



drishti

**Current
Affairs
(CONSOLIDATION)**

**MARCH 2024
(PART – I)**

Drishti, 641, First Floor, Dr. Mukharjee Nagar, Delhi-110009
Inquiry (English): 8010440440, Inquiry (Hindi): 8750187501
Email: help@groupdrishti.in

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Polity and Governance

Highlights

- Centre Notifies Rules for CAA Implementation
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- Election Commission of India
- Subsidy Extension for PMUY
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- Dispute over the Shanan Hydropower Project
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BAIL AND RELATED PROVISIONS IN INDIA

"The issue of bail is one of liberty, justice, public safety, and burden of the public treasury, all of which insist that a developed jurisprudence of bail is integral to a socially sensitised judicial process."

—Justice V.R. Krishna Iyer

Constitutional Provision for Arrest - Article 22:

Grants protection to individuals arrested or detained, with detention classified into two types:

- ➔ **Punitive detention:** To punish a person for an offence committed by him after trial and conviction in a court
- ➔ **Preventive detention:** Detention of a person without trial and conviction by a court

Criminal Procedure Code, 1973: Doesn't define bail, but defines bailable and non-bailable offences:

Type of Offence	Bailable	Non-Bailable
Defined under CrPC as:	An offence mentioned in Schedule 1, or An offence made bailable by any other law	Any offence other than bailable
Power to Grant Bail	Bail as a right	Court/Police discretion based on the facts

Bail vs Parole vs Probation

Bail	Parole	Probation
Temporary release of defendant awaiting trial or appeal, secured by deposit to guarantee their appearance in court	When person gets some time off from jail sentence , for instance, to fulfil some requirements	Suspension of sentence of an offender, allowing to stay in community under supervision of an officer
Granted by Judge	By Parole Board	By Judge

Types of Bails in India

Regular Bail: Court's order to release person under arrest in police custody

Interim Bail: Court grants temporary relief until application for Anticipatory Bail or Regular Bail is decided

Anticipatory Bail: Bail granted preemptively to prevent arrest

Default Bail: When police fail to complete investigation within specified period

Medical Bail: Solely on medical grounds

Cancellation of Bail - Certain Grounds

- Misuses his liberty by indulging in criminal activity
- Interferes with course of investigation
- Tampering of evidence
- Threatens witnesses, etc



Note:



PARLIAMENTARY PRIVILEGES

Parliamentary privileges are special rights, immunities, and exemptions enjoyed by MPs, MLAs and their committees.

Constitutional Provision

- Article 105: For MP's
- Article 194: For MP's

Grants only civil immunity for statements or acts performed in course of duty.

Sources of Power

- Constitutional provisions
- Various laws made by Parliament
- Rules of both Houses
- Parliamentary conventions
- Judicial interpretations

Privileges of Individual Members

- Freedom of Speech** in Parliament
- MP/Committee **immune from legal proceedings** regarding statements or voting
- Immune from court proceedings** regarding publication of reports, papers, votes, or proceedings by either House of Parliament
- Courts prohibited from questioning Parliamentary proceedings validity due to **alleged procedural irregularities**
- Members **immune from arrest in civil cases** during a House or Committee meeting and 40 days before or after its session

Collective Privilege of House

- House has **right to be promptly informed about a Member's arrest**, detention, conviction, imprisonment, and release
- Immunity from arrest and service of legal process** within precincts of House without obtaining permission of Chairman/ Speaker
- Protection of publication of proceedings of secret sitting of House
- Evidence** presented to Parliamentary Committee, along with report and proceedings, **must remain confidential** until officially laid on House's Table
- Members/officers of the **House require House's permission to present documents or testify in court** regarding House proceedings

Important Judgements

- State of Kerala vs. K. Ajith Case (2021)** - SC emphasised that privileges and immunities should not be used to exempt individuals from the general criminal law applicable to all citizens
- In 2024, the 7-judge Constitution Bench overturned the 5-judge Bench decision in **P.V. Narasimha Rao v. State Case (1998)**, clarifying that the protection provided by Articles 105 and 194 of the Constitution do not extend to bribery cases



Centre Notifies Rules for CAA Implementation

Why in News?

Recently, the Indian government notified the **rules for the Citizenship Amendment Act (CAA), 2019**, paving the way for its implementation after over 4 years since its passage by Parliament in December 2019.

- The CAA, 2019 is an Indian legislation that provides a path to Indian citizenship for migrants belonging to six religious minorities: **Hindu, Sikh, Buddhist, Jain, Parsi, and Christian** from Pakistan, Bangladesh, and Afghanistan.

What are the Rules Issued by the Government Concerning the Citizenship Amendment Act?

- Historical Context:** The government has previously taken steps to address the plight of refugees, including amendments to the **Citizenship Rules in 2004** and notifications in **2014, 2015, 2016, and 2018**.
- CAA Rules 2024:** The application process for citizenship under CAA has been made under **Section 6B of the Citizenship Act, 1955**. Applicants need to prove their country of origin, religion, date of entry into India, and knowledge of an Indian language to qualify for Indian citizenship.

Note:

- **Proof of Country of Origin:** Relaxed requirements allow various documents, including birth or educational certificates, identity documents, licenses, land records, or any document proving previous citizenship of the mentioned countries.
- **Date of Entry into India:** Applicants can provide 20 different documents as proof of entry into India, including visas, residential permits, census slips, driving licenses, Aadhaar cards, ration cards, government or court letters, birth certificates, and more.
- **Mechanism for Implementation of Rules:**
 - The Ministry of Home Affairs (MHA) has assigned the task of processing citizenship applications under the CAA to the **Postal department and Census officials** under the Union government.
 - Background and security checks will be conducted by Central security agencies like the **Intelligence Bureau (IB)**.
 - Final decisions on applications will be made by empowered committees led by the **Director (Census Operations)** in each State.
 - These committees will include officials from various departments, including the Intelligence Bureau, Post Master General, State or National Informatics Centre, and **representatives from the State government's** Department of Home and Divisional Railway Manager.
 - **District-level committees**, headed by the Superintendent of the Department of Post, will sift through applications, with a representative from the District Collector's office as an invitee.
- **Processing of Applications:** The Empowered Committee and District Level Committee (DLC), instituted by the Centre, will process citizenship applications, **bypassing state control**.
 - DLC will receive applications, and the final decision will be made by the Empowered Committee, headed by the **Director (Census Operations)**.

What is the Citizenship Amendment Act, 2019?

- **Citizenship in India:** Citizenship is the legal status and relationship between an individual and a state that entails specific rights and duties.
 - Citizenship in India is listed in the **Union List** under the Constitution and thus is under the exclusive jurisdiction of Parliament.

- The Constitution of India, on 26th January, 1950, established categories of people eligible for Indian citizenship.
 - It also granted Parliament the authority to regulate additional aspects of citizenship, such as granting and renunciation.
- Under this authority, Parliament enacted the **Citizenship Act, 1955**.
- The Act specifies that citizenship may be acquired in India through five methods: by **birth** in India, by **descent**, through **registration**, by **naturalisation** (extended residence in India), and by **incorporation of territory** into India.
 - **Children born in India to ambassadors are not eligible for Indian citizenship based solely on their birth in the country.**

Article No.	Subject Matter
5.	Citizenship at the commencement of the Constitution
6.	Rights of citizenship of certain persons who have migrated to India from Pakistan
7.	Rights of citizenship of certain migrants to Pakistan
8.	Rights of citizenship of certain persons of Indian origin residing outside India
9.	Persons voluntarily acquiring citizenship of a foreign State not to be citizens
10.	Continuance of the rights of citizenship
11.	Parliament to regulate the right of citizenship by law

About: The **Citizenship Act, 1955** was amended in 2019 to grant citizenship to **Hindu, Sikh, Buddhist, Jain, Parsi, or Christian migrants** from **Pakistan, Bangladesh, and Afghanistan**.

- Under the amendment, migrants who entered India on **31st December 2014**, and had suffered "**religious persecution or fear of religious persecution**" in their country of origin would be made eligible for accelerated citizenship.
- It exempts the members of the six communities from any criminal case under **Foreigners Act, 1946** and **Passport Act, 1920** which specify punishment for entering the country illegally and staying on expired visas and permits.
- **Relaxations:** Under the Citizenship Act, 1955, one of the requirements for citizenship by naturalization is that the applicant must have resided in India during the last 12 months, as well as for 11 of the previous 14 years.
 - The 2019 amendment relaxes the second requirement from **11 years to 6 years** as a specific condition for applicants belonging to these six religions, and the aforementioned three countries.

Note:

- **Exemptions:** CAA will not apply to regions mentioned under the **Sixth Schedule** of the Indian Constitution, which include Tribal Areas in the States of **Assam, Meghalaya, Tripura, and Mizoram**.
 - Additionally, areas covered by the **Inner Line Permit system (ILP)** are also exempt from the CAA.
 - The concept of Inner Line separates the **tribal-majority hills of the Northeast from the plains areas**. To enter and stay in these areas, an Inner Line Permit (ILP) is needed.
 - Currently, Inner Line Permit regulates visit of all persons, including Indian citizens, to **Arunachal Pradesh, Mizoram, and Nagaland**.
 - This exclusion is intended to protect the interests of tribal and indigenous communities in the North-Eastern region, ensuring that individuals residing in these areas cannot seek citizenship under the provisions of the **CAA, 2019**.

What are the Concerns Related to the CAA, 2019?

- **Constitutional Challenge:** Critics argue that it violates **Article 14 of the Indian Constitution**, which guarantees the **right to equality before the law** and prohibits discrimination based on religion.
 - The CAA's provision of granting citizenship based on religion is seen as discriminatory.
- **Potential for Disenfranchisement:** The CAA is often linked to the **National Register of Citizens (NRC)**, a proposed nationwide exercise to identify illegal immigrants.
 - Critics fear that a **combination of CAA and a faulty NRC** could disenfranchise several citizens who are unable to prove their documentation.
 - More than **19.06 lakh people were left out of the final draft of the Assam NRC** released in August 2019.
- **Impact on Assam Accord:** In Assam, there is a specific concern regarding the compatibility of the **CAA with the Assam Accord, 1985**.
 - The Accord established criteria for determining citizenship in Assam, including specific cut-off dates for residency.
 - The CAA's provision of a **different timeline for granting citizenship could conflict with the provisions of the Assam Accord**, leading to legal and political complications.

- **Secularism and Social Cohesion:** The CAA's focus on religion as a criterion for citizenship eligibility has raised broader concerns **about its impact on secularism and social cohesion in India**.
 - Critics argue that privileging certain religious communities over others undermines the secular principles upon which the Indian state was founded and could exacerbate communal tensions.
- **Exclusion of few Religious Communities:** The exclusion of certain religious communities from the **CAA and its subsequent rules**, such as **Sri Lankan Tamils and Tibetan Buddhists**, who faced religious persecution in their home countries, raises concerns.

Note: The **Matua community** of West Bengal (Hindu refugees from East Pakistan (now Bangladesh), have welcomed the CAA rules. The notification coincides with the birth anniversary of **Harichand Thakur, a founder of the Matua sect**, born in 1812 in present-day Bangladesh.

Revamped Pharmaceuticals Technology Upgradation Assistance Scheme and UCPMP 2024

Why in News?

The **Department of Pharmaceuticals (DoP)**, Ministry of Chemicals and Fertilizers, announces the **Revamped Pharmaceuticals Technology Upgradation Assistance Scheme (RPTUAS)**.

- It aims to upgrade the technological capabilities of the pharmaceutical industry in alignment with global standards.
- Additionally, the DoP released the **Uniform Code for Pharmaceutical Marketing Practices (UCPMP) 2024**. The code aims to ensure responsible marketing practices and curb misleading promotional activities.

What are the Key Highlights of the RPTUAS?

- **Objective:**
 - The Department of Pharmaceuticals through RPTUAS aims to contribute to the growth of the pharmaceutical industry and ensure compliance with global manufacturing standards.

Note:

- **Key Features:**
 - **Broadened Eligibility Criteria:**
 - Expanded eligibility beyond **Micro, Small, and Medium Enterprises (MSMEs)** to include any pharmaceutical manufacturing unit with a turnover of less than Rs 500 crores.
 - Preference remains for MSMEs, supporting smaller players in achieving high-quality manufacturing standards.
 - **Flexible Financing Options:**
 - Introduces subsidies on a reimbursement basis, offering more flexibility than the traditional credit-linked approach.
 - **Comprehensive Support for Compliance:**
 - Supports a wide range of technological upgrades in line with revised **Schedule-M** and **World Health Organization (WHO)- Good Manufacturing Practices (GMP)** standards, including HVAC systems, testing laboratories, clean room facilities, etc.
 - **Dynamic Incentive Structure:**
 - Offers incentives based on turnover, ranging from 20%, 15%, and 10% of investment under eligible activities for turnovers less than Rs. 50.00 crore, Rs. 50.00 to less than Rs. 250.00 crore, and Rs. 250.00 to less than Rs. 500.00 crore, respectively.
 - **State Government Scheme Integration:**
 - Allows integration with state government schemes to provide additional top-up assistance.
 - **Enhanced Verification Mechanism:**
 - Implements a robust verification mechanism through a Project Management Agency to ensure transparency and accountability.

Pharmaceuticals Technology Upgradation Assistance (PTUAS) Scheme

- PTUAS helps drug companies upgrade their facilities to produce medicines that meet global standards. It was launched in July 2022.
- **Incentives under the Scheme:**
 - **Interest Subvention:**
 - Up to a maximum of 5% per annum (6% for units owned and managed by **Scheduled Castes** and **Scheduled Tribes**) of interest subvention for the loan component eligible under the scheme, capped at Rs. 10 crore.
 - This subsidy is applicable for a maximum period of 3 years on the reduced balance for loans sanctioned by **scheduled commercial banks /financial institutions**, both in the public and private sectors.

What are the Revised Schedule M and WHO-GMP Standards?

- The Union Health Ministry's notification in January 2024 introduced revisions to **Schedule M of the Drugs and Cosmetics Rules, 1945**, focusing on robust quality control measures for pharmaceutical and biopharmaceutical products.
 - **Schedule M** prescribes **Good Manufacturing Practices (GMP)** for pharmaceutical products.
 - GMP was first incorporated in Schedule M of the Drugs and Cosmetics Rules, 1945 in the year 1988 and the last amendment was done in June 2005.
 - With the amendment, the words 'Good Manufacturing Practices' (GMP) have been replaced with 'Good Manufacturing Practices and Requirements of Premises, Plant and Equipment for Pharmaceutical Products'.
- The revised Schedule M emphasizes adherence to GMP and incorporates requirements for premises, plant, and equipment. This ensures alignment with the **World Health Organization (WHO) GMP Standards**.
 - GMP is the mandatory standard that builds and brings quality into a product by way of control on materials, methods, machines, processes, personnel, facility/environment, etc.
- The updated Schedule M introduces a **pharmaceutical quality system (PQS), quality risk management (QRM), product quality review (PQR)**, qualification and validation of equipment, and a computerised storage system for all drug products.

Recent Cases of Quality Issues in the Indian Medicines

- In December 2023 the data from the **Central Drugs Standard Control Organisation (CDSCO)**, shows that at least **6% of cough syrup samples from 54 Indian manufacturers failed a mandatory quality test for export**.
 - Gambia, Uzbekistan, Cameroon, and the World Health Organization (WHO) expressed concerns following the deaths of children who had taken these medications.
- **In April 2023, the US Centers for Disease Control and Prevention (CDC)** and the Food and Drug Administration (USFDA) raised concerns over a **drug-resistant bacteria strain allegedly linked to eye drops imported from India**.

Note:

What are the Key Provisions of UCPMP 2024?

- **Restrictions on Inducements:**
 - Medical representatives are prohibited from using inducements to gain access to healthcare professionals.
- **Prohibition of Payments and Gifts:**
 - Companies are barred from offering cash, monetary grants, or pecuniary benefits to healthcare professionals or their family members.
 - Pharmaceutical companies are forbidden from giving gifts or any pecuniary advantages to individuals qualified to prescribe or supply drugs.
- **Evidence-Based Claims:**
 - Claims about a **drug's usefulness must be supported by up-to-date evidence**, and terms like "safe" and "new" must be used appropriately.
- **Transparent CME Programs Only:**
 - Pharmaceutical companies can only engage with healthcare professionals (HCPs) for Continuing Medical Education (CME) through well-defined, transparent, and verifiable guidelines.
- **Strict Compliance:**
 - The UCPMP will be circulated for strict compliance by all pharmaceutical companies and associations.
 - All associations must constitute an **Ethics Committee for Pharmaceutical Marketing Practices**.

Pharmaceutical Industry in India

- **Industry Scenario:**
 - The **Economic Survey 2022-23** mentions that India is ranked **3rd worldwide in the production of pharma products by volume and 14th by value**.
 - The Pharma Industry is expected to reach USD 130 Bn by 2030. India is a major exporter of Pharmaceuticals, with over 200+ countries served by Indian pharma exports.
 - The nation is the largest provider of **generic medicines globally**, occupying a 20% share in global supply by volume, and is the **leading vaccine manufacturer globally**.
 - India supplies over 50% of Africa's requirement for generics, 40% of generic demand in the US and 25% of all medicine in the UK.
 - India also accounts for approximately **60% of global vaccine demand**. 70% of WHO's vaccines are sourced from India.

➤ Schemes Related to the Pharma Sector:

- **Promotion of Bulk Drug Parks Scheme.**
- **Pharmaceutical & Medical Devices Promotion and Development Scheme (PMPDS).**
- **Production-linked incentive (PLI) scheme for pharmaceuticals.**
- **National Medical Device Policy 2023.**

Election Commission of India

Why in News?

Recently, the Election Commissioner of India resigned from his post, just days ahead of the announcement of the **Lok Sabha** elections.

What is the Election Commission of India?

➤ About:

- The **Election Commission of India (ECI)** is an autonomous constitutional authority responsible for administering Union and State election processes in India.
 - It was established in accordance with the Constitution on 25th January **1950 (celebrated as National Voters' Day)**. The secretariat of the commission is in New Delhi.
- The body administers elections to the **Lok Sabha, Rajya Sabha, and State Legislative Assemblies** in India, and the offices of the **President and Vice President** in the country.
 - It is **not concerned with the elections to panchayats and municipalities** in the states. For this, the Constitution of India provides for a separate **State Election Commission**.

➤ Constitutional Provisions:

- **Part XV (Article 324-329):** It deals with elections and establishes a commission for these matters.
- **Article 324:** Superintendence, direction and control of elections to be vested in an Election Commission.
- **Article 325:** No person to be ineligible for inclusion in, or to claim to be included in a special, electoral roll on grounds of religion, race, caste or sex.
- **Article 326:** Elections to the House of the People and to the Legislative Assemblies of States to be **based on adult suffrage**.
- **Article 327:** Power of Parliament to make provision with respect to elections to Legislatures.

Note:

- **Article 328:** Power of Legislature of a State to make provision with respect to elections to such Legislature.
- **Article 329:** Bar to interference by courts in electoral matters.
- **Structure of ECI:**
 - Originally the commission **had only one election commissioner** but after the **Election Commissioner Amendment Act 1989**, it was made a multi-member body.
 - The Election Commission shall consist of the **Chief Election Commissioner (CEC)** and such number of other election commissioners, if any, as the President may from time-to-time fix.
 - Presently, **it consists of the CEC and two Election Commissioners (ECs)**.
 - At the state level, the election commission is helped by the **Chief Electoral Officer**.
- **Appointment & Tenure of Commissioners:**
 - The President appoints CEC and Election Commissioners as per **the CEC and Other ECs (Appointment, Conditions of Service and Term of Office) Act, 2023**.
 - They have a fixed tenure of six years, or up to the age of 65 years, whichever is earlier.
 - The salary and conditions of service of the **CEC and ECs** will be equivalent to that of the **Cabinet Secretary**.
 - Under the 1991 Act, it was equivalent to the salary of a **Supreme Court Judge**.
- **Removal:**
 - They **can resign anytime** or can also be removed before the expiry of their term.
 - The CEC can be removed from office only through a process of removal similar to that of a SC judge by Parliament, while **ECs can only be removed on the recommendation of the CEC**.
- **Limitations:**
 - The Constitution has not prescribed the qualifications (legal, educational, administrative or judicial) of the members of the Election Commission.
 - The Constitution has not specified the term of the members of the Election Commission.
 - The Constitution has not debarred the retiring election commissioners from any further appointment by the government.

Anoop Baranwal vs Union of India Case, 2023

- A five-judge bench of the **Supreme Court (SC)** unanimously ruled that the appointment of the **Chief Election Commissioner** and the Election Commissioners shall be made by the President on the advice of a Committee consisting of the Prime Minister, the **Leader of the Opposition** of the Lok Sabha and **Chief Justice of India (CJI)**.
 - **In case no leader of the Opposition is available**, the leader of the largest opposition Party in the Lok Sabha in terms of numerical strength will be a part of such committee.
- The **Parliament** passed the **Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023**, in response to the **directive of the Supreme Court in the Anoop Baranwal v Union of India case, 2023**.

Subsidy Extension for PMUY

Why in News?

The Union Cabinet extended the subsidy of Rs 300 per 14.2-kg cylinder under the **Pradhan Mantri Ujjwala Yojana (PMUY)** for up to 12 refills per year till the end of 2024-25.

What is Pradhan Mantri Ujjwala Yojana (PMUY)?

- **About:**
 - In May 2016, the **Ministry of Petroleum and Natural Gas** introduced the 'Pradhan Mantri Ujjwala Yojana' (PMUY) to provide **clean cooking fuel** like LPG to rural and deprived households.
 - This aimed to replace traditional cooking fuels like firewood and coal, which had negative impacts on the health of rural women and the environment.
 - Under **Ujjwala 2.0** (Phase-2 of PMUY), a special provision has been made for **Migrant Families to avail of new connections** using Self-Declaration instead of Proof of Address (PoA) and Ration Card (RC).
- **PMUY Benefits:**
 - Government provides Rs. 1600 for a 14.2kg cylinder connection or Rs. 1150 for a 5kg cylinder.

Note:

- The PMUY provides a subsidy of Rs 300 per 14.2 kg cylinder of LPG to eligible beneficiaries. This subsidy is available for up to 12 refills per year and is credited directly to the beneficiaries' bank accounts.
- PMUY beneficiaries receive the first LPG refill and stove (hotplate) free of cost from **Oil Marketing Companies (OMCs)**.
- **Phase-I Achievements:** Target of 8 crore connections achieved by September 2019.
- **Phase-2 (Ujjwala 2.0):** Launched in August 2021, the target of 1 crore additional connections achieved in January 2022.
 - Subsequently, the Government decided to release 60 lakh more LPG connections under Ujjwala 2.0 and the target of 1.60 crore under Ujjwala 2.0 connections was achieved in December 2022. Thus taking overall connections under the scheme to 9.6 Crore.
 - The Government of India has approved the release of an additional 75 lakh connections under the PMUY Scheme, taking the **overall target to 10.35 Crore, (10.2 Crore has been achieved as of 7th March 2024)**.

Reforming India's Undertrial Bail System

Why in News?

The **Supreme Court of India's** acknowledgement in the case of **Satender Kumar Antil vs Central Bureau Of Investigation, 2022**, highlights the **inefficacy of India's bail system** and its role in **exacerbating the crisis of undertrial incarceration**.

- This recognition underscores the pressing need for **reforming bail laws** to address systemic challenges within the **criminal justice system**.

What are the Concerns Regarding India's Bail System?

- **High Undertrial Population:**
 - Over **75% of India's prison population comprises undertrials**, indicating a significant problem with the bail system.
 - An undertrial prisoner is someone who is accused of a crime but has **not been convicted**. They

are kept in judicial custody, while their **case is being heard in court**.

- The **overcrowding rate** in Indian **prisons is at 118%**, reflecting systemic issues within the criminal justice system.
- **Bail Adjudication:**
 - Bail adjudication relies heavily on court discretion, considering the specifics of each case.
 - The Supreme Court provides guidelines for this discretion, emphasising the **need for granting bail but also allowing denial** based on factors like the gravity of the offence and the likelihood of absconding.
 - Courts often **lean towards denying bail or imposing strict conditions**, despite the guidelines advocating for bail release.
 - Courts frequently do **not provide reasons for denying bail**, leaving the rationale behind decisions unclear.
 - **Marginalised individuals** are disproportionately affected by these broad exceptions, facing either bail denial or stringent conditions.
- **Challenges in Bail Compliance:**
 - Many undertrials stay in prison even after receiving bail due to difficulties in meeting bail conditions.
 - **Lack of resources to arrange money or property** and find local sureties are major obstacles to compliance.
 - Other factors such as lacking residence and identity proof, being abandoned by family, and struggling to navigate the court system also hinder compliance.
 - Supporting undertrials in meeting bail conditions and ensuring court appearances is crucial, especially for those facing structural disadvantages.
 - Existing bail laws fail to address these challenges adequately.
 - Data from the **Fair Trial Programme (FTP)** in Yerwada and Nagpur shows that Existing bail laws fail to address these challenges adequately.
 - In **14% of cases, undertrials couldn't comply with bail conditions**, resulting in continued imprisonment.
 - In almost 35% of cases, it took over a month after bail was granted for undertrials to meet bail conditions and secure release.

Note:

- **Lack of Safeguards:**
 - The Supreme Court emphasises the **importance of safeguards against arbitrary arrest** to reduce the need for seeking bail.
 - Arbitrary arrest and detention is the arrest or detention of a person without evidence of a crime or proper due process.
 - However, these safeguards often exclude many individuals from **disadvantaged backgrounds**, who make up the **majority of undertrial prisoners**.
 - Data from the **FTP** highlights this issue: of the undertrials (2,313) represented by the FTP, **18.50% were migrants, 93.48% did not own any assets, 62.22% did not have any contact with family, and 10% had a history of previous incarceration**.
 - This data indicates a significant portion unjustifiably excluded from arrest protections, contributing to the high number of undertrials in prisons.
- **Flawed Assumptions:**
 - Current bail system assumes **all arrested individuals can afford bail** or have influential social connections.
 - It believes financial risk is necessary to ensure the accused appears in court.
 - This contradicts the principle of **“bail not jail”**,

- which aims to release individuals awaiting trial.
- Thus there is a need for reforming the bail system, however, reforms should be based on understanding the problem through empirical evidence.

Note:

- The Fair Trial Programme (FTP) is a criminal justice initiative based at the **National Law University in Delhi**. The FTP's goal is to **ensure fair trials for undertrial prisoners**.
 - The FTP trains and mentors young professionals, such as lawyers and social workers, to collaborate with the State Legal Services Authority.

Police Custody And Judicial Custody

- **Police custody** means the accused is **held by the police in a lock-up** to prevent tampering with evidence or influencing witnesses after an FIR is filed for a cognizable offence.
- **Judicial Custody** means an accused is in the **custody of the concerned Magistrate**. It is for **serious offences**, where the court may detain the accused to prevent tampering with evidence or witnesses after the police custody period ends.

Aspect	Police Custody	Judicial Custody
Custody Location	Lock-up of a police station or with investigating agency	Jail under custody of Magistrate
Appearance before Court	Within 24 hours before the concerned Magistrate	Until there is an order from the Court for bail
Commencement	At the time of arrest by a police officer after receiving a complaint or filing an FIR	After public prosecutor satisfies the court that the custody of the accused is necessary for investigation
Maximum Duration	24 hours (extendable to 15 days by the appropriate Magistrate)	90 days for offences punishable with life imprisonment, death, or imprisonment for not less than ten years; 60 days for other offences

Dispute over the Shanan Hydropower Project

Why in News?

Recently, the central government ordered that the **status quo** be maintained on the **Shanan hydropower project**, over which **Punjab** and **Himachal Pradesh** have made competing claims.

Note:



- Punjab has moved the **Supreme Court** over this issue.

What is the Shanan Project and the Claims of Different Parties over it?

