981, and the **National Liberation Front of Tripura (NLFT)** in 1989, which intensified the insurgency.
- **Economic Factors:** The lack of development and limited economic opportunities in Northeast India, especially for the youth, has led to widespread poverty and unemployment which has led to recruitment by insurgent groups, offering a means of livelihood and social status.
- **Geographical Factors:** The north-eastern region including tripura shares **98% of its borders** with other countries, highlighting **weak geographical links with the rest of India**.
 - The north-eastern region's population is only 3% of the national total, it **grew by over 200%** from 1951 to 2001, **straining livelihoods and land resources**.
- **Loss of Tribal Lands:** Tribals were deprived of their **agricultural lands**, often sold at throw-away prices, and pushed into the forests, leading to widespread resentment and tensions. The deprivation of land became a major driver of insurgency.

- **Political Factors:** Northeast India including **tripura ethnic communities** sometimes feel neglected by the central government due to **geographic distance and limited political representation**, driving demands for **autonomy or independence to protect their cultural identity** and resources.

What are the Government Initiatives to Establish Peace in North East India Including Tripura?

- **Dialogues and Negotiation:** The government has negotiated and signed numerous peace accords with various insurgent groups, leading to the surrender of militants and the formation of autonomous councils. Example: the recent peace agreement signed between the government and insurgents groups **NLFT** and the **ATTF**.
- **Important Agreements:**
 - **Naga Peace Accord:** The ceasefire agreement between the Government of India and the National Socialist Council of Nagaland (K)/Niki group **has been extended for one year**, from September, 2024 to September, 2025 further advancing the **[Naga Peace Accord](#)**.
 - **Assam-Meghalaya Boundary Agreement, 2022:** Resolves disputes in 6 sectors, allocating 18.51 sq. km to Assam and 18.28 sq. km to Meghalaya.
 - **[Karbi Anglong Agreement, 2021](#)**
 - **[Bodo Accord, 2020](#)**
 - **[Bru-Reang Agreement, 2020](#)**
 - **[NLFT-Tripura Agreement, 2019](#)**
- **Development Initiatives:** The government has focused on infrastructure, economic, and skill development in the Northeast region with projects like the **[Kaladan Multi-Modal Transit Project](#)** and various railway and highway initiatives aimed at improving connectivity.
 - Economic schemes, including the **[North East Industrial Development Scheme](#)** and **[Prime Minister's Development Initiative for North Eastern Region \(PM-DevINE\)](#)** are designed to boost growth.
 - Additionally, efforts like the **[North East Special Education Zone](#)** and **[Skill India Mission](#)** are geared towards enhancing education and employment opportunities.

Note:

- **Cultural and Social Initiatives:** The government promotes **regional languages and cultural festivals**, and **supports cultural centres** to preserve heritage. Interstate cooperation is enhanced through the **Northeastern Council**, joint development projects, and improved connectivity, with cultural exchange programs fostering mutual understanding.
- **Other Initiatives for the North East Development**
 - **Infrastructure:**
 - [Bharatmala Pariyojana](#)
 - [Regional Connectivity Scheme \(RCS\)-UDAN](#)
 - **Connectivity:**
 - India-Myanmar-Thailand Trilateral Highway
 - **Tourism:**
 - [Swadesh Darshan Scheme](#)
 - **Other:**
 - [Digital North East Vision 2022](#)
 - [National Bamboo Mission](#)

What are the Challenges to Peace Restoration in North-Eastern States Including Tripura?

- **Trust Building:** Establishing **trust between the government and former insurgents** is crucial. Historical grievances and mistrust may hinder cooperation and integration efforts.
- **Monitoring and Compliance:** **Ensuring compliance with the terms of the agreement**, including the disbandment of armed groups and the cessation of violence, will **require robust monitoring mechanisms**.
- **Socio-Economic Integration:** Integrating former insurgents into the socio-economic fabric poses challenges, including providing adequate job opportunities, vocational training, and psychological support.
- **Political Dynamics:** The **political landscape** in the north-eastern state including Tripura is **complex with various stakeholders involved**. Navigating these dynamics while ensuring **inclusive governance** will be critical for sustainable peace.
- **Continued Militancy:** Continued Militancy in the region remains a **risk of splinter groups** or other insurgent factions refusing to comply with the peace agreement, potentially leading to renewed violence and instability.

DAC Granted Acceptance of Necessity for Defence Acquisition Proposals

Why in News?

Recently, the [Defence Acquisition Council \(DAC\)](#) granted **acceptance of necessity (AoN)** for 10 defence acquisition proposals worth Rs. 1,44,716 crores.

- Indigenous sources will account for 99% of the total value of the projects cleared by DAC under the [Buy \(Indian\) and Buy \(Indian-IDDM\)](#) categories.

Note:

- An AoN means the government has **accepted the need** for the equipment and is the **first step** towards initiation of the **procurement process**. However, grant of an AoN **does not necessarily lead to a final order**.
- The [Buy \(Indian-Indigenously Designed Developed and Manufactured \(IDDM\)\)](#) category is the **most important category of acquisition** for indigenisation under the defence procurement policy.

What are the Major Acquisition Proposals?

- **Future Ready Combat Vehicles (FRCVs):** Forming the centrepiece of the projects cleared by the government, it is an advanced [Main Battle Tank](#) with superior mobility, all-terrain capability, multilayered protection, precision, lethal firepower, and real-time situational awareness.
 - Its purpose is to replace ageing Soviet-origin [T-92 tanks](#).
 - The Indian Army plans to induct 1,770 FRCVs at a cost of around ₹60,000 crore.
 - Under the **Make I procedure** of [Defence Acquisition Procedure \(DAP\)](#), the FRCVs will be acquired in three phases.
- **Air Defence Fire Control Radars:** It can detect and track aerial targets and allocate guns for firing.
 - The current procurement follows the earlier import of **66 radars** from Israel at Rs 2,500 crore, intended to replace outdated **fly-catcher radars**.
 - The proposal has also been approved for Forward Repair Team (Tracked) which has suitable cross

Note:

country mobility for carrying out in-situ repair during mechanised operations.

➤ **Proposals for Indian Coast Guard:**

- **Dornier-228 Aircraft** - to enhance the **ICG's** surveillance and reconnaissance capabilities.
- **Next Generation Fast Patrol Vessels** - with high operational features for rough weather conditions
- **Next Generation Offshore Patrol Vessels** - with enhanced long-range operations to carry out patrolling of maritime zones, search and rescue, and disaster relief operations.

What is the Defence Acquisition Council (DAC)?

- The **Defence Acquisition Council (DAC)** is the top decision-making authority in the Defence Ministry for establishing **new policies and capital acquisitions** for the Army, Navy, Air Force, and the Indian Coast Guard.
- The Council is chaired by the **Minister of Defence**.
- It was established in **2001** following the recommendations of the Group of Ministers on '**Reforming the National Security System**,' in the wake of the **Kargil War 1999**.

What are India's Efforts for Self-Reliance in Defence Manufacturing?

- Self-reliance in the defence manufacturing sector is one of the government's top priorities. India has taken a raft of measures to boost self-reliance including:

- Phased **bans on the import of hundreds of weapons and systems**
- Separate budget for buying locally made military hardware
- Increasing FDI from 49% to 74% and improving ease of doing business.
- The '**Make' Categories** is another initiative to achieve the objective of **self-reliance** by involving greater participation of the Indian **industrial ecosystem** including private sector. **It Includes the Following Procedures:**
 - **Make-I (Government Funded):** It involves design and development of equipment, systems, major platforms or upgrades thereof by the industry.
 - For Projects under **Make-I sub-category**, MoD provide fund support maximum **upto 70%** of the prototype development cost, based on **viability gap funding** method.
 - **Make-II (Industry Funded):** It covers military hardware that may not be designed and developed indigenously, but can be manufactured in the country for **import substitution**.
 - No government funding is provided.
 - **Make-III (Indigenously Manufactured):** These are subsystems, components, and **ammunition** produced in India to replace imports for existing weapon systems, often through foreign partnerships or technology transfers.



Note:



Ethics

Highlights

- *Restatement of Values of Judicial Life*

Restatement of Values of Judicial Life

Why in News?

The recent visit of the Prime Minister of India to **Chief Justice of India (CJI)** residence has sparked controversy, particularly in the context of the “**Restatement of Values of Judicial Life**” adopted by the Supreme Court in 1997.

Note:

- Socio-religious (personal) and administrative/judicial life of a public servant are distinct. The CJI (or any other public servant) cannot be questioned on personal life, **as personal relationships fall outside the scope of judicial scrutiny**. However, the judiciary must remain independent and free from undue influence, upholding the **constitutional principle of separation of powers**.

What is Restatement of Values of Judicial Life?

- The ‘Restatement of Values of Judicial Life’ is a code of judicial ethics adopted by the **Supreme Court**, serving as a guide for an **independent and fair judiciary, ensuring the impartial administration of justice**.
- **The Code Comprises 16 Points:**
 - Justice must not merely be done but it must also be seen to be done. Judges **must avoid any actions that erode public confidence in impartiality of the judiciary**.
 - Accordingly, **any act of a judge** of the Supreme Court or a high court, whether **in official or personal capacity**, which erodes the credibility of this perception, **has to be avoided**.
 - A **judge should not contest the election to any office** of a club, society or other association, except in a society or association connected with the law.

- Close association with **individual members of the bar**, particularly those who practise in the same court, shall be avoided.
- A judge should not allow any member of their immediate family or a close relative who is a member of the Bar to appear before them or be involved in a case that they are handling.
- No member of a judge’s family who is a **member of the Bar** shall be permitted to use the judge’s residence or other facilities for professional work.
- A judge should **practise a degree of aloofness (being distant)** consistent with the dignity of his office.
- A judge shall **not hear and decide a matter in which a member of his family**, a close relation or a friend is concerned.
- A judge shall not engage in **public debate or express political views** on matters pending or likely to arise for judicial determination.
- A judge should let his judgments speak for themselves and not give **media interviews**.
- A judge shall **not accept gifts or hospitality except from family**, close relations and friends.
- A judge shall not **hear and decide a matter in which a company in which he holds shares** is concerned unless he has disclosed his interest and no objection to his hearing and deciding the matter is raised.
- A judge shall not speculate in **shares, stocks or the like**.
- Judges should not engage in trade or business, directly or indirectly, but publishing legal work or hobby activities are exceptions.
- A judge should not solicit, accept, or associate with fundraising for any purpose.
- A judge should **not seek any financial benefit** in the form of a perquisite or privilege attached to

Note:

his office unless it is clearly available. **Any doubt on this behalf must be resolved and clarified through the Chief Justice.**

- Judges must always be aware they are under public scrutiny and avoid any act or omission **unbecoming of their high office.**

Bangalore Principles of Judicial Conduct

- In July 2006, the **United Nations Economic and Social Council (ECOSOC)** adopted a resolution recognizing the **Bangalore Principles of Judicial Conduct** as an important advancement and complement to the **1985 United Nations Basic Principles on the Independence of the Judiciary.**
- The Bangalore Principles of Judicial Conduct aim to set ethical standards for judges, providing a framework for regulating judicial behaviour and offering guidance on maintaining judicial ethics.
 - The Principles recognize six core values: **independence, impartiality, integrity, propriety, equality, and competence and diligence**, which define the expected conduct for judges to effectively practise each value.