➤ **Historical Background:**

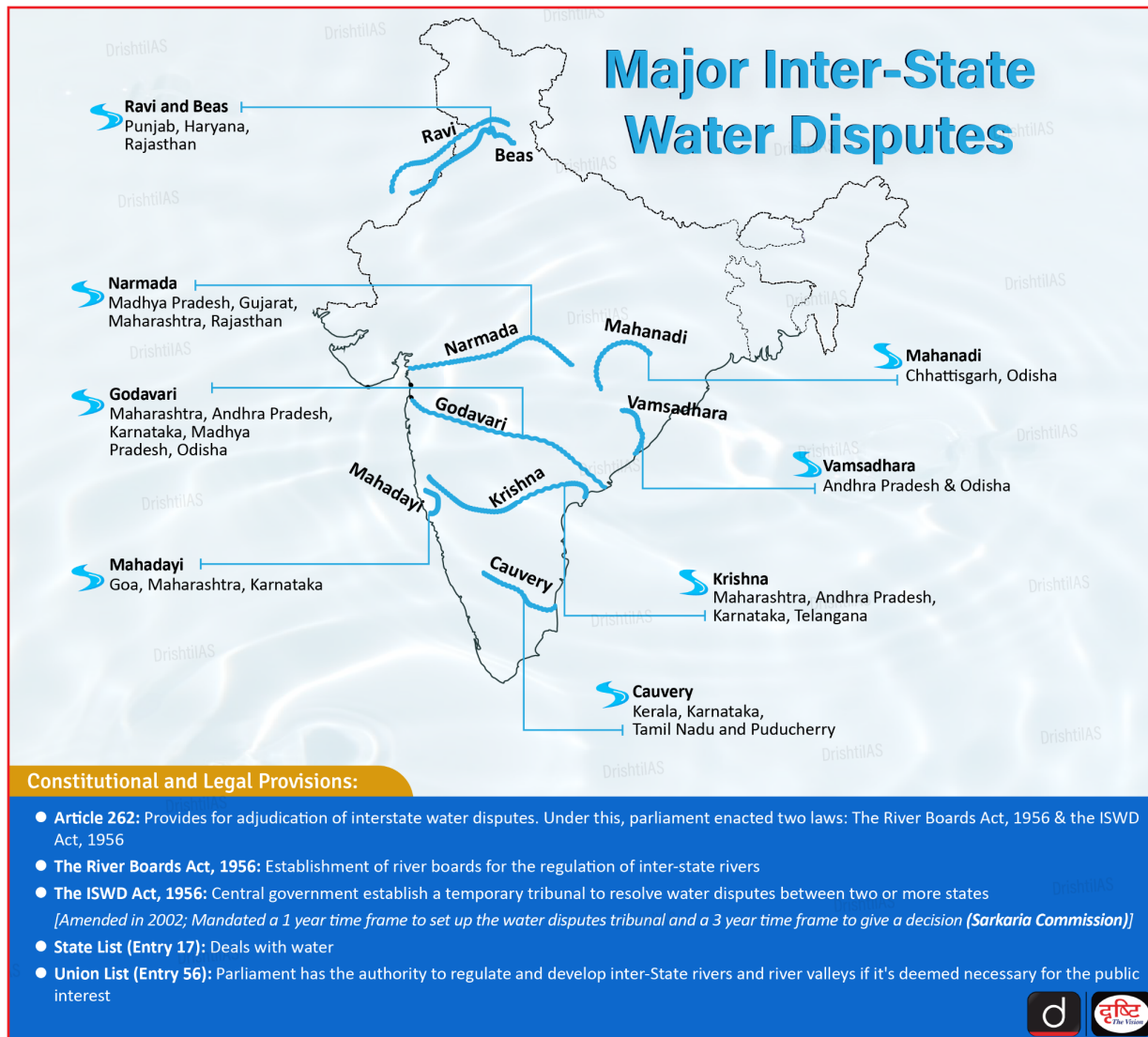
- During the British era in **1925**, Punjab was granted a lease for the **110-MW hydropower project** situated in **Jogindernagar, Mandi district of Himachal Pradesh** on **river Uhl**, a tributary of the **Beas River**.
- **Lease Agreement:**
 - The lease agreement was formalised between **Raja Joginder Bahadur**, the **ruler of Mandi** at the time, and **Col BC Batty**, who represented the **British government** and served as the **Chief Engineer of Punjab**.
- **Project Utility:**
 - The hydropower project served the energy needs of the **undivided Punjab** and **Delhi** before India gained independence.
 - Following the partition, the supply to Lahore was halted, and the transmission line was terminated at **Verka village in Amritsar**.
- **Legal Control under Punjab Reorganisation Act, 1966:**
 - During the reorganisation of states in 1966, the hydropower project was transferred to Punjab, as **Himachal Pradesh was then** designated as a **Union Territory**.
 - Punjab was officially allocated the project through a **central notification issued on 1st May 1967**, by the Union Ministry of Irrigation and Power.
 - The notification specified that Punjab's legal control over the project was governed by the provisions outlined in the **Punjab Reorganisation Act, 1966**.
- **Claim of Himachal Pradesh:**
 - **Before the lease of 1925**, which granted the project to Punjab, **Himachal Pradesh had both ownership and operational rights over the project**.
 - The **1925 lease only granted operational rights to Punjab for a specific period** and not ownership rights.

- In the past few years, **Himachal Pradesh** has contended that the **project should stay with it once the lease ends**.
- The Himachal Pradesh government has raised concerns, alleging that the project is in a deteriorating condition due to a **lack of repair and maintenance by Punjab**.
- The Chief Minister of Himachal Pradesh had stated that they would not allow Punjab to stake claim on the project after the lease period and wrote to his Punjab counterpart last year and also took up the issue with the Union Ministry of Power.

➤ **Claims of Punjab:**

- **Ownership and Possession Claim:**
 - Punjab has presented its case in the Supreme Court, asserting that it is the rightful owner and in lawful possession of the **Shanan Power House Project under the central notification of 1967**.
 - The state government, through the Punjab State Power Corporation Ltd (PSPCL), currently exercises control over all assets associated with the project.
- **Legal Action Requested:**
 - Under **Article 131** the government of Punjab has requested a **"permanent Prohibitory Injunction"** from the **Supreme Court**.
 - This injunction is sought to prevent the Himachal Pradesh government from interfering with the **"lawful peaceful possession and smooth functioning"** of the **Project**.
- **Interim Measure Ordered by the Centre:**
 - A day before the conclusion of the **99-year-old lease agreement**, the Central government intervened by issuing an order to maintain the status quo on the **Project**. This measure was implemented to ensure the continuous operation of the project.
 - The directive was issued by the **Ministry of Power**. It invoked the powers vested under **Sections 67 and 96** of the **Punjab Reorganisation Act, 1966**, in conjunction with **Section 21** of the **General Clause Act, 1887**.

Note:

Inter-State River Water Disputes:

- **Inter-State Water Dispute (ISWD) Act, 1956:** In case, a particular state or states approach the Centre for the constitution of the tribunal, the Central Government should try to resolve the matter by consultation among the aggrieved states. In case, if it does not work, then it may constitute the tribunal.
 - The **Inter-State Water Dispute Act, 1956** was amended in **2002**, to include the major recommendations of the **Sarkaria Commission**.
 - The amendments mandated a one-year time frame to set up the water disputes tribunal and also a **3-year time frame** to give a decision.

Holistic Progress Card**Why in News?**

Recently, the **National Council for Educational and Research Training (NCERT)** has introduced a new '**Holistic Progress Card**' (HPC), which will measure, apart from academic performance, a child's progress in interpersonal relationships, self-reflection, creativity, and emotional application in classrooms.

Note:

Note: The HPCs have been devised by **Performance Assessment, Review, and Analysis of Knowledge for Holistic Development (PARAKH)**, a standard-setting body under the NCERT, for the foundational stage (Classes 1 and 2), preparatory stage (Classes 3 to 5) and middle stage (Classes 6 to 8), as per suggestions by the **National Education Policy (NEP) 2020**.

What is a Holistic Progress Card (HPC)?

- About:
 - The HPC is a new approach to **evaluating students' academic performance** that moves away from **traditional reliance on marks or grades**.
 - Instead, it adopts a **comprehensive 360-degree evaluation system** that takes into account various aspects of a student's development and learning experience.
- Features:
 - Under the HPC model, students are actively **engaged in class activities where they are encouraged to apply a range of skills** and competencies, demonstrating their understanding of concepts.
 - The difficulty level they encounter while performing tasks is also considered in the assessment process.
 - Teachers play a crucial role in **assessing students' strengths and weaknesses** across different dimensions, such as collaboration, creativity, empathy, attention, and preparedness.
 - This allows teachers to identify **areas where students may need additional support** or guidance.
 - One distinctive feature of the HPC is that **it involves students in the evaluation process**.
 - Students are encouraged to assess their **own performance as well as that of their peers**, providing insights into their learning experiences and the learning environment.
 - Moreover, the HPC integrates **parents into the assessment process by soliciting their input on various aspects** of their child's learning, including homework completion, classroom participation, and **balancing screen time with extracurricular activities at home**.

➤ Need:

- Departing from the traditional emphasis on memorisation, the **HPC prioritises the evaluation of higher-order skills**, including analysis, critical thinking, and conceptual clarity among students.
- Aligned with the NEP's directives, the **National Curriculum Framework for School Education (NCF-SE)** was introduced in 2023, advocating for a shift towards assessing **student progress through the systematic collection** of evidence.
 - Additionally, the NCF SE promotes **peer and self-assessment methods to empower students** in monitoring their own learning journey.
- To gain a comprehensive understanding of students' core competencies, the NCF SE suggests **incorporating diverse classroom assessment methods**, such as projects, debates, presentations, experiments, investigations, and role plays. The design of HPC is in harmony with these recommendations.

What is PARAKH?

➤ About:

- PARAKH has been launched as part of the implementation of the **National Education Policy (NEP), 2020** that envisaged a standard-setting body to advise school boards regarding new assessment patterns and latest research, and promote collaborations between them.
 - It will act as a constituent unit of the NCERT.
- It will also be tasked with **holding periodic learning outcome tests** like the National Achievement Survey (NAS) and State Achievement Surveys.
- It will **work on three major assessment areas**: large-scale assessments, school-based assessment, and examination reforms.

➤ Objective:

- **Uniform Norms & Guidelines:** Setting norms, standards and guidelines for student assessment and evaluation for all recognised school boards of India.
- **Enhance Assessment Pattern:** It will encourage and help school boards to shift their assessment patterns towards meeting the skill requirements of the 21st century.
- **Reduce Disparity in Evaluation:** It will bring uniformity across the state and central boards which currently follow different standards of evaluation, leading to wide disparities in scores.

Note:

- **Benchmark Assessment:** The benchmark assessment framework will seek to put an end to the emphasis on rote learning, as envisaged by the **National Education Policy (NEP) 2020**.

What is NCF for School Education?

- **About:**
 - The **National Curriculum Framework for School Education (NCF-SE)** is developed based on the vision of the **NEP 2020**, and to enable its implementation.
 - The formulation of NCF-SE will be undertaken by the NCERT. The NCFSE document shall henceforth be revisited and **updated once every 5-10 years, considering the frontline curriculum**.
- **Objectives:**
 - The NCF-SE serves as a **guideline for developing syllabi, textbooks, and teaching practices** in India.
 - Its objectives include shifting from rote (memorization by repetition) learning, connecting education to real-life situations, making examinations more flexible, and enriching the curriculum beyond textbooks.
 - The NCFSE also aims to **make learning enjoyable, child-centred, and self-reliant**, and promote democratic values. It provides guidelines for counseling secondary school students and is mandated for all age groups.

What are the Legal and Constitutional Provisions Related to Education in India?

- **Legal Provisions:**
 - The government has implemented the **Sarva Shiksha Abhiyan (SSA)** as part of the **Right to Education (RTE) Act** for the primary level (6-14 years).
 - Moving to the secondary level (age group 14-18), the government has extended the SSA to secondary education through the **Rashtriya Madhyamik Shiksha Abhiyan**.
 - Higher education, encompassing undergraduate (UG), postgraduate (PG), and MPhil/PhD levels, is addressed by the government through the **Rashtriya Uchhattar Shiksha Abhiyan (RUSA)** to meet the requirements of higher education.
 - All these schemes have been subsumed under the **umbrella scheme of Samagra Shiksha Abhiyan**.

Constitutional Provisions:

- **Article 45** of the **Directive Principles of State Policy (DPSP)** initially stipulated that the government should ensure free and compulsory education for all children up to the age of 14 within 10 years of the Constitution's commencement.
- Furthermore, an **amendment to Article 45 broadened** its purview to include early childhood care and education for children **under six years old**.
- Due to the non-fulfillment of this goal, the **86th Constitutional Amendment Act of 2002** introduced **Article 21A**, elevating elementary education to the status of a fundamental right instead of a directive principle.

What are the Government Initiatives Related to Educational Reforms?

- **National Programme on Technology Enhanced Learning**
- **Samagra Shiksha Abhiyan**
- **PRAGYATA**
- **Mid Day Meal Scheme**
- **Beti Bachao Beti Padhao**
- **PM SHRI Schools**

FIR and General Diary

Why in News?

The **Supreme Court(SC) of India** in the case **Shailesh Kumar v. State of UP (now State of Uttarakhand) 2024** has clarified the legal position regarding the registration of **First Information Reports (FIRs)** and **General Diary entries** by the police.

- The apex court has held that information disclosing the commission of a **cognisable offence needs to be recorded as an FIR** in the designated FIR book, **rather than being documented in the General Diary** maintained by the Police under the Police Act, 1861.
- The court emphasised that a **General Diary entry cannot precede the registration of an FIR** unless a preliminary inquiry is deemed necessary.

What is an FIR?

- A first information report (FIR) is a written document **prepared by the police when they receive information about the commission of a cognisable offence**.
 - A cognisable offence is one in which the police can arrest a person without a warrant.

Note:

- The term FIR is **not defined** in the Indian Penal Code (IPC), Code of Criminal Procedure (CrPC), 1973, or in any other law, but in police regulations or rules, information recorded under **Section 154 of CrPC** is known as First Information Report (FIR).
- that FIR registration is mandatory for cognizable offences under Section 154 of the CrPC. Additionally, it emphasised
- **Exceptions to the Rule of Registering an FIR:** The **SC ruling in Lalita Kumari v. Government of Uttar Pradesh & Others, (2014)** held that FIR registration is mandatory for cognizable offences under Section 154 of the CrPC. Additionally, it emphasised that in certain cases, a preliminary inquiry may be necessary before registering an FIR. These cases are:
 - Matrimonial/family disputes
 - Commercial offences
 - Medical negligence cases
 - Corruption cases
 - Cases where there is abnormal delay/laches in initiating criminal prosecution, for example, over 3 months delay in reporting the matter without satisfactorily explaining the reasons for delay.
 - The preliminary inquiry must be completed within 7 days.
- The Supreme Court has also held that if the information given to the police does not disclose the commission of a cognisable offence, then the police are **not bound to register an FIR**.

- In such cases, the police may enter the information in the **General Diary** and inform the informant accordingly.

What is a General Diary?

- A General Diary is a **record of all the activities and incidents that take place in a police station** on a daily basis.
 - **Section 44 of the Police Act, 1861** empowers the State Government to prescribe the form of the General Diary and the manner in which it shall be maintained.
- The General Diary contains various details such as the:
 - Arrival and departure of police officers
 - Arrest of persons
 - Seizure of property
 - Receipt and disposal of complaints
 - Any other information that the officer in charge of the police station may consider necessary to record.
- **Supreme Court Rulings:** In **CBI v. Tapan Kumar Singh (2003)**, the Supreme Court ruled that a General Diary Entry may be treated as FIR in an appropriate case, where it discloses the commission of a cognisable offence.

Note:

- Case Diary is maintained by the investigating officer for a specific case, while the General Diary records all legal events within a police station's jurisdiction.

Aspect	General Diary Entry	FIR
Purpose	Record complaints and incidents for administrative purposes or future reference	Register a cognisable offence for investigation
Nature of Offense	Both cognisable and non-cognisable	Only for cognizable offences
Documentation	Internal police record	For public record
Distribution	Copies are not provided to the complainant or Judicial Magistrate; sent to superior officers	Copies provided to the complainant, superior officers and Judicial Magistrate
Judicial Oversight	Magistrate may inspect General Diary upon request	Magistrate receives copies of FIR for oversight
Complainant's Signature Required	Not required	Required

Note:

PM-JANMAN Housing for PVTGs

Why in News?

The housing component of **Pradhan Mantri Janjati Adivasi Nyay Maha Abhiyaan (PM-JANMAN)**, aimed at providing housing for **Particularly Vulnerable Tribal Groups (PVTGs)**, faces significant challenges hindering its smooth implementation.

What are the Challenges Hindering the implementation of PM-JANMAN?

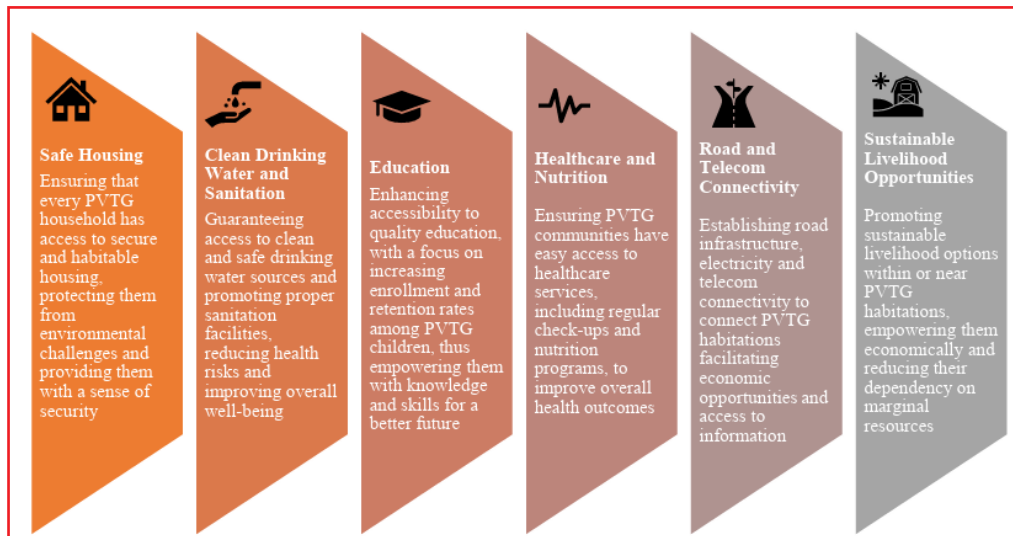
- Data Discrepancies:
 - Discrepancies have emerged between the **data provided by the Centre and the figures identified by the states**. This disparity in data poses a significant hurdle in accurately identifying potential beneficiaries.
 - The Centre relied on the **PM Gati Shakti portal** for estimating the total **population of 75 PVTG**, resulting in varying figures.
 - The estimates jumped from **28 lakh to 44.64 lakhs** within a short span, indicating inconsistencies in data collection.
 - State governments were given a limited timeframe to conduct their surveys, leading to **rushed and incomplete data collection processes**.
 - States like Kerala, Madhya Pradesh, and Tripura have raised **concerns about beneficiaries being left out due to discrepancies in the data**.
 - For example, Madhya Pradesh has found 50,000 additional **eligible households outside the villages notified by the Centre**.
- Slow Progress:
 - The simultaneous collection of beneficiary data and project implementation has led to **delays in the housing component of PM-JANMAN**. Out of the targeted 5 lakh houses, only 1.59 lakh have been sanctioned, significantly missing the initial target.
- Election Year Pressure:
 - The scheme is being implemented at a rapid pace, especially with the upcoming General Elections 2024. The urgency to **show progress may compromise thorough planning and execution**, potentially affecting the quality and inclusivity of the housing distribution.

- Geographical Challenges:
 - Identifying eligible beneficiaries in **remote and inaccessible areas** poses logistical challenges. Lack of **infrastructure and communication networks** in tribal regions may impede data collection efforts and delay the implementation of the housing scheme.
- Dynamic Population Dynamics:
 - Tribal populations, especially PVTGs, often **exhibit migratory patterns** in search of **employment and livelihood opportunities**.
 - This dynamic nature of population movement complicates the task of accurately estimating and identifying eligible beneficiaries, requiring adaptive strategies to ensure comprehensive coverage.

What is PM-JANMAN?

- About:
 - PM-JANMAN, launched on 15th November 2023, on **Janjatiya Gaurav Diwas**, focuses on **11 critical interventions through 9 ministries** to improve the socio-economic welfare of PVTGs.
 - PM-JANMAN comprises **Central Sector and Centrally Sponsored Schemes** to improve the socio-economic conditions of PVTGs.
 - The scheme has a **total outlay of Rs 24,104 crore** to be spent over a three-year period, of which nearly **80% is only for the construction of houses and roads**.
 - An allocation of Rs 15,000 crore has been made for the next three years under the **Development Action Plan for the Scheduled Tribes (DAPST)** to implement the housing component of PM-JANMAN.
- Vision:
 - PM-JANMAN envisions improving the socio-economic status of PVTGs by bridging gaps in health, education, and livelihoods.
 - The focus is on enhancing basic infrastructure in PVTG communities, habitations, and families, aligning with existing schemes of nine Ministries/ Departments.
- Scope:
 - The mission's primary scope is to comprehensively enhance the living conditions of PVTG by ensuring they have access to essential amenities and services. This includes:

Note:



➤ Foundational Features of PM-JANMAN:

○ Inter-Ministerial Convergence:

- In a unique approach, **9 Ministries** of the Government of India collaborate under the leadership of the **Ministry of Tribal Affairs**.
 - Each Ministry oversees the implementation of its schemes while collectively ensuring comprehensive coverage and welfare of the most vulnerable tribal communities.

➤ Alignment of Schemes/Programs:

- Existing norms of schemes within concerned Ministries are modified to address the **specific needs of tribal communities**.
 - Revised guidelines are issued to ensure that the objectives of PM-JANMAN are effectively integrated into ongoing programs.

➤ Coverage of the Scheme:

- PM-JANMAN aims to reach **75 PVTGs residing in 18 states and 1 UT** who continue to lag in socio-economic indicators of educational, health and livelihood.
 - The focus is on providing holistic support to tribal communities across various domains, including health, education, and livelihoods.

➤ Identification of Gaps:

- Through physical surveys conducted by state governments, gaps in each intervention area are identified.
 - Data is updated on the **PM Gati-shakti Portal**, enabling cross-verification by relevant Ministries and State Departments to ensure accuracy and completeness.

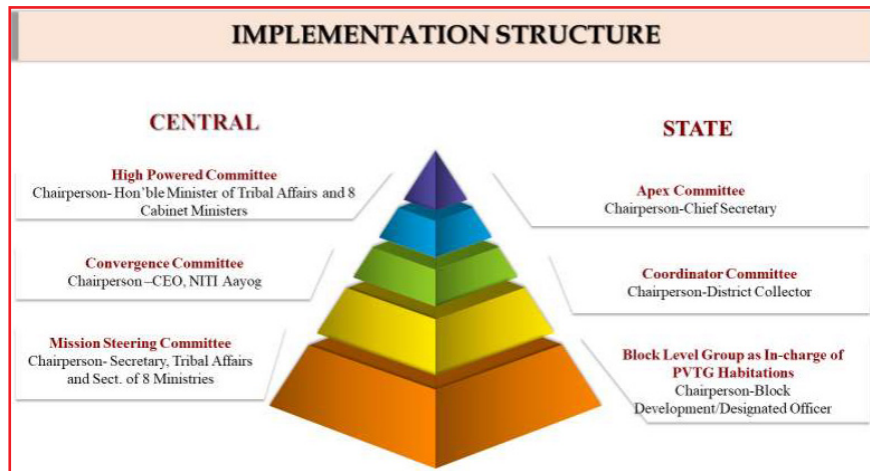
➤ Provision of Funds:

- The source of funds for each of the 11 interventions is the **DAPST grants** allocated to respective Ministries/ Departments under their identified schemes covered by PM-JANMAN.
 - Flexibility is provided under the DAPST mechanism to ensure dedicated funds availability for the successful implementation of the mission.

➤ Reward Mechanism:

- Performance evaluation is conducted through the **ranking of districts based on monthly incremental changes** in performance indicators.
 - The purpose is to foster a sense of competition among district teams, with the top three districts and Ministries recognised and rewarded for their outstanding performance.

Note:



Note:

- The DAPST is a strategy for tribal development in India. The Ministry of Tribal Affairs and **41 other ministries and departments** allocate funds to tribal development projects under DAPST.
 - These projects include education, health, agriculture, irrigation, roads, housing, electrification, and employment.

What are the other Initiatives for PVTGs?

- [Janjatiya Gaurav Divas.](#)
- [Viksit Bharat Sankalp Yatra.](#)
- [PM PVTG Mission.](#)

Major Tribes in India

Major Tribes in India:

- North:** Siwagal, Gujjars, Lahaulas, Khas, Pangwals, Lamba, Gaddis
- North-East:** Gond, Birjia, Assur, Savar, Parhaya, Chero, Birhor, Santhals, Baiga, Pawli, Chakma, Raba, Hajong, Lakher, Garo, Jaintias, Khasis
- Central:** Bhotias, Buksa, Jainsari, Khas, Raji, Tharu, Sahariya, Parahiya, Bhotia, Buksa, Jainsari, Kol, Raji, Tharu
- South-East:** Singpho, Moppa, Abor, Sherdukpen, Galo, Apatani, Mishmi
- South:** Bhils, Camaria, Dhanka, Meenas (Minas), Patelia, Sahariya
- West:** Patelia, Bhil, Dhodia, Bamcha, Barda, Paradh, Charan, Gamta, Kharis, Bhils, Murias, Birhors, Raipals, Karkari, Kol, Bharua, Khond, Gonds
- South-West:** Warlis, Khond, Bhalna, Karkari, Bhunjia, Rathawa, Dhodia, Chechus
- South-Central:** Verli, Dubia, Siddi, Dhodia, Naikda, Gond, Patelia, Bardi, Yerava, Bhil, Koraga, Adiyen, Inuliga
- South-East (Tribal Groups):** Andh and Sadhu Andh, Bhil, Bhaghata, Dhulia, Roma, Kolam, Gond, Thoti, Goundu, Kammara, Savaras, Dabhu Verukite, Suprite, Naikda, Parbhun, Gadabar, Chenchus, Kattunayakan, Jatapu, Manna Dhora
- South-East (Tribal Groups):** Assur, Khond, Hajong, Ho, Parhaya, Raba, Santhals, Savar, Gonds, Birhors, Savar, Mundas, Santhals, Kharu, Bhunjia, Nagasia, Biar, Khond, Agariya, Bhattra, Mawasi, Bhaina, Gadaba, Ghara, Kharis, Khond, Matya, Oraons, Rajjar, Santhals
- South-East (Tribal Groups):** Oraons, Onges, Sentinelese
- South-East (Tribal Groups):** Jarawa
- South-East (Tribal Groups):** Nicobarese, Shompens

- STs constitute 8.6% of the population of India (Census 2011). Draft National Tribal Policy, 2006 records 698 STs in India.
- **Particularly Vulnerable Tribal Groups (PVTGs)** are more vulnerable among the tribal groups. Among the 75 listed PVTGs, the highest number is found in Odisha.
- **Bhil is the largest tribal group** (38% of the total scheduled tribal population of India) followed by the Gonds.
- **Madhya Pradesh has the highest tribal population** in India (Census 2011).
- **The Santhal are the oldest tribes** in India. The Santhal system of governance, known as **Manjhi-Paragana**, can be compared to local self-governance.
- According to the Scheduled Castes and Scheduled Tribes list (modification orders), 1956, the inhabitants of **Lakshadweep** who and both of whose parents were born in these islands are treated as STs.
- **Article 342** of the Constitution prescribes procedure to be followed for specification of STs.
- **Article 275** provides for the grant of special funds by the Union Government to the State Government for promoting the welfare of Scheduled Tribes and providing them with a better administration.

Note:

Amendments to the Electricity (Rights of Consumers) Rules, 2020

Why in News?

Recently, the Ministry of Power has notified amendments to the **Electricity (Rights of Consumers) Rules, 2020**, to accelerate the installation of **Rooftop Solar Projects** and empower consumers – with provisions on connections in residential societies and solving complaints on meter readings.

What are the Major Amendments in Electricity Rules, 2020?

- Easier and Faster installation of Rooftop Solar Systems:
 - Exemption has been given for the requirement of technical feasibility study, for systems up to a capacity of 10 kW.
 - For systems of **capacity higher than 10 kW**, the timeline for completing the feasibility study has been reduced from **20 to 15 days**.
 - **A technical feasibility study** typically involves assessing factors such as site suitability, structural integrity of the building, available sunlight exposure, electrical infrastructure compatibility, and potential obstacles or challenges that may affect the **installation and operation of the solar panels**.
 - It is mandated that the distribution system strengthening necessary for rooftop solar PV systems up to 5 kW capacity will be done by the **distribution company at its own cost**.
 - Further, the timeline for the distribution licensee to commission **Rooftop Solar PV** systems has been reduced from **30 to 15 days**.
- Separate Connections for Electric Vehicle Charging Stations:
 - Consumers can obtain separate electricity connections for charging their **Electric Vehicles (EVs)**.
 - This aligns with India's goal of reducing carbon emissions and reaching **Net Zero by the year 2070**.
 - The time period for obtaining a new electricity connection has been reduced from **7 to 3 days** in metropolitan areas, from **15 to 7 days in other municipal areas**, and from **30 to 15 days in rural areas**.
 - However, **in rural areas with hilly terrain**, the time period for new connections or for modifications in **existing connections will remain thirty days**.
- Additional Rights for Consumers in Residential Colonies and Flats:
 - Owners residing in co-operative group housing societies, multi-storied buildings, residential colonies, etc., will have the option to choose from the distribution licensee either individual connections for everyone or a **single-point connection for the whole premises**.
 - The exercise of the option will be based on a **transparent ballot to be conducted by the Distribution Company**.
 - Parity has also been brought in the tariff charged to consumers who get electricity supplied through single-point connection and to those who avail of individual connections.
 - Metering, billing, and collection **will be done separately for**:
 - Individual electricity consumption sourced from the distribution licensee
 - Individual consumption of backup power supplied by the residential association
 - Electricity consumption for common areas of such residential associations, which is sourced from the distribution licensee.
- **Mandatory Additional Meter in cases of Complaints**:
 - In cases where **consumers raise complaints about meter reading** not aligning with their actual electricity consumption, the distribution licensee is now required to install **an additional meter within five days** from the date of receipt of the complaint.
 - This **additional meter will be used to verify the consumption** for a minimum period of three months, thus reassuring consumers and ensuring accuracy in billing.

Note:

What are the Other Government Initiatives for Solar Energy?

- [National Solar Mission](#)
- [Solar Park Scheme](#)
- [Kisan Urja Suraksha evam Utthaan Mahabhiyan \(PM-KUSUM\)](#)
- [International Solar Alliance](#)
- [Pradhan Mantri Suryodaya Yojana](#)

Amul α Pillar of India's Dairy Sector

Why in News?

The Prime Minister participated in the Golden Jubilee celebration of the **Gujarat Cooperative Milk Marketing Federation (GCMMF)** and highlighted the success of **Anand Milk Union Limited (Amul)** which comes from GCMMF.

What is the History of Amul?

- Amul was established in 1946 as the Kaira District Co-operative Milk Producers' Union Limited in Anand, Gujarat.
- It was founded by **Tribhuvandas Patel**, with the support of **Morarji Desai** and **Sardar Vallabhbhai Patel**.
- In 1950, Amul (Anand Milk Union Limited) was formed as a brand for the dairy products produced by the cooperative.
- Amul is managed by the GCMMF, which is jointly owned by more than **3.6 million milk producers in Gujarat**.
- Amul pioneered the **adoption of the Anand Pattern**, an economic organisational model designed to **empower small producers through collective action**.
 - This approach fosters integration among producers, enabling economies of scale while **preserving individual autonomy in decision-making**.
- Amul's success story garnered international attention, becoming a case study in cooperative economics and rural development.
- Amul played a pivotal role in **India's White Revolution**, which aimed to increase milk production and make India self-sufficient in milk.
 - Amul spearheaded the White Revolution in India, starting with the introduction of **milk powder manufacturing** in 1955.

- Amul products are now exported to over 50 countries, with a network of over 18,000 milk cooperative committees and over 36,000 farmers. Processing over 3.5 crore litres of milk daily, Amul also facilitates online payments exceeding Rs 200 crores to livestock breeders.

What is India's White Revolution or Operation Flood?

Background:

- The **National Dairy Development Board (NDDB)**, chaired by **Verghese Kurien** ('Father of White Revolution in India'), was established in 1965 to revolutionize India's dairy industry. Inspired by the successful "**Anand Pattern**", NDDB launched the **White Revolution**, also known as **Operation Flood** in 1970, connecting rural milk producers with urban consumers through dairy cooperatives.
 - This initiative transformed **India into the world's largest milk producer**, significantly boosting milk production and improving its management efficiency.
 - Operation Flood transformed the **dairy-deficient nation into the global leader in milk production**.
- The nationwide **Operation Flood unfolded in three phases** over three decades.
 - Phases of Operation Flood:
 - Phase I (1970-1980):
 - Financed by the sale of skimmed milk powder and butter oil gifted by the **European Union** (then European Economic Community) through the **World Food Programme**.
 - Operation Flood linked 18 milksheds with consumers in major metropolitan cities.
 - Initiated the foundation of a self-sustaining system of village cooperatives.
 - Phase II (1981-1985):
 - Increased milksheds from 18 to 136 and expanded outlets to 290 urban markets.
 - Established a self-sustaining system of 43,000 village cooperatives, covering 4.25 million milk producers.
 - Significantly increased domestic milk powder production, promoting self-reliance.
 - Phase III (1985-1996):
 - Enabled dairy cooperatives to expand and strengthen infrastructure for procuring and marketing milk.

Note:

- Emphasised veterinary healthcare services, feed, and artificial insemination.
- Added 30,000 new dairy cooperatives and peaked milksheds to 173 in 1988-89.
- Post-Operation Flood:
 - In 1991, India underwent **liberalisation, privatisation and globalisation reforms**, allowing for private participation in various sectors, including dairy.
 - **Foreign equity of up to 51% was allowed in milk products**, except for malted products.
 - The initial phase saw the proliferation of unregulated dairies, leading to concerns of adulterated and contaminated milk.
 - The **Milk and Milk Products Order (MMPO)** was instituted in 1992 to regulate the sector and introduce oversight.
 - MMPO is a regulatory order of the Government of India that regulates the production, supply, and distribution of milk and milk products. The MMPO was promulgated under the provisions of the **Essential Commodities Act, 1955**.
 - The order's objective is to maintain and increase the supply of milk and milk products.
 - The industry witnessed significant growth in processing capacity, primarily driven by large private players.
- Current Milk Production:
 - India is the **highest milk producer** i.e., ranks first position in the world contributing twenty-four percent of global milk production in the year 2021-22.
 - In the last 10 years, milk production increased by almost 60% and per capita milk availability has increased by about 40%.
 - The top 5 milk-producing states are Rajasthan, Uttar Pradesh, Madhya Pradesh, Gujarat and Andhra Pradesh.
 - The Indian dairy sector is growing by 6% per year as compared to the global average of 2%.
 - India's Export of Dairy products was 67,572.99 Metric Ton (MT) to the world worth USD 284.65 Mn during the year 2022-23.

What are the Initiatives Related to the Dairy Sector?

- **Animal Husbandry Infrastructure Development Fund (AHIDF).**

- **National Programme for Dairy Development.**
- **Pradhan Mantri Kisan Sampada Yojana**
- **Kisan Credit Cards (KCC) to Livestock Farmers**
- **Rashtriya Gokul Mission**
- **National Livestock Mission**

What are the Challenges Faced by the Indian Dairy Sector?

- Low Milk Yield:
 - **Milk yield per animal** in India is significantly **lower than the global average**. This can be attributed to factors like poor quality feed and fodder, traditional cattle breeds, and lack of proper veterinary care.
- Issues in Milk Collection and Processing:
 - Challenges in **collection, pasteurization, and transportation** of milk pose significant hurdles, particularly in ensuring safe milk handling in informal dairy setups.
- Adulteration Concerns:
 - **Adulteration of milk remains a persistent** issue due to difficulties in quality control.
- Profit Disparities:
 - Milk producers often receive **low purchase prices** compared to market rates, leading to disparities in profit distribution within the value chain.
- Cattle Health Challenges:
 - Frequent **outbreaks of diseases** like **Foot and Mouth Disease**, Black Quarter infection, and Influenza significantly impact livestock health and lower productivity.
- Limited Crossbreeding Success:
 - Crossbreeding indigenous species with exotic stocks to improve genetic potential has **achieved limited success**.

Parliamentary Privileges and Related Cases

Why in News?

Recently, the **Supreme Court (SC)** overturned a 25-year-old majority opinion in the *P V Narasimha Rao v State (CBI/Spe) Case, 1998* also known as the **JMM (Jharkhand Mukti Morcha) bribery case**. The SC stated that the **bribery is not protected by parliamentary privileges**.

Note:

- The **previous ruling** had stated that **lawmakers who accepted bribes could not be prosecuted for corruption** if they followed through with voting or speaking in the House as agreed.

What was P V Narasimha Rao Case and Recent Ruling of Supreme Court?

- Case Background:
 - In the **1993 P V Narasimha Rao case**, certain members (**MPs**) of the **Jharkhand Mukti Morcha (JMM)** were accused of accepting **bribes in exchange for voting against a No-Confidence motion**.
 - This case highlighted allegations of corruption within the parliamentary system, raising concerns about the integrity of legislative processes and the accountability of elected representatives.
- Court's Observation in 1998 Case:
 - The Supreme Court's ruling in **1998 established immunity for MPs (Members of Parliament) and Member of Legislative Assembly (MLAs)** from prosecution in bribery cases **as long as they fulfilled their end of the bargain**.
 - The Supreme Court held that the bribe takers who cast their vote against the no-confidence motion were immune from criminal prosecution under **Parliamentary Privilege (Article 105(2))**.
 - This decision underscored the importance of stability in governance and the **functioning of parliamentary democracy**.
 - The court's observation prioritised the smooth operation of the government over individual accountability, suggesting that **prosecuting lawmakers** for bribery could **potentially disrupt the stability of the government**.
- Court's Observation in 2024 Case:
 - The **7-Judge Constitution Bench** overturned the 5-Judge Bench verdict of **P.V. Narasimha Rao v. State Case, 1998**.
 - Wherein it was established that the Member of Parliaments and Member of Legislative Assemblies enjoyed immunity if they cast vote in the House after taking bribes for it.
 - The SC emphasised the detrimental **impact of bribery on democratic principles** and governance.
 - The court highlighted that **accepting a bribe is a separate criminal act**, unrelated to the core duties of lawmakers within the Parliament or legislative assembly.

- The **Section 7 of the Prevention of Corruption Act**, deals with 'offence relating to public servant being bribed'.

- Therefore, the immunity provided under **Articles 105 and 194 of the Constitution** does not extend to cases of bribery.
 - This decision signifies a shift towards prioritising accountability and integrity in governance over stability alone, **aiming to uphold the ideals of a responsible**, responsive, and representative democracy in India.

What are the Parliamentary Privileges?

- About:
 - Parliamentary privileges are **special rights, immunities and exemptions** enjoyed by the members of the Parliament and their committees.
 - These privileges are **defined in Article 105** of the Indian Constitution.
 - **Article 194** guarantees same privileges to the Members of Legislative Assemblies of states.
 - Under these privileges, the members of Parliament are exempted from any civil liability (but not criminal liability) for any statement made or act done in the course of their duties.
 - **Parliament has not made any special law** to exhaustively codify all the privileges. They are rather based on five sources:
 - Constitutional provisions
 - Various laws made by Parliament
 - Rules of both the Houses
 - Parliamentary conventions
 - Judicial interpretations
- Privileges of Individual Member:
 - **Freedom of Speech** in Parliament (Article 105(1))
 - Immunity to a Member from **any proceedings in any court** in respect of anything said or any vote given by him in Parliament or any Committee thereof [Article 105(2)].
 - Immunity to a person from proceedings in any court in **respect of the publication by or under the authority of either House of Parliament** of any report, paper, votes or proceedings (Article 105(2)).
 - **Prohibition on the Courts to inquire** into the validity of any proceedings in Parliament on the ground of any alleged irregularity of procedure. [Article 122(1)].

Note:

- **Freedom from arrest of Members in civil cases** during the continuance of the meeting of the House or of a Committee thereof and forty days before its commencement and forty days after its conclusion (**Section 135A of the Code of Civil Procedure, 1908**).
- Collective Privilege of House:
 - **Right of the House to receive immediate intimation of the arrest**, detention, conviction, imprisonment and release of a Member.
 - **Immunity from arrest and service of legal process** within the precincts of the House without obtaining the permission of the Chairman/ Speaker.
 - **Protection of publication** of the proceedings of a secret sitting of the House.
 - The evidence tendered before a Parliamentary Committee and its report and proceedings cannot be disclosed or published **by anyone until these have been laid on the Table of the House**.
 - Members or officers of the House **cannot give evidence or produce in courts of law**, documents relating to the proceedings of the House without the permission of the House.

Note:

- The Supreme Court in the *State of Kerala Vs. K. Ajith Case, 2021*, observed, that “**privileges and immunities are not gateways to claim exemptions from the general law of the land**, particularly as case of, the criminal law which governs the action of every citizen.”
- In July 2021, the **Supreme Court rejected the Kerala government’s plea to withdraw criminal cases against its MLAs** who were charged in the assembly.

What are the International Practices Regarding Parliamentary Privileges?

- The United Kingdom:
 - The Parliament at Westminster **enjoys similar privileges**, including freedom of speech, immunity from arrest, and the right to regulate its own proceedings.
 - These privileges are established through a combination of statute, common law, and precedent.
- Canada:
 - The Parliament of Canada also has **established privileges for its members**, including freedom of

speech, immunity from arrest, and the right to punish breaches of privilege.

- These privileges are outlined in the Constitution Act, 1867 and the Parliament of Canada Act.
- Australia:
 - The Parliament of Australia follows similar principles, with privileges enshrined in its Constitution. Members enjoy freedom of speech, immunity from arrest, and the right to regulate their own proceedings.

What is the Need to Codify Parliamentary Privileges?

- Need to Codify Parliamentary Privileges:
 - **Clarity and Precision:** Codification would provide a clear and **precise definition of parliamentary privileges**. It would specify what constitutes a violation of privileges, eliminating any ambiguity.
 - A statute would establish a precise threshold beyond which no penalty may be meted out for privilege violations.
 - **Enhanced Accountability:** Clearer guidelines for parliamentary privilege would **facilitate better accountability mechanisms**, enabling parliamentarians to exercise their privileges responsibly while also subjecting them to appropriate scrutiny and oversight.
 - **Modernization and Adaptation:** Codifying parliamentary privilege would provide an opportunity to **update and modernize existing laws** to reflect contemporary governance practices and societal norms, ensuring that legislative privileges remain relevant and effective in a rapidly evolving political landscape.
 - **Checks and Balances:** Codification would introduce checks and balances on privileges, **preventing their misuse**. It would **curb unnecessary curtailment** of press freedom.
- Need not to Codify Parliamentary Privileges:
 - **Risk of Encroachment on Parliamentary Autonomy:** Codifying parliamentary privilege could potentially lead to encroachments on the autonomy of the legislature **by subjecting parliamentary affairs to greater judicial scrutiny** or government intervention.
 - **Against Constitutional Mandate:** Article 122 deals with the **restrictions on courts not to inquire into proceedings of Parliament**. It further states

Note:

the following: The validity of any proceedings in Parliament shall not be called in question on the ground of any alleged irregularity of procedure.

- **Loss of Flexibility:** Codification may restrict the flexibility of parliamentary privilege, making it **challenging to adapt to unforeseen circumstances or changing political dynamics** that may require a more nuanced approach to legislative affairs.
- **Complexity and Lengthy Process:** The process of codifying parliamentary privilege could be **complex and time-consuming**, requiring extensive deliberation and consensus-building among stakeholders, including legislators, legal experts, and civil society organizations.

India's Cooperative Sector

Why in News?

Recently, the Indian Prime Minister inaugurated the pilot project of **World's Largest Grain Storage Plan**, which is currently launched in **11 Primary Agricultural Credit Societies (PACS)** across 11 states.

- It marks a significant development in the **cooperative sector**.

What are the Features of the Grain Storage Plan?

- **About:** The Grain Storage Plan aims to establish **700 lakh tonnes of storage capacity** over the next 5 years, with an investment of ₹1.25 lakh crore.
 - This involves creating agricultural infrastructure at the PACS level, including **decentralised godowns, custom hiring centres, processing units, Fair Price Shops**, etc., by integrating various existing schemes of the Government of India.
- **Expected Outcomes:** Enabling farmers to store their produce at PACS godowns, offering bridge finance for the next crop cycle or selling at MSP to avoid distress sales.
 - Increased grain storage reduces post-harvest losses, improving farmer earnings and ensuring food security at the grassroots level, benefiting consumers.

What is the Status of the Cooperative Sector in India?

- **About:** Cooperatives are people-centred enterprises

owned, controlled and run by and for their members to realise their common **economic, social, and cultural needs** and aspirations.

- India has one of the world's largest cooperative networks, with over **800,000 cooperatives** spread across various sectors like agriculture, credit, dairy, housing, and fisheries.
- **Evolution of Cooperative Sector in India:**
 - **First Five-Year Plan (1951-56):** Highlighted the promotion of cooperatives for comprehensive community development.
 - **Multi-State Co-operative Societies Act, 2002:** Provides for the formation and functioning of multi-state co-operatives.
 - **97th Constitutional Amendment Act of 2011:** Established the right to form cooperative societies as a fundamental right (**Article 19**).
 - Introduced a new Directive Principle of State Policy on Cooperative Societies (**Article 43-B**).
 - Added a new Part IX-B to the Constitution titled "The Co-operative Societies" (**Articles 243-ZH to 243-ZT**).
 - Empowered **Parliament to enact laws governing multi-state cooperative societies (MSCS)** and delegated authority to state legislatures for other cooperative societies.
 - **Establishment of Union Ministry of Cooperation (2021):** Assumed responsibility for cooperative affairs, previously overseen by the Ministry of Agriculture.
 - **Multi-State Co-operative Societies (Amendment) Act, 2022:** It aims to enhance regulation for multi-state cooperative societies.
 - Introduces the **Co-operative Election Authority** to oversee board elections in multi-state co-operative societies.
 - Requires multi-state co-operative societies to **obtain government permission** before redeeming their shareholding.
 - Calls for the establishment of a **Co-operative Rehabilitation, Reconstruction, and Development Fund**, funded by profitable multi-state co-operative societies, to revive struggling ones.
 - Permits state co-operative societies to merge into existing multi-state co-operative societies, subject to state laws.

Note:

➤ Examples of Cooperatives in India:

- **Primary Agricultural Credit Societies:** They are the grass root level arms of the short-term co-operative credit structure.
 - It serves as the final link between the **ultimate borrowers (farmers)** on the one hand and the higher financing agencies, namely the **Scheduled Commercial Banks**, and the **RBI/NABARD** on the other hand.
- **AMUL (Anand Milk Union Limited):** A dairy giant and a pioneer in India's White Revolution, AMUL is a federation of millions of milk producers in Gujarat. Its success transformed India into the world's largest milk producer.
- **IFFCO (Indian Farmers Fertiliser Cooperative):** One of the world's largest fertiliser cooperatives, IFFCO plays a significant role in providing quality fertilisers and agricultural inputs to farmers across India.
- **HOPCOMS (Horticultural Producers' Cooperative Marketing and Processing Society):** Well-known for its network of farm produce outlets, ensuring fair returns for farmers.
- **Lijjat Papad (Shri Mahila Griha Udyog Lijjat Papad):** An inspiring women's cooperative empowering women through papad (Indian lentil cracker) production

Note: The Supreme Court in the *Bengal Secretariat Cooperative Society vs Alok Kumar case* proposed to empower the Parliament in respect of multi-state co-operative societies and the State Legislatures in case of state co-operative societies to make appropriate law.

What are the Major Challenges Faced by Cooperatives in India?

- Governance and Management Issues:
 - **Limited Professionalism:** Many cooperatives lack **professional management** structures, leading to inefficient operations and decision-making.
 - **Political Interference:** Political interference in the functioning of cooperatives undermine their autonomy and impact their ability to serve members' interests effectively.
- Capital and Resource Constraints:
 - **Inadequate Funding:** Cooperatives often struggle to access sufficient capital for **expansion, modernization, and development** of new ventures.

- **Limited Infrastructure:** Lack of proper storage facilities, processing units, and market linkages hinder the growth and competitiveness of small cooperatives, particularly in rural areas.

➤ Social and Cultural Factors:

- **Low Awareness and Participation:** Lack of awareness about the cooperative model and its benefits among potential members limits their participation.
- **Social Inequalities:** In some cases, social hierarchies and caste-based divisions create barriers for equitable participation and representation within cooperatives.

What Measures can be taken to Enhance the Cooperative Sector in India?

- **Infrastructure Development:** There is a need for greater investment in the development of infrastructure such as warehouses, cold storage facilities, and processing units to strengthen value chains and **enhance market access for cooperative products.**
 - Also, there is a need to promote the adoption of technology and digitalization to improve efficiency in cooperative operations and management.
- **Cooperatives as Innovation Hubs:** Shifting the perception of cooperatives away from merely traditional and rural, to hubs of **experimentation and innovation.**
 - Also, there is a need to highlight cooperatives working with cutting-edge agricultural techniques and focusing on **renewable energy.**
- **Cooperative "Influencers":** Identifying and nurturing young, tech-savvy cooperative members to be advocates and thought leaders, changing the image of cooperatives through **social media and online platforms.**
- **Cooperative Acceleration Zones:** Designating specific geographic areas as cooperative acceleration zones where **regulations are temporarily relaxed** and incentives are given to encourage diverse cooperative experimentation with new business models.
- **Cooperative-led Tourism Initiatives:** Developing **cooperative-run eco-tourism** and community-based tourism initiatives in rural areas, allowing travelers to experience local culture, traditions, and livelihoods.
 - Empowering local communities to manage tourism activities collectively, generating income, preserving natural resources, and promoting sustainable development.

Note:

Rajya Sabha Elections

Why in News?

The **Rajya Sabha elections** in the States of Uttar Pradesh, Himachal Pradesh and Karnataka witnessed cross-voting by MLAs (Member of Legislative Assembly) belonging to different parties. This has once again raised concerns about the sanctity of the election process.

How are Rajya Sabha Elections Held?

➤ Background:

- As per **Article 80** of the Constitution, representatives of each State to the **Rajya Sabha** are elected indirectly by the **elected members of their Legislative Assembly**.
- The polls for Rajya Sabha will be required **only if the number of candidates exceed the number of vacancies**.
- Till 1998, the outcome of Rajya Sabha elections was usually a foregone conclusion, the parties with a majority in the state assembly **often had their candidates win unopposed** due to a lack of competition.
 - However, the June 1998 Rajya Sabha elections in Maharashtra witnessed **cross-voting that resulted in the loss of a Congress party candidate**.

➤ Amendment to the Representation of the People Act, 1951:

- In order to rein in the MLAs from such cross-voting, an amendment to the **Representation of the People Act, 1951** was carried out in 2003.
 - **Section 59 of the Act** was amended to **provide that the voting in elections to Rajya Sabha shall be through an open ballot**.
- The MLAs of political parties are required to show their ballot paper to the authorised agent of their Party.
- Not showing the ballot paper to the authorised agent or showing it to anyone else will **disqualify the vote**.
- Independent MLAs are barred from showing their ballots to anyone.

➤ Process of Election in Rajya Sabha:

- **Seat Allocation:** The Rajya Sabha has a strength of **250 members representing States and Union Territories** including Delhi and Puducherry.

- Out of the total, **12 are directly nominated by the President** from the fields of art, literature, science, Social service.

- Rajya Sabha seats are distributed among states based on their population. For example, Uttar Pradesh **has a quota of 31 Rajya Sabha seats while Goa has just one**.

- **Indirect Election System:** The Members of the state legislative assemblies choose **Rajya Sabha members through an indirect election** system of proportional representation by means of a **Single Transferable Vote (STV)**.

- In this system, the voting power of each **MLA is determined by the population of their respective constituencies**.

- **Quotas:** To be elected, a candidate must secure a **specific number of votes known as quotas**. The quota is determined by dividing the total valid votes by the **number of seats available plus one**.

- In states with multiple seats, the initial quota is calculated by multiplying the number of MLAs by 100, as each MLA's vote is valued at 100.

- **Preferences and Surplus:** When filling out the ballot paper with names of candidates from various parties, MLAs **rank their preferences against each candidate** — with 1 indicating the top preference (the first preferential vote), 2 for the next, and so forth.

- If a candidate receives enough first preferential votes to meet or exceed the quota, they are elected.

- If a winning candidate has surplus votes, those votes are transferred to their second choice (marked as number 2). If multiple candidates have surpluses, the **largest surplus is transferred first**.

- **Elimination of Fewer Votes:** To prevent wasted votes, if the required number of candidates are not elected after surplus transfers, the candidate with the **fewest votes is eliminated**, and their unexhausted ballot papers are redistributed among the remaining candidates.

- An "exhausted paper" refers to a ballot paper with no further preferences recorded for continuing candidates.

- This process of surplus vote transfers and eliminations continues until enough candidates reach the quota to fill all available seats.

Note:



Note:**Shailesh Manubhai Parmar v Election Commission of India Case, 2018:**

- SC denied the **None Of The Above (NOTA)** option to the electors in the Rajya Sabha election.
- The SC stated that making NOTA applicable in Rajya Sabha elections is contrary to **Article 80(4) of the constitution**.
 - Article 80(4) states that the representatives of each state in the Council of States shall be elected by the elected members of the legislative assembly of the state in accordance **with the system of proportional representation** by means of the single transferable vote.

JMM bribery case, 1998:

- The SC had to interpret the provisions of **Article 105(2) of the Constitution**, which provides immunity to lawmakers for their speech and votes in Parliament or any committee thereof.
 - The Supreme Court, laid down in the **JMM bribery case judgment of 1998**, that **lawmakers who took bribes were immune from prosecution** for corruption if they go ahead and vote or speak in the House as agreed.
- **In March 2024, a Seven-judge Bench overruled the judgment by a five-judge Bench in a 25-year-old JMM bribery case**, declaring that **parliamentary privilege or immunity will not protect legislators who take bribes to vote or speak in Parliament** or State Legislative Assemblies from criminal prosecution.
 - Privileges and immunities are not gateways to claim exemptions from the general law of the land.

Does Anti-Defection Law Apply to Rajya Sabha Elections?

- Tenth Schedule and “Anti-Defection” Law:
 - The **Tenth Schedule** of the Constitution, introduced by the **52nd Constitutional Amendment Act in 1985**, contains provisions related to the “**anti-defection**” law.
 - It states that a member of Parliament or a state legislature who voluntarily gives up the membership of their political party or votes against the instructions of their party is **liable for disqualification from the House**.

- This instruction regarding voting is **usually issued by the party whip**.
- Applicability of Tenth Schedule:
 - However, the Election Commission clarified in July 2017 that the provisions of the Tenth Schedule, including the **anti-defection law, are not applicable to Rajya Sabha elections**.
 - Therefore, political parties cannot issue any whip to their members for Rajya Sabha elections, and members are not **bound by party instructions in these elections**.

What is Cross Voting?

- Background:
 - Rajendra Prasad Jain won a seat in Bihar through **cross-voting by Congress MLAs (in exchange for bribes) later, Jain’s election was declared void by the Supreme Court in 1967**.
- About Cross Voting:
 - Cross voting refers to a situation in which **a member of a legislative body**, such as a Member of Parliament or a Member of a Legislative Assembly, belonging to one political party, **votes for a candidate or a party other than their own** during an election or any other voting process.
 - In the context of Rajya Sabha elections in India, cross voting can occur when members of a political party vote for candidates from other parties instead of the candidates nominated by their own party.
 - This can **happen due to various reasons**, including disagreement with the party’s candidate selection, inducements or pressures from other parties, personal relationships with candidates from other parties, or ideological differences.

What are the Implications of Cross Voting?

- Negative Implications:
 - **Undermining Representation:** Cross-voting can undermine the **representation of the electorate**.
 - MLAs are expected to vote in alignment with the **party’s interests or the will of their constituents**. When they deviate from this, it can lead to the election of candidates who may not have the support of the majority.
 - **Corruption:** Cross-voting often occurs due to **bribery or other corrupt practices**, as illustrated in the example of **Rajendra Prasad Jain’s election**. This

Note:

undermines the integrity of the electoral process and erodes public trust in democracy.

- Jain won a seat in Bihar through cross-voting by Congress MLAs (in exchange for bribes) later Jain's election was declared void by the Supreme Court in 1967.
- **Party Discipline:** Cross-voting reflects a **lack of party discipline**, indicating internal divisions within political parties. It **weakens party cohesion** and stability, making it difficult for parties to pursue coherent policy agendas.
- **Democratic Values:** Cross-voting goes against the democratic principle of accountability, where representatives are expected to **uphold the interests of their constituents** and the broader public good. It prioritizes personal gain or party politics over democratic principles.
- Potential Positive Implications:
 - **Independence:** Cross-voting can signal a **degree of independence among elected representatives**, allowing them to vote according to their conscience or the interests of their constituents rather than strict party lines.
 - This can lead to more nuanced decision-making and representation.
 - **Checks and Balances:** Cross-voting, if driven by genuine differences in opinion or ideology, can serve as a **check on the dominance of a single party or faction within the legislative body**.
 - It can **prevent the concentration of power** and promote greater balance and diversity of viewpoints.
 - **Accountability:** In some cases, cross-voting may reflect dissatisfaction with party leadership or policies, forcing parties to **introspect and address internal grievances**. This can ultimately lead to greater accountability and responsiveness to the electorate.

What are SC's Ruling Related to the Tenth Schedule and Rajya Sabha Election?

- Kuldip Nayar vs. Union of India, 2006:
 - The **Supreme Court (SC)** upheld the system of **open ballot for Rajya Sabha elections**.
 - It reasoned that if secrecy becomes a source for corruption, then transparency **has the capacity to remove it**.

○ However, in the same case the court held that an elected MLA of a political party would not face disqualification under the **Tenth Schedule for voting against their party candidate**.

- He/she may at the most attract disciplinary action from their political party.
- Ravi S. Naik and Sanjay Bandekar vs. Union of India, 1994:
 - The SC held that **voluntarily giving up membership** under the Tenth Schedule is **not synonymous with only formally resigning** from the party to which the member belongs.
 - The conduct of a member both inside and outside the house can be looked into to infer if it qualifies as voluntarily giving up membership.

Karnataka's Temple Tax Amendment Bill

Why in News?

The Karnataka Hindu Religious Institutions and Charitable Endowments (Amendment) Bill, 2024, was passed by the State Legislative Assembly and then the Council, it will now be sent to the **Governor** for approval.

- The Bill was meant to amend multiple provisions in the **Karnataka Hindu Religious Institutions and Charitable Endowments Act (KHRI&CE), 1997**.

What are the Key Highlights of the Bill?

- Alteration of Taxation System:
 - The Bill, aimed to **alter the taxation of Hindu temples**.
 - It proposed diverting **10% of gross income** from temples making over **Rs 1 crore annually** to a **common pool** for temple maintenance.
 - Previously, the allocation was **10% of the net income for temples** earning over **Rs 10 lakh annually**.
 - Net income is calculated based on the **profits of the temple after accounting for its expenses**, whereas gross income simply **refers to the total amount of money the temple makes**.
 - The Bill also suggested allocating 5% of income from temples earning between Rs 10 lakh and Rs 1 crore to the common pool.

Note:

- These changes would have generated an additional Rs 60 crore from 87 temples with incomes over Rs 1 crore and 311 temples with income exceeding Rs 10 lakh.
- Utilisation of Common Fund:
 - The common fund may be utilised for purposes including religious studies and propagation, temple maintenance, and other charitable causes.
 - The common fund pool was created in 2011, by amending the 1997 Act.
- Composition of Committee of Management:
 - The Bill suggested adding a **member skilled in Vishwakarma Hindu temple architecture and sculpture** to the “committee of management” of temples and religious institutions.
 - Under Section 25 of the KHRI& CE 1997 Act, temples and religious institutions are required to form a “committee of management” consisting of **nine people**, including a priest, at least one member of a **Scheduled Caste or Scheduled Tribe**, two women, and one member of the locality of the institution.
- Rajya Dharmika Parishat:
 - The Bill empowered the Rajya Dharmika Parishat to appoint committee chairpersons and handle religious disputes, temple statuses, and trustee appointments. Additionally, it mandated the creation of district and state committees to oversee infrastructure projects for temples earning over Rs 25 lakh annually.

What are the Concerns Regarding the Bill?

- The Bill may also be challenged on the **grounds of discrimination, as it applies only to Hindu temples**, and not to other religious institutions.
 - The Bill may also face scrutiny under **Article 14 of the Constitution**, which guarantees **equality before the law and equal protection of the laws**, and prohibits arbitrary and unreasonable state action.
- Critics argued that such interference could potentially infringe on the constitutional rights granted under **Article 25**.
 - **Article 25** ensures individuals’ freedom to profess, practice, and propagate religion, subject to public order, morality, and health.
 - Article 25(2) (a) empowers the **State to regulate or restrict those activities of any religious practice** which are economic, political, financial in nature or any other activity which is secular.

- Additionally, concerns were raised regarding the potential violation of rights guaranteed under **Article 26**.
 - Article 26 grants **religious denominations autonomy to manage their religious affairs and establish institutions** for religious and charitable purposes.
- It is feared that the **bill will lead to corruption and mismanagement of temple funds** and assets by the government-appointed Rajya Dharmika Parishath.
- It garnered criticism from the opposition, alleging governmental overreach and financial exploitation of temples.