1985 UN Basic Principles on the Independence of the Judiciary

- It was adopted at the **Seventh UN Congress on the Prevention of Crime and the Treatment of Offenders**, 1985 and endorsed by General Assembly resolutions 40/32 and 40/146.
 - These principles aim to bridge the gap between ideal judicial independence and real-world practices, ensuring justice is maintained, human rights are protected, and the judiciary operates free from discrimination.

- Key aspects include guaranteed **independence, impartial decision-making, exclusive jurisdiction, non-interference, and the right to a fair trial.**

What are the Other Major Concerns About Judicial Integrity in India?

- **Political Ambitions of Judges:** Judges publicly resigning from their positions to enter politics has raised concerns about their **commitment to the Constitution of India** and the **impartiality of their judicial decisions.**
 - Former **Supreme Court judges accepting lucrative political positions or government roles** immediately after retirement has led to allegations of **favouritism and quid pro quo.**
 - Instances where judges deliver decisions that **benefit the ruling party and later receive high-profile government positions**, suggesting potential *quid pro quo* arrangements.
- **Transparency Issues:** The opaque nature of how information is handled in significant cases compromises public confidence in the judicial process.
- **Conflict of Interest:** Judges are expected to avoid conflicts of interest and maintain the integrity of the judicial process.
 - Judges' involvement in political activities, particularly after making controversial statements and rulings while on the bench, raises concerns about potential conflicts of interest.
- **Public Trust and Confidence:** The judiciary relies on public trust and confidence to fulfil its role. Judges' actions that undermine the perception of judicial integrity and **impartiality erode public trust in the judicial system.**



Note:



Miscellaneous

Highlights

- Paris Paralympics Games 2024
- Swachh Vayu Survekshan Award 2024
- Teachers' Day 2024

Paris Paralympics Games 2024

Why in News?

Recently, the Prime Minister lauded India's best-ever performance of para-athletes at the [Paris Paralympic Games 2024](#).

- India witnessed its 'best-ever campaign' in the Paris Paralympics 2024 bagging a total of **29 medals**. It included **7 gold, 9 silver and 13 bronze medals**.

What are the Key Facts About the Paralympics?

- **About:** The Paralympics is the largest international event for **disabled athletes** and takes place shortly after the Olympic Games.
 - Olympic-style games for athletes with a disability were organised for the **first time in Rome in 1960**.
 - It is supervised by the **International Paralympic Committee (IPC)**, a body recognised by the IOC.
- **Venue:** On **19th June 2001**, an agreement was signed between the [International Olympic Committee \(IOC\)](#) and the IPC for "**one bid, one city**".
 - It means that cities looking to host the **Olympic Games automatically** have to include the **Paralympics** as part of their bid.
- **About Paris Paralympic Games 2024:** The Paris Paralympic Games 2024 took place between **28th August and 8th September 2024** and featured approximately **4,400 athletes** from around the world.
 - **Sports Discipline:** Athletes competed in **22 sports**, making it a comprehensive event that showcases diverse athletic talents.

- **Mascot:** The **Paralympic Phryge**, inspired by the **Phrygian cap**, is the mascot for Paris Paralympic Games 2024. It symbolises **liberty and freedom**.
- **Overall Performance:** **China** finished on **top** with **94 gold medals**. **Great Britain** finished **second** with 49 golds while the **United States** came **third** with 36 golds.



How was India's Performance in the Paris Paralympic Games 2024?

- **Delegation:** India sent a delegation of **84 para-athletes**, competing in **12 disciplines** (Tokyo 2021- 9 disciplines). **Para Cycling, para-rowing, and blind judo** were new additions.
- **Performance:** India secured **29 medals** comprising 7 golds, 9 silvers, and 13 bronzes.
 - India finished in **18th position**.
 - India also crossed the milestone of **50 medals** in the history of the competition.
- **Rapid Improvement:** India won a total of **12 medals** from its Paralympic debut in **1968 (Tel Aviv, Israel) up to 2016**, including four medals at the Rio Games in 2016.
 - However, in the next two editions, **Tokyo 2021 and Paris 2024**, India's performance improved significantly, adding 48 medals and bringing the total to **60**.
- **Gold in Javelin Throw:** India's **Navdeep Singh** was awarded a **gold medal** in the **men's javelin throw F41 final** after Iran's Beit Sayah Sadegh was disqualified. He had originally won silver.
 - This is India's first-ever gold medal in the **men's javelin F41 category**.
 - F41 Category is a competition class for field athletes with **short stature**.

Note:



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Order	NPCs	G	S	B		
1	 People's Republic of China	94	76	50	220	+
2	 Great Britain	49	44	31	124	+
3	 United States of America	36	42	27	105	+
4	 Netherlands	27	17	12	56	+
5	 Brazil	25	26	38	89	+

What are the Government Initiatives for Sport Promotion?

- [Target Olympic Podium Scheme](#)
 - [Fit India Movement](#)
 - [Khelo India](#)
 - [National Sports Awards Scheme](#)
 - [National Sports Development Fund \(NSDF\)](#)
- Read More: [India at Paris Olympics 2024](#)

Swachh Vayu Survekshan Award 2024

Why in News?

Recently, the Union Minister of Environment, Forest & Climate Change, and Chief Minister of Rajasthan presented the [Swachh Vayu Survekshan Award 2024](#), on the occasion of the **International Day of Clean Air for Blue Skies (Swachh Vayu Diwas)** at Jaipur.

Note:

- Every year, the **International Day of Clean Air for Blue Skies** is celebrated on **7th September** to raise awareness and facilitate actions to improve air quality.
- It was **declared so by the United Nations General Assembly (UNGA)** in 2019.

What is the Swachh Vayu Survekshan Award 2024?

- **About Award:**
 - The Swachh Vayu Survekshan Award, 2024, was **presented to the best performing [National Clean Air Campaign \(NCAP\)](#) cities** in three categories based on population. The winning cities are
 - **Category-1 (population over 10 Lakhs):** Surat, Jabalpur, and Agra.
 - **Category-2 (population between 3-10 Lakhs):** Firozabad, Amravati, and Jhansi.
 - **Category-3 (population under 3 Lakhs):** Raebareli, Nalgonda, and Nalagarh.
 - The Municipal Commissioners of the winning cities were awarded with cash prizes, trophies, and certificates.
- **Swachh Vayu Survekshan (SVS):**
 - **About:**
 - **SVS** is a new initiative by the **Ministry of Environment, Forest and Climate Change (MoEFCC)** to rank cities on the basis of air quality and implementation of activities approved under the **city action plan (NCAP)** in **131 non-attainment cities**.

Note:

- Cities are declared non-attainment if **over a 5-year period they consistently do not meet the National Ambient Air Quality Standards (NAAQS)** for PM10 or NO₂.
- The categorisation of cities has been based on the **2011 population census**.
- **Criteria:** The cities were assessed on eight major points:
 - Control of biomass
 - Municipal solid waste burning
 - Road dust
 - Dust from construction and demolition waste
 - Vehicular emissions
 - Industrial emissions
 - Public awareness
 - improvement in PM10 concentration

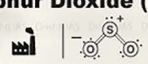

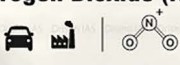

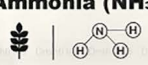


National Clean Air Campaign (NCAP)


- **About:** The National Clean Air Programme (NCAP) aims to systematically address air pollution by engaging all stakeholders and ensuring necessary action.
 - **131 cities have been identified** for the implementation of the city specific action plans under NCAP.
- **Target:** It is the **first-ever effort in the country** to frame a national framework for air quality management with a **time-bound reduction target**.
 - It seeks to cut the concentration of **coarse (PM10) and fine particles (PM2.5)** by at least **20% in the next five years** (base year for comparison-2017).
- **Monitoring:** The **"PRANA"** portal has also been launched by MoEFCC for
 - Monitoring implementation of NCAP.
 - Monitoring the action plans and implementation status of cities.
 - Sharing best practices adopted by cities for others to emulate.


What are the Government Initiatives Regarding Clean Air?

- **Vehicle Scrap Policy**
- **Waste to Wealth campaign**
- **"Ek Ped Maa Ke Naam" program**
- **The Mission LiFE**
- **Ideas4LiFE campaign**

Air Pollutants

<p style="text-align: center;">Sulphur Dioxide (SO₂)</p> <div style="text-align: center;">  </div> <p>It comes from the consumption of fossil fuels (oil, coal and natural gas). Reacts with water to form acid rain.</p> <p>Impact: Causes respiratory problems.</p>	<p style="text-align: center;">Ozone (O₃)</p> <div style="text-align: center;">  </div> <p>Secondary pollutant formed from other pollutants (NO_x and VOC) under the action of the sun.</p> <p>Impact: Irritation of the eye and respiratory mucous membranes, asthma attacks.</p>
<p style="text-align: center;">Nitrogen Dioxide (NO₂)</p> <div style="text-align: center;">  </div> <p>Emissions from road transport, industry and energy production sectors. Contributes to Ozone and PM formation.</p> <p>Impact: Chronic lung disease.</p>	<p style="text-align: center;">Carbon Monoxide (CO)</p> <div style="text-align: center;">  </div> <p>It is a product of the incomplete combustion of carbon-containing compounds.</p> <p>Impact: Fatigue, confusion, and dizziness due to inadequate oxygen delivery to the brain.</p>
<p style="text-align: center;">Ammonia (NH₃)</p> <div style="text-align: center;">  </div> <p>Produced by the metabolism of amino acids and other compounds which contain nitrogen.</p> <p>Impact: Immediate burning of the eyes, nose, throat and respiratory tract and can result in blindness, lung damage.</p>	<p style="text-align: center;">Lead (Pb)</p> <div style="text-align: center;">  </div> <p>Released as a waste product from extraction of metals such as silver, platinum, and iron from their respective ores.</p> <p>Impact: Anemia, weakness, and kidney and brain damage.</p>
<p style="text-align: center;">Particulate Matter (PM)</p> <div style="text-align: center;">  </div> <p>PM10: Inhalable particles, with diameters that are generally 10 micrometers and smaller.</p> <p>PM2.5: Fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.</p> <p>Source: Emitted from construction sites, unpaved roads, fields, fires.</p> <p>Impact: Irregular heartbeat, aggravated asthma, decreased lung function.</p>	
<p style="text-align: center;"><i>Note: These major air pollutants are included in the Air quality index for which short-term National Ambient Air Quality Standards are prescribed.</i></p>	





Note:

Teachers' Day 2024

Why in News?

Recently, India celebrated **Teachers' Day** on **5th September 2024** marking the birth anniversary of **Dr. Sarvepalli Radhakrishnan (1888-1975)**.

- On this day, the President of India confers the **National Teachers' Award (NTA)** to honour teachers and recognise their contributions in empowering and educating society.