Temple Revenue Handling in Other States

- Telangana’s Model:
 - Telangana follows a system akin to Karnataka’s, where a “**Common Good Fund**” is created under **Section 70 of the Telangana Charitable and Hindu Religious Institutions and Endowments Act, 1987**.
 - Temples earning **more than Rs 50,000 annually** are mandated to contribute **1.5% of their income** to the state government.
 - These funds are utilized for temple maintenance, renovations, veda-pathshalas (religious schools), and establishing new temples.
- Kerala’s System:
 - Kerala employs a distinct approach where temples are predominantly managed by **state-run Devaswom (temple) Boards**.
 - The state has **five autonomous Devaswom Boards** overseeing over 3,000 temples, with board members typically appointed by the ruling government, often politicians.
 - Each Devaswom Board operates with a budget allocated by the state government and **isn’t obliged to disclose revenue figures**. Separate laws govern the administration and management of temples under each Devaswom board, **except for Travancore and Cochin, which are governed by a shared Act (Travancore-Cochin Hindu Religious Institutions Act, 1950)**.

What is the Historical Background of State Regulation of Temples?

- The **British government’s Religious Endowments Act of 1863** aimed to secularize temple management by transferring control to local committees.

Note:

- In **1927**, the **Justice Party** enacted the Madras Hindu Religious Endowments Act, marking one of the earliest efforts by an elected government to regulate temples.
- In **1950**, the **Law Commission of India** recommended legislation to prevent misuse of temple funds, leading to the enactment of the **The Tamil Nadu Hindu Religious and Charitable Endowments (TN HR&CE) Act, 1951**.
 - It provides for the creation of a **Department of Hindu Religious and Charitable Endowments for the administration, protection, and preservation of temples and their properties**.
- The TN HR&CE Act was enacted, but its constitutional validity was challenged before the **Supreme Court**. In the landmark **Shirur Mutt case (1954)**, the Court upheld the overall law, though it struck down some provisions. A revised **TN HR&CE Act was legislated in 1959**.

How are other Religious Institutions Managed in India?

- The Places of Worship Act, 1991:
 - It was enacted to **freeze the status of religious places of worship as they existed on 15th August 1947**, and prohibits the conversion of any place of worship and ensures the maintenance of their religious character.
 - The Act excludes ancient and historical monuments, archaeological sites, and remains governed by the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**.
 - It also doesn't cover settled cases, resolved disputes, or conversions before its implementation. Specifically, the Act doesn't apply to the place of worship known as **Ram Janmabhoomi-Babri Masjid in Ayodhya**, including associated legal proceedings.
- Constitution of India:
 - The constitution under **Article 26** states that **religious groups have the right to establish and maintain institutions** for religious and charitable purposes, manage their own affairs in religious matters, and own, acquire, and administer property.
 - Muslims, Christians, Sikhs and other religious denominations utilize these constitutional guarantees to the fullest and manage their institutions.

- Shiromani Gurdwara Parbandhak Committee (SGPC):
 - The SGPC is a **Sikh-led committee** that manages Sikh Gurdwaras in India and abroad.
 - SGPC is directly elected through election by the Sikh sangat i.e. Sikh male and female voters above 18 years of age who are registered as voters under the provisions of the **Sikh Gurdwaras Act, 1925**.
- Waqf Act of 1954:
 - The Waqf Act of 1954 established the **Central Waqf Council**, which advises the Central Government on the administration of Auqaf (assets that are donated) and the working of state Waqf Boards.
 - **State Waqf Boards exercises control over mosques, graveyards and religious waqfs** in their state. The primary function of Wakf Board is to ensure its properties and revenue are appropriately managed and utilized.
 - Waqf is a permanent dedication of movable or immovable properties for religious, pious or charitable purposes as recognized by Muslim Law.

Repealing of Assam Muslim Marriage Act

Why in News?

Recently, the Assam Government approved Assam Repealing Ordinance 2024, repealing the **Assam Muslim Marriage and Divorce Registration Act of 1935**.

- Following the decision, Muslim marriage or divorce registration can happen only through the **Special Marriage Act, 1954**.

What is the Assam Muslim Marriage and Divorce Registration Act, 1935?

- The Act is in line with the **Muslim Personal Law**, enacted in 1935. The Act lays down the **process for registration of Muslim marriages** and divorces.
- A 2010 amendment replaced the word '**voluntary**' in the original Act with '**compulsory**', making registration of Muslim marriages and **divorces compulsory in the state of Assam**.
- The Act authorises the state to grant **licences to "any person, being a Muslim" to register marriages and divorces**, with Muslim registrars deemed to be public servants.

Note:

- It lays down the process through which marriage and divorce applications can be made to the registrar, and the process for their registration.

What are the Reasons Behind the Repealing of Assam Muslim Marriage and Divorce Registration Act of 1935?

- Alignment with Contemporary Norms:
 - The Act was viewed as **outdated and not in line with modern societal norms**. It allowed for the registration of marriages if the bride and groom had not reached the legal marriageable age of 18 and 21, respectively, which contradicted current legal standards regarding marriageable age.
- Crackdown on Child Marriage:
 - The government linked this decision to its ongoing efforts to combat child marriage. By repealing the Act, which contained provisions allowing underage marriages to be registered, the government aims to **eradicate child marriage in Assam**.
- Informal and Misuse of Authority:
 - The act provided an informal mechanism for marriage registration, which led to **potential misuse by kazis** (government-registered officials responsible for conducting marriages).
 - There were allegations of underage marriages and divorces being facilitated **without proper grounds, highlighting the need for reform**.
- Move towards Uniform Civil Code (UCC):
 - The decision to repeal the Act is also seen as a step towards implementing a **Uniform Civil Code (UCC)** in Assam, similar to the recent move by Uttarakhand.
 - The government aims to streamline marriage laws across different communities and bring them under a common legal framework.

What are the Arguments Against the Repeal of the Act?

- The Act provided a simple and decentralised process for marriage registration (**with 94 kazis spread across the state**), whereas, there are complexities of the **Special Marriage Act**, which may deter some individuals, particularly the poor and illiterate, from registering their marriages.
- The Act faced criticism and legal challenges from various quarters, including advocates and political parties.

- Concerns were raised about the implications of complete repeal, **including the likelihood of increased instances of unregistered marriages**.

Why has the Muslim Personal Law been in the Public Eye in Recent Years?

- Legal Reform and Judicial Intervention:
 - There have been significant legal reforms and judicial interventions in matters related to Muslim personal law.
 - Landmark cases such as the **Triple Talaq case (Shayara Bano v. Union of India) in 2017** and subsequent cases have brought issues like instant divorce, polygamy, and women's rights in Muslim marriages into the spotlight.
 - These cases have prompted debates on the **need for reform within Muslim personal law** to align with constitutional principles of equality and justice.
- Gender Justice and Women's Rights:
 - Concerns about gender justice and women's rights within Muslim personal law have gained prominence.
 - Debates focus on issues such as triple talaq, which allows husbands to instantly divorce their wives without legal proceedings, and the practice of **nikah halala**, where a woman must marry and divorce another man before remarrying her former husband.
 - These practices have faced criticism for being discriminatory and unjust towards women.
- Societal Change and Activism:
 - Changing **societal attitudes and increased activism** around gender equality have contributed to greater scrutiny of Muslim personal law.
 - Women's rights activists, scholars, and **civil society organizations** have **advocated for reforms within Muslim personal law** to ensure gender equality and protection of women's rights in matters of marriage, divorce, maintenance, and inheritance.
- Political Dynamics:
 - Muslim personal law has also become a political issue, with various political parties and interest groups taking positions on matters such as triple talaq and uniform civil code.
 - Debates around these issues often intersect with broader political agendas, leading to **heightened public attention and discourse**.

Note:

- Constitutional Principles:
 - There is a growing recognition of the need to uphold constitutional principles of **equality, justice, and non-discrimination** in matters of personal law.
 - Calls for reform within Muslim personal law are often framed within the context of constitutional rights and the need to ensure equal treatment for all citizens, regardless of their religious affiliation.

What is Muslim Personal Law?

- About:
 - Muslim Personal Law refers to the body of **laws that govern the personal matters** of individuals who **adhere to the Islamic faith**.
 - These laws cover various aspects of personal life, including **marriage, divorce, inheritance, and family relationships**, among others.
 - Muslim Personal Law is derived primarily from the **Quran, the Hadith (sayings and actions of the Prophet Muhammad), and Islamic jurisprudence**.
- Issues with Muslim Personal Laws:
 - According to **Sharia** or the **Muslim personal law, men are allowed to practice polygamy** that is, they can have more than one wife at the same time, up to a total of four.
 - **'Nikah halala'** is a process in which a Muslim woman has to marry another person and get divorced from him before being allowed to marry her divorced husband again.
 - A Muslim man can divorce his wife by uttering Talaq once for three months. This practice is called **Talaq-e-Hasan**.
 - "Triple talaq" allows a husband to divorce his wife by repeating the word "talaq" (divorce) three times in any form, including email or text message.
 - In Islam, talaq and khula are two terms for divorce for men and women respectively. A man can part ways through 'talaq' while a woman can separate with her husband through 'Khula'.
- Application in India:
 - The **Muslim Personal Law (Shariat) Application Act** was passed in 1937 with the aim to formulate an Islamic law code for Indian Muslims.
 - The British who were at this point in time governing India, were trying to ensure that **Indians were ruled according to their own cultural norms**.

- When it came to distinguishing between laws made for the Hindus and those for the Muslims, they laid out the statement that **"clear proof of usage will outweigh the written text of the law"** in the case of Hindus. For the Muslims on the other hand, the writings in the Quran would be of foremost importance.
- Since 1937 therefore, the **Shariat Application Act mandates aspects of Muslim social life** such as marriage, divorce, inheritance and family relations.
- The Act lays out that in matters of personal dispute the state shall not interfere.
- Personal Laws in Other Religions:
 - The **Hindu Succession Act, 1956** which lays out guidelines for property inheritance among Hindus, Buddhists, Jains and Sikhs.
 - The **Parsi Marriage and Divorce Act, 1936** lays out rules to be followed by the Parsis according to their religious traditions.
 - The **Hindu Marriage Act, 1955** had codified laws related to marriage among Hindus.

NITI Aayog GROW Report and Portal

Why in News?

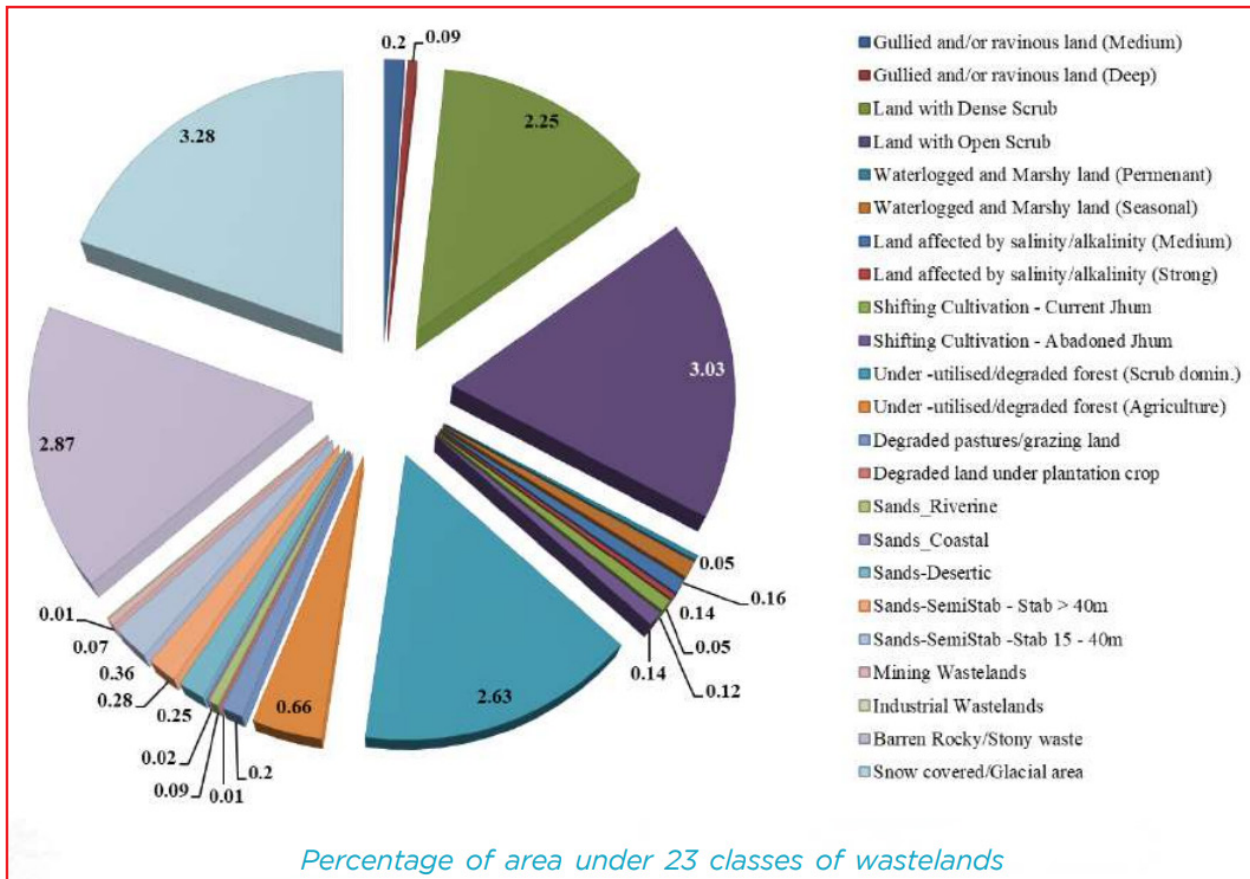
Recently, the **Greening and Restoration of Wasteland with Agroforestry (GROW) report and portal** was launched by **NITI Aayog (National Institution for Transforming India)**.

What are the Key Highlights of the GROW Report?

- GROW Report Objective:
 - The GROW report aims to **facilitate restoration projects for achieving national commitments of Land Degradation Neutrality and restoring 26 million hectares of degraded land by 2030**, as well as creating an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent.
- Extent of Wastelands in India:
 - The report highlights that **India possesses approximately 55.76 million hectares of wastelands**, comprising 16.96% of the total geographical area (TGA) of the country.

Note:

- These degraded lands have suffered from reduced productivity and biodiversity due to various natural and human-induced factors. However, the report suggests greening **and restoring these wastelands** through **agroforestry**.



➤ Agroforestry as a Solution:

- The report also underscores the **potential benefits of converting underutilised areas, especially wastelands, for agroforestry**.
 - Currently, agroforestry covers 8.65% of India's total geographical area, totalling about 28.42 million hectares and about 6.18% and 4.91% of India's land are highly and moderately suitable for agroforestry, respectively.
 - As per **Indian Space Research Organisation (ISRO)** **Rajasthan, Madhya Pradesh, and Telangana** are the top large-sized states for agroforestry suitability, while **Jammu and Kashmir, Manipur, and Nagaland** ranked highest among the medium-sized states.
 - The report identifies the **policy and institutional support required for scaling up agroforestry interventions** in wastelands.
- #### ➤ Policy Framework:
- The report emphasises India's National Agroforestry

Policy of 2014, which aims to enhance productivity, profitability, and sustainability through this agro ecological land use system.

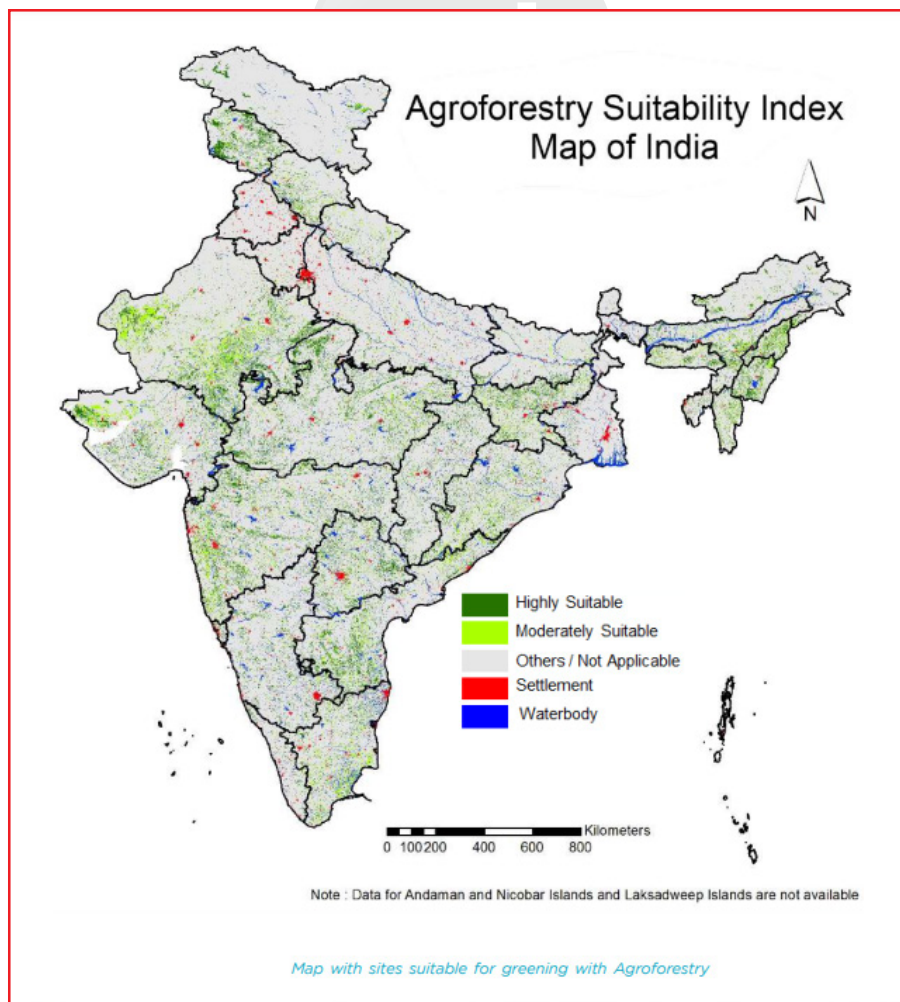
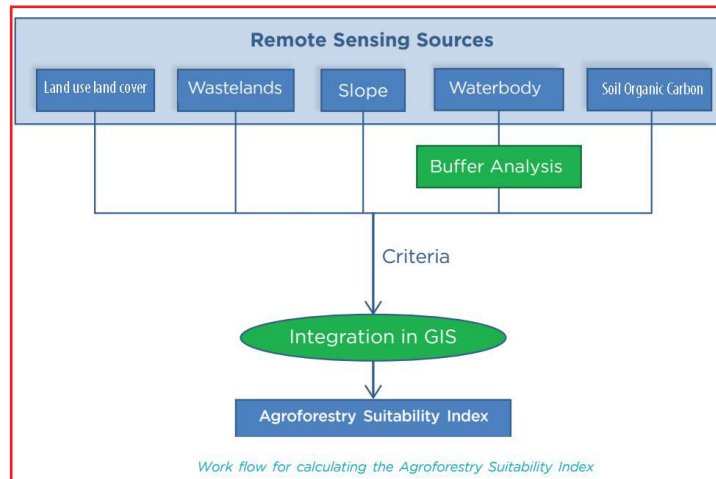
- This aligns with global commitments like the **Paris Agreement, Bonn Challenge, UN Sustainable Development Goals, United Nations Convention on Combating Desertification (UNCCD), Green India Mission** and more.

What is the GROW Portal?

- The GROW portal is hosted on the **Bhuvan platform**, ensuring universal access to state and district-level data related to **agroforestry** suitability.
 - Through the portal, users can access detailed maps and assessments of agroforestry suitability across different regions of India.
- The portal utilises thematic datasets derived from **remote sensing** and **Geographic Information System (GIS)** technology, offering comprehensive information on factors influencing agroforestry suitability.

Note:

- One of the key features of the portal is the **Agroforestry Suitability Index (ASI)**, which provides a standardised index for prioritising agroforestry interventions at the national level.
- The portal offers insights into the current extent of agroforestry in India, highlighting its geographical spread and total coverage.



Note:

What is Agroforestry?

➤ About:

- Agroforestry is a **land use management system that combines trees and shrubs with crops and livestock**. It combines **agricultural and forestry technologies** to create more sustainable land-use systems.
- Agroforestry has been an integral part of Indian agriculture, fulfilling diverse needs such as **wood demand, fuelwood, fodder, and subsistence requirements**.
- Agroforestry is practised by both small and marginal farmers in rainfed conditions and large farmers under irrigated conditions, albeit with variations in adoption rates.

➤ Evolution of Agroforestry Policies and Initiatives:

- The initiation of **All India Coordinated Research Project (AICRP)** on Agroforestry in 1983 marked the formal integration of agroforestry into agricultural and forestry research agendas.
- Major policy initiatives in India, such as the **National Forest Policy 1988**, the **National Agriculture Policy 2000**, **National Bamboo Mission 2002**, **National Policy on Farmers 2007**, and **Green India Mission 2010**, have consistently highlighted the importance of agroforestry.
- Agroforestry gained momentum after India adopted the **National Agroforestry Policy (NAP) 2014**.
 - The NAP is a policy framework that aims to improve agricultural livelihoods by integrating trees, crops, and livestock into the same plot of land. The policy was launched in February 2014 during the **World Congress on Agroforestry, held in Delhi**.
 - India became the **first country in the world to adopt a comprehensive agroforestry policy in 2014**.

- As a follow-up to the policy, the **Sub-Mission on agroforestry (SMAF)** under **National Mission for Sustainable Agriculture (NMSA)** was launched in 2016-17 to encourage and **expand tree plantation on farmland**, with the motto of “**Har Medh Par Ped**”, along with crops/ cropping system.

➤ Impacts of Agroforestry:

○ Economic Impact:

- Agroforestry systems demonstrate positive yield growth for fruits, timber, and crops, contributing to **enhanced agricultural productivity**.
- Agroforestry proves **economically viable, offering additional income streams** from diversified livelihood sources, including timber, fuelwood, and fodder.

➤ Social Impact:

- Agroforestry systems, particularly those emphasizing fruit crops, contribute to **improved nutrition and health status** among communities.
- While women’s participation in agroforestry is significant, there’s a need for further research to understand the **impact of agroforestry on gender dynamics and women’s empowerment**.

○ Environmental Impact:

- Agroforestry enhances **soil fertility, nutrient cycling, and soil organic carbon**, contributing to sustainable land management practices.
- Agroforestry systems improve **water-use efficiency, mitigate soil erosion**, and contribute to watershed management and conservation efforts.
- Agroforestry serves as a **significant source of biomass energy** while also sequestering carbon, aiding in climate change mitigation efforts.
- Agroforestry promotes biodiversity conservation by providing habitat, supporting species movement, and reducing deforestation rates.



Note:

Economic Scenario

Highlights

- Comprehensive Framework for a Regulatory Sandbox
- National Urban Cooperative Finance and Development Corporation Limited
- BioCNG Production from Dung
- Unemployment in India
- Initiatives to Promote Sustainable Agriculture
- Local Currency Trade between India-Indonesia
- Government Proposes Higher Reporting Limits for Ministry Expenditure
- Penicillin G and PLI Scheme
- Coal Logistics Plan and Policy
- Market Monopoly and Anti-Competitive Practices
- Thailand's Concern over India's Agriculture Subsidy
- Household Consumption Expenditure Survey 2022-23
- UAE's Exit from FATF Grey List

MAJOR TRADE AGREEMENTS OF INDIA

Free Trade Agreement (FTA) With Neighbouring Countries

- ↳ India-Sri Lanka FTA
- ↳ India-Nepal Treaty of Trade
- ↳ India-Bhutan Agreement on Trade, Commerce, and Transit

A free trade agreement is a comprehensive deal between countries, offering preferential trade terms and tariff concessions, with a negative list excluding specific products and services.

Regional FTA's of India

- ↳ **India ASEAN Trade in Goods Agreement (11):** 10 ASEAN countries + India
- ↳ **South Asia Free Trade Agreement (7):** India, Pakistan, Nepal, Sri Lanka, Bangladesh, Bhutan, and the Maldives
- ↳ **Global System of Trade Preferences** (41 countries + India)

India's CECA's and CEPAs

CECA/CEPA is broader than FTAs, addressing regulatory, trade, and economic aspects comprehensively, with CEPA having the widest scope including services, investment, etc while CECA mainly focuses on tariff and TQR rates negotiation.

- ↳ CEPA with **UAE, South Korea, Japan**
- ↳ CECA with **Singapore, Malaysia**

Others:

- India-Australia Economic Cooperation and Trade Agreement (ECTA)
- India-Thailand Early Harvest Scheme (EHS)
- India-Mauritius Comprehensive Economic Cooperation and Partnership Agreement (CECPA)

An EHS precedes an FTA/CECA/CEPA, where negotiating countries select products for tariff liberalisation, paving way for broader trade agreements and fostering confidence.

Preferential Trade Agreements (PTAs)

Partners in a PTA grant preferential access to specific products by lowering duties on agreed tariff lines, maintaining a positive list of products eligible for reduced or zero tariffs.

- ↳ **Asia Pacific Trade Agreement (APTA):** Bangladesh, China, India, S. Korea, Lao PDR, Sri Lanka, and Mongolia
- ↳ **SAARC Preferential Trading Agreement (SAPTA):** Same as SAFTA
- ↳ **India-MERCOSUR PTA:** Brazil, Argentina, Uruguay, Paraguay and India
- ↳ India's PTA with **Chile, Afghanistan**

Comprehensive Framework for a Regulatory Sandbox

Why in News?

Recently, the [Reserve Bank of India \(RBI\)](#) revised the timeline for the completion of various stages of a [Regulatory Sandbox \(RS\)](#) to **nine months** from the previous **seven months**.

- The updated framework for an RS also requires sandbox entities to ensure compliance with provisions of the [Digital Personal Data Protection Act, 2023](#).

What is the Regulatory Sandbox (RS)?

- Background:
 - The Reserve Bank of India (RBI) set up an **inter-regulatory Working Group** in **2016** to look into and report on the **granular aspects of FinTech** and its implications so as to review the **regulatory framework** and respond to the dynamics of the rapidly evolving FinTech scenario.
 - The report recommended introducing an appropriate framework for a **Regulatory Sandbox (RS)** within a well-defined space and duration where the financial sector regulator will provide the requisite regulatory guidance, to increase efficiency, manage risks and create new opportunities for consumers.
- About:
 - A **Regulatory Sandbox (RS)** refers to live testing of new products or services in a **controlled regulatory environment** for which regulators may or may not permit certain regulatory relaxations for the limited purpose of testing.
 - The RS is an important tool that enables more **dynamic, evidence-based regulatory environments** which learn from and evolve with, emerging technologies.
 - It enables the **regulator, financial service providers and customers** to conduct field tests to collect evidence on the benefits and risks of new financial innovations while monitoring and containing their risks.
- Objectives:
 - The objective of the RS is to foster responsible **innovation in financial services, promote efficiency** and bring **benefit to consumers**.

- It can provide a **structured avenue** for the regulator to engage with the ecosystem and to develop **innovation-enabling** or **innovation-responsive regulations** that facilitate delivery of **relevant, low-cost financial products**.
- Target Applicants:
 - Target Applicants for entry to the RS include **fintechs, banks, and companies** partnering with or providing support to **financial services businesses**, among others.

Adoption of Regulatory Sandboxes in India

- **Fintech Focus:** The Reserve Bank of India (RBI) introduced the **first regulatory sandbox** program in 2019.
 - It facilitates live **testing of innovative financial products and services** in a controlled environment under RBI supervision.
- **Thematic Cohorts:** The RBI sandbox operates on a thematic cohort basis. Each cohort **focuses on a specific area like retail payments, cross-border transactions, or MSME lending**.
 - Key Design Aspects of RS:
 - **RS cohorts:** Based on thematic cohorts focussing on **financial inclusion, payments and lending, digital KYC, etc.**
 - **Regulatory relaxations:** RBI may grant some relaxations such as **liquidity requirements, board composition, statutory restrictions** etc.
 - **Exclusion from RS:** Indicative negative list includes **credit registry, cryptocurrency, initial coin offerings** etc.
- **Telecom Sandbox:** The government introduced a **"Millennium Spectrum Regulatory Sandbox" initiative**. This includes a **Spectrum Regulatory Sandbox (SRS)** and **Wireless Test Zones (WiTe Zones)**.
 - These initiatives aim to **simplify regulations for telecom R&D activities** and explore new spectrum bands for technological advancements.

What are the Associated Benefits and Challenges Related to Regulatory Sandbox?

- Benefits:
 - **Regulatory Insights:** Regulators can obtain first-hand empirical **evidence on the benefits and risks** of emerging technologies and their implications, enabling them to take a **considered view on potential regulatory changes**.

Note:

- **Enhanced Understanding for Financial Providers:** Incumbent financial service providers might **improve their understanding of how new financial technologies** might work, potentially helping them to appropriately integrate such new technologies with their business plans.
- **Cost-Effective Viability Testing:** Users of an RS have the potential to test the product's viability without the need for a larger and more expensive roll-out.
- **Financial Inclusion Potential:** FinTechs provide solutions that can potentially further financial inclusion in a significant way.
- **Thrust Areas for Innovation:** Areas that can potentially get a thrust from the RS include microfinance, potentially innovative small savings, remittances, mobile banking, and other digital payments.
- Challenges:
 - **Flexibility and Time Constraints:** Innovators may face challenges with **flexibility and time during the sandbox process**, potentially impacting their ability to **adapt and iterate quickly**.
 - **Case-by-Case Authorizations:** Securing customised authorizations and regulatory relaxations on an individual basis can be a lengthy process, often involving subjective assessments, which may result in delays in experimentation.
 - **Limitations on Legal Waivers:** The **RBI** or its **Regulatory Sandbox** cannot offer legal exemptions, which might limit innovators looking to **reduce legal risks** while experimenting.
 - **Post-Sandbox Regulatory Approvals:** Even after successful sandbox testing, experimenters may **still require regulatory approvals** before their product, services, or technology can be **permitted for wider application**, potentially prolonging the time to market.

National Urban Cooperative Finance and Development Corporation Limited

Why in News?

Recently, the **Union Minister for Cooperation** inaugurated the **National Urban Cooperative Finance**

and **Development Corporation Limited (NUCFDC)**, an umbrella organisation for **urban cooperative banks (UCB)**.

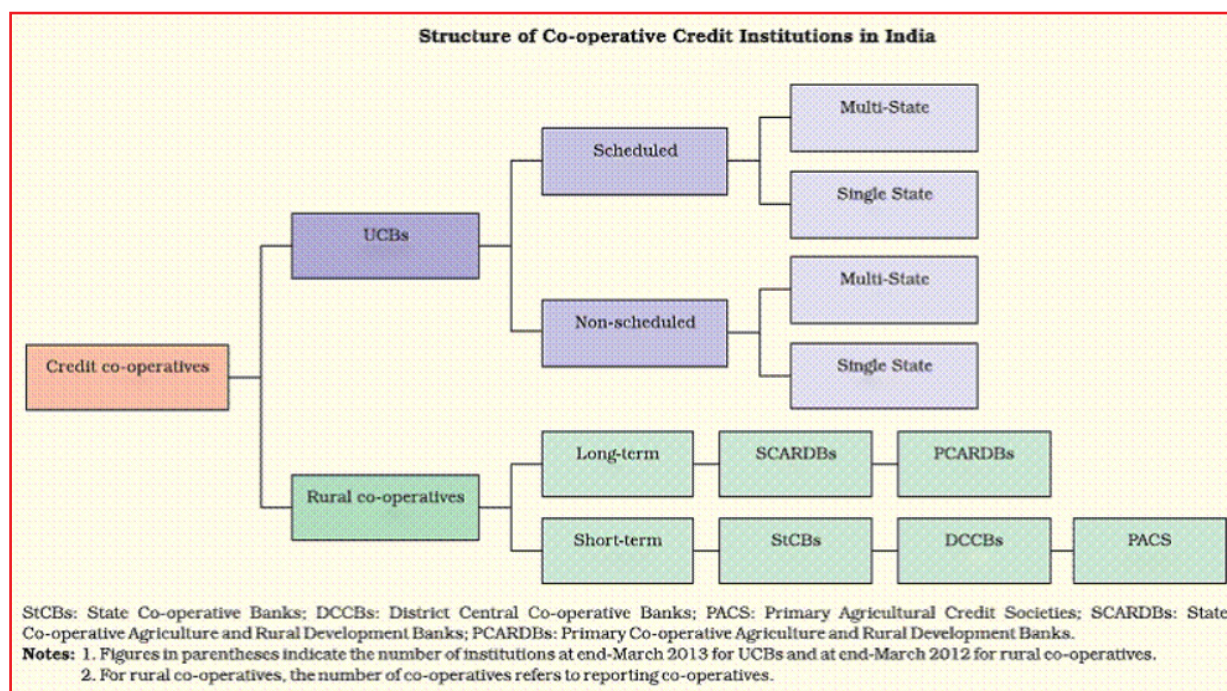
- NUCFDC has received **Reserve Bank of India (RBI)**'s approval to function as a **non-banking finance company** and a self-regulatory organisation for the urban cooperative banking sector.

What are Urban Cooperative Banks?

- **About:** **Cooperative banks** are financial institutions that are **owned and operated by their members, who are also the bank's customers**.
 - In order to support the financial needs of a community such as a village or a specific community, people come together to pool resources and provide banking services such as **loans**.
 - In India, they are registered under the Cooperative Societies Act of the State concerned or the **Multi-State Cooperative Societies Act, 2002**.
 - Urban Co-operative Banks (UCBs) refers to **primary cooperative banks** located in **urban and semi-urban areas**.
- **History:**
 - The urban cooperative banking movement in India originated at the end of the 19th century, influenced by successful cooperative experiments in Britain and Germany.
 - The "**Anyonya Sahakari Mandali**" in the princely State of Baroda is believed to be the earliest mutual aid society in India.
 - Also, the first urban cooperative credit society was registered in **Canjeevaram (Kanjivaram)** in the erstwhile Madras province in October, 1904.
- **Regulator:** The Reserve Bank regulates the banking functions of Urban Cooperative Banks under the provisions of Sections 22 and 23 of the **Banking Regulation Act, 1949**.
 - Also, State Cooperative Banks, District Central Cooperative Banks and Urban Cooperative Banks, which are registered with **Deposit Insurance and Credit Guarantee Corporation** are insured.
- Four Tier Structure:
 - In 2021 RBI appointed **N. S. Vishwanathan** committee that suggested a 4-tier structure for the UCBs.
 - Tier 1 with all unit UCBs and salary earner's UCBs (irrespective of deposit size) and all other UCBs having deposits up to Rs 100 crore.

Note:

- Tier 2 with UCBs of deposits between Rs 100 crore and Rs 1,000 crore,
 - Tier 3 with UCBs of deposits between Rs 1,000 crore and Rs 10,000 crore, and
 - Tier 4 with UCBs of deposits more than Rs 10,000 crore.
- **Minimum Capital and RWA:** Tier 1 UCBs operating in a single district should have a minimum net worth of ₹2 crore. For all other UCBs the minimum net worth should be ₹5 crore.
- Tier 1 UCBs have to maintain a minimum capital to risk weighted assets ratio of **9% of Risk Weighted Assets (RWAs)** on an ongoing basis.
 - Tier 2 to 4 UCBs have to maintain a minimum capital to risk weighted assets of 12% of RWAs on an ongoing basis.
 - UCBs with a minimum net worth of Rs.500 million and maintaining Capital to Risk (Weighted) Assets Ratio of 9% and above are eligible to apply for voluntary transition to **Small Finance Banks**.
- **Current Status:** Currently, there are **1,514 UCBs in India**, accounting for 11% of the total credit to agriculture. The total deposit base of UCBs stands at ₹5.26 trillion.



Note: **NABARD** is entrusted with the responsibility for conduct of statutory inspections of **State Cooperative Banks, District Central Cooperative Banks and Regional Rural Banks** under the Banking Regulation Act, 1949.

- The regulatory powers continue to be vested with the Reserve Bank of India.

What are the Major Issues Related to the UCBs?

- **High Non-performing Assets:** **Non-performing assets (NPAs)** remain a significant concern for UCBs (2.10%). Poor credit appraisal practices, inadequate risk management frameworks, and exposure to vulnerable sectors contribute to high levels of NPAs, impacting profitability and stability.
- **Limited Technology Adoption:** Limited technological infrastructure and digital capabilities hinder UCBs' ability to offer modern banking services and compete with larger commercial banks.
- Inadequate investment in technology leads to inefficiencies, operational risks, and difficulties in meeting evolving customer expectations.
- **Fraud and Mismanagement:** Instances of **fraud, embezzlement, and mismanagement have been reported in several UCBs** (like Urban Co-operative Bank, Sitapur, Uttar Pradesh), eroding depositor confidence and tarnishing the sector's reputation.

Note:

- In the financial year 2022-23, RBI cancelled licences of 8 cooperative banks.

BioCNG Production from Dung

Why in News?

Banaskantha District Co-operative Milk Producers' Union, Gujarat are converting dung into Bio CNG (compressed natural gas) and fertiliser, supplementing farmers' income. This initiative addresses waste management while creating new revenue streams for dairy farmers.

- The BioCNG outlet on the Deesa-Tharad highway in Gujarat's Banaskantha district is a pioneering initiative, being **India's first and only gas-filling station operating on dung sourced** from cattle and buffaloes.

How are Farmers Harnessing the Value of Dung?

➤ Dung Facts:

- An average adult bovine animal discharges 15-20 kg of fresh dung daily, while calves give out 5-10 kg.
 - A bovine refers to a **domestic animal of the species *Bos taurus* (cattle) or *Bubalus bubalis* (water buffalo).**
- Fresh dung contains 80-85% water; one kg weighs hardly 200 grams on drying.
- Fresh dung contains **methane along with water**, making it essential for **biogas** production in **anaerobic digestion** (breaks down biodegradable material without oxygen and produces biogas).
 - Methane, a key component of biogas, is produced in the **rumen of bovines (the first of four stomach compartments in bovines)** during the fermentation of plant material they consume.
 - Bacteria-like microbes in the rumen, known as **archaea**, utilise carbon dioxide and hydrogen produced during carbohydrate fermentation to **generate methane**.

➤ Biogas Production Process:

- Fresh raw dung is mixed with water in equal quantities to form a slurry. The slurry undergoes anaerobic digestion in a sealed vessel reactor over 35 days.
 - The digestion involves four successive stages: **hydrolysis** (break-down of organic matter into simple molecules), **acidogenesis** (their

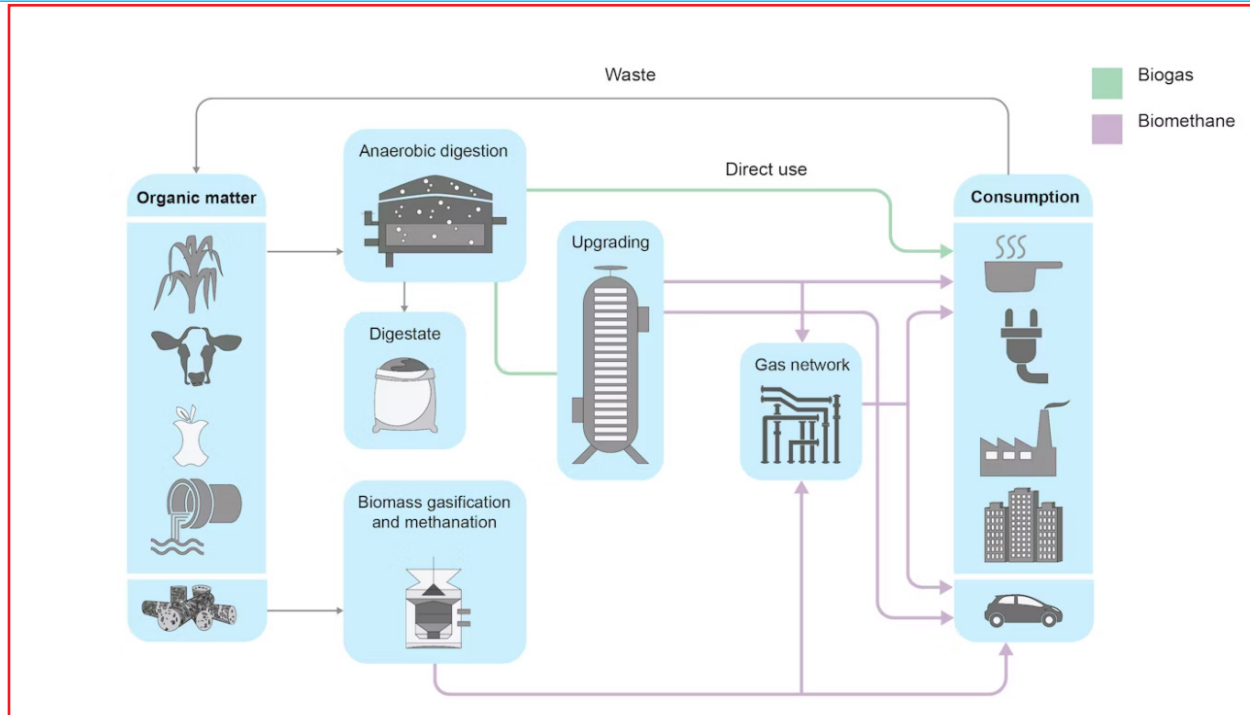
conversion into volatile fatty acids), **acetogenesis** (production of acetic acid, CO₂ and hydrogen) and **methanogenesis** (biogas generation).

- Biogas digesters reduce **methane emissions** from animal waste, which can help mitigate **greenhouse gas** impact.
 - A single cow can emit between **150 to 260 pounds of methane per year**. With over 1.5 billion cattle raised globally for meat and milk production, the industry is responsible for an **estimated 14.5% of global human-caused greenhouse gas emissions**.
- Biogas Purification and Compression:
 - **Raw biogas is purified to remove CO₂, H₂S, and moisture** through various processes.
 - The purified biogas, compressed to 96-97% methane, is stored and farmers sell it as BioCNG at Rs 72/kg.
- Utilization of Slurry for Fertilizer Production:
 - After biogas production, the **slurry undergoes dewatering in a solid-liquid separator**.
 - The separated solid residue is decomposed aerobically and **sold as PROM (phosphate-rich organic manure)** by incorporating rock phosphate and phosphate-solubilizing bacteria.
 - Alternatively, the decomposed solid residue can be used for **compost production by adding neem and castor cake**, sugarcane press mud, and microbial consortia.
 - The liquid part is reused for mixing in the digester or sold as liquid-fermented organic manure.
- Scalability and Replicability:
 - The BioCNG model is **replicable and scalable**, utilising dung from district member unions.
 - Gujarat's Kaira Union's decentralised model involves installing Flexi Biogas plants, targeting 10,000 installations.
 - Individual farmers benefit from **smaller Flexi plants** for personal use and potentially generate additional income.
 - Whether through large-scale BioCNG plants or smaller decentralized models, the potential for additional income from dung utilization is growing.

Note:

Biogas:

- Biogas is a renewable energy source that's produced when organic matter breaks down in the absence of oxygen. This process is called **anaerobic digestion**.
- Biogas is also known as **renewable natural gas (RNG)** or **biomethane**. It's made up of mostly methane (CH₄) and carbon dioxide (CO₂).



What are the Key Challenges that Need to be Addressed?

- Feedstock Management:
 - Ensuring a **consistent supply and quality of organic feedstock for animals**.
 - Implementing effective waste segregation and collection systems.
- Operational Efficiency:
 - Individual farmers and smaller cooperatives might lack the knowledge and resources for proper **maintenance and monitoring of BioCNG plants**.
 - Training programs and readily available technical support and establishing standardised operating procedures and quality control measures are crucial.
- Technical and Financial Barriers:
 - Access to **financing options like subsidies, grants, or low-interest loans** can help overcome initial capital barriers for setting up BioCNG plants.
 - Technical challenges, such as a lack of skilled labour and infrastructure, can be addressed through

public-private partnerships, technology transfer, and capacity-building programs.

- Storage Systems for Biogas:
 - BioCNG needs to be stored and distributed efficiently to reach end-users, whether for cooking, heating, or electricity generation.
 - **Proper storage systems, such as gas holders or cylinders**, are required to ensure a consistent supply of BioCNG.
- Social Acceptance:
 - **Overcoming the misconception that dung gas is unhygienic and unsafe** is essential for widespread adoption.
 - Educational outreach and showcasing the hygienic process are key to promoting decentralised biogas models among rural farmers.

What are India's Initiatives Related to Biogas?

- **Sustainable Alternative Towards Affordable Transportation" (SATAT) Scheme**
- **GOBARdhan**

Note:

- **National Biogas Programme:**
 - The Ministry of New and Renewable Energy (MNRE) is supporting the installation of **biogas plants and its use as a source of alternative fuels** for cooking purposes in the country, including rural areas, under the National Biogas Programme.
 - Under this scheme, MNRE is providing Central Financial Assistance (CFA) for setting up of biogas plants, ranging from Rs. 9800/- to Rs. 70,400/- per biogas plant based on the size of the plant (1-25 cubic meter/day plant capacity).

Unemployment in India

Why in News?

According to the **Periodic Labour Force Survey (PLFS)**, conducted by the **National Sample Survey Office (NSSO)**, in 2023, India's unemployment rate has dropped significantly, marking the lowest in the past three years.

- The PLFS gives estimates of Key employment and unemployment Indicators like, the **Labour Force Participation Rates (LFPR)**, **Worker Population Ratio (WPR)**, **Unemployment Rate (UR)**, etc and the **Activity Status- 'Usual Status'** and **'Current Weekly Status'**.

Note:

- **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in the labour force (i.e. **working or seeking or available for work**) in the population.
- **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
- **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.
- **Activity Status- Usual Status:** The activity status of a person is determined based on **the activities pursued** by the person during the specified reference period.
 - When the activity status is determined based on the reference period of the last 365 days preceding the date of the survey, it is known as the **usual activity status of the person**.
- **Activity Status- Current Weekly Status (CWS):** The activity status determined based on a **reference period of the last 7 days preceding the date of the survey** is known as the **CWS** of the person.

What are the Key Highlights of the Report?

- **India's Unemployment Rate:**
 - India's unemployment rate for individuals aged 15 and above has dropped to **3.1% in 2023**, marking the lowest in the past three years.
 - The unemployment rate was at **3.6% in 2022** and **4.2% in 2021**.
 - There is a decline in the **unemployment rate among females to 3% in 2023 from 3.3% in 2022** and 3.4% in 2021.
 - Similarly, for males, it decreased to 3.2% in 2023 from 3.7% in 2022 and 4.5% in 2021.
- **Recovery in Employment Scenario:**
 - There is a **recovery in the employment scenario** post the impact of the **Covid-19 pandemic**, with increased economic activity after the lifting of lockdowns by the Centre and states.
- **Urban and Rural Unemployment:**
 - Urban areas witnessed a **reduction to 5.2% in 2023** from 5.9% in 2022 and 6.5% in 2021, while **rural areas experienced a decrease to 2.4% in 2023** from 2.8% in 2022 and 3.3% in 2021.
 - The LFPR in Current Weekly Status (CWS) for individuals **aged 15 and above in urban areas rose to 56.2% in 2023**, showing an upward trajectory from 52.8% in 2022 and 51.8% in 2021.
- **Economic Growth:**
 - This positive employment data comes on the heels of recent reports indicating India's economic **growth surging to 8.4% in the third quarter of 2023-24**.
 - Sectors such as manufacturing, mining & quarrying, and construction played a pivotal role in driving this growth, as per data released by the NSO.
 - The NSO's second advance estimate pegs India's growth at **7.6% for the entire fiscal year 2023-24**, surpassing the initial projection of 7.3% released in January 2024.

What is the Periodic Labour Force Survey?

- **About:**
 - The **National Statistics Office (NSO)** is conducting **PLFS** to produce **annual statistics of employment and unemployment** characteristics for both rural and urban areas, along with quarterly estimates for urban areas.
 - The first annual report based on the data collected in PLFS during July **2017- June 2018** was published in May 2019.

Note:

- Objective of PLFS:
 - To estimate the key employment and unemployment indicators (viz. **Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate**) in the short time interval of **three months for the urban areas only in the 'Current Weekly Status' (CWS)**.
 - To estimate employment and unemployment indicators in both 'Usual Status' and CWS in both rural and urban areas annually.

What is Unemployment?

- About:
 - Unemployment refers to the **condition where individuals capable of working are actively seeking employment** but are unable to secure suitable jobs.
 - An unemployed person is someone who is part of the labour force, and possesses the requisite skills but currently lacks gainful employment.
 - Basically, an unemployed person is someone of **working age, jobless, able and available to work, and actively looking for a job**.
- Measurement of Unemployment:
 - The unemployment in the country is commonly calculated using the formula:
 - Unemployment rate = $[\text{Number of Unemployed Workers} / \text{Total Labour Force}] \times 100$.
 - Here, the 'total labour force' includes the employed and the unemployed. Those who are neither employed nor unemployed — students, for example — are not considered a part of the labour force.
- Types of Unemployment:
 - **Structural Unemployment:** Rooted in mismatches between the **skills possessed by the workforce and the requirements** of available positions, this form of unemployment highlights systemic issues within the labour market.
 - **Cyclical Unemployment:** Tied to economic cycles, this type escalates during economic downturns and diminishes during periods of expansion, showcasing the sensitivity of job availability to macroeconomic conditions.
 - **Frictional Unemployment/Transitional Unemployment:** Also called transitional unemployment, arising from the natural transition between jobs, this type reflects the temporary period individuals spend searching for new employment opportunities.

- **Underemployment:** While not strictly unemployment, this concept pertains to individuals employed in positions that underutilize their skills or provide insufficient working hours, contributing to a sense of economic inefficiency.
- **Hidden Unemployment:** Refers to individuals who are not actively seeking employment due to discouragement or other factors but could potentially enter the job market if conditions improve.
- **Disguised Unemployment:** It arises because more labourers work in the factory/land than are required. Hence productivity i.e., **production per unit of labour will be less**.

What are the Major Causes of Unemployment in India?

- Population Size:
 - India's substantial population amplifies the **competition for employment** opportunities, putting additional pressure on the job market.
 - Managing this demographic challenge **necessitates a comprehensive approach to economic development and job creation**.
- Skills Mismatch:
 - A predominant cause, where the **skills possessed by the workforce may not align with the evolving demands** of the job market. Addressing this issue requires initiatives focused on **enhancing education and vocational training programs**.
- Informal Sector Dynamics:
 - The prevalence of the informal sector introduces complexities in tracking and addressing unemployment. Efforts **to formalise and regulate this sector** can contribute to a more accurate representation of employment conditions.
- Policy Implementation Challenges:
 - Well-intentioned policies may face challenges in effective implementation, impacting their ability to generate employment. **Streamlining policy execution** and ensuring alignment with ground realities are imperative.
- Global Economic Factors:
 - Influences from the global economy, such as **trade dynamics and geopolitical shifts, can impact India's employment scenario**. Crafting policies that enhance economic resilience to external factors is essential.

Note:

What are the Government's Initiatives Related to Employment?

- [Support for Marginalized Individuals for Livelihood and Enterprise \(SMILE\)](#)
- [PM-DAKSH \(Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi\)](#)
- [Mahatma Gandhi National Rural Employment Guarantee Act \(MGNREGA\)](#)
- [Pradhan Mantri Kaushal Vikas Yojana \(PMKVY\)](#)
- [Start Up India Scheme](#)
- [Rozgar Mela](#)
- [Indira Gandhi Urban Employment Guarantee Scheme- Rajasthan.](#)

Initiatives to Promote Sustainable Agriculture

Why in News?

In a significant stride towards revolutionising the agricultural sector and promoting sustainable farming practices, the Union Minister for Agriculture & Farmers and Union Minister for Rural Development jointly inaugurated four key initiatives in New Delhi.

- These initiatives, including the **Revamped Soil Health Card Portal & Mobile Application, School Soil Health Programme, Krishi Sakhi Convergence Programme (KSCP), and CFQCTI Portal for Fertilizer Sample Testing**, hold the promise of transforming the agricultural landscape of the country.

What are the Inaugurated Initiatives for Soil Health Management?

- **Revamped Soil Health Card Portal and Mobile Application:**
 - The [Soil Health Card](#) portal has been revamped and a mobile application has been introduced for soil sample collection and testing. The portal includes a **registry of soil labs with real-time status** and geo-coordinates mapping.
 - It also provides **real-time data on soil sample collection**, lab testing, and Soil Health Card generation.
 - The new portal features a centralised dashboard at national, state, and district levels, as well as [Geographic Information System \(GIS\)](#) analytics.

- The portal also includes features such as fertilizer management, a nutrient dashboard, and heat maps of nutrients.
- The initiative allows for real-time monitoring of progress, automatic capture of geo-coordinates during sample collection, and registration of plot details.
- **School Soil Health Programme:**
 - The **Department of Agriculture & Farmers' Welfare (DA&FW)** in collaboration with the **Department of School Education and Literacy**, initiated a pilot project. This project involved the establishment of **20 soil laboratories in rural Kendriya and Navodaya Vidyalaya schools.**
 - Study modules and training were provided to students and teachers. A mobile application was customised for the school program, and the portal has a dedicated section for the program to document all student activities.
 - Under this program **school students will collect soil samples, and test them in school labs, and create Soil Health Cards.**
 - Students educate farmers on Soil Health Card recommendations, fostering critical thinking and practical learning.
 - The **Soil Lab Programme** also aims to instil a sense of responsibility and respect for the environment in students, teaching them about [sustainable agriculture](#) and the impact of human activities on soil health.
 - Now, this programme has been **scaled up in 1000 schools.** Kendriya Vidyalaya, Navodaya Vidyalaya and Eklavya Model Schools have been taken under this programme.
 - The DA&FW, in collaboration with the [National Bank for Agriculture and Rural Development \(NABARD\)](#), will set up soil labs in these schools.
- **Krishi Sakhi Convergence Programme (KSCP):**
 - A MoU between the **Ministry of Agriculture & Farmer Welfare and the Ministry of Rural Development** initiated the **KSCP**, which aims to transform rural India through the empowerment of Krishi Sakhi.
 - The programme includes a **Krishi Sakhis Training Programme** to certify 70,000 Krishi Sakhis as **"Para-Extension Workers."**

Note:



- Krishi Sakhis are practising farmers and trained para-extension professionals. They serve as farmers' friends, guiding **Natural Farming** and **Soil Health Management**.
 - Krishi Sakhis play a pivotal role in implementing various schemes such as the **National Mission of Natural Farming (NMNF)** and the **Pradhan Mantri Fasal Bima Yojana (PMFBY)**.
 - Certified Krishi Sakhis act as para-extension workers, facilitating awareness creation and capacity building among farmers.
 - They serve as a **link between farmers, Krishi Vigyan Kendras (KVKs)**, and the Agriculture and Allied Departments.
 - **Krishi Sakhis** receive training in agroecology, natural resource management, crop diversity, and health and nutritional security.
 - They conduct awareness generation meetings on topics such as natural farming and soil health management.
 - The programme has trained close to **3500 Krishi Sakhis** and is being implemented in 13 states, contributing to sustainable agriculture and rural development.
 - Krishi Sakhis serve as catalysts for transformation, nurturing sustainable agriculture and reshaping rural India.
- CFQCTI Portal:
- The Central Fertilizer Quality Control and Training Institutes' (CFQCTI's) portal introduces facilities for **sample collection and testing, ensuring quality control in fertilizer management**.
 - The portal facilitates the generation of OTP for sample verification, automatic allocation to labs, and issuance of analysis reports, streamlining the process of quality assessment.

What Impact Do These Initiatives Envisage?

- **Promotion of Sustainable Agricultural Practices:**
- These initiatives aim to promote sustainable agricultural practices, such as organic farming, to ensure **long-term environmental and economic benefits**.
- **Enhancement of Farmer Livelihoods:**
- By addressing concerns related to soil health,

fertilizer quality, and agricultural sustainability, these initiatives seek to **enhance farmer livelihoods and improve their economic well-being**.

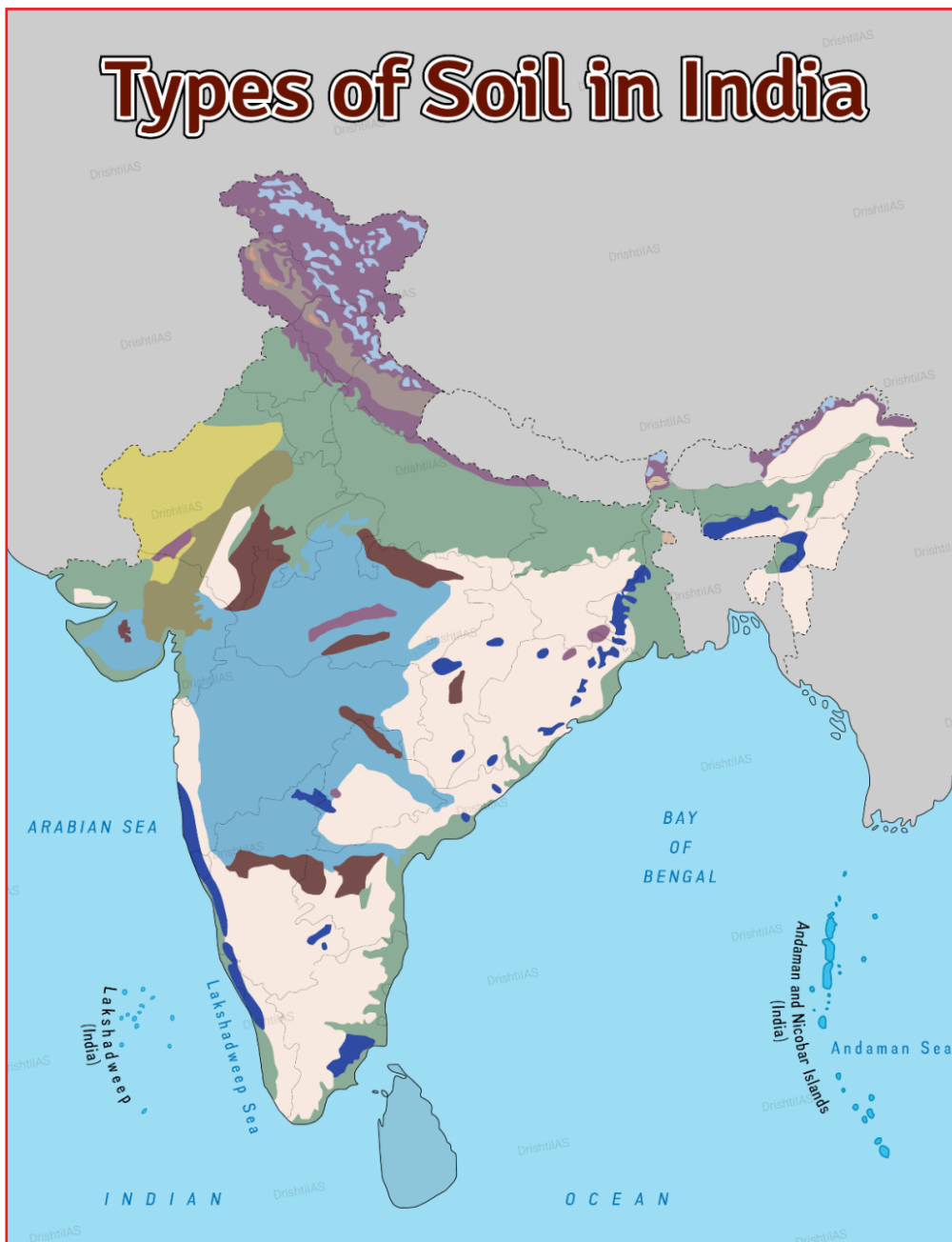
- **Credibility of Organic Farming:**
- Efforts to **enhance the credibility of organic farming** through initiatives like the Soil Health Card Portal and Krishi Sakhi Convergence Programme are expected to boost confidence in organic products and encourage their adoption.
- **Quality and Efficacy of Fertilizers:**
- Initiatives to address concerns related to the quality and **efficacy of fertilizers**, as seen in the CFQCTI Portal, aim to safeguard the interests of farmers by ensuring the use of reliable inputs.

What are the Concerns Regarding Soil Health in India?