What are Key Facts About Dr. Sarvepalli Radhakrishnan?

- **Birth:** He was born into a **Telugu family** in Tiruttani town of Tamil Nadu, on **5th September 1888**.
- **Academic Achievements:** He held several prestigious positions, including the **King George V Chair at Calcutta University** from 1921 to 1932, the **second Vice-Chancellor of Andhra University** from 1931 to 1936, and the **fourth Vice-Chancellor of Banaras Hindu University** from 1939 to 1948.
 - Moreover, he was **Professor of Eastern Religion and Ethics** at the **University of Oxford** from 1936 to 1952.
- **Political Career:** He became the **first Vice President of India (1952-62)** and later the **second President of India (1962-67)**.
- **Philosopher:** He is widely acknowledged in philosophical circles as a **"bridge-builder"** between India and the West.
 - He defended Hinduism against what he perceived as **"uninformed Western criticism,"** helping to establish a more nuanced understanding of the religion on a global scale.
- **Recognition:** In **1954**, he was awarded the country's highest civilian award, **Bharat Ratna**.

- In **1931**, he was awarded with **knighthood by King George V**, former King of Britain, for his remarkable academics.

What is the National Teachers' Award?

- **About NTA:** It was instituted to celebrate the **unique contribution of teachers** and to honour them who have improved the quality of education and enriched the lives of students.
 - It carries a **certificate of merit, a cash award of Rs. 50,000 and a silver medal**.
 - It is given by the **Ministry of Education**. In 2024, **82 teachers** were selected for NTA.
- **Eligibility of Teachers for NTA:** **School teachers and Heads of Schools** working in recognized primary/middle/high/higher secondary schools are eligible for selection. E.g., Schools run by State Govt./UTs Administration, Schools affiliated to CBSE etc.
 - Only **regular teachers and heads of schools** with a minimum **ten years of services** are eligible.
- **Non-Eligibility for NTA:** Teacher/Headmaster should **not** have been involved in providing **private tuition**.
 - **Contractual teachers and Shiksha Mitras** are not eligible.
 - Educational **Administrators, Inspectors of Education**, and the **staff of training Institutes** are not eligible for these awards.
- **Evaluation Criteria:** Teachers are evaluated based on the **evaluation matrix** which contains **two types of criteria** for evaluation.
 - **Objective Criteria:** Under this the teachers are awarded marks against each of the objective criteria. It is given the weightage of 10 out of 100.
 - **Criteria Based on Performance:** Under this, teachers are awarded marks on criteria based on performance e.g., **initiatives to improve learning outcomes, innovative experiments undertaken** etc. These criteria are given the weightage of 90 out of 100.



Note:



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Rapid Fire Current Affairs

Highlights

- Agriculture Infrastructure Fund Expanded
- Rule 170 of the Drugs and Cosmetics Rules, 1945
- Mission Mausam
- National Bank for Financing Infrastructure and Development
- World Suicide Prevention Day 2024
- Public Health Emergency Management Act (PHEMA)
- 132nd Anniversary of Swami Vivekananda's 1893 Chicago Speech
- Exercise Eastern Bridge
- Beekeeping as Deterrent on Bangladesh Border
- Exercise Varuna
- World Bank Raises India's GDP Forecast to 7%
- Saturn's Rings Will Briefly Disappear in 2025
- Exercise YUDH ABHYAS 2024
- Glass Ceiling
- Indigenous Mpox Detection RT-PCR kit Developed
- Indian and Chinese Warships in Colombo Port
- Agni-4 Missile
- International Literacy Day 2024
- Jal Sanchay Jan Bhagidari Initiative
- Financial Stability and Development Council (FSDC)
- Mega Oil Palm Plantation Drive 2024
- Typhoon Shanshan
- World's Second Largest Diamond
- UPI Based Block Mechanism
- White Topping of Roads
- Project Strawberry
- Smart Laboratory on Clean Rivers (SLCR)
- INS Tabar in Maritime Partnership Exercise (MPX)
- 199th Birth Anniversary of Dadabhai Naoroji
- Nationwide Implementation of Electronic Challan System
- Procurement of Aero-engines for Su-30 MKI Aircraft
- Prakash Purab of Sri Guru Granth Sahib
- AgriSURE Scheme
- Operation Kavach 5.0 Targets Drug Trafficking
- Solar Magnetic Field Research
- Zyklon B
- Namibia Plans to Butcher Wild Animals for Meat
- Cyclone Asna
- Navratna Status to Four CPSEs
- Bureau of Police Research and Development Foundation Day
- Launch of Samudra Pratap
- Launch of Tanager-1

Agriculture Infrastructure Fund Expanded

Recently, the Union Cabinet expanded the scope of Rs. 1 lakh crore **Agricultural Infrastructure Fund (AIF)** to provide financial support for **Farmers' Producers Organisations (FPOs)** to improve their financial security and creditworthiness.

- AIF will **now allow all eligible beneficiaries of schemes** for creation of infrastructure covered under "**viable projects for building community farming assets**", this will boost growth, productivity, farm incomes, and overall agricultural sustainability.

- It would be redesigned to include financial support for FPOs to enhance their financial security and creditworthiness.
- **AIF:** AIF is a financing facility **launched in July 2020**.
 - It aims to provide all-around financial support to the farmers, agri-entrepreneurs, farmer groups like **Self Help Groups (SHGs)**, Joint Liability Groups (JLGs) etc. and many others to create post-harvest management infrastructure and build community farming assets throughout the country.
- **FPOs:** FPOs are legal entities formed by a group of farmers **who share common interests and goals**.
 - They are registered under various legal forms, such as cooperatives, companies, trusts, or societies and

Note:



aim to provide better access to finance and markets to small and marginal farmers by aggregating their produce and bargaining power.

- They also provide technical assistance, input supply, value addition, and quality assurance to their members.

Read More: [Agriculture Infrastructure Fund, Farmers Producer Organisation](#)

Rule 170 of the Drugs and Cosmetics Rules, 1945

Recently, the [Supreme Court of India](#) criticised the [AYUSH](#) ministry for its directive to state licensing authorities to **disregard Rule 170 of the Drugs and Cosmetics Rules, 1945** which is designed to prevent misleading advertisements of AYUSH products.

- Rule 170 was introduced in 2018 to **regulate the advertisement of Ayurvedic, Siddha, and Unani medicines**, requiring manufacturers to obtain approval and a unique identification number from state licensing authorities.
 - The rule aims to **prevent misleading or exaggerated claims, obscene content, or references** to government bodies in AYUSH product advertisements.
 - The rule mandates manufacturers must submit details like textual references, **rationale, indication, safety, effectiveness, and quality.**

- On 1st July 2024, the AYUSH ministry issued a notification instructing state authorities to disregard Rule 170. This directive **followed the recommendation made by the [Ayurvedic, Siddha, and Unani Drugs Technical Advisory Board \(ASUDTAB\)](#)** in May 2023 to omit the rule, as amendments to the **Drugs and Magic Remedies Act, 1954**, were under consideration to tackle misleading advertisements.
 - ASUDTAB is an **expert body that recommends actions relating to regulation of AYUSH drugs.**


AYUSH Systems of Medicine

AYUSH encompasses Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa, and Homeopathy, with Ayurveda having a documented history of 5000+ years.

Ayurveda

- ④ **Samhita Period (1000 BC):** Emerged as mature medical system
 - ④ **Charaka Samhita:** Oldest and most authoritative text
 - ④ **Sushruta Samhita:** Gives fundamental principles and therapeutic methods in eight specialities
- ④ **Main Schools:**
 - ④ **Punarvasu Atreya** - School of physicians
 - ④ **Divodasa Dhanvantari** - School of surgeons

Branches of Ayurveda:

<ul style="list-style-type: none"> ■ Kayachikitsa (internal medicine) ■ Shalya Tantra (surgery) ■ Shalakyata Tantra (disease of supra-clavicular origin) ■ Kaumarabhritya (paediatrics) 		<ul style="list-style-type: none"> ■ Agada Tantra (toxicology) ■ Bhootavidya (psychiatry) ■ Rasayana Tantra (rejuvenation and geriatrics) ■ Vajikarana (eugenics & science of aphrodisiac)
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Unani

Pioneered in Greece, developed by Arabs as 7 principles (Umooor-e-Tabbiya)

- ④ Based on the framework of teachings of **Buqrat** (Hippocrates) and **Jalinoos** (Galen)
- ④ Hippocratic theory of **four humors** viz. blood, phlegm, yellow bile, and black bile
- ④ **Recognised by WHO** and granted official status by India as an alternative health system

Siddha

Dates back to 10000 – 4000 BC; **Siddhar Agasthiyar - Father of Siddha Medicine**

- ④ Preventive, promotive, curative, rejuvenative, and rehabilitative health care
- ④ **4 Components:** Latro-chemistry, Medical practice, Yogic practice & Wisdom
- ④ Diagnosis based on 3 humors (**Mukkuttram**) and 8 vital tests (**Ennavagai Theruvu**)

Sowa Rigpa

Origin: **Lord Buddha in India before 2500 years**

- ④ Traditional medicine in Himalayan regions of Ladakh, Himachal Pradesh, Arunachal Pradesh, etc.
- ④ Recognised in India by Indian Medicine Central Council Act, 1970 (As amended in 2010)

Homeopathy

German physician **Dr. Christian F. S. Hahnemann** codified its fundamental principles

- ④ Medicines prepared mainly from natural substances (plant products, minerals, animal sources)
- ④ Brought in India by European missionaries - 1810; official recognition - 1948
- ④ **3 Key Principles:**
 - ④ **Similia Similibus Curentur** (Let likes be cured by likes)
 - ④ Single Medicine
 - ④ Minimum Dose


Yoga & Naturopathy

THE 8 LIMBS OF YOGA



Yoga first propounded by Maharishi Patanjali in systematic form Yogsutra

- ④ **Naturopathy:** Healing with help of 5 natural elements - Earth, Water, Air, Fire and Ether
- ④ Based on theories of self-healing capacity of body and principles of healthy living
- ④ Encourages a **person-centred approach** rather than disease-centred



Read more: [Regulating Misleading Advertisements in India](#)

Mission Mausam

Recently, the Union cabinet has approved 'Mission Mausam' with an outlay of **Rs 2,000 crore** over the next two years to enhance India's ability to predict and respond to extreme weather events and the impacts of climate change.

- **Focus Areas:** It includes **accuracy, modelling, radars, satellites**, and accurate agromet forecasts.

Note:

- It will help equip stakeholders, including citizens, to better manage extreme weather events and climate change impacts, enhancing community resilience.
- **Components of the Mission:**
 - Deployment of next-generation radars and satellite systems with advanced sensors
 - Development of enhanced Earth system models
 - A GIS-based automated decision support system for real-time data sharing
- **Implementation and Support:** The mission will be implemented by the **India Meteorological Department (IMD)**, **Indian Institute of Tropical Meteorology**, and the **National Centre for Medium-Range Weather Forecasting** – three key institutions under the Ministry of Earth Sciences (MoES).
 - The mission will be supported by other MoES bodies – **Indian National Centre for Ocean Information Services**, **National Centre for Polar and Ocean Research** and **National Institute of Ocean Technology**.
- **Sectoral Benefits:** It will improve monitoring and early warning systems in agriculture, disaster management, and defence, while optimising energy and water resource management. Also, it will support safer aviation and promote sustainable tourism.