- Soil and water are fundamental resources for sustenance, with over **95% of food originating from them**.
- The symbiotic connection between soil and water is **crucial for agricultural systems** and for achieving the **United Nations Agenda 2030**.
 - Current climatic changes and human activities are exerting excessive pressure on soil and water resources.
- In India, **around 50% of the country's net sown area is rainfed**, contributing to 40% of total food production.
- Soil health in India faces challenges such as **low nutrient levels, with an average soil organic carbon (SOC) of around 0.54%**.
- **Land degradation** is a significant issue, with about **30% of the total geographical area affected**, leading to deficiencies in plant nutrients and impacting nutrition intake among the population.
- Nutrient depletions and deficiencies, along with inappropriate fertiliser application, result in declining productivity.
- Sustainable food production requires practices like adequate replenishment of nutrients, tailored fertiliser applications based on soil analyses, and increasing organic content in soil.
- India loses an estimated **3 billion tonnes of soil annually due to water and wind erosion**.

Note:

Types of Soil in India



	Alluvial Soil (29.55%)	In the Upper and Middle Ganga plain, two different types of alluvial soils have developed, viz. Khadar and Bhangar.
	Black Soil (19.62%)	It is also known as 'Regur Soil' or the 'Black Cotton Soil'.
	Red Soil (19.62%)	The soil develops a reddish colour due to a wide diffusion of iron in crystalline and metamorphic rocks. It looks yellow when it occurs in a hydrated form.
	Desert Soil (14.02%)	They are generally sandy in structure and saline in nature.
	Laterite Soil (4.77%)	Laterites are not suitable for cultivation. Thus, are widely cut as bricks for use in house construction.
	Mountain Soil	It is also known as 'Forest Soil'. They are loamy and silty on valley sides and coarse-grained in the upper slopes.
	Snowfields	This soil is found under the snow and glaciers at the highest peak of the greater Himalayas, Karakoram, Ladakh, and Zaskar.
	Grey and Brown Soil	
	Submontane Soil	
	Red and Black Soil	



Note:

Other Initiatives Related to Conserving Soil

- **Five-Pronged Programme of Soil Conservation:**
 - India's five-pronged strategy for soil conservation which includes making soil chemical-free, saving soil biodiversity, enhancing soil organic matter, maintaining soil moisture, mitigating soil degradation, and preventing soil erosion.
- Soil Health Card scheme:
 - The government of India's Soil Health Card scheme, launched in 2015, **displays soil health indicators and associated descriptive terms**, which guide farmers in making necessary soil amendments.

Local Currency Trade between India-Indonesia**Why in News?**

The **Reserve Bank of India (RBI)** and the **Bank Indonesia (BI)** signed a Memorandum of Understanding (MoU) for establishing a framework to promote the use of **local currencies (the Indian Rupee (INR) and the Indonesian Rupiah (IDR))** for cross-border transactions.

- Earlier in 2023 **India and Malaysia** announced that they will settle trade in INR in addition to other currencies.

**What are the Key Highlights of the MoU between RBI and Bank Indonesia?**

- The primary objective of the MoU is to facilitate **bilateral transactions in INR and IDR**, covering **all current account transactions, permissible capital account transactions**, and other economic and financial transactions as mutually agreed upon by both countries.
- The framework enables **exporters and importers to invoice and pay in their respective domestic currencies**, thereby fostering the development of an INR-IDR foreign exchange market. This approach optimizes costs and settlement time for transactions.

Note:



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- It is expected to **promote trade between India and Indonesia**, deepen financial integration, and enhance the historical, cultural, and economic relations between the two nations.

INTERNATIONALISATION OF RUPEE



MEANING

- Increasing the use of Indian rupee in **cross-border transactions**

SIGNIFICANCE

- **Reduced dependency** on USD
- **Lesser need** for holding forex reserves
- **Better bargaining** power of Indian business
- **Less exposure** to currency volatility

INVOLVES

- Rupee for **import** and **export**
- Rupee for **current** and **capital account** transactions

Indian Rupee is fully convertible in current account, but partially in capital account (BoP)

CHALLENGES

- Rupee not fully convertible
- Less need for other countries to hold INR; **India's low share in global exports**
- Rupee may become **more vulnerable to external shocks**
- India's **lesser control on Rupee supply**

NEED

- Weaponisation of USD by US (for **sanctions**)
- Wave of **de-dollarisation**
- Increasing **internationalisation of Chinese Renminbi**
- India's **minimal share in global forex market turnover (1.7%)**

STEPS THAT CAN BE TAKEN

- More **liberalised settlements in INR** (in India and overseas)
- India to **expand its reach** in the global financial market
- Transition to an **export-oriented economy** to **reduce trade deficit**

RBI'S EFFORTS

- Indian currency in cross-border trade - key component in **Foreign Trade Policy 2023**
- Mechanism introduced for **rupee trade settlement with 18 countries**
 - » Banks from these countries allowed to open **Special Vostro Rupee Accounts (SVRAs)**
- Circular on **"International Trade Settlement in Indian Rupees"** (2022)
- External **commercial borrowings in INR** enabled



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India-Indonesia Relations

- Commercial Relations:
 - Indonesia has emerged as the **second largest trading partner of India in the ASEAN region**.
 - Bilateral trade has increased from USD 4.3 billion in 2005-06 to USD 38.84 billion in 2022-23.
- Political Relations:
 - Both countries were chief **supporters of independence for Asian and African countries**, leading to the **Bandung Conference of 1955** and the formation of the **Non-Aligned Movement in 1961**.
 - Since India adopted the **'Look East Policy' in 1991**, there has been rapid development in bilateral relations.
 - Both countries are members of **G20**, **East Asia Summit** and the **United Nations**.
- Cultural Relations:
 - The **Hindu, Buddhist and later Muslim faiths** travelled to Indonesia from the shores of India. The stories from the great epics of **Ramayana and Mahabharata** form a source of Indonesian folk art and dramas.
 - There are approximately 100,000 people of Indian origin in Indonesia, mainly located in Greater Jakarta, Medan, Surabaya, and Bandung.

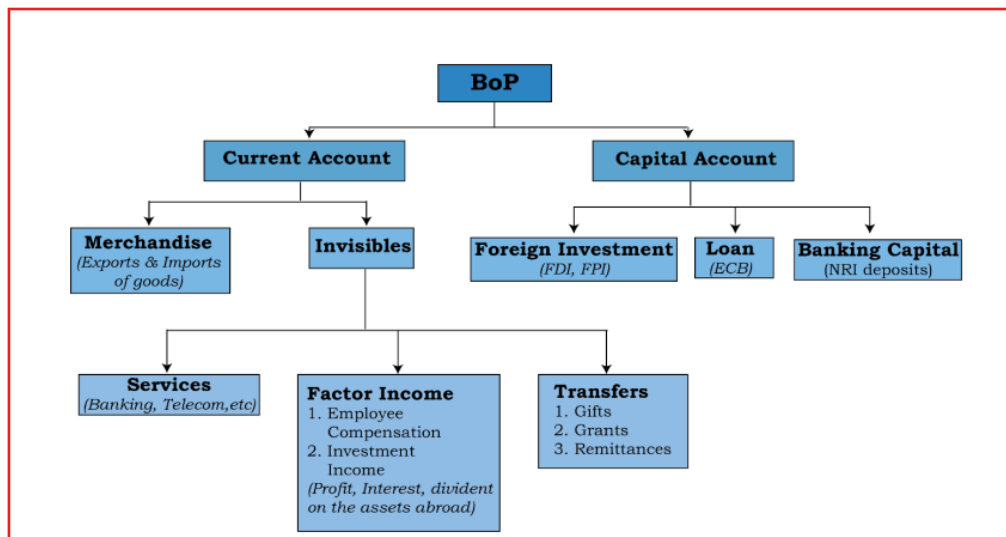
Note:

What are Efforts for the Internationalisation of the Rupee?

- Liberalisation of Capital Markets:
 - India increased the availability of rupee-denominated financial instruments, such as **bonds (Masala Bond) and derivatives, to enhance the rupee's appeal.**
- Promotion of Digital Payment Systems:
 - Initiatives like the **Unified Payments Interface (UPI)** have facilitated digital transactions in rupees.
 - Recently, **Sri Lanka and Mauritius have adopted UPI.**
- Special Vostro Rupee Accounts (SVRAs):
 - India permitted **authorized banks from 18 countries (Ex. Russia and Malaysia) to open Special Vostro Rupee Accounts (SVRAs)** for settling payments in rupees at market-determined exchange rates.
 - Objectives of the Mechanism are lower transaction costs, greater price transparency, faster settlement time, and overall promotion of international trade.
- Currency Swap Agreements:
 - Signed by the RBI with several countries (Ex. **Japan, Sri Lanka** and **SAARC members**) enables the exchange of rupee and foreign currency between respective central banks, bolstering the international usage of the rupee.
- Bilateral Trade Agreements:
 - The government's signing of bilateral trade agreements with other countries has facilitated greater cross-border trade and investment, promoting the use of the rupee in international transactions.

Balance of Payments (BoP)

- The **Balance of Payments (BoP)** is a crucial indicator of a country's economic health, summarising its international transactions with the rest of the world.
 - Those transactions that **happen between Indian residents and Foreigners or nonresident Indians (NRIs)** are recorded in India's balance of payment.
- **Structure:** The BoP is broadly divided into two main accounts:
 - **Current Account:** This account reflects the **flow of goods, services, income, and current transfers.**
 - It deals with **transactions that do not change the overall assets or liabilities of Indian residents** abroad or foreign residents in India. It includes:
 - Exports and Imports of goods and services
 - Investment income (interest, dividends) and compensation of employees
 - Current transfers (gifts, aid, Remittances)
 - **Capital Account:** This account captures transactions involving **capital assets.**
 - It records transactions that **directly impact a country's foreign assets** and liabilities.
 - Acquisition or disposal of non-produced non-financial assets (land, intellectual property)
 - Includes **Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI)**, Investing in businesses abroad, borrowing from foreign entities, and deposits made by **NRIs in Indian banks** are examples of capital account transactions.



Note:

➤ Forex Reserves:

- Indian forex reserves are vital assets held by the **RBI in foreign currencies**.
 - They serve as a financial cushion, ensuring liquidity to meet external obligations and stabilize the nation's currency and economy.
- Components of Indian Forex Reserves:
 - Foreign Currencies:
 - The Indian forex reserves mainly consist of foreign currencies such as the US Dollar, Euro, and British Pound. These currencies provide liquidity and facilitate international trade transactions.
 - Gold Reserves:
 - It is an essential hedge against inflation and a safety net during economic uncertainties.
 - ◆ India has 800.78 tonnes of gold reserves.
 - Special Drawing Rights (SDRs):
 - **SDRs** are international reserve assets the IMF has created. They supplement the foreign exchange reserves of the member countries.
 - ◆ The SDR is based on a basket of international currencies comprising the USD, Japanese yen, euro, pound sterling and Chinese Renminbi.
 - Reserve Portion in IMF:
 - The reserve portion in the IMF represents India's quota in the **International Monetary Fund**. It reflects India's position and voting power within this global financial institution.
 - Impact on Indian Forex Reserves: Strengthens international standing.

Government Proposes Higher Reporting Limits for Ministry Expenditure

Why in News?

The **Public Accounts Committee** of Parliament has recently endorsed the Finance Ministry's proposal to increase the financial thresholds for expenditure on '**New Service**' and '**New Instruments of Service**' by government ministries and departments.

- This proposed revision in financial limits marks the 4th instance since Independence. The last revision occurred in 2005 but came into effect in 2006.

What are the New Financial Limits Proposed by the Finance Ministry?

- New Service and New Instruments of Service:
 - **New Service (NS)** denotes expenditure resulting from a **new policy decision not previously brought to Parliament's notice**, encompassing new activities or investments (**Article 115(1)(a)** of the Constitution).
 - **New Instrument of Service (NIS)** refers to a relatively significant expenditure stemming from a **notable expansion of an existing policy**.
- New Limit:
 - For expenditures between **Rs 50 crore and Rs 100 crore**, reporting to Parliament is mandatory, but approval is not needed upfront.
 - Prior parliamentary approval is required only if the spending surpasses Rs 100 crore.
 - The reporting limit for '**New Instrument of Service**' has been fixed at up to 20% of the original appropriation or up to Rs 100 crore, whichever is higher.
 - Parliament's approval becomes mandatory for amounts exceeding 20% of the original appropriation or above Rs 100 crore, subject to savings within the same grant section.

Note: Previously, the limits were very low between **Rs 10 lakh to Rs 2.5 crore** and the value differed across nearly 50 items of expenditure.

What are the Potential Benefits and Drawbacks of Increasing the Financing Limit?

- Potential Benefits:
 - **Reduced Frequency of Supplementary Demands:** In recent years, PAC and CAG highlighted increased supplementary spending without proper reporting or approval.
 - By raising the financial limits for spending, the need for **Supplementary Demands for Grants** would decrease. This streamlines the budgetary process.
 - **Reduced Administrative Bottlenecks:** The revision in financial limits reduces **bureaucratic hurdles** associated with seeking approvals for relatively smaller expenditures.

Note:

- This promotes efficiency in decision-making and implementation processes within government departments and agencies.
- **Adaptation to Economic Growth:** With an expected **GDP growth rate** of 6-7% year-on-year, the size of the budget is anticipated to increase substantially in the coming years.
 - Raising financial limits ensures that the budget can accommodate the evolving needs of a growing economy.
- Potential Drawbacks:
 - **Undermining Budgetary Discipline:** There is a risk that higher financial limits could be exploited for **misuse or misallocation of funds** if adequate oversight mechanisms are not in place.
 - This may lead to instances of corruption or wasteful spending.
 - It may also result in budgetary overshooting or deficits, impacting overall **fiscal health**.
 - **Lack of Accountability:** Increased financial autonomy for ministries and departments might result in **reduced accountability for how public funds are utilized**.
 - This could make it challenging to track expenditures and ensure that they align with intended purposes.
 - **Impact on Parliamentary Oversight:** Raising financial limits might reduce the frequency of parliamentary scrutiny over government expenditures, **limiting opportunities for meaningful debate and oversight**.
 - This could weaken the checks and balances essential for transparent governance.

What is the Public Accounts Committee?

- **About:** The Public Accounts Committee is an entity composed of selected members of parliament, established by the **Parliament of India**, with the primary mandate of **scrutinizing the revenue and expenditure** of the Government of India.
 - Its primary responsibility lies in auditing the reports provided by the **Comptroller and Auditor General (CAG)**, with the assistance of the CAG during investigations.
 - Notably, none of its members are permitted to hold ministerial positions in the government.

- **Members:** The PAC consists of a maximum of 22 members, with 15 elected by the Lok Sabha and up to 7 members from the Rajya Sabha.
 - Members are chosen annually through proportional representation via a **single transferable vote**.
 - The chairperson is appointed by the **Lok Sabha speaker**, and the term of office for members is 1 year.
 - The chairperson is predominantly from the opposition party.

What are the Different Types of Grants under Article 115?

- Supplementary Grant:
 - **Purpose:** When unforeseen expenses arise **during the current financial year**, and the allocated budget **for a specific service is insufficient**, a supplementary grant is sought.
 - **Approval Process:** The government presents an estimate of the additional funds required before Parliament for **approval before the end of the financial year**.
- Additional Grant:
 - **Purpose:** This grant is requested when a **need arises for additional expenditure on a completely new service** not foreseen in the original budget for the current financial year.
 - **Approval Process:** Similar to the supplementary grant, the government presents an estimate of the required funds before Parliament for approval before the end of the financial year.
- Excess Grant:
 - **Purpose:** This grant deals with situations where the **actual expenditure on a service has exceeded the amount** originally budgeted and **sanctioned by Parliament**.
 - **Approval Process:** Unlike the previous two, **an excess grant is presented after the end of the financial year in which the expenses were incurred**. The Ministry of Finance and Ministry of Railways present a "Demand for Excess Grant" to Parliament for their consideration.
 - Before the demands for excess grants are submitted to the Lok Sabha for voting, they must be approved by the Public Accounts Committee of Parliament.

Note:

Penicillin G and PLI Scheme

Why in News?

India will start manufacturing the common antibiotic **Penicillin G** in 2024, three decades after India's last plant shut down. This is **one of the successes of the government's Production Linked Incentive (PLI) scheme** launched during **Covid-19** to promote **domestic manufacturing**.

- Penicillin G is the **Active Pharmaceutical Ingredient (API)** used in manufacturing several common antibiotics.
- APIs, also called bulk drugs, are significant ingredients in the manufacture of drugs. The Hubei province of China is the hub of the API manufacturing industry.

WHAT IS PENICILLIN G

PENICILLIN G is the active pharmaceutical ingredient (API) used in several common antibiotics. An API is the main ingredient of a drug responsible for bringing about its desired effects. Like many other APIs, Penicillin G was phased out of production in India after cheaper Chinese products flooded the market. The last plant to stop production of the antibiotic was Torrent Pharma in Ahmedabad.

ACCORDING TO the United States government's National Library of Medicine, Penicillin G is a narrow spectrum antibiotic used for the treatment of several serious bacterial infections such as pneumonia, meningitis, gonorrhoea, syphilis, etc. Due to poor oral absorption, Penicillin G is generally administered intravenously or intramuscularly. Penicillin G may have some side effects in some patients.

Why did Penicillin Manufacturing Stop in India?

- Closure of Manufacturing:
 - Penicillin G, along with numerous other **active pharmaceutical ingredients (APIs)** manufactured in India, faced discontinuation due to the **influx of competitively priced Chinese alternatives** flooding the market.
 - During the 1990s, at least five companies were engaged in the production of Penicillin G within the country. However, the significantly lower prices of Chinese counterparts **rendered Indian manufacturers economically nonviable**, leading to the **closure of their operations**.
 - Many sizable manufacturing plants had to **be liquidated for scrap**.
 - Additionally, the **Drug Prices Control Order**, which enforced price caps on essential medicines, further **incentivized the adoption of cheaper imported products**.
 - For Example, India initially sold **Paracetamol at approximately Rs 800 per kilogram**, but the entry of Chinese competitors slashed prices to nearly Rs 400 per kilogram, rendering domestic production economically unviable..

- Delay in Revival:
 - Previously, there was **little urgency to revive Penicillin manufacturing domestically**, as cheaper alternatives were readily available in the global market.
 - The disruption in the supply chain during the pandemic **served as a wake-up call, highlighting the necessity for self-reliance**.
 - Consequently, the government initiated the PLI scheme to bolster domestic manufacturing.
 - The substantial initial costs pose a significant barrier, particularly fermented ones like Penicillin G, requiring considerable capital investment, with profitability **often taking years to achieve**.
 - Moreover, China has already emerged as a dominant supplier, having significantly expanded **its manufacturing capabilities over the past three decades**.
 - To compete with their prices would **necessitate substantial investments in larger facilities**.

Impact of PLI Schemes:

- There has been a significant **decrease in API imports** following the implementation of the PLI scheme.
 - For example, paracetamol, the imports have halved compared to pre-pandemic levels.
- However, despite this decline, a substantial portion of APIs, particularly for antibiotics, is still imported, highlighting the **need for further development in domestic API manufacturing**.
- The PLI scheme offers incentives, including a 20% support for the first four years, 15% for the fifth year, **and 5% for the sixth year** for fermentation-based bulk drugs like antibiotics, enzymes, and hormones such as insulin.
 - These drugs, which involve fermentation in their production process, are considered more challenging to manufacture.
 - Additionally, chemically synthesised drugs are eligible for a **10% incentive over six years on eligible sales**.

What is the Production Linked Incentive Scheme (PLI)?

- About:
 - The PLI scheme was conceived to scale up domestic manufacturing capability, accompanied by higher import substitution and employment generation.

Note:



- Launched in March 2020, the scheme initially targeted three industries:
 - Mobile and allied Component Manufacturing
 - Electrical Component Manufacturing and
 - Medical Devices.
- Later, it was extended to 14 sectors.
- In the PLI scheme, Domestic and Foreign companies receive financial rewards for manufacturing in India, based on a percentage of their revenue over up to five years.
- Targeted Sectors:
 - The 14 sectors are mobile manufacturing, manufacturing of medical devices, automobiles **and auto components**, pharmaceuticals, drugs, specialty steel, telecom & networking products, electronic products, white goods (ACs and LEDs), food products, textile products, solar PV modules, advanced chemistry cell (ACC) battery, **and drones and drone components**.
- Incentives Under the Scheme:
 - The incentives given, are calculated on the basis of incremental sales.
 - In some sectors such as advanced chemistry cell batteries, textile products and the drone industry, the incentive to be given will be calculated on the basis of sales, performance and local value addition done over the period of five years.
 - The emphasis on R&D investment will also help the industry keep up with global trends and remain competitive in the international market.
- Success in Smartphone Manufacturing:
 - In FY 2017-18, mobile phone imports were USD 3.6 billion, while exports were a mere USD 334 million, resulting in a -USD 3.3 billion trade deficit.
 - By FY 2022-23, imports reduced to USD 1.6 billion, while exports surged to nearly USD 11 billion, yielding a positive net exports of USD 9.8 billion.

Coal Logistics Plan and Policy

Why in News?

India has taken a groundbreaking step in its **coal sector** with the unveiling of the “**Coal Logistics Plan and**

Policy,” a transformative initiative aimed at **modernising coal transportation**.

What is the Coal Logistics Plan and Policy?

- **Background:** Coal logistics has long been a persistent issue in India, particularly during the **summer months** when power plants face shortages of coal amid rising electricity demand.
 - **Transportation of coal** has frequently posed challenges, leading to the need for railways to implement special measures to prevent supply disruptions.
- **About:** The Coal Logistics Plan and Policy aims to enhance coal logistics by making it more **affordable, efficient, and environmentally friendly**.
 - It encompasses various aspects such as storage, loading, unloading, and delivery of coal to power plants, steel mills, cement factories, and washeries.
 - It proposes a strategic shift towards a **railway-based system in First Mile Connectivity (FMC) projects**, aiming for a 14% reduction in rail logistic costs, and an annual cost-saving of Rs **21,000 Crore**.
- **Expected Outcomes:** It is expected to minimise air pollution, alleviate traffic congestion, and reduce carbon emissions by approximately 100,000 tonnes per annum.
 - Moreover, a **10%** saving in the average turnaround time of wagons nationwide is expected.

What is the Status of the Coal Sector in India?

- **Coal:** Coal is a naturally occurring, combustible **sedimentary rock** composed primarily of carbon, along with hydrocarbons.
 - It forms through the accumulation and decomposition of plant material over millions of years. Under pressure and heat, this organic matter undergoes physical and chemical changes, **transforming into coal**.
- **Coal Reserves in India:** India’s coal reserves are concentrated in the eastern and central parts of the country.
 - The major coal-producing states are **Odisha, Chhattisgarh and Jharkhand**, along with parts of **Madhya Pradesh**, and they account for 75% of domestic raw coal dispatches in India.

Note:

- **Types of Coal and Clusters in India:**
 - **Anthracite:** With a **carbon content ranging from 80% to 95%**, it is present in limited quantities primarily in Jammu and Kashmir.
 - **Bituminous coal:** Containing between **60% to 80% carbon**, it is predominantly found in regions such as Jharkhand, West Bengal, Odisha, Chhattisgarh, and Madhya Pradesh.
 - **Lignite:** It is characterised by its **carbon content of 40% to 55%** and high moisture levels, and is primarily found in areas including Tamil Nadu, Puducherry, Gujarat, Rajasthan and Jammu & Kashmir.
 - **Peat:** With a **carbon content below 40%**, it represents the earliest stage of the transformation from organic matter, such as **wood, into coal**.
- **Significance of Coal for India:** Coal is the most important and abundant fossil fuel in India. It accounts for **55% of the country's energy needs**.
 - The country's industrial heritage was built upon indigenous coal. Currently, **70%** of India's power demand is met by thermal power plants, which are mostly powered by **coal**.
 - Over the past four decades, commercial primary energy consumption in India has surged by approximately **700%**.
 - Current per capita consumption stands at around **350 kilograms of oil equivalent per year**, still lower than developed countries.
- **Coal Imports in India:** Present import policy allows for the **unrestricted import of coal under Open General License**.
 - Consumers, including the steel, power, and cement sectors, as well as coal traders, can import coal based on their commercial requirements.
 - Steel sector primarily imports **coking coal** to supplement domestic availability and improve quality.
 - Other sectors like power and cement, along with coal traders, import **non-coking coal** to meet their respective needs.

What are the Challenges Related to Coal for India?

- **Environmental Impact:** Coal mining and combustion contribute to **air and water pollution, greenhouse gas emissions, deforestation**, and habitat destruction. Addressing these environmental impacts while ensuring energy security is a significant challenge.

- **Health Risks:** Exposure to **coal dust, particulate matter**, and harmful emissions from **coal-fired power plants** poses health risks to communities living near coal mines and power plants, leading to respiratory diseases and other health issues.
- **Land Acquisition and Rehabilitation:** Acquiring land for coal mining projects often involves displacement of communities and disruption of livelihoods.
 - Proper rehabilitation and resettlement of affected populations remain a challenge, with many communities facing social and economic hardships.
- **Technological Constraints:** Despite advancements in clean coal technologies, such as **carbon capture and storage (CCS)**, the widespread adoption of these technologies in India remains limited due to high costs and technical challenges.
- **Transition to Renewable Energy:** The coal sector in India faces challenges amidst the country's commitment to transitioning to renewable energy sources and reducing greenhouse gas emissions.
 - Finding a balance between ensuring energy security and meeting climate change mitigation objectives is a significant hurdle.
 - At **COP28**, India advocated for a **"phase down"** of coal power instead of a complete **"phase out."**

Why India Advocates for Phasing Down Coal Instead of Phasing Out?

- **Energy Security:** Coal currently plays a crucial role in India's energy security, providing a significant portion of the country's electricity generation.
 - Phasing out coal abruptly could lead to **disruptions in energy supply, impacting industries, businesses, and households**.
- **Economic Considerations:** **Coal mining** and related industries support millions of jobs and contribute significantly to India's economy.
 - A sudden shift away from coal could result in job losses and economic instability in coal-dependent regions.
 - Also, currently, renewable energy sources like **solar and wind** are not as cost-effective as coal.
- **Infrastructure Investment:** India has made substantial investments in coal-based infrastructure, including power plants and associated facilities.
 - Phasing out coal prematurely would lead to **stranded assets and wasted investments**, adversely affecting the economy.

Note:

Market Monopoly and Anti-Competitive Practices

Why in News?

Recently, a dispute has emerged between Google and app developers, where Google removed almost a dozen firms **out of its marketplace for Android apps**.

- The dispute incorporates concerns over **Market Monopoly** and **Anti-Competitive practices**, with Google's firm grip over the Android app ecosystem serving as a focal point of contention.

What is the Issue Between Google and App Developers?

- Background and Context:
 - Google's Android platform and its app marketplace, **Google Play, dominate the Indian smartphone ecosystem**.
 - Indian app developers rely heavily on Google Play for **distribution and monetization of their apps**, making them susceptible to Google's policies and fees.
 - The dispute stems from Google's **imposition of fees ranging from 11% to 30% on in-app purchases of digital services**, which developers consider excessive and harmful to innovation and competition.
- Issues and Concerns:
 - Indian app developers, including major players like **Bharat Matrimony and Disney+ Hotstar**, have challenged Google's fees in court, citing economic burden and lack of choice.
 - The **Competition Commission of India (CCI)** has fined Google for **anticompetitive practices**, indicating **regulatory scrutiny** over its market dominance and pricing policies.
 - The conflict underscores broader concerns about platform monopolies and their impact on **small and medium-sized enterprises (SMEs)**, innovation, and consumer welfare.
- International Comparisons:
 - Similar disputes between tech giants and app developers have occurred globally, with **Apple facing scrutiny over its App Store fees** and practices.
 - Legal and regulatory actions in jurisdictions like the **European Union and the United States** serve

as precedents for addressing **antitrust concerns** and enforcing **fair competition** in digital markets.

How Does the Play Store Work?

- Google's operating system Android runs on **Samsung, OnePlus, Motorola and Oppo among other smartphones**.
- Some of the Google apps and Play Store come pre-installed in the phones that a user buys.
- But in order to add a new app, the user **has to visit the Play Store and download it**.
- Apps on Google have three options to accept payments for digital services, Google's billing system, alternative payment where the company charges the commission and consumption mode where the developer redirects the user to an external website to accept payments.

What is Market Monopoly?

- About:
 - Market monopoly refers to a situation in which a **single company or a group of companies dominates** and controls a significant share of a particular market or industry.
 - In a monopoly, there is only **one seller or producer that provides a specific product or service**, and there are no close substitutes available to consumers.
 - This gives the monopolistic entity substantial market power, allowing it to influence the market conditions, set prices, and control the supply of goods or services.
- Features of Market Monopoly:
 - Single Seller or Producer:
 - In a monopoly, there is **only one entity that dominates the entire market**. This company is the exclusive provider of a particular product or service.
 - High Barriers to Entry:
 - Monopolies often arise when there are significant barriers **preventing new competitors from entering the market**. Barriers may include high startup costs, exclusive access to resources, government regulations, or strong brand loyalty.
 - No Substitutes:
 - Consumers have **limited or no alternative options** for the product or service offered by the monopolistic company. There are no close substitutes available in the market.

Note:

- Market Power and Pricing Control:
 - The monopoly has considerable market power, allowing it to **control prices without significant fear** of competition. This can lead to higher prices for consumers and potentially reduced output.
- Influence Over Supply:
 - The monopoly has control over the supply of the product or service. It can determine the quantity produced and adjust supply to impact market conditions.
- Lack of Competition:
 - Due to the absence of competitors, monopolies operate in an environment where there is no direct competition for their specific product or service. This lack of competition can result in reduced incentives for innovation and efficiency.

What are the Key Terms Related to Anti-Competitive Practices?

- Predatory Pricing:
 - Predatory pricing occurs when a **company intentionally sets its prices below cost** in order to drive competitors out of the market. Once competitors are eliminated, the **company can raise prices to recoup losses** and enjoy a monopolistic position.
- Cartels:
 - Cartels are **associations of independent businesses** or countries formed to regulate production, pricing, and marketing of goods or services.
 - Cartels are typically illegal and are known for fostering anti-competitive behaviour.
- Mergers:
 - Mergers involve the **combination of two or more companies** into a single entity. While **not all mergers are anti-competitive**, some may reduce competition in a particular market, leading to regulatory scrutiny.
- Price Discrimination:
 - Price discrimination occurs when a **seller charges different prices to different customers for the same product** or service. While not always illegal, it can be considered anti-competitive if it harms competition.

- Price Fixing Agreements:
 - Price fixing involves an agreement between competitors to set a specific price for their products or services. This **eliminates competition and artificially inflates prices, violating antitrust laws**.

What are the Indian and International Initiatives to Deal with Market Monopoly?

- **Indian:**
 - **Competition Act, 2002:** The **Competition Act, 2002**, is the primary legislation in India addressing antitrust issues. It was enacted to promote and sustain competition in markets, prevent anti-competitive practices, and protect the interests of consumers.
 - **Competition Amendment Bill, 2022:** The proposed amendment aims to further **strengthen the regulatory framework**, address emerging challenges, and enhance the effectiveness of competition law enforcement.
 - **Competition Commission of India (CCI):** **CCI** is the regulator of competition **under the Competition Act, 2002** in the Indian market. It is responsible for enforcing the provisions of the Competition Act 2002. It consists of a Chairperson and Members appointed by the Central Government.
 - The CCI investigates and takes actions against anti-competitive practices, abuse of dominant position, and anti-competitive agreements.
 - **Competition Appellate Tribunal and NCLAT:** The **Competition Appellate Tribunal (COMPAT)** was initially responsible for hearing appeals against CCI decisions.
 - However, in 2017, the government **replaced COMPAT with the National Company Law Appellate Tribunal (NCLAT)**, which now handles appeals related to competition matters.
- International Initiatives:
 - **OECD Competition Committee:** The **OECD (Organisation for Economic Cooperation and Development)** addresses anti-competitive practices through various initiatives, including the **OECD Competition Committee**, which facilitates discussions and cooperation among member countries on competition-related issues.

Note:

- **United Nations Conference on Trade and Development (UNCTAD):** It provides guidance on competition policy and law through its Intergovernmental Group of Experts on Competition Law and Policy, supporting countries in implementing effective competition frameworks.
 - It also **deals with the policies to protect consumers** from abuse and curb regulations that stifle competition.
- **International Competition Network (ICN):** The ICN is a **network of competition authorities** from around the world. It facilitates communication and cooperation among member jurisdictions to address global competition challenges.
 - The ICN provides a platform for sharing best practices and developing guidelines on various aspects of competition law.
- **World Trade Organization (WTO):** While primarily focused on trade issues, the **WTO addresses competition policy** through its Working Group on

the interaction between Trade and Competition Policy.

- The aim is to ensure that competition policies do not create unnecessary barriers to trade.

Thailand's Concern over India's Agriculture Subsidy

Why in News?

Recently, Thailand's ambassador to the **World Trade Organisation (WTO)** accused India of exporting rice at unfairly low prices funded by Government Subsidy.

- Thailand stated that India's **Public Distribution System (PDS)**, under which the government procures essential food items from producers and sells them to the public at low rates, is not for the people but for "capturing" the export market.

WTO AGREEMENT ON AGRICULTURE (AoA)

A WTO treaty negotiated during the Uruguay Round of the General Agreement on Tariffs and Trade (GATT); formally ratified in 1994 at Marrakesh, Morocco; Came into effect in 1995

FEATURES

- ▶ Market access (Promote market access for agricultural products by reducing trade barriers)
- ▶ Domestic support (Subsidy Boxes are included in this)
- ▶ Export subsidies (Reduce the use of export subsidies, which can distort trade)

SUBSIDY BOXES

Amber Box Subsidies:

- ➔ Can distort international trade by making a country's products cheaper in comparison to those of other countries
 - ▶ Examples: Subsidies for inputs such as fertilisers, seeds, electricity, irrigation, and Minimum Support Price (MSP)
- ➔ Amber box is used for all domestic support measures that are deemed to distort production and trade
 - ▶ As a result, the signatories are required to commit to reducing domestic supports that fall into the amber box
- ➔ Members who do not make these commitments must keep their amber box support within 5–10% of their value of production. (*De Minimis Clause*)
 - ▶ 10% for developing countries
 - ▶ 5% for developed countries
- ➔ India's MSP program remains under scrutiny, as it exceeds 10% ceiling

Blue box Subsidies:

- ➔ "Amber box with conditions" – designed to reduce distortion
- ➔ Any support that would normally be in the amber box is placed in the blue box if it requires farmers to limit production
 - ▶ These subsidies aim to limit production by imposing production quotas or requiring farmers to set aside part of their land
- ➔ At present there are no limits on spending on blue box subsidies

Green Box Subsidies:

- ➔ Domestic support measures that don't cause trade distortion or at most cause minimal distortion
- ➔ These subsidies are government funded without any price support to crops
 - ▶ Also include environmental protection and regional development programmes
- ➔ Allowed without limits (except in certain circumstances)



Note:

What are Thailand's Concerns Regarding India's Agriculture Subsidy?

- Trade Distortion and Impact on Global Food Prices:
 - Thailand views India's **Public Stockholding Programme (PSH)** as highly subsidised, distorting global food prices.
 - **Trade distortion is a situation** where prices and production are higher or lower than levels that would usually exist in a competitive market.
 - Subsidized agricultural production can lead to overproduction and lower prices, making it difficult for unsubsidized competitors like Thailand to compete in the global market.
- **Violation of WTO Regulations:**
 - India's breach of the **de minimis limit** for rice subsidies is a violation of WTO regulations. This breach not only affects the competitive landscape but also undermines the principles of fair trade established by the WTO's Agreement on Agriculture.
 - The WTO norms say that the **support given** should be **within the 10% de minimis limit**. India informed the WTO that the value of its rice production in 2019-20 was USD 46.07 billion while it gave subsidies worth USD 6.31 billion or **13.7%, as against the permitted 10%**.
- Desire for Agricultural Trade Liberalization:
 - As part of the **Cairns Group**, Thailand advocates for agricultural trade liberalization.
 - The group seeks to reduce trade barriers and subsidies that distort global agricultural markets, including lobbying against India to dismantle or reduce the scope of its **Minimum Support Price (MSP) scheme**.

Development Box

- **Article 6.2 of the Agriculture Agreement** under WTO, allows developing countries additional flexibility in providing domestic support.
- The type of support that fits into the developmental category are measures of assistance, **whether direct or indirect**, designed to encourage agricultural and rural development and that are an integral part of the development programmes of developing countries.
- They include **investment subsidies which are generally available to agriculture** in developing country members, agricultural input subsidies generally available to low-income or resource-poor producers in developing country members, and domestic support to producers in developing country **members to encourage diversification from growing illicit narcotic crops**.

What is India's Concerns Related to WTO Subsidy Norm?

- Comparison with Developed Countries:
 - India emphasises the **stark difference between the subsidies it provides** to farmers compared to developed countries **like the US and EU (European Union)**.
 - While India's subsidy per farmer is relatively low at USD 300, the subsidies provided by the US and EU can be as high as **USD 40,000 per farmer**.
 - This comparison highlights the **disparity in support provided to farmers between developed and developing countries**.
- Breach of De Minimis Limit:
 - India acknowledges that **it breached the 10% de minimis limit** for subsidies, which triggered the "peace clause" established in 2013.
 - The interim **peace clause was put in place in 2013 under the Bali Agreement** to protect developing countries from being challenged for breach of subsidy levels.
 - However, India has questioned the **way subsidies are calculated at the WTO**, saying it is calculated at a fixed and outdated 1986-88 price, which overestimates the subsidy.
 - India is seeking to **change it at the WTO negotiations on agriculture**.
- Need for Permanent Solution:
 - India, along with a group of developing countries, advocates for a **permanent solution regarding public stockholding** for food grains.
 - This solution aims to provide greater flexibility to developing countries in providing farm support without facing challenges for breaching subsidy levels.

What are Cairns Group and G-33 Group?

- Cairns Group:
 - **Established:** 1986 in Cairns, Australia
 - **Members:** **19 agricultural exporting countries**, including Argentina, Australia, Brazil, Canada, Pakistan, and New Zealand.
 - India is not a Member of Cairns Group.
 - **Stance:** Advocates for **liberalization of agricultural trade**, meaning they generally support reducing tariffs, subsidies, and other trade barriers that

Note:

hinder the **free flow of agricultural products across borders**. They believe this will benefit all countries by promoting efficiency and economic growth.

- G-33 Group:
 - **Established:** Prior to the 2003 Cancun ministerial conference
 - **Members:** Originally **33 developing countries**, currently around 48, including **India, China, and Cuba**.
 - **Stance:** Advocates for **special treatment for developing countries in agricultural trade negotiations**.
 - They argue that developing countries need more flexibility to protect their domestic agricultural sectors and ensure food security, even if it means maintaining some trade barriers.
 - They are also **concerned about the potential negative impacts** of full trade liberalization on their livelihoods and rural development.

What is the WTO's Peace Clause?

- As an interim measure, the **WTO** members agreed on a mechanism called the '**Peace Clause**' in **December 2013** and pledged to negotiate a permanent solution.
- Under the Peace Clause, WTO members agreed to **refrain from challenging any breach** in the prescribed ceiling by a developing nation **at the dispute settlement forum of the WTO**.
- This clause will **stay till a permanent solution** is found to the food stockpiling issue.

Household Consumption Expenditure Survey 2022-23

Why in News?

Recently, the **Ministry of Statistics and Program Implementation** disclosed the general results of the **All India Household Consumption Expenditure Survey** conducted from **August 2022 to July 2023**.

What are the Highlights of the Recent Household Consumption Expenditure Survey?

- **About:** The **Household Consumption Expenditure Survey (HCES)** is conducted by the **National Statistical Office (NSO)** every 5 years.

- It is designed to collect information on the consumption of goods and services by households.
- The data collected in HCES is also utilized for deriving various other macroeconomic indicators such as **Gross Domestic Product (GDP)**, **poverty rates**, and **Consumer Price Inflation (CPI)**.

- **NITI Aayog** has stated that the latest consumer expenditure survey indicated that **poverty has come down to 5%** in the country.

- The findings of the last HCES, conducted in **2017-18** were not released after the government cited "**data quality**" issues.

- **Information Generated:** Provides information on the typical spending on both goods (including food and non-food items) and services.

- Additionally, assists in calculating estimates for household **Monthly Per Capita Consumer Expenditure (MPCE)** and analyzing the distribution of households and individuals across different MPCE categories.

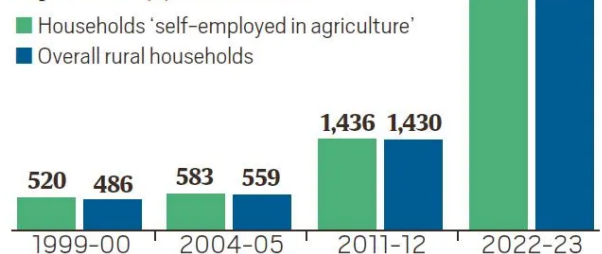
- **Highlights of the Recent Survey:** The estimates of average monthly per capita consumption expenditure were generated **without imputing the value figures of the items received free by the households** through various social welfare programmes such as **Pradhan Mantri Garib Kalyan Yojana**.

- **Increase in MPCE:** It reveals a **33.5%** increase in MPCE in urban households since 2011-12, reaching **₹3,510**, while rural India's MPCE increased by **40.42%** to **₹2,008**.

- In 2022-23, **46%** of rural household expenditure and **39%** of urban household expenditure were on food items.

CONSUMPTION IN RURAL AREAS

Average monthly per capita expenditure (₹) in rural areas



Source: Household Consumption Expenditure surveys

Note:

- **Distribution of MPCE by Population Percentiles:** The **bottom 5%** of India's rural population, ranked by MPCE, has an average MPCE of Rs. 1,373 while it is Rs. 2,001 for the same category of population in the urban areas.
 - The **top 5%** of India's rural and urban population, ranked by MPCE, has an average MPCE of Rs. 10,501 and Rs. 20,824, respectively.
- **State-wise MPCE Variations:** Sikkim has the **highest MPCE** in both rural (₹7,731) and urban areas (₹12,105), while Chhattisgarh has the **lowest** with ₹2,466 for rural households and ₹4,483 for urban households.
 - The **rural-urban difference** in average MPCE, among the states is the highest in Meghalaya (83%) followed by Chhattisgarh (82%).
- **UT-wise MPCE Variations:** Among the UTs, **MPCE is the highest in Chandigarh** (Rural Rs. 7,467 and Urban Rs. 12,575), whereas, it is the **lowest in Ladakh** (Rs. 4,035) and Lakshadweep (Rs. 5,475) for rural and urban areas respectively.
- **Food Spending Trends:** Since the 1999-2000 survey, the **share of expenditure on food has gradually declined** and the share of non-food items has increased for both urban and rural households.
 - A decline in food spending is understood as an increase in incomes, which then means **having more money for other expenditures** like on medical, clothing, education, conveyance, durables, fuel, entertainment, among other things.
 - The recent survey result showed that the share of **cereals and pulses** within overall food consumption expenditure has been **reducing**, both in rural and urban households.
 - Among the non-food items, the share of spending on **conveyance** was the highest.
 - Till 2022-23, **fuel and light** used to see the highest consumption spending among the non-food items.

What is the National Statistical Office?

- **About:** Formed in 2019 by merging the **Central Statistical Office (CSO)** and the **National Sample Survey Office (NSSO)**.
 - **C. Rangarajan Committee** first suggested the establishment of **NSO** as the nodal body for all core statistical activities.
 - It currently works under the **Ministry of Statistics and Programme Implementation (MoSPI)**.
- **Function:** Collects, compiles, and disseminates reliable, objective, and relevant statistical data.

UAE's Exit from FATF Grey List

Why in News?

The recent removal of the **United Arab Emirates (UAE)** from the **Financial Action Task Force (FATF) grey list** has sparked optimism for investment landscapes, particularly in India's **Non-Banking Financial Companies (NBFCs)**.

How does the UAE's Exit from Grey List Impact Investments in Indian NBFCs?

- **Investment Policies:** A **Reserve Bank of India (RBI)** circular in 2021 outlined investment regulations for NBFCs, distinguishing between investments from compliant and non-compliant FATF jurisdictions.
 - Investments from non-compliant jurisdictions faced restrictions on acquiring significant influence in Indian NBFCs.
- **Impact on UAE Investors:** The UAE's removal from the FATF grey list facilitates easier investment for UAE-based investors in Indian NBFCs.
- **Cross-Border Investment Facilitation:** The eased restrictions encourage cross-border investments between India and the UAE, benefiting both the countries' financial sectors.
- **Increase in FPI and FDI:** The UAE's exit may reduce **Know Your Customer (KYC)** requirements for **foreign portfolio investment (FPIs)** from the region, potentially boosting FPI inflows into India (expected to double).
 - Removal of UAE from grey list may lead to increased **foreign direct investment (FDI)** contributing to economic growth. This competition could drive innovation and attract more investments to both regions.

What is a Non-Banking Financial Company (NBFC)?

- **About:** An NBFC is a company registered under the **Companies Act, 1956**, involved in various financial activities such as providing loans and advances, acquiring shares, stocks, bonds, debentures, and securities issued by the government or local authorities.
 - NBFCs do not include institutions primarily engaged in:
 - Agricultural or industrial activities
 - Purchase or sale of goods (other than securities)
 - Providing services
 - Dealing in immovable property.

Note:

- Difference Between Banks & NBFCs:
 - While banks can accept **demand deposits** from customers, NBFCs are not permitted to do so.
 - NBFCs are **not part of the payment and settlement system**, unlike banks.
 - NBFCs cannot issue cheques drawn on themselves, which banks are authorised to do.
 - The deposit insurance facility provided by Deposit Insurance and Credit Guarantee Corporation is not available to NBFC depositors, unlike bank depositors.

What is FATF?



Note:

International Relations

Highlights

- India Sri Lanka Relations

- Nordic-Baltic Cooperation

India Sri Lanka Relations

Why in News?

Recently, Sri Lanka Sustainable Energy Authority and Indian company **U-Solar Clean Energy Solutions** have signed a contract for building “**Hybrid Renewable Energy Systems**” in Delft or Neduntheevu, Nainativu and Analaitivu islands off the Jaffna peninsula in Sri Lanka.

- The project is supported through grant assistance of USD 11 million grant from the Government of India.
- The Sri Lankan Cabinet earlier cleared **Sinsoar-Etechwin Joint Venture in China**, a project from China, to execute renewable energy projects in these three islands in Sri Lanka, **which now has been replaced by India**.

What is the Hybrid Renewable Energy System Project of Sri Lanka?

- **About:**
 - It involves the construction of hybrid renewable energy systems, **combining various forms of energy including** solar, wind, battery power, and standby diesel power systems.
 - This initiative is part of India’s broader support for energy projects in Sri Lanka, particularly in the northern and eastern regions.
 - The National Thermal Power Corporation and the Adani Group are also involved in other renewable energy projects in different parts of Sri Lanka.
- **Capacity:**
 - The project aims **to address the energy needs** of the inhabitants of the three islands. It includes 530 kW of wind power, 1,700 kW of solar power, and 2,400 kWh of battery power and 2,500 kW of stand by diesel power system.

➤ Geopolitical Context:

- The project reflects geopolitical dynamics, with **India offering grant assistance (instead of China’s loan based project)** in response to concerns about a **Chinese-backed project in the region**.
- This reflects a broader competition for influence between India and China in the **Indian Ocean region**.
- The project **not only addresses energy needs but also has geopolitical implications**, demonstrating the strategic importance of energy infrastructure in the region.



How have Relations Between India and Sri Lanka Been?

- **Historical Ties:**
 - India and Sri Lanka have a long history of cultural, religious, and trade ties dating back to ancient times.
 - There are strong cultural ties between the two countries, with many Sri Lankans tracing their heritage to India. **Buddhism**, which originated in India, is also an important religion in Sri Lanka.
- **Financial Assistance from India:**
 - India provided approximately **USD 4 billion worth of aid to Sri Lanka** during an unprecedented economic crisis, which was crucial for the country to survive the crisis.

Note:

- Sri Lanka was hit by a catastrophic **financial crisis in 2022**, the worst since its independence from Britain in 1948, due to a severe paucity of **foreign exchange reserves**.
- **Role in Debt Restructuring:**
 - India has played a role in collaborating with the **International Monetary Fund (IMF)** and creditors to help Sri Lanka in restructuring its debt.
 - India became the first country to hand over its letter of support for financing and debt restructuring of Sri Lanka.
- **Joint Vision for Connectivity:**
 - Both countries have agreed on a joint vision that emphasises comprehensive connectivity, including People to People connectivity, **renewable energy cooperation, logistics**, port connectivity, and grid connectivity for electricity trade.
- **Economic and Technology Cooperation Agreement (ETCA):**
 - Both countries are exploring the possibility of an ETCA to integrate their economies and foster development.
- **Agreement on a Multi-Project Petroleum Pipeline:**
 - Both India and Sri Lanka have agreed to establish a multi-product petroleum pipeline from the **southern part of India to Sri Lanka**.
 - This pipeline aims to ensure an affordable and reliable supply of energy resources to Sri Lanka. Recognition of energy's critical role in economic development and progress is driving the focus on establishing the petroleum pipeline.
- **Adoption of India's UPI:**
 - Sri Lanka has now **adopted India's UPI service**, which is a significant step towards enhancing fintech connectivity between the two countries.
 - **The use of rupee for trade settlement** is further helping Sri Lanka's economy. These are concrete steps to help Sri Lanka's economic recovery and growth.
- **Economic Ties:**
 - India is Sri Lanka's third largest export destination, after the US and UK. More than 60% of Sri Lanka's exports enjoy the benefits of the **India-Sri Lanka Free Trade Agreement**. India is also a major investor in **Sri Lanka**.

- **Foreign Direct Investment (FDI)** from India amounted to around USD 1.7 billion over the years from 2005 to 2019.
- **Defence:**
 - India and Sri Lanka conduct joint military (**Mitra Shakti**) and Naval exercise (**SLINEX**).
- **Participation in Groupings:**
 - Sri Lanka is also a member of groupings like **BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)** and **SAARC** in which India plays a leading role.
- **Tourism:**
 - In 2022, India was the largest source of tourists for Sri Lanka with over 100,000 tourists.

What is the Significance of India and Sri Lanka Relations?

- **Focus on Regional Development:**
 - India's progress is intricately linked with its neighbouring nations, and Sri Lanka aims to enhance its **own growth by integrating with the Southern economy, in South Asia**.
- **Geographical Location:**
 - Sri Lanka, positioned near **India's southern coast across the Palk Strait**, holds a crucial role in the relationship between the two nations.
 - The Indian Ocean is a strategically important waterway for trade and military operations, and **Sri Lanka's location at the crossroads of major shipping lanes** makes it a critical point of control for India.
- **Ease of Doing Business & Tourism:**
 - The enhancement of digital payment systems across the two nations will promote economic integration and simplify business transactions between India and Sri Lanka.
 - This advancement will not only streamline trade but also improve connectivity for tourism exchanges between the two nations.

What are the Challenges in India-Sri Lanka Relations?

- **Fisheries Dispute:**
 - One of the longstanding issues between India and Sri Lanka is related to fishing rights in the **Palk Strait** and the **Gulf of Mannar**. Indian fishermen

Note:

have often been arrested by Sri Lankan authorities for allegedly crossing the maritime boundary and engaging in illegal fishing in Sri Lankan waters.

- This has led to tensions and occasional incidents involving **fishermen from both countries**.

➤ Katchatheevu Island Dispute:

- The Katchatheevu issue **revolves around the ownership and usage rights** of the uninhabited island of Katchatheevu, located in the Palk Strait between India and Sri Lanka.

- In 1974, an agreement between the Prime Ministers of India and Sri Lanka recognized Katchatheevu as part of **Sri Lanka's territory**, altering its ownership.

- However, the agreement **allowed Indian fishermen to continue fishing in the surrounding waters**, dry their nets on the island and permitted Indian pilgrims to visit a **Catholic shrine there**.

- Despite historical usage by fishermen from both countries, **a supplementary pact in 1976 defined maritime boundaries** and exclusive economic zones, imposing restrictions **on fishing activities without explicit permission**.

➤ Border Security and Smuggling:

- The porous maritime boundary between India and Sri Lanka has been a concern in terms of border security and the **smuggling of goods, including narcotics and illegal immigrants**.

➤ Tamil Ethnic Issue:

- The **ethnic conflict in Sri Lanka**, particularly involving the Tamil minority, has been a sensitive topic in India-Sri Lanka relations. India has historically been concerned about the welfare and rights of the Tamil community in Sri Lanka.

➤ China's Influence:

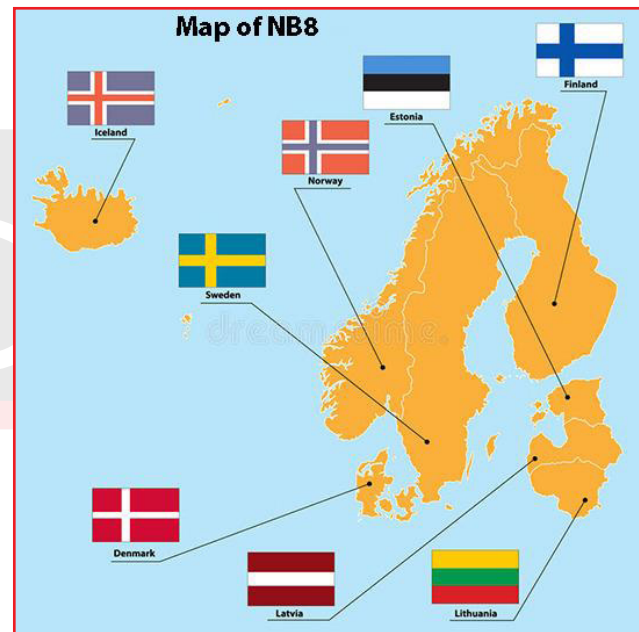
- India has expressed **concerns about China's increasing** economic and strategic influence on Sri Lanka, including Chinese investments in infrastructure projects and the development of the **Hambantota Port**. This has sometimes been viewed as a challenge to India's own interests in the region. Some Chinese Projects in Sri Lanka are:
 - In 2023, Sri Lanka reached an agreement with the **Export-Import (EXIM) Bank of China** to cover about USD 4.2 billion of its outstanding debt.

- China has made investments as the South Asia Commercial and Logistics Hub (SACL) at Colombo Port, led by China Merchants Port Holdings.
- **Faxian Charity Project**, involves distributing food rations and offering aid to vulnerable communities in Sri Lanka.

Nordic-Baltic Cooperation

Why in News?

At **Raisina Dialogue 2024**, **8 Nordic-Baltic countries (NB8)** participated together as representatives of the Nordic-Baltic cooperation.



What is Nordic-Baltic Cooperation?

- **About:** The Nordic-Baltic cooperation is an informal regional cooperation format established in **1992**, bringing together **5 Nordic (Finland, Sweden, Norway, Denmark, and Iceland)** and **3 Baltic countries (Estonia, Latvia, and Lithuania)**.
 - It was named the **Nordic-Baltic Eight (NB8)** in 2000 on the initiative of Toomas Hendrik Ilves (former Estonian Foreign Minister).
 - **Sweden** holds the chairmanship of the NB8 in 2024.
- **Key Report:** One of the main documents on NB8 cooperation is the **NB8 Wise Men Report**, also known as the **Birkavs-Gade Report**, which provides concrete guidelines for promoting cooperation between the eight countries.

Note:

- **NB8 and India:** Collaboration between Nordic-Baltic countries and India spans various fields including innovation, **green transition, maritime affairs, health, intellectual property rights, technology, space and tourism.**
 - In November 2023, the **2nd CII (Confederation of Indian Industries) India Nordic-Baltic Business Conclave** was held in New Delhi, aiming to foster collaboration between India and the NB8.
- **Outreach of NB8:** Since 2003, there have been regular meetings at the political directors' level between the NB8 countries and the United States, known as the **e-PINE format.**
 - Additionally, in 2011, an agreement was reached to convene meetings between the prime ministers of the NB8 countries and the United Kingdom, evolving into what is now recognised as the **Northern Future Forum.**
- **NB6:** When the Baltic countries became members of the **European Union** in **2004**, the NB6 format was created.
 - This includes the European Union member states of the NB8, namely **Denmark, Finland, Sweden, Latvia, Lithuania and Estonia**, and provides a framework for informal meetings to discuss topical EU issues.
 - **Iceland and Norway** are not members of the European Union.



Note:

Social Issues

Highlights

- *Levels and Trends in Child Mortality*
- *Challenges Faced by the Gig Workers*
- *Snakebite Envenoming*
- *Abortion*
- *Enhancing Accessibility for Persons with Disabilities*
- *World Poverty Clock*
- *Women, Business and the Law 2024*
- *Growing Obesity in India*
- *Rare Disease Day 2024*
- *Marriage Can't be Grounds to Sack Women from the Military*

Levels and Trends in Child Mortality

Why in News?

Recently, the United Nations Inter-agency Group for Child Mortality Estimation, has released a report titled- **Levels and Trends in Child Mortality**, which highlighted that the annual number of global under-five deaths in 2022 declined by more than half from the 2000 estimate — from 9.9 million to 4.9 million.

What are the Key Highlights of the Report?

- **Historic Low in Child Mortality:**
 - The annual number of under the age of five deaths dropped to **4.9 million in 2022**, representing a significant achievement in the global effort to reduce child mortality.
 - This is coupled with a **decline of more than half in the global under-five mortality rate (U5MR)** since 2000.
 - The decline in under-five mortality has been consistent, driven by sustained commitment from various stakeholders including governments, organisations, local communities, healthcare professionals, and families.
- **Persistent High Death Toll:**
 - Despite the progress, the annual death toll among children, adolescents, and youth remains unacceptably high.
 - In 2022, **2.3 million under-five deaths** occurred during the **first month of life, and an additional 2.6 million children** died between the ages of 1 and 59 months.
 - Furthermore, 2.1 million children, adolescents, and youth aged 5–24 also died that year.
- **Magnitude of Lives Lost:**
 - Between 2000 and 2022, the world lost 221 million children, adolescents, and youth, with nearly the **entire population of Nigeria being a staggering comparison.**
 - Neonatal deaths (death of a baby within 28 days of birth) accounted for 72 million of these under-five deaths, and deaths among children aged 1–59 months numbered 91 million.
 - The trend of under-five deaths has increased in the neonatal period from 41% in 2000 to 47% in 2022.
- **Inequality in Survival Chances:**
 - Children face unequal chances of survival based on factors such as **geographical location, socio-economic status**, and whether they live in fragile or conflict-affected settings.
 - These disparities highlight persistent and entrenched inequities among vulnerable populations of children.
- **Regional Disparities:**
 - While global rates of child mortality are declining, there are significant regional disparities.
 - 35 million children under the age of 5 will lose their life before 2030 and **sub-Saharan Africa will bear most of the death toll.**
 - Countries will not meet the UN-mandated **Sustainable Development Goal (SDG)** targets on time.
 - If, however, every country realised the SDG-5 vision of an end to preventable under-five deaths and met the relevant mortality targets on time, 9 million **more children would survive to age five.**

Note:

- Under current trends, 59 countries will miss the SDG (Sustainable Development Goals) under-five mortality target and 64 countries will miss the neonatal mortality target.
- **Recommendations:**
 - Several low- and lower-middle-income countries have outperformed the global decline in under-five mortality, in some cases slashing their rates by more than two thirds since 2000.
 - These inspiring outcomes demonstrate the high returns when **investments are made in maternal, newborn and child health and survival**.
 - They also provide important proof that if **sustained and strategic action is taken – even in resource constrained settings** – levels and trends in under five mortality will shift and lives will be saved.

What can be done to Curb Child Mortality?

- **Increase Access to Family Planning Services:** Providing comprehensive family planning services can help prevent unintended pregnancies, which can reduce the risk of preterm births and stillbirths.
- **Improve Antepartum Services:** Enhancing antenatal care services, including regular health and nutrition check-ups for pregnant women, can contribute to healthier pregnancies and reduce the likelihood of preterm births and stillbirths.
 - Ensuring access to iron folic acid supplementation for pregnant mothers can also improve maternal and foetal health.
- **Identification and Management of Risk Factors:** Implementing effective screening programs to identify and manage risk factors associated with preterm births and stillbirths can help mitigate adverse outcomes.
 - This includes managing conditions such as hypertension, diabetes, and infections during pregnancy.
- **Improve Data Recording and Reporting:** Enhancing data collection systems to accurately record and report preterm births and stillbirths is crucial for understanding the magnitude of the problem and implementing targeted interventions effectively.
 - Adopting standardised classification systems, such as the International Classification of Diseases, for reporting perinatal mortality can improve data quality and comparability.
- **Implement Surveillance Guidelines:** Ensuring effective implementation of maternal and perinatal deaths surveillance guidelines can help in identifying trends, risk factors, and opportunities for intervention.
 - This includes timely reporting and analysis of maternal and perinatal deaths to inform policy and practice.