Read More: [India's Maritime History](#)

National Bank for Financing Infrastructure and Development

Recently, the Government of India in consultation with the **Reserve Bank of India (RBI)** has notified the [National Bank for Financing Infrastructure and Development \(NaBFID\)](#) as a “public financial institution” under the [Companies Act, 2013](#) aiming to boost infrastructure financing in the country.

- The Companies Act of 2013 regulates incorporation, responsibilities, directors, and dissolution of companies. It partially replaced the **Companies Act, 1956**.
- This notification enhances NaBFID's capacity to **fund large-scale infrastructure projects**, strengthening the national infrastructure finance system.

- NaBFID, established in 2021 by the **National Bank for Financing Infrastructure and Development Act (2021)** as **India's fifth All India Financial Institution (AIFI)** to support long-term infrastructure financing, including the development of bonds and derivatives markets.
 - As of February 2024, NaBFID as a specialised **Development Finance Institution (DFI)** has sanctioned over Rs 86,804 crore for infrastructure projects across the country, with **50% of the sanctions having long tenures of 20 to 50 years**. NaBFID plans to sanction over Rs 3 lakh crore by March 2026.
- **Other Four AIFIs:**
 - [Export-Import Bank of India \(EXIM Bank\)](#)
 - [National Bank for Agriculture and Rural Development \(NABARD\)](#)
 - [National Housing Bank \(NHB\)](#)
 - [Small Industries Development Bank of India \(SIDBI\)](#)

Read more: [National Bank for Financing Infrastructure and Development](#)

World Suicide Prevention Day 2024

World Suicide Prevention Day (WSPD) is observed annually on **10th September** to increase **global awareness that suicide is preventable** and to **encourage open conversations** about mental health.

- Suicide is a significant **public health crisis, with over 700,000 deaths** worldwide each year. It is also the third leading cause of death among 15-29-year-olds globally. This day serves as a platform to **raise awareness, reduce stigma, and emphasize that suicide prevention is possible**.
 - The triennial theme for [World Suicide Prevention Day](#) from 2024 to 2026 is “**Changing the Narrative on Suicide**” which urges **open discussions about suicide** and mental health, replacing stigma with understanding and support.
 - The first WSPD was launched in **Stockholm** on 10th September 2003, as an initiative by the **International Association for Suicide Prevention (IASP)** and the [World Health Organization \(WHO\)](#).
- **Government Initiatives Related to Suicide Prevention:**
 - [Mental Healthcare Act \(MHA\), 2017](#)
 - [KIRAN Helpline](#)

Note:

- [Manodarpan Initiative](#)
- [National Suicide Prevention Strategy 2022](#)

Read More: [Suicidal Patterns in India](#)

Public Health Emergency Management Act (PHEMA)

An expert group constituted by [NITI Aayog](#) has recommended a new **Public Health Emergency Management Act (PHEMA)** to deal with the [public health crisis](#).

- PHEMA aims to create **health cadres** at **national and state levels** and also empower public health agencies to take **urgent action**.
 - It would cover [epidemics, non-communicable diseases, disasters, and bio-terrorism](#).
- **Key Recommendations:**
 - **Formation of an Empowered Group of Secretaries (EGoS):** It will coordinate **pandemic preparedness** and emergency response efforts and is proposed to be chaired by the [Cabinet Secretary](#).
 - **Implementation of a Scorecard Mechanism:** A structured scorecard will **track progress** against key targets to ensure preparedness and responsiveness.
 - **Pandemic Preparedness and Emergency Response Fund:** To finance activities like [genomic surveillance, vaccine development](#), and shared infrastructure.
 - **Global Harmonisation:** Advocates for aligning Indian regulatory norms with **global standards** to facilitate international acceptance of regulatory data.
 - **Development of a Clinical Trial Network:** To accelerate access to globally developed practices and enhance India's participation in international research efforts.

Read More: [Public Health Emergency of International Concern](#)

132nd Anniversary of Swami Vivekananda's 1893 Chicago Speech

Recently, on the **132nd anniversary of Swami Vivekananda's 1893 Chicago speech**, the Prime Minister of India highlighted its enduring message of unity, peace, and brotherhood, emphasising its continued inspiration for generations.

- **Swami Vivekananda**, a key figure in introducing **Hinduism, Yoga, and Vedanta** to the West, spoke at the **Parliament of the World's Religions (PWR) in Chicago in 1893**, advocating for religious tolerance.
 - He condemned **sectarianism, bigotry** (complete intolerance of any belief), and **fanaticism**, highlighted Hinduism's inclusivity with its sheltering of [Jews and Zoroastrians](#) and aligned his message with the [Bhagavad Gita's](#) teaching of universal unity.
- PWR originating from the **1893 World's Columbian Exposition in Chicago**, it serves as a global platform for interfaith dialogue. Based in Chicago, it is an international NGO affiliated with the [United Nations Department of Public Information](#).
- Swami Vivekananda was born as **Narendranath Datta in Calcutta on 12th January, 1863**. He was the chief disciple of [Ramakrishna Paramhansa](#) and advocated the doctrine of service, education, and spiritual upliftment.
 - He founded the [Ramakrishna Mission in 1897](#) to propagate the ideals of **Advaita Vedanta**. He died in 1902 at **Belur Math**, the headquarters of Ramakrishna Math & Ramakrishna Mission.
- [National Youth Day](#) is celebrated every year to observe the birth anniversary of Swami Vivekananda.

Read more: [Swami Vivekanada](#)

Exercise Eastern Bridge

The **7th edition** of the bilateral air exercise between [Indian Air Force \(IAF\)](#) and **Royal Oman Air Force** is scheduled to be conducted from **11th to 22nd September 2024** at **Masirah, Oman**.

- It will include complex **aerial manoeuvring**, air-to-air and air-to-ground operations, and logistical coordination.
- The **first edition** was held between the two Air Forces at **Thumrait, Oman in 2009**.
- India's Other Military Exercise with Oman:
 - [Naseem Al-Bahr](#): Between Indian **Navy** and Royal Navy of Oman.
 - [AL Najah](#): Between Indian and Royal **Army** of Oman.
- **Oman Location:** Oman's strategic location near the entrance to the [Strait of Hormuz](#) and overlooking the [Arabian Sea](#) makes it an important partner of India in West Asia and the Indian Ocean region.

Note:



Read More: [India-Oman Strategic Dialogue](#)

Beekeeping as Deterrent on Bangladesh Border

Recently, the **Border Security Force (BSF)** has started using **beekeeping** as an innovative strategy to deter **cross-border infiltration** and **smuggling** activities from Bangladesh.

- BSF jawans have been trained to use **apiaries**—box-like structures with frames where bees build hives.
- The bees are used to create a **natural deterrent** along the border, as the **threat of bee stings** discourages smugglers and infiltrators from approaching the fence.
 - Since the installation of the apiaries, incidents of **fence-cutting and illegal entry** have almost **reached zero**.
- The initiative not only serves a **security purpose** but also provides jawans with the opportunity to learn **beekeeping**, which they can continue as a **source of income** after retirement.

- Bangladesh and India share a **4,096-kilometre border**, the **fifth-longest** in the world.
 - The border touches the Indian states of **Assam, West Bengal, Mizoram, Meghalaya, and Tripura**.



Read More: [India-Bangladesh Relations](#)

Note:

Exercise Varuna

Recently, the 22nd edition of the India-France bilateral naval **exercise VARUNA** took place in the **Mediterranean Sea**.

- **INS Tabar**, a frontline stealth frigate, **ship borne Helicopter** and **LRMR Aircraft P8I** participated from the Indian side, while French side was represented by **FS Provence, Submarine Suffren, Aircraft F20; Atlantique2, fighters MB339 and NH90 Dauphin helicopters**.
- These joint-exercises are conducted either in the **Indian Ocean** or the **Mediterranean Sea**.
- **Operations Conducted:** Advanced naval operations, including tactical maneuvers, anti-submarine warfare exercises, **flight exercises**, air defense exercises, live weapon firings, **PHOTO-EX (Photographic Exercise)** and steam past.
- **Other Indo-French Joint Exercises:**
 - **Desert Knight-21** and **Garuda (Air exercise)**
 - **Shakti (Army exercise)**

Read More: [Major Military Exercises of India](#)

World Bank Raises India's GDP Forecast to 7%

Recently, the **World Bank** has raised **India's growth forecast for FY25 to 7%** from 6.6%.

- This aligns with forecasts from the **International Monetary Fund (IMF)** and **Asian Development Bank (ADB)**.
- The **Reserve Bank of India (RBI)** has also projected India's GDP to grow at 7.2% in FY25.

- The World Bank expects a gradual **rise in private investment and a recovery in consumption**, but highlights unemployment as a key challenge to India's economic growth.
- While **urban female unemployment** has improved to **8.5%** in early FY 24-25, **urban youth unemployment** remains high at **17%**.

INTERNATIONAL MONETARY FUND

- Estd. - 1944 (UN Bretton Woods Conference following Great Depression 1930s)
- Headquarters - Washington, DC, USA
- Functions -
 - » Global financial assistance
 - » Facilitate international trade
 - » Financing for developing countries
 - » Promotion of exchange rate stability
- Member States - 190 (India a founding member)

India's FM is the ex-officio Governor on the Board of Governors of IMF

- Special Drawing Rights (SDR) -
 - » IMF's intl. reserve asset to supplement the official reserves of its member countries (not a currency)
- Currencies in SDR Basket - \$, €, £, ¥ (Yen) and CN¥ (Renminbi)
- IMF Quotas -
 - » Reflects a member country's relative position in world economy (India - 2.75%)
 - » Denominated in SDRs
- Flagship Publications -
 - » World Economic Outlook
 - » Global Financial Stability Report
 - » Fiscal Monitor
 - » External Sector Report

World Bank Group (WBG)

- Estd. - Same as IMF
- Headquarters - Washington, DC, USA

5 Institutions of WBG (estd.)

- International Bank for Reconstruction and Development (IBRD) aka World Bank (1944)
- International Finance Corporation (IFC) (1956)
- International Development Association (IDA) (1960)
- International Centre for the Settlement of Investment Disputes (ICSID) (1966)
- Multilateral Guarantee Agency (MIGA) (1988)

Functions

- Provide loans, credits, and grants
- Investment, advice, asset management to companies/govts.
- Low/No-interest loans to Low-income countries
- Settle investment-disputes
- Insure lenders/investors against political risks

Membership of IMF is a prerequisite for membership of IBRD

- Twin Goals of WBG -
 - » Ending extreme poverty by 2030
 - » Boosting shared prosperity of the poorest 40% of the population in all countries
- Member States - 189 (India a founding member of IBRD, IFC & IDA)
 - » Ending extreme poverty by 2030
- India is not a member of ICSID; claims it biased towards developed countries
- Major Publications -
 - » Human Capital Index
 - » World Development Report

Read more: [World Bank Forecasts India's Economic Growth Rate](#)

Saturn's Rings Will Briefly Disappear in 2025

Recently, **NASA** confirmed that **Saturn's rings will briefly disappear** in March 2025 due to their **alignment with Earth**, making them **appear edge-on** from earth.