What are India's Initiatives for Women Nutrition and Preventing Child Mortality?

- **POSHAN Abhiyaan:** The government of India has launched the **National Nutrition Mission (NNM)** or POSHAN Abhiyaan to ensure a “Malnutrition Free India” by 2022.
 - Further, in order to enhance the effectiveness and efficiency of the Poshan Abhiyaan, **Mission SakshamAnganwadi and Poshan 2.0**, the integrated nutrition support programme was announced in **budget 2021-2022 for all States/UTs**.
 - Steps have been taken to improve nutritional quality and testing in accredited labs, strengthen delivery and leverage technology under Poshan Tracker to improve governance.
- **Anemia Mukt Bharat Abhiyan:** Launched in 2018, the mission aims at accelerating the annual rate of decline of anaemia from one to three percentage points.
- **Mission Shakti:** ‘Mission Shakti’ comprises two sub-schemes ‘Sambal’ and ‘Samarthya’ for safety and security of women and empowerment of women respectively.
 - The schemes of **One Stop Centres (OSC)**, **Women Helplines (181-WHL)**, **Beti Bachao Beti Padhao (BBBP)** and Nari Adalat are part of ‘Sambal’ sub- scheme.
 - The components of **Pradhan Mantri Matru Vandana Yojana (PMMVY)**, Palna, Shakti Sadan, Sakhi Niwas and Hub for Empowerment of Women are **part of ‘Samarthya’ sub scheme**.
- **Integrated Child Development Services (ICDS) Scheme:** It was launched in 1975 and the scheme aims at providing food, preschool education, primary healthcare, immunisation, health check-up and referral services to children under 6 years of age and their mothers.

Note:

Challenges Faced by the Gig Workers

Why in News?

Recently, a study was conducted by the **People's Association in Grassroots Action and Movements**, and the Indian Federation of App-based Transport Workers, Which highlights the challenges encountered by the **Gig Workers** such as app-based cab and delivery drivers/ persons in India.

What are the Key Highlights of the Study?

- **Long Working Hours:**
 - Almost a third of app-based cab drivers **work for over 14 hours a day**, with more than 83% working more than **10 hours and 60% working over 12 hours**.
 - Social disparities exacerbate the situation, with over 60% of drivers from **Scheduled Castes (SC) and Scheduled Tribes (ST)** working for over 14 hours a day.
- **Low Pay:**
 - Over **43% of gig workers earn less than Rs 500 a day** or Rs 15,000 a month after deducting all costs.
 - Additionally, 34% of app-based delivery persons earn less than Rs 10,000 a month. These income disparities **contribute to existing social inequalities**.
- **Financial Strain:**
 - 72% of cab drivers and 76% of delivery persons face difficulty managing expenses, with **68% of cab drivers' overall expenses exceeding their earnings**, potentially leading to debt-like situations.
- **Unsatisfactory Compensation:**
 - Over 80% of app-based cab drivers were unsatisfied with the fares offered by the companies, while over 73% of app-based delivery persons were dissatisfied with their rates.
 - The survey claims that **employers are deducting between 31-40% of the commission rate** per ride of drivers, while the officially claimed figure by the companies themselves is **20%**.
- **Work Conditions:**
 - Due to demanding work hours, drivers are **physically exhausted and at increased risk of road traffic accidents** especially due to the **'10-minute delivery**

at the doorstep' policy of certain e-commerce platforms.

- Many drivers and delivery persons **struggle to take regular days off**, with less than 37% of drivers belonging to a union.
- **Issues with Platforms:**
 - Workers face issues such as **ID deactivation and customer misbehaviour**, negatively impacting their ability to work effectively.
 - A significant majority of drivers and delivery persons **report negative effects from customer behaviour**.
- **Recommendations:**
 - The report recommended regulations to **ensure that companies establish fair and transparent payment structures** to protect gig workers from being underpaid or exploited by companies.
 - Payment of a minimum wage to platform workers **will help guarantee a fixed component** in the income.
 - In instances of blocking the IDs of workers, such practices should not be **allowed and IDs of workers cannot be indefinitely blocked**.
 - The platforms need to **address rising voices of income insufficiency** and respond to worker demands such as reducing the amount of commission they charge per transaction or making separate payments for workers' fuel bill, which keeps inflating as fuel prices rise.
 - The study recommends **stronger social security for app-based workers** and government oversight on the fairness of algorithms and mechanisms used by platforms to monitor workers.

Who are Gig Workers?

- **Gig Workers:**
 - Gig workers are individuals who work **on a temporary, flexible basis**, often for multiple clients or companies, performing tasks or providing services.
 - They are typically **independent contractors rather than traditional employees**, which means they have more control over when, where, and how they work.
- **Gig Economy:**
 - A free market system in which temporary positions are common and organisations contract with independent workers for short-term engagements.

Note:



Why is it Essential to Provide Social Security Benefits to Gig Workers?

➤ Economic Security:

- The 'demand-based only' nature of the sector results in a lack of job security and uncertainty attached to the continuity of income making it even more reasonable to provide social security benefits like **unemployment insurance, disability coverage**, and retirement savings programs.

➤ More Productive Workforce:

- Lack of access to employer-sponsored health insurance and other healthcare benefits leaves **gig workers vulnerable to unexpected medical expenses**; prioritising their health and well-being will create a healthier and more productive workforce.

Note:

- **Equity in Opportunities:**
 - Exemption from traditional employment protections creates disparities where gig workers face exploitative working conditions and inadequate compensation. Providing social security benefits will level the playing field.
- **Long-term Financial Security:**
 - Without employer-sponsored retirement plans, gig workers may struggle to save enough for their future. Enabling **gig workers to save for retirement** will reduce the risk of future financial hardship and dependence on public assistance programs.

What are the Main Challenges in Providing Social Security Benefits to Gig Workers?

- **Classification and Excess Flexibility:**
 - Blurred boundaries between self-employment and dependent employment, and freedom to work for multiple firms or quit at will, make it difficult to determine the extent of company obligations towards gig workers.
 - The gig economy is **characterised by its flexibility**, allowing workers to choose **when, where, and how much they work**.
 - Designing social security benefits that accommodate this flexibility and meet the diverse needs of gig workers is a complex task.
- **Funding and Cost Distribution:**
 - Traditional social security systems rely on **employer and employee contributions**, with employers typically bearing a significant portion of the costs.
 - In the gig economy, **where workers are often self-employed**, identifying appropriate **funding mechanisms becomes complex**.
- **Coordination and Data Sharing:**
 - Efficient data sharing and coordination among gig platforms, government agencies, and financial institutions are **necessary to accurately assess gig workers' earnings**, contributions, and eligibility for various social security programs.
 - However, as gig workers **often work for multiple platforms** or clients, it becomes **challenging to coordinate** and ensure proper coverage.
- **Education and Awareness:**
 - Many gig workers may **not fully understand their**

rights and entitlements regarding social security benefits.

- Raising awareness and providing education about the importance of social security, eligibility criteria, and the application process is a challenging task.

What can be done to Ensure Social Security of Gig Workers?

- **Implementing Code on Social Security, 2020:**
 - Although the Code on Social Security, 2020, contains provisions for gig workers, **the rules are yet to be framed by the States** and not much has moved in terms of instituting the Board. These should thus be **taken up expeditiously by the government**.
- **Adopt International Examples:**
 - The **UK** has instituted a model by **categorising gig workers as "workers,"** which is a category between employees and the self-employed.
 - This secures them a **minimum wage, paid holidays**, retirement benefit plans, and health insurance.
 - Similarly, in Indonesia, they are **entitled to accident, health, and death insurance**.
- **Expanding Employer Responsibilities:**
 - Strong support for gig workers should come from the **gig companies** that themselves **benefit from this agile and low-cost work arrangement**.
 - The practice of classifying gig workers as self-employed or independent contractors needs to be eliminated.
 - Companies must be **provided equal benefits as that of a regular employee**.
- **Government Support:**
 - The **government should invest** in systematically increasing exports in high-skill gig work such as in the education, financial advisory, legal, medicine or customer management sectors; by making it easier for Indian **gig workers to access global markets**.
 - Also, it would **require collaboration between governments**, gig platforms, and labour organisations to establish fair and transparent mechanisms for sharing the responsibility of providing social security benefits.

Note:

Government's Initiatives Related to Gig Workers

- The **Code on Social Security, 2020**, contains a separate section on 'gig economy' and imposes an **obligation on gig employers to contribute to a Social Security Fund** to be handled by a government-led board.
- The **Code on Wages, 2019**, provides for **universal minimum wage and floor wage** across organised and unorganised sectors, including gig workers.

Snakebite Envenoming

Why in News?

Recently, the Ministry of Health and Family Welfare has launched a **National Action Plan for Prevention and Control of Snakebite Envenoming (NAP-SE)**, under the '**One Health**' approach.

What is the National Action Plan for Prevention and Control of Snakebite Envenoming (NAP-SE)?

- **About:**
 - The NAP-SE provides a broad framework for **management, prevention and control of Snakebite envenoming** in India.
 - This NAP-SE echoes the global voice of reducing the **deaths due to snakebite envenoming by half** and envisages all strategic components, roles and responsibilities of concerned stakeholders.
 - The NAP-SE is a guidance document for the states/UTs and stakeholders to develop their **own action plan, specific to their needs and aims** at systematic reduction of snakebite envenoming risk through sustained availability of anti-snake venom, capacity building, referral mechanism and public education.
- **Aim:**
 - To prevent and **control snakebite envenoming** in order to **halve the numbers** of deaths and cases of disability that it **causes by 2030**.
 - To progressively **reduce the morbidity, mortality** and its associated complications **in humans due to Snake bite**.
- **Strategic Actions:**
 - **Human Health:** The strategic action for human health component includes **ensuring provision of anti snake venom at all health facilities**, strengthening surveillance of snakebite cases and deaths in humans.

- Strengthening of emergency care services at District Hospitals/ CHCs including services for ambulances, institutionalisation of Regional Venom Centre's and inter-sectoral coordination.
- **Wildlife Health:** The strategic action for wildlife health component includes education awareness, **antivenom distribution**, strengthening of the key stakeholders, systematic research and monitoring and **snake venom collection and snake relocation**.
- **Animal and Agriculture Component:** The strategic action for animal and agriculture component includes **prevention of snakebites in livestock**, community engagement etc.

What is Snakebites Envenoming (SE)?

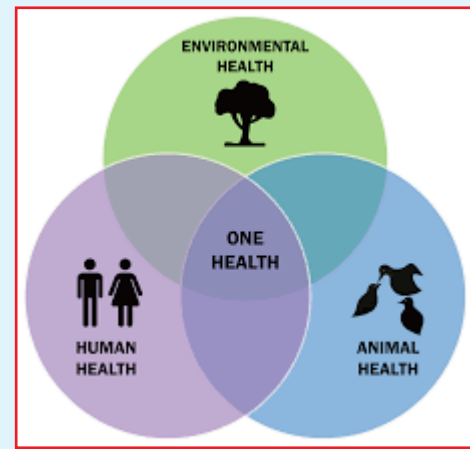
- **About:**
 - Snakebite Envenoming (SE) is classified by the **World Health Organisation (WHO)** as a **High-Priority Neglected Tropical Disease (NTD)**.
 - SE is a potentially life-threatening disease that typically results **from the injection of a mixture of different toxins** (venom) following the bite of a Venomous Snake.
 - It can also be caused by having **venom sprayed into the eyes by certain species of snakes** that have the ability to spit venom **as a defence measure**.
 - Snakebite poses a significant **daily health risk in rural tropical and subtropical regions** of Africa, the Middle East, Asia, Oceania, and Latin America, particularly for the hundreds of millions of people in rural and peri-urban communities reliant on agriculture and subsistence activities for survival.
- **B**
 - Many snakebite victims, mostly in developing countries, suffer from long-term complications such as deformities, contractures, amputations, visual impairment, renal complications and psychological distress.
- **Prevalence:**
 - **In India, around 50,000 deaths** occur of an estimated 3-4 million snake bites annually which accounts for **half of all snakebite deaths globally**.
 - **Only a small proportion of snake bite victims across countries report to the clinics** and hospitals and actual burden of snake bite is grossly underreported.

Note:

- As per the **Central Bureau of Health Investigation (CBHI)** reports (2016-2020), the average annual frequency of **snakebite cases in India is around 3 lakhs** and about **2000 deaths** occur due to **snakebite envenoming**.
- In India, around **90% of snake bites** are caused by the **'big four' among the crawlers** - common krait, Indian cobra, Russell's viper and saw scaled viper.
- **WHO's Roadmap for SE:**
 - WHO launched its **roadmap in 2019** with an aim to **halve death and disability from snakebite by 2030**.
 - In order to create a **sustainable market for antivenoms** there is a need for a **25% increase** in the number of competent manufacturers by 2030.
 - WHO has planned a **pilot project to create a global antivenom stockpile**.
 - Integrating snakebite treatment and response into national health plans in affected countries, including **better training of health personnel** and educating communities.
- **Indian Initiatives:**
 - Much before the WHO roadmap was launched, researchers from **Indian Council of Medical Research (ICMR)** started **community awareness** and health system capacity building **from the year 2013**.
 - In alignment with **WHO's Snakebite Envenoming Strategy** and the United Nations' Sendai **Framework for Disaster Risk Reduction**, India ratified a National Action Plan in 2015 to combat this issue.

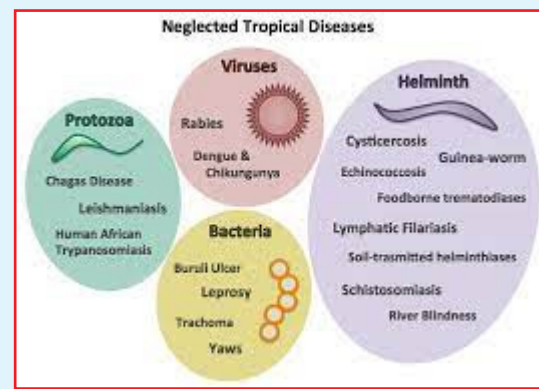
What is the One Health Concept?

- One Health is an approach that recognises that the **health of people is closely connected to the health of animals and our shared environment**.
- One Health' vision derives its blueprint from the agreement between the **tripartite-plus alliance** comprising the **Food and Agriculture Organization of the United Nations (FAO)**, the **World Organisation for Animal Health (OIE)**.
- It's purpose is to **encourage collaborations in research** and sharing of knowledge at multiple levels **across various disciplines** like human health, animal health, plants, soil, environmental and ecosystem health in ways that improve, **protect and defend the health of all species**.



What are Neglected Tropical Diseases (NTDs)?

- NTDs are a **group of infections** that are most **common among marginalized communities** in the developing regions of Africa, Asia and the Americas.
- They are caused by a variety of **pathogens** such as viruses, bacteria, protozoa and parasitic worms.
- NTDs are especially common in tropical areas where **people do not have access** to clean water or safe ways to dispose of human waste.
- These diseases generally receive less funding for research and treatment than malaises like **tuberculosis, HIV-AIDS** and **malaria**.
 - Examples of NTDs are: **snakebite envenomation**, scabies, yaws, trachoma, **Leishmaniasis** and Chagas disease etc.



Abortion

Why in News?

Recently, the French lawmakers have overwhelmingly

Note:

approved a bill to enshrine abortion rights in **France's constitution**, making it the only country to explicitly guarantee a **woman's right to voluntarily terminate a pregnancy**.

- The approved bill amends **Article 34 of the French Constitution**, explicitly stating that "the law determines the conditions by which the freedom of women to have **recourse to an abortion**, which is guaranteed."

Note: The bill was brought forth in response to concerns about the erosion of abortion rights globally, particularly **highlighted by the US Supreme Court's decision in *Roe v Wade case* to overturn long standing abortion rights in 2022.**

What is Abortion?

➤ About:

- Abortion is the **deliberate termination of a pregnancy**, typically performed during the **first 28 weeks of gestation**. It can be achieved through various medical procedures or medications, depending on the stage of pregnancy and the preferences of the individual seeking abortion.
- Abortion can be a highly contentious and debated topic, often involving ethical, moral, religious, and legal considerations.

➤ Proponents:

- Proponents of abortion rights **argue that it is a fundamental reproductive right** that allows individuals to make choices about their own bodies, health, and future.
- They emphasise the **importance of access to safe and legal abortion services** in preventing unwanted pregnancies, protecting women's health, and supporting reproductive autonomy.

➤ Opponents:

- Opponents of abortion, often referred to as "**pro-life**," **believe that abortion is morally wrong** and should be restricted or prohibited entirely.
- They typically argue that **life begins at conception** and that terminating a pregnancy is equivalent to taking a human life, thus violating the rights of the unborn foetus.

➤ Legal Provisions Related to Abortion in India:

- Until the 1960s, **abortion was prohibited in India**, and violating this led to imprisonment or fines under **Section 312 of the Indian Penal Code**.
 - The **Shantilal Shah Committee was set up in the mid-1960s** to investigate the need for abortion regulations.
 - Based on its findings, the **Medical Termination of Pregnancy (MTP) Act, 1971** was enacted, allowing safe and legal abortions, safeguarding women's health, and reducing maternal mortality.
 - The Supreme Court recognized **martial rape as a ground for abortion**, even though **marital rape itself is not recognized**, in a progressive move for women's reproductive rights.
- The **MTP Act, 1971**, allows abortion **up to 20 weeks of gestation**, with the consent of the woman and **on the advice of one registered medical practitioner (RMP)**. However, the law was **updated in 2002 and 2021**.
 - The **MTP Amendment Act, 2021** permits **abortion from 20 to 24 weeks of gestation** for specific cases like rape survivors, with approval from two doctors.
 - It sets up **state level Medical Boards** to decide if a pregnancy may be terminated **after 24 weeks** in cases of substantial fetal abnormalities.
- It extends the **failure of contraceptive clauses to unmarried women** (initially only married women), allowing them to **seek abortion services** on grounds of their choice, irrespective of their marital status.
 - Consent requirements vary based on age and mental state, ensuring medical practitioner oversight.
- The Constitution of India, which guarantees the **right to life and personal liberty** to all citizens under **Article 21**. This right has been interpreted by the Supreme Court of India to **include the right to reproductive choice** and autonomy for women.

Note:

Time Since Conception	MTP Act, 1971	MTP (Amendment) Act, 2021
Up to 12 weeks	On the advice of one doctor	On advice of one doctor
12 to 20 weeks	On advice of two doctors	On advice of one doctor
20 to 24 weeks	Not allowed	On advice of two doctors for special categories of pregnant women
More than 24 weeks	Not allowed	On advice of medical board in case of substantial fetal abnormality
Any time during the pregnancy	On advice of one doctor, if immediately necessary to save pregnant woman's life	On advice of one doctor, if immediately necessary to save pregnant woman's life

Note: In *Justice K.S. Puttaswamy (Retd.) vs. the Union Of India Case, 2017*, the Supreme court recognized the constitutional right of women to make reproductive choices, as a part of personal liberty under **Article 21** of the Indian Constitution.

What are the Concerns Related to Abortion?

➤ Cases of Unsafe Abortions:

- Unsafe abortions are the **third leading cause of maternal mortality** in India, and close to 8 women die from causes related to unsafe abortions each day, according to the **United Nations Population Fund (UNFPA)**'s State of the World Population Report 2022.
- The women outside marriages and in poor families are left with no choice but to use unsafe or illegal ways to abort unwanted pregnancies.

➤ Preference for a Male Child:

- The selective abortion of female foetuses is most common **where male children are valued over female children**, especially in parts of East Asia and South Asia (particularly in countries such as China, India and Pakistan).

➤ Shortage of Medical Expert in Rural India:

- According to a **2018 study in the Lancet**, 15.6 million abortions were accessed every year in India as of 2015.
- The MTP Act requires abortion to be performed only by doctors with specialisation in gynaecology or obstetrics.

- However, the Ministry of Health and Family Welfare's 2019-20 report on Rural Health Statistics indicates that there is a **70% shortage of obstetrician-gynaecologists in rural India**.

Enhancing Accessibility for Persons with Disabilities

Why in News?

Recently, the **Central Public Works Department (CPWD)** has prioritised improving **accessibility for persons with disabilities (PwDs) in public buildings**. Despite the enactment of the **Rights of Persons with Disabilities Act in 2016**, challenges remain, leading the CPWD to implement measures to ensure adherence to accessibility standards.

What is the Rights of Persons with Disabilities (RPwDs) Act, 2016?

➤ About:

- The RPwDs Act, 2016, implements the **United Nations Convention on the Rights of Persons with Disabilities**, ratified by India in 2007.
- It replaced the **Persons with Disabilities (Equal Opportunity, Protection of Rights and Full Participation) Act, 1995**.

Note:



- In India, there were around 26.8 million **persons with disabilities or Divyangjan**, constituting **2.21% of India's total population (2011 Census)**.
- The **National Sample Survey Office (NSSO)** estimates that 2.2% of the Indian population is disabled.
 - NSSO 76th round, 2019 states that additionally, the incidence of disability in the Indian population during a 365-day period per **1,00,000 people was recorded to be 86**.
- **Expanded Definition of Disability:**
 - Disability is defined based on an evolving and dynamic concept.
 - In the RPWD Act, 2016, the types of disabilities increased from 7 to 21, with a provision for the Central Government to add more.
- **Rights and Entitlements:**
 - Appropriate governments tasked with **ensuring equal rights for persons with disabilities**.
 - Additional benefits such as **reservation in higher education** (minimum 5%), **government jobs** (minimum 4%), and **allocation of land** (minimum 5%) provided for persons with benchmark disabilities and those with high support needs.
 - **Free education guaranteed for every child** with a benchmark disability between 6 and 18 years.
 - Government-funded and recognized educational institutions mandated to provide inclusive education to children with disabilities.
 - Emphasis on making public infrastructure and facilities accessible to persons with disabilities, enhancing their participation and inclusion.
- **Mandates for Public Buildings:**
 - Rule 15 of the **Rights of Persons with Disabilities Rules, 2017** mandates the central government to establish guidelines and **standards for public buildings to ensure accessibility for persons with disabilities**.
 - These standards encompass the physical environment, transport, and **information and communication technology** for persons with disabilities.
 - Every establishment, including public buildings, must adhere to these standards based on the 2016 harmonised guidelines.
 - **Recent amendments to Rule 15** require establishments to comply **with the 2021 harmonised**

guidelines, ensuring accessibility for persons with disabilities.

- The comprehensive guidelines cover planning, tendering, and specifications for various accessibility features such as ramps, grab rails, lifts, and toilets with considerations for persons with disabilities.
- All building plans must align with these guidelines to ensure equal access for persons with disabilities.
- Existing buildings are mandated to **undergo retrofitting within five years to meet accessibility standards**, promoting better inclusivity for persons with disabilities.

Note: The **21 disabilities, in RPWD Act, 2016, include** Blindness, Low-vision, **Leprosy Cured Persons**, Hearing Impairment (deaf and hard of hearing), Locomotor Disability, Dwarfism, **Intellectual Disability**, Mental Illness, Autism Spectrum Disorder, **Cerebral Palsy**, Muscular Dystrophy, Chronic Neurological Conditions, **Specific Learning Disabilities (Dyslexia)**, Multiple Sclerosis, Speech and Language Disability, Thalassaemia, Hemophilia, **Sickle Cell Disease**, Multiple Disabilities including deaf-blindness, **Acid Attack victim**, and **Parkinson's disease**.

What are the Other Initiatives Related to the Empowerment of the Disabled?

- **Unique Disability Identification Portal.**
- **DeenDayal Disabled Rehabilitation Scheme.**
- **Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances.**
- **National Fellowship for Students with Disabilities.**
- **Divya Kala Mela 2023.**
- **Accessible India Campaign**

What are the Concerns Regarding Accessibility in Public Buildings?

- PwDs and activists report that the guidelines established in 2016 have **not been effectively implemented**. Furthermore, the newer 2021 guidelines are facing similar neglect from state governments.
 - Analysts state that **no state has yet incorporated the harmonized guidelines into their building by-laws**, indicating a widespread failure to address accessibility issues.

Note:

- Experts highlight a **lack of awareness and accountability** among engineers of public works departments responsible for implementing accessibility guidelines.
- Funds for retrofitting projects are available, but many states and cities have **not submitted applications for them**, indicating a failure to prioritise accessibility initiatives.
- The Central Public Works Department's **memo lacks clarity and may lead to unnecessary resource wastage**, further hindering the effective implementation of accessibility measures.

Central Public Works Department (CPWD)

- The CPWD was originally established in July 1854 as the Ajmer Provisional Division. Its primary objective was to execute public works, encompassing disciplines such as **architecture, engineering, project management, and building construction and maintenance**.
- Currently, CPWD operates under the Ministry of Urban Development and has a nationwide presence.
- CPWD serves as the prime engineering bloc of the Union government, consisting of three divisions: Buildings and Roads (B&R), Electrical and Mechanical (E&M), and Horticulture.
- In 2016, CPWD embraced **modern dust-free construction methods**, particularly the monolithic system, for all projects exceeding a budget of Rs 100 crore.
 - The **monolithic system involves pouring concrete for beams and slabs together**, forming a unified construction component.

World Poverty Clock

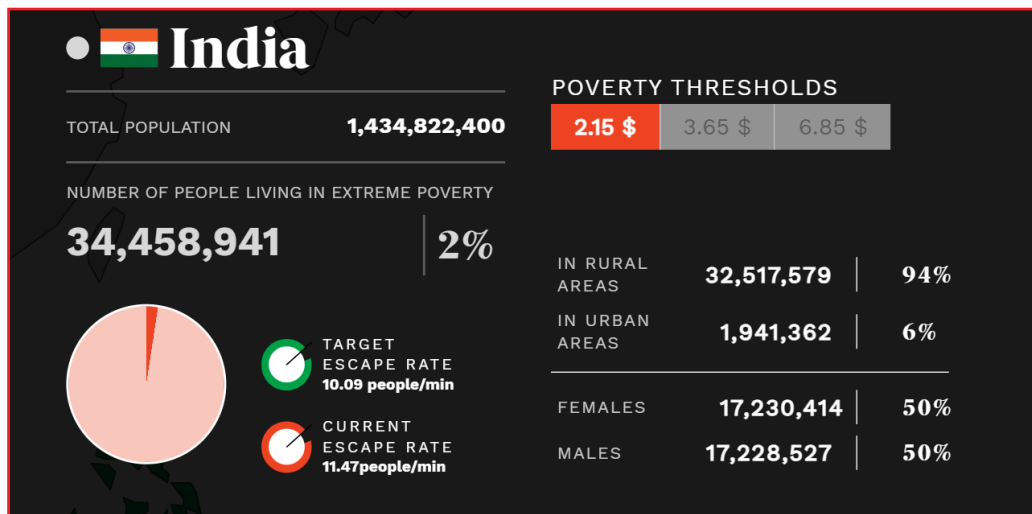
Why in News?

According to the latest data from the **World Poverty Clock**, India has successfully reduced the proportion of its population living in **'extreme poverty'** to below 3%.

- It signifies a substantial step towards accomplishing the **first of the 17 Sustainable Development Goals (SDGs)** set by the **United Nations**, with the target year of 2030.

What are the Key Findings of the World Poverty Clock?

- **About:**
 - The World Poverty Clock tracks **real-time poverty estimates** until 2030 for almost all countries, monitoring progress **toward ending extreme poverty**.
 - The Clock shows the worldwide **number of people in extreme poverty**, sorting them **by age, gender, and rural or urban residency**, capturing both those **escaping poverty** and those falling into it every second.
 - The escape rate calculates the **current rate of poverty reduction** in the world.
 - It is backed by the **International Fund for Agricultural Development (IFAD)** and Germany's **Federal Ministry for Economic Cooperation and Development**.



Note:

➤ Methodology and Key Findings:

- It computes poverty rates by considering **income levels**, with the poverty threshold established at **USD 2.15 per day**.
 - The USD 2.15-a-day poverty line, reflecting national poverty lines in some of the **poorest countries**, is commonly known as the **extreme poverty line**.
 - It is used to monitor progress towards the **World Bank's** goal of reducing the share of people living in extreme poverty to less than 3% by 2030.
- The **population in India experiencing extreme poverty** declined to approximately 3.44 crore in 2024 from 4.69 crore in 2022, accounting for **2.4% of the total population**.
 - These figures confirm a claim by the CEO of **NITI Aayog** that less than **5% of Indians are projected to be below the poverty line**, with extreme destitution nearly eradicated, based on the **Household Consumption Expenditure Survey (HCES), 2022-23**.

Growth in poverty control

	Total population (in crore)	Number of people living in extreme poverty	%
2016	132.37	7.59	5.7
2018	135.29	6.26	4.6
2020	138.21	6.73	4.9
2022	140.85	4.69	3.3
2024	143.48	3.44	2.4

Source: www.worldpoverty.io

➤ Other Global Targets:

- **SDG target 1.1** aims for global **poverty eradication by 2030**, setting the ambitious goal for all countries, regions, and groups to reach **zero poverty** at the same international poverty line.
- Niti Aayog Recent Paper On Poverty:
 - A recent **NITI Aayog** discussion paper revealed

a significant reduction in **multidimensional poverty** in India, dropping from 29.17% in 2013-14 to 11.28% in 2022-23, leading to 24.82 crore individuals escaping multidimensional poverty over the 9-year period.

- The paper analysed multidimensional poverty trends in India from 2005-06 to 2022-23, using **National Family Health Survey (NFHS) data** and projection methods for years without NFHS data.

Women, Business and the Law 2024

Why in News?

Recently, the **World Bank (WB) Group** has released a report titled-**Women, Business and the Law 2024**, presenting in-depth analysis of the **challenges obstructing women's entry into the global workforce**, hindering their