- This optical phenomenon **occurs every 13 to 15 years**, with the last occurrence in **2009**.
- Saturn takes about **29.4 Earth years** to complete one orbit around the Sun and is tilted at an angle of **26.73 degrees** so rings appear to change orientation. **In March 2025, only the edges of the rings will be visible, reflecting minimal light.**

Saturn and its Rings:

- Saturn is the **sixth planet from the Sun** and the **second largest** (after **Jupiter**) in the solar system.

Note:

- It has a ring system, made up of **ice and rock**, which is the most complex among all planets.
 - Saturn's rings span about **282,000 kilometers in width** but are **incredibly thin, measuring just 10 to 30 meters thick**.
 - The planet has **7 primary rings**. Each ring orbits Saturn at **different speeds**.
 - If laid edge-to-edge, Saturn's ring system could stretch the distance between Earth and the Moon.
- As per NASA, Saturn has the **highest number of moons (146) in the solar system**. Like Jupiter, Saturn is a **gaseous planet** primarily composed of **hydrogen and helium**.
- **Missions to Saturn: [Pioneer 11](#), [Voyager 1](#), and [Voyager 2](#), [Cassini spacecraft](#).**
- NASA estimates that **Saturn's rings will permanently disappear in the coming 300 million years due to "ring rain,"** a process that drains water from the rings at a rapid rate.

Read More: [Saturn's Mysterious Rings & Extreme Tilt](#)

Exercise YUDH ABHYAS 2024

Recently, the **20th edition of the India-USA Joint Military Exercise YUDH ABHYAS-2024** began at the Mahajan Field Firing Ranges in Rajasthan.

- **Exercise YUDH ABHYAS** has been held annually since 2004, alternating between India and the USA.
- This year's exercise focuses on counter-terrorism operations in a semi-desert environment. The aim is to enhance joint military capability and cooperation under **Chapter VII of the [United Nations\(UN\) Charter](#)**.
 - Chapter VII of the UN charter provides the framework for the Security Council to take enforcement action, including determining threats to peace and taking non-military and military measures to maintain or restore international peace and security.
- **Major Exercises Between India- USA: [Ex VAJRA PRAHAR](#) (Army), [SALVEX \(Indian Navy\)](#), [Cope India \(Air Force\)](#) and [Malabar Exercise](#) (Quadrilateral naval exercise of India, USA, Japan and Australia).**

Source: [Major Military Exercises of India](#)

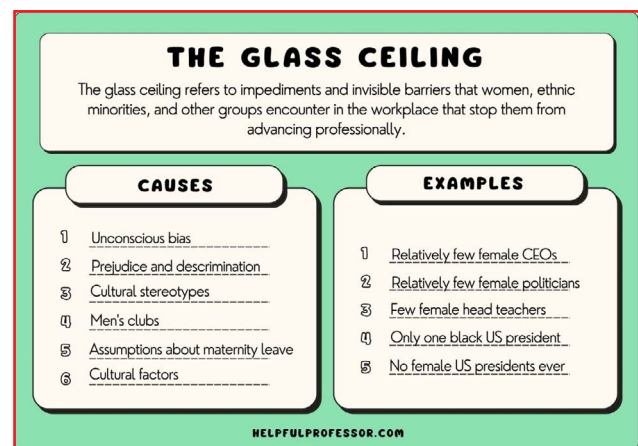
Glass Ceiling

Recently, Hillary Clinton, former US Secretary of State stated that Kamala Kamala Harris' confirmation as the Democratic presidential candidate could break the "highest, hardest **glass ceiling**" for women in politics.

- Clinton, the first woman to be nominated for president by a major US party in 2016, believes this could lead to Harris becoming the 47th US President.

Glass Ceiling:

- It refers to the **invisible barriers that prevent women and other marginalised groups from advancing to senior positions in their careers**, despite having the qualifications and capabilities to do so.
- The phrase gained traction during the **Second Wave of Feminism in the USA in the 1960s and 1970s**, a time when women were increasingly demanding equality in the workplace.
 - This period saw the introduction of laws in the US aimed at combating discrimination, such as **Title VII of the Civil Rights Act of 1964**.
- Despite advancements, the persistence of the glass ceiling was underscored by the **Glass Ceiling Commission (1991)** established by the US President, which found that although women made up nearly 46% of the workforce and earned more than half of all master's degrees, 95% of senior-level managers were men.



Read More: [Empowering Women, Elevating India](#)

Note:



drishti

Indigenous Mpox Detection RT-PCR kit Developed

Recently, India has developed an indigenous **Reverse transcription polymerase chain reaction (RT-PCR) testing kit** for detecting **Mpox** (previously known as monkeypox).

- These kits are developed by **Siemens Healthcare, Transasia Diagnostics, and JITM C Genes** which are approved by the **Central Drugs Standard Control Organization (CDSCO)**.
- The new RT-PCR kits provide **results in 40 minutes**, compared to traditional methods, which take one to two hours.
 - These RT-PCR kits ensure detection across both **clade I and clade II variants**.
- **Mpox**: Mpox is a **viral illness** caused by the **monkeypox virus**. It has two distinct variants namely **clade I and clade II**.
 - It was first discovered in humans in **1970** in the **Democratic Republic of the Congo**.
 - Mpox spreads through **close contact** like **skin-to-skin, mouth-to-mouth, or mouth-to-skin** interactions, as well as **face-to-face contact (talking)**.
 - WHO declared Mpox, a **public health emergency of international concern (PHEIC)** twice, the first time in May 2022 and the second time in August 2024.
 - The first Mpox cases were reported in **India** in **2022**.

Read More: [Mpox Virus](#)

Indian and Chinese Warships in Colombo Port

Recently, India's guided-missile destroyer, **INS Mumbai** and three Chinese warships visited **Colombo port** in Sri Lanka on the same day.

- INS Mumbai is on its first **port of call** in Sri Lanka.
 - A port of call is an **intermediate stop** for a ship on its scheduled journey for cargo operation or transporting supplies or fuel.
- **Strategic Implications of Chinese warships for India**:
 - **Heightened Concerns**: The **Indian Navy** closely monitored the movement of the Chinese warships, **Hefei, Qilianshan, and Wuzhishan**, from their entry into the **Indian Ocean Region (IOR)** until their docking at **Colombo**.

- **Extended Naval Presence in the IOR**: The Chinese Navy has intensified its presence in the IOR with warships **extending their stay** for a longer period.
 - **China's Naval Expansion**: The Chinese Navy with over **370 ships**, is now the **largest navy** in the world.
 - **Potential Overseas Military Bases**: The intelligence report indicates that China is exploring the establishment of **military facilities** in **Pakistan, Sri Lanka, and Myanmar**.
- Port of Colombo is located in southwestern Sri Lanka. It is also the country's **biggest shipping harbour**.

Read More: [Chinese Dual-Use Facilities Raise Security Concerns in India](#)

Agni-4 Missile

The **Agni-4 missile** was successfully launched from the Integrated Test Range in Chandipur, Odisha.

- The launch successfully validated all operational and technical parameters. It was conducted under the aegis of the **Strategic Forces Command (SFC)**.
- Agni-4 is fourth in the **Agni series** of **medium to intercontinental-range ballistic missiles** developed by the **DRDO**.
 - The name comes from the Sanskrit word '**Agni**', which means 'fire' and represents one of the five elements of nature.
- Agni-4 It is an **intermediate-range ballistic and surface-to-surface missile**, designed to be launched from the ground or sea to hit targets on the ground or sea.
- The **Agni-4 missile has a range of 4,000 kilometres**, a length of 20 metres, and can carry a payload of 1,000 kg.
- The SFC forms part of **India's Nuclear Command Authority (NCA)**. It is responsible for the management and administration of the country's tactical and strategic nuclear weapons stockpile.
 - The NCA comprises a **Political Council chaired by the Prime Minister**, which is the sole body that can authorise the use of nuclear weapons and an **Executive Council chaired by the National Security Advisor**, which provides inputs for decision-making and executes the directives given to it by the Political Council.

Read more: [Multiple Independently Targetable Re-entry Vehicle Technology](#)

Note:



International Literacy Day 2024

Recently, the Vice-President of India emphasized the transformative power of literacy at the **International Literacy Day (ILD) 2024** celebrations held in New Delhi, urging a nationwide commitment to enhance education and celebrate linguistic diversity.

- The Vice-President praised the **National Education Policy, 2020** for its potential to empower youth and recognize linguistic diversity. During the event, the **ULLAS (Understanding Lifelong Learning for All in Society)** DTH Channel was introduced to reach learners in remote areas, bridging literacy gaps.
- The roots of ILD trace back to the 1965 World Conference of Ministers of Education on the Eradication of Illiteracy in Tehran, Iran, which sparked the idea of a day dedicated to promoting literacy globally.
 - UNESCO officially declared **8th September** as International Literacy Day during its **14th General Conference in 1967**, and the world celebrated this special day for the first time that year, marking the beginning of a significant global observance.
- **ILD 2024 Theme:** “Promoting multilingual education: Literacy for mutual understanding and peace.”
- **Key Initiatives Related to Literacy in India:** [New India Literacy Programme](#), [Saakshar Bharat](#), and [Pradhan Mantri Gramin Digital Saksharta Abhiyan](#)
Read more: [MoE Defines Literacy under NILP](#)

Jal Sanchay Jan Bhagidari Initiative

Recently, the Prime Minister launched the ‘**Jal Sanchay Jan Bhagidari**’ initiative from **Surat, Gujarat**. It focuses on **water conservation** and aims to construct approximately **24,800 rainwater harvesting structures** in Gujarat.

- It is a “**Whole-of-Society and Whole-of-Government**” approach, highlighting the importance of community involvement and governmental coordination in **water management**.
- **Water Stress in India:** India has **18%** of the world’s population but only **4%** of its **water resources**.
 - **256 out of 700 districts** have been reported as having “critical” or “over-exploited” groundwater levels.

- Rural women often **walk over 2.5 kilometers** to reach a water source.
- **163 Million** Indians lack access to **safe drinking water**. **21%** of **communicable diseases** are linked to unsafe water.

➤ Other Water Conservation Initiatives:

- **Jal Jeevan Mission (JJM):** **JJM** expanded **pipled water** connections from **3 crore** to over **15 crore households**, benefiting over 75% of the country’s rural population.
- **Amrit Sarovar Construction:** More than **60,000 Amrit Sarovars (water bodies)** have been constructed, contributing to enhanced **water storage** and management.
- **Catch The Rain Campaign:** It urges states and other stakeholders to create **Rain Water Harvesting Structures (RWHS)**.

Read More: [Water Management: From Scarcity to Sustainability](#)

Financial Stability and Development Council (FSDC)

Recently, the **Financial Stability and Development Council’s (FSDC)** sub-committee, chaired by Reserve Bank of India (RBI) Governor convened to review significant global and domestic macroeconomic and financial developments.

- It focused on inter-regulatory coordination and assessed potential risks to financial stability in light of emerging challenges such as global spillovers, cyber hazards, and climate change.
- **About FSDC:**
 - It is a **non-statutory** apex council under the **Ministry of Finance** constituted by the **Executive Order in 2010**.
 - The **Raghuram Rajan committee (2008)** on financial sector reforms first proposed the creation of FSDC.
 - The FSDC aims to monitor macroeconomic and financial developments, assess risks to financial stability, enhance coordination among financial regulators, and promote financial inclusion and development.
 - It is **chaired by the Union Finance Minister** and includes the heads of financial sector regulators such as the **RBI, SEBI, Insurance Regulatory and**

Note:

[Development Authority of India \(IRDAI\)](#), and [Pension Fund Regulatory and Development Authority \(PFRDA\)](#) and [Chief Economic Adviser \(CEA\)](#) among others.

➤ **FSDC Sub-Committee:**

- The FSDC is supported by a Sub-Committee (FSDC-SC), set up under the **chairmanship of the Governor of RBI**. It meets more often than the full FSDC.
- It includes all FSDC members, four RBI Deputy Governors, and the Department of Economic Affairs (DEA) Additional Secretary.

Read More: [Financial Stability and Development Council](#)

Mega Oil Palm Plantation Drive 2024

Recently, **Mega Oil Palm Plantation Drive 2024** was conducted under the [National Mission on Edible Oil-Oil Palm](#) (NMEO-OP). Under this over **17 lakh oil palm saplings were planted across 15 states** in India benefitting over 10,000 farmers.

- It is **organised by state governments in collaboration with leading oil palm processing companies**.
- The initiative has featured numerous **awareness workshops, plantation campaigns, and promotional events**, successfully raising awareness and engaging the farming community.
- **National Mission for Edible Oils – Oil Palm (NMEO-OP)**
 - It was **launched by the Government of India in August 2021**.
 - It aims to **expand oil palm cultivation and boost [Crude Palm Oil \(CPO\) production](#)** by setting up a value chain ecosystem for development of the Oil Palm sector including viability price support.
 - **India is the second-largest consumer of edible oil globally** and one of its largest importers.
 - **Andhra Pradesh, Telangana, Karnataka, Mizoram** are the largest **oil palm** producing states in India.
 - India **imported 16.5 million metric tons (MT)** of edible oil in 2022-23.
 - **Indonesia and Malaysia** are the main global palm oil producers, followed by **Thailand, Colombia, and Nigeria**.

Read More: [Palm-Oil Production](#)

Typhoon Shanshan

Recently, **Typhoon (Cyclone) Shanshan** has hit Japan bringing heavy rains and strong winds, prompting airlines and railways to cancel multiple services.

➤ **Typhoons:**

- Typhoons are a type of **tropical cyclone**, which may also be referred to as **hurricanes or cyclones** depending on their location.
- Cyclones are **rapid inward air circulation** around a low-pressure area.
 - The air circulates in an **anticlockwise direction in the Northern hemisphere** and **clockwise in the Southern hemisphere**.
- They are usually accompanied by violent storms and bad weather.

➤ **Naming of Cyclones:**

- The [World Meteorological Organisation \(WMO\)](#) has developed procedures to determine tropical cyclone names, which vary by region.
- Names are selected **alphabetically, alternating between men's and women's names** or following the **alphabetical order of countries**.
- The naming process is conducted by **regional tropical cyclone bodies**, which establish **pre-designated lists of names** proposed by **WMO Members' National Meteorological and Hydrological Services**.

Cyclones Type	Location
Typhoon	China Sea and Pacific Ocean
Hurricane	West Indian islands, Caribbean Sea, Atlantic Ocean
Tornado	Guinea lands of West Africa, southern USA
Willy-willies	North-western Australia
Tropical Cyclone	Indian Ocean Region

Read more: [Cyclone, New List of Names of Tropical Cyclones](#)

World's Second Largest Diamond

Recently, a **2,492-carat diamond, the second-largest in the world**, was discovered at the Karowe Diamond Mine in Botswana. The **largest diamond ever found**

Note:

remains the **Cullinan diamond**, weighing 3,106 carats, which was discovered in South Africa in 1905.

➤ **About Diamond:**

- Diamond, an **allotrope of carbon**, is the **hardest naturally occurring substance** on Earth.
- Formed in the Earth's mantle and brought to the surface through volcanic activity, it is found in **volcanic landforms** like **dykes** and **sills**.
- **Uses:**
 - In jewelry, metal polishing, gem cutting, and industrial applications such as cutting edges for drills.
- Key Locations in India:
 - The **Panna belt (Madhya Pradesh)**, **Wajrakarur Kimberlite pipe**, and the **Krishna River basin (Andhra Pradesh)**.
 - The **cutting and polishing industry** is centered in **Surat, Navsari, Ahmedabad, and Palampur**.
- **Leading Producers:**
 - Russia, Botswana, Canada, Australia, South Africa, and the Democratic Republic of Congo (DRC).

Read More: [Lab-Grown Diamonds](#)

UPI Based Block Mechanism

Recently, **Securities and Exchange Board of India (SEBI)** has proposed that **Qualified Stock Brokers (QSBs)** should offer a **UPI based Block Mechanism** for **secondary market** trading, similar to the **Application Supported by Blocked Amount (ASBA)** facility.

- Clients can trade using blocked funds in their bank accounts **instead of transferring the money upfront to the Trading Member (TM)**. It's optional for investors and not mandatory for TMs to provide as a service.
- **3-in-1 Trading Accounts:** SEBI proposes this as an alternative to the ASBA-like facility. The 3-in-1 accounts keep funds in the client's bank account, earning interest, and can be used for both cash and derivatives segments.
 - **Unlike the UPI block, which has restrictions, the 3-in-1 facility has no limits on the amount.**
 - SEBI introduced the **UPI block mechanism for IPOs in 2019**. A beta version for secondary market

trading was launched in January, 2024, limited to the cash segment.

- ASBA is a **mechanism introduced by the SEBI to facilitate the application and allotment process for Initial Public Offerings (IPOs)**, rights issues, and other securities offerings.
 - It is designed to make the application process more efficient and investor-friendly by allowing investors to apply for shares without transferring the entire application amount upfront.

Read More: [Securities and Exchange Board of India](#)

White Topping of Roads

The Union government is **developing a policy to reinforce ageing national highways using a technique known as white-topping**, aimed at extending their lifespan.

- The **National Highways Authority of India (NHA)** has been instructed to prioritise the upgrading of national highways to address maintenance concerns.
 - **NHAI** was established under the **NHAI Act of 1988** under the **Ministry of Road Transport and Highways**.
 - It oversees the **National Highways Development Project (NHDP)** and other projects.
 - India's national highway network covers about **146,000 kilometres**.
- **Whitetopping** is the process of **applying an 100-200 mm overlay of cement concrete** (bonded or unbonded) to existing **bituminous roads** (made using a mixture of asphalt and aggregate materials) for **rehabilitation or structural strengthening**.
 - **Cement Concrete** is a construction material made by mixing **cement, water, aggregates** (like sand and gravel), and often additives for building roads, bridges and other structures due to its strength, durability, and versatility.
- The technique offers fuel savings as vehicles consume less fuel on concrete roads, **reduces carbon emissions**, mitigates the urban heat island effect, and improves safety by enhancing the reflection of vehicle lights.
 - It also **requires less energy for external lighting** due to its reflective properties.

Note:

WHITE-TOPPING | A whitetop is a cement concrete layer placed over an existing asphalt pavement. It is stronger than asphalt overlay, and thus more resistant to rutting and surface initiated cracking

ULTRA-THIN WHITE-TOPPING

A type of whitetopping in which a concrete overlay of 50mm to 100mm thickness is placed over a distressed asphalt pavement



ADVANTAGES

- ▶ Long life, low maintenance and low life-cycle cost
- ▶ Improved safety and environmental benefits
- ▶ Can help reduce rutting and cracking considerably
- ▶ Improves structural capacity of existing asphalt roads

Read More: [NHAJ Introduces 'One Vehicle, One FASTag' Initiative.](#)

Project Strawberry

[OpenAI](#) is expected to release its most advanced AI model, codenamed **Project Strawberry**, between September and November 2024.

- ▶ This model might be integrated into the upcoming [ChatGPT-5](#), the new version of OpenAI's chatbot.
- ▶ **Project Strawberry** (Previously Project Q* (Q-star)) is aimed at creating [Artificial General Intelligence \(AGI\)](#) i.e., AI with cognitive abilities similar to the human brain.
- ▶ **Features and Capabilities:**
 - It has shown capabilities in solving **complex puzzles** and performing advanced cognitive tasks.
 - It is reported to **handle mathematical problems** more effectively than its predecessors.
 - It is expected to have the capability to perform **autonomous research online**.
 - It will play a crucial role in generating **high-quality synthetic data** for future models, particularly [Project Orion](#).
 - Project Orion is being designed to outperform GPT-4. It could use a combination of Project Strawberry and high-quality synthetic data that would likely reduce errors and hallucinations compared to its predecessors and other AI models.

Read More: [Artificial Intelligence](#)

Smart Laboratory on Clean Rivers (SLCR)

Recently, the [Green Strategic Partnership](#) between India and Denmark has led to the creation of the **Smart Laboratory on Clean Rivers (SLCR)** in **Varanasi**.

- ▶ SLCR is a collaborative initiative involving **India** (Department of Water Resources, River Development and Ganga Rejuvenation), [Denmark](#) and **Indian Institute of Technology - Banaras Hindu University (IIT-BHU)**.

- ▶ **Objectives of SLCR:** It aims to rejuvenate the **Varuna River** using sustainable methods.
- ▶ **Funding Mechanism:** The SLCR secretariat will get Rs 16.8 crore from the **Jal Shakti Ministry** and an extra **Rs 5 crore from Denmark** for sustainability and development.
- ▶ **Projects Under SLCR:**
 - **Decision Support System (DSS):** Provides real-time monitoring, data visualization, and scenario simulations.
 - **Emerging Pollutants Characterization:** Detects and quantifies contaminants with advanced analysis.
 - **Hydrogeological Model:** Determines optimal recharge sites and rates for the Varuna Basin.
- ▶ **Model Of SLCR:** It features a lab model at IIT-BHU and an **on-field living lab** at the Varuna river for real-world testing and scaling of solutions.
 - Varuna river is a **minor tributary** of the [Ganges River](#) in Uttar Pradesh, India.
 - It originates at **Phulpur in the Prayagraj** district and merges into the Ganges near Sarai Mohana in the Varanasi district.

Read More: [India Denmark Cooperation](#)

INS Tabar in Maritime Partnership Exercise (MPX)

Recently, the **Indian Naval Ship Tabar** conducted a **Maritime Partnership Exercise (MPX)** with the Spanish Navy ship **Atalaya in the Mediterranean Sea**.

- ▶ The MPX with the Spanish navy reinforces bilateral naval ties and strengthens commitment to enhanced maritime cooperation.

Note:

- **About MPX:** The MPX involved a series of advanced exercises such as Station Keeping, Replenishment at Sea Approaches (RASAPs), Flying Exercise (FYEX), Steam Past and PHOTOEX serials.
- **INS Tabar:** The **stealth frigate is the third Talwar-class ship** built in Russia for the Indian navy, commissioned in April (2004), in Kaliningrad
 - It is capable of conducting **air, surface, and sub-surface missions**,
 - It can operate independently or as part of a larger naval task force.
 - It serves in the Indian navy's western fleet, based in Mumbai.
 - It is equipped with a range of weapons and sensors, including **supersonic BrahMos anti-ship cruise missiles, and Barak-1 missiles**.
 - It is the first Talwar-class frigate to carry BrahMos missiles.



Read More: [Major Military Exercises of India](#),

199th Birth Anniversary of Dadabhai Naoroji

- Recently, the 199th birth anniversary of Dadabhai Naoroji was observed on 4th September 2024. He is also known as the "Grand Old Man of India".
- **Contributions of Dadabhai Naoroji:**
 - **British MP:** He served as the **first Indian member** of the British parliament. In 1892, he won from the **Central Finsbury seat** as a **Liberal Party candidate**.
 - **Establishment of Organizations in England:** In 1865,

Naoroji co-founded the **London Indian Society**, and in 1866, he established the **East India Association**.

- **Congress President:** He served as the president of the **Congress** three times in 1886 (Calcutta), 1893 (Lahore), and 1906 (Calcutta).
- **Literature:** Naoroji was one of the key proponents of "Drain Theory (1867)" which exposed the economic exploitation of India by Britain.
 - He published the book **Poverty and Un-British Rule in India** in 1901.
- **Other Political Contribution:** Naoroji advocated for a **standing committee** in the **British House**

Note:

of Commons to address protests from Indian legislative bodies.

- He formed an Indian parliamentary committee in the British Parliament in 1893 for lobbying for reforms in India.
- He was appointed to the Royal Commission on Indian Expenditure in 1895.



Read More: [Important Indian National Congress Sessions](#)

Nationwide Implementation of Electronic Challan System

The [Supreme Court](#) recently stressed the urgent need for stricter road discipline enforcement using electronic monitoring devices like speed cameras, CCTV, and speed guns. It directed all states and UTs to implement the legal provision mandating the use of such technology for road safety on highways and urban roads.

- This implementation falls under [Section 136A of the Motor Vehicles \(MV\) Act, 1988](#), which was introduced through a [amendment in 2019 to mandate electronic monitoring for road safety](#).
 - The court decided to monitor compliance by organising states into groups, and specifically singled out the governments of Delhi, West Bengal, Maharashtra, Tamil Nadu, Karnataka, and Kerala, directing them to report on their adherence to Section 136A.
- The court also directed state governments to ensure compliance with [Rule 167A of the Central Motor Vehicles Rules, 1989](#).
 - This rule outlines the guidelines for using electronic enforcement devices to issue [challans](#) (penalties) for various traffic violations, such as overspeeding,

unauthorised parking and not wearing protective gear.

Read More: [Motor Vehicles Act, 1988, Road Safety](#)

Procurement of Aero-engines for Su-30 MKI Aircraft

Recently, the [Cabinet Committee on Security \(CCS\)](#) approved the procurement of 240 aero-engines (AL-31FP) for [Su-30 MKI aircraft](#) - one of the most powerful and strategically-significant fleet of the Indian Air Force (IAF).

- These aero-engines will ensure the sustained operation of the IAF's Sukhoi-30 fleet thus enhancing India's defence preparedness.
- It will be procured under [Buy \(Indian\) category](#) from [Hindustan Aeronautics Limited \(HAL\)](#). The 'Buy (Indian)' category involves procuring products from Indian vendors that either:
 - Are **indigenously designed, developed, and manufactured** with at least **50% Indigenous Content (IC)** of the total contract value.
 - Have at least **60% IC** of the total contract value, even if not indigenously designed or developed.
- The engines will have **indigenous content over 54%**.
- The IAF currently operates **259 Su-30 MKI fighters**.
 - Su-30MKI is a **multirole combat fighter aircraft** jointly developed by the **Sukhoi Design Bureau** (Russian aerospace company) and **HAL** for the Indian Air Force (IAF).
- **CCS** is headed by the **Prime Minister**. Other members include ministers for Finance, Defence, Home Affairs and External Affairs.
 - Major decisions on significant appointments, **national security issues**, and defence expenditure in India are made by CCS.

Read More: [Atma Nirbhar in Defence Production](#)

Prakash Purab of Sri Guru Granth Sahib

Recently, the [Prime Minister](#) extended greetings on the occasion of **Prakash Purab (Illumination Day)** of [Sri Guru Granth Sahib](#).

- **Prakash Purab**: On this day in **1604**, the **Guru Granth Sahib** was formally inaugurated and ceremoniously

Note:

opened at **Golden Temple in Amritsar**, taking the form of the **Adi Granth Sahib**.

- **Adi Granth Sahib:** The **Adi Granth**, meaning “**the first book**,” is the **early compilation of Sikh scriptures by Guru Arjan Dev (5th of 10 Gurus) in 1604**.
 - The **Adi Granth** is the **first version of the Guru Granth Sahib** which serves as the holy scripture of the Sikhs.
 - The **10th Sikh Guru, Guru Gobind Singh**, added further sacred Shabads to the Granth between 1704 and 1706.
 - In 1708, before his departure, he **declared the Adi Granth as the eternal Guru**, commanding all Sikhs to regard the **Guru Granth Sahib as their next and everlasting Guru**. It was then renamed Sri Guru Granth Sahib.
 - The **Adi Granth** incorporated writings from 36 Hindu and Muslim authors, including **Kabir, Ravi Das, Naam Dev, and Sheikh Farid**.

Read More: [Sikhism, Saroop of Guru Granth Sahib, Guru Tegh Bahadur](#)

AgriSURE Scheme

Recently, the Union Minister for Agriculture and Farmers' Welfare unveiled the **AgriSURE (Agri Fund for Start-ups & Rural Enterprises) Scheme** in New Delhi marking a significant step in transforming India's agricultural landscape.

- The event also featured the **AgriSURE Greenathon Awards**, recognising top tech-driven [agri-start-ups](#).
- AgriSURE is an innovative Rs 750 crore blended capital fund registered with [Securities and Exchange Board of India](#) as a [Category II Alternative Investment Fund \(AIF\)](#), with contributions from the Government of India (Rs 250 crore), [National Bank for Agriculture and Rural Development \(NABARD\)](#) (Rs 250 crore), and private investors (Rs 250 crore).
 - It aims to **fuel growth and foster innovation in the agricultural and rural start-up ecosystem**, with a focus on technology-driven, high-risk, high-impact ventures.
- **AgriSURE Greenathon Awards** recognized the most innovative start-ups developing tech-centric solutions to address **challenges faced by farmers across the agri-value chain**.

- Winners include Greensapio (Winner), Krushikanti (Runner-Up), and Ambrionics (Second Runner-Up) from a pool of 2000 start-ups with a total prize pool of Rs 6 lakhs.

- **Initiatives Related to Agri-Tech:** [Digital Agriculture Mission \(DAM\)](#), [AgriStack](#), and [Unified Farmer Service Platform](#).

Read more: [7 New Schemes to Boost Farmer Income](#)

Operation Kavach 5.0 Targets Drug Trafficking

Recently, the Delhi Police launched ‘**Operation Kavach-5.0**’ in a major crackdown against [drug trafficking](#), resulting in significant arrests and seizures across the national capital.

- The operation has pushed many traffickers to operate underground, shifting from **large-scale to smaller shipments** transported via cars and trains. Traffickers are now using women and children as decoys and setting up storehouses outside city limits.
- Operation Kawach is a major [anti-narcotics initiative](#) launched by the **Delhi Police**, focusing on both street-level and high-level drug trafficking and apprehending individuals involved in narcotics trafficking and distribution.
 - It aims to combat the harmful effects of drug addiction on youth and children.
- It was launched in coordination with all district units of the Delhi Police, the operation involves the Crime Branch, **Anti-Narcotics Task Force (ANTF)**.
- **Initiatives Taken by India to Drug Menace:** [Nasha Mukht Bharat Campaign \(NMBA\)](#), [National Action Plan for Drug Demand Reduction](#) and [Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988](#).

Read more: [India's Push to Eradicate Drugs](#)

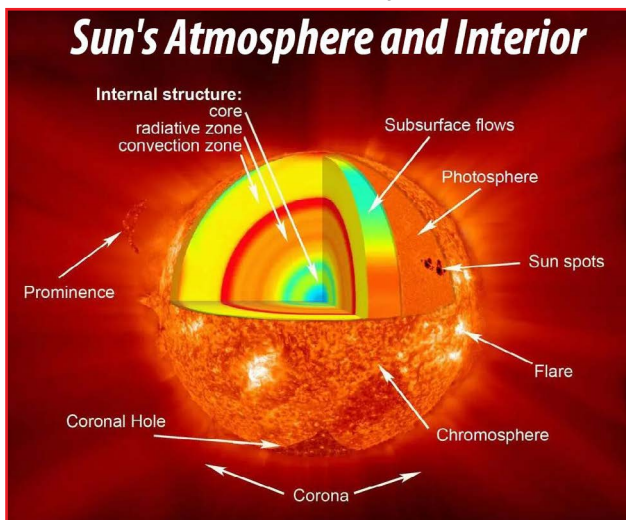
Solar Magnetic Field Research

Recently, **Astronomers** at the **Indian Institute of Astrophysics (IIA)** have found a new way to study the [Sun's magnetic field](#) by studying the **magnetic field** at different layers of the [solar atmosphere](#). The astronomers

Note:

have done this using data from IIA's Kodaikanal Tower Tunnel Telescope.

- **Research Details:** The study focused on an **active sunspot** region characterised by complex features, including multiple **umbrae (dark central regions)** and a **penumbra (outer lighter region)**.
 - Observations were conducted using the **Hydrogen-alpha line** and the **Calcium II line**. These lines help infer the **magnetic field's stratification** at various heights in the solar atmosphere.
 - **Significance:** The findings are significant in advancing our understanding of the **Sun's magnetic field**, setting the stage for **future studies** to explore **solar magnetic phenomena** in greater detail.
- **Kodaikanal Tower Tunnel Telescope:** It is a three-mirror based Solar telescope owned and operated by the Indian Institute of Astrophysics.
 - British astronomer **John Evershed** first observed the **Evershed Effect** in **1909** at the **Kodaikanal Observatory in India**.
 - **Evershed Effect** is a phenomenon that describes the flow of gas across the surface of sunspots.
- **About Solar Atmosphere:** The solar atmosphere consists of **interconnected layers** through **magnetic fields**. These fields play a crucial role in transferring energy and mass, which helps address the “**coronal heating problem**” and drives the solar wind.
 - The coronal heating problem is a mystery in **solar physics** that involves understanding why the **Sun's corona (outermost layer of the Sun's atmosphere)** is much hotter than the layers below it.



Read More: [Coronal Mass Ejections](#)

Zyklon B

On 3rd September 1941, Nazis first used **Zyklon B** to kill Jews at the **Auschwitz concentration camp** in Poland.

- Auschwitz was a **Nazi Germany** concentration camp in which almost **one million Jews** were systematically murdered.
 - Jews were **starved**, worked to death and killed in the complex of **gas chambers** using toxic gasses like **Zyklon B**.
- **About Zyklon B:**
 - Zyklon B is the commercial name of **hydrogen cyanide (HCN)**.
 - It was developed as a **pesticide** and **rodenticide** in the early 1920s in Germany.
 - It was produced as **blue-coloured pellets** that changed to an extremely **poisonous gas**, when exposed to the air.
 - Its inhalation led to **internal asphyxiation** of the victims by blocking the exchange of oxygen in the **red corpuscles** and impeding **cellular respiration**.
 - Zyklon B became notorious during **World War II**. **France** in 1916 and **Italy** and the **United States** in 1918 also used it during **World War I**.

Read More: [Holocaust and World War II](#)

Namibia Plans to Butcher Wild Animals for Meat

The **Namibia government** is planning to **cull 723 wild animals**, including 83 **elephants**, to feed the country amid a **severe drought and hunger crisis**. The move aims to provide food and reduce **human-wildlife conflicts** due to scarce resources.

- The **plan is necessary and aligns with the constitutional mandate** to **utilize natural resources** for the benefit of Namibian citizens.
 - The nation is also **working to mitigate increasing human-wildlife interactions**, which are expected to intensify during the drought as both seek access to water and vegetation.
- **Namibia:**
 - Namibia is a **Southern African nation** with its western boundary formed by the **Atlantic Ocean**. It shares its **northern borders with Angola** and

Note:

Zambia, while Botswana lies to its east and South Africa borders both its eastern and southern regions

- Namibia, acknowledged as the driest nation in sub-Saharan Africa. It ranks among the least densely populated countries globally.
- In 1884, the German Empire established colonial rule over much of the region, naming it German South West Africa.
- The Namib, the **Kalahari**, the Succulent Karoo, and the Nama Karoo deserts are located in Namibia.
- Zambezi, Okavango and Kunene are important rivers in Namibia.



Read More: [Human-wildlife conflicts](#)

Cyclone Asna

Recently, the **India Meteorological Department (IMD)** reported that **Cyclone Asna** has formed over the **Kutch coast** in Gujarat and adjoining areas of Pakistan.

- Since 1891, only three cyclonic storms have occurred in the **Arabian Sea** in August, with the most recent **one before 2023 being in 1976**.
- A well-marked low-pressure area – a very early precursor to a cyclone – has formed in the Bay of Bengal off north Andhra Pradesh and south Odisha.
- **Cyclone Asna caused torrential rain in Gujarat**, leading to 26 deaths, the relocation of 18,000 people, and the rescue of 1,200 from floods.
- **Formation:** Cyclones form over warm ocean waters where moist air rises, creating a low-pressure system. This system intensifies due to the **Coriolis effect**, forming a rotating storm with strong winds.
- **Cyclone Asna**, named by Pakistan, means “the one to be acknowledged or praised.”

- **Naming of Cyclones:** Names are chosen from a list of **suggestions submitted by member countries**. The names are often easy to pronounce, culturally relevant, and avoid being offensive.

Read More: [Weather Monitoring by IMD](#), [World Meteorological Day](#), [Ocean currents](#)

Navratna Status to Four CPSEs

Recently, the government upgraded four **Central Public Sector Enterprises (CPSEs)**—**Railtel Corporation of India**, **Solar Energy Corporation of India**, **SJVN (Satluj Jal Vidyut Nigam Limited)**, and **NHPC (National Hydroelectric Power Corporation)**—to ‘Navratna’ status. This increases the total number of Navratna CPSEs in India to 25.

- **Objective:** Launched in 1997, the Navratna scheme aims to identify CPSEs with comparative advantages and help them become global leaders.
 - Navratna status is awarded to government-owned enterprises previously classified as ‘Miniratna’ category I, recognising their exceptional financial and market performance.
- The **Department of Public Enterprises (DPE)** in the Ministry of Finance is responsible for granting Navratna status to companies.
- **Benefits of Navratna Status:** It gets enhanced financial and operational freedom and

Note:

empowers it to invest up to **Rs 1,000 crore or 15%** of its net worth on a single project without seeking government approval.

- They will also have the freedom to enter joint ventures, form alliances and float subsidiaries abroad.

Classification of CPSEs			
Category	Launch	Criteria	Examples
Maharatna	○ Maharatna Scheme was introduced for CPSEs in May, 2010, in order to empower mega CPSEs to expand their operations and emerge as global giants.	<ul style="list-style-type: none"> ○ Having Navratna status. ○ Listed on Indian stock exchange with minimum prescribed public shareholding under Securities and Exchange Board of India (SEBI) regulations. ○ An average annual turnover of more than Rs. 25,000 crore during the last 3 years. ○ An average annual net worth of more than Rs. 15,000 crore during the last 3 years. ○ An average annual net profit after tax of more than Rs. 5,000 crore during the last 3 years. ○ Should have significant global presence/international operations. 	<ul style="list-style-type: none"> ○ Bharat Heavy Electricals Limited, Bharat Petroleum Corporation Limited, Coal India Limited, GAIL (India) Limited, etc.
Navratna	○ Navratna Scheme was introduced in 1997 in order to identify CPSEs that enjoy comparative advantages in their respective sectors and to support them in their drive to become global players.	<ul style="list-style-type: none"> ○ The Miniratna Category – I and Schedule ‘A’ CPSEs, which have obtained ‘excellent’ or ‘very good’ rating under the Memorandum of Understanding system in three of the last five years, and have composite score of 60 or above in the six selected performance parameters, namely, <ul style="list-style-type: none"> ○ Net profit to net worth. ○ Manpower cost to total cost of production/services. ○ Profit before depreciation, interest and taxes to capital employed. ○ Profit before interest and taxes to turnover. ○ Earning per share. ○ Inter-sectoral performance. 	<ul style="list-style-type: none"> ○ Bharat Electronics Limited, Hindustan Aeronautics Limited, etc.
Miniratna	○ Miniratna scheme was introduced in 1997 in pursuance of the policy objective to make the public sector more efficient and competitive and to grant enhanced autonomy and delegation of powers to the profit-making public sector enterprises.	<ul style="list-style-type: none"> ○ Miniratna Category-I: The CPSEs which have made profit in the last three years continuously, pre-tax profit is Rs.30 crores or more in at least one of the three years and have a positive net worth are eligible to be considered for grant of Miniratna-I status. ○ Miniratna Category-II: The CPSEs which have made profit for the last three years continuously and have a positive net worth are eligible to be considered for grant of Miniratna-II status. ○ Miniratna CPSEs should have not defaulted in the repayment of loans/interest payment on any loans due to the Government. ○ Miniratna CPSEs shall not depend upon budgetary support or Government guarantees. 	<ul style="list-style-type: none"> ○ Category-I: Airports Authority of India, Antrix Corporation Limited, etc. ○ Category-II: Artificial Limbs Manufacturing Corporation of India, Bharat Pumps & Compressors Limited, etc.

Read More: [Sectors of the Indian Economy](#)

Bureau of Police Research and Development Foundation Day

Recently, the **Bureau of Police Research and Development (BPR&D)** celebrated its **54th Foundation Day** in New Delhi, highlighting significant developments in criminal law and police modernization.

- **New criminal laws** were highlighted at the event. These laws are victim-centric and aim to deliver justice rather than mere punishment.

Note:

- The event honoured the recipients of the **President's Medal for Distinguished Service (PSM) and the President's Medal for Meritorious Service (MSM) for 2023 and 2024.**
- The BPR&D was established on 28th August 1970 under the Ministry of Home Affairs, with the mission to provide a new direction to the then-existing **Police Research and Advisory Council, founded in 1966.**
 - It aims to **address police issues, promote systematic studies**, and integrate science and technology into policing methods.
 - Initially, it comprised two divisions: **Research, Statistics, and Publication, and Development.** In **1973, the Training Division** was added to enhance police competencies, followed by the establishment of the **Directorate of Forensic Sciences in 1983** and the inclusion of **Correctional Administration in 1995.**
 - The bureau is headed by an **Indian Police Service officer of the rank of Director General**, who is assisted by the Additional Director General.
- The **Special Projects Division of the BPR&D** addresses critical areas focusing on emerging issues such as **anti-human trafficking, gender concerns, and matters related to minority and SC/ST communities.**
- **BPR&D Publications:** Indian Police Journal, **Data on Police Organisations** and Sajag Bharat & Vigilant India Magazine.

Read More: [National Security: Bureau of Police Research and Development](#)

Launch of Samudra Pratap

Recently, the first indigenously built Pollution Control Vessel **Samudra Pratap** was launched in Goa.

- The Ship has been built by **Goa Shipyard Limited (GSL)** for the **Indian Coast Guard (ICG).**
- It is for the **first time** that these vessels are being **designed and constructed indigenously.** The vessel will help to check the **oil spillage** in the country's sea coast.

- **Oilspill:**
 - An oil spill is the **release** of a liquid **petroleum hydrocarbon** into the environment, especially **marine areas**, due to human activity.
 - Oil spills may be caused by releases of crude oil from **tankers, offshore platforms, drilling rigs or wells.**
 - Oil on ocean surfaces harms aquatic life by **blocking sunlight** and **reducing dissolved oxygen levels.**
 - The **Deepwater Horizon oil spill (2010)** in the **Gulf of Mexico** is considered the largest and most famous oil spill in history.
 - **Oilzapping** is the new technique of using bacteria to **get rid of oil spills.**

Read More: [Oil Spills](#)

Launch of Tanager-1

Recently, the **National Aeronautics and Space Administration (NASA)** launched the **Tanager-1 satellite** to detect major emitters of **carbon dioxide and methane.**

- Tanager-1 will use **imaging spectrometer technology** to measure **wavelengths** of light that are reflected by Earth's surface.
 - Methane and Carbon dioxide absorb different **wavelengths of light**, leaving spectral "**fingerprints**" that the imaging spectrometer can identify.
- It will be able to measure **point-source emissions**, down to the level of individual facilities and equipment, on a **global scale.**
- Earlier, NASA had launched **MethaneSAT** which tracks and measures methane emissions.
- **Methane:** Methane is a strong **greenhouse gas** and the **second largest contributor to global warming after carbon dioxide.** It is responsible for **30%** of global heating.
 - According to the United Nations Environment Programme, over a period of **20 years**, it is **80 times more potent** at warming than **carbon dioxide.**
 - It also contributes to the formation of **ground-level ozone**, a colourless and highly irritating gas that forms just above the Earth's surface.

Read More: [Methane Mitigation to Combat Global Warming](#)



Note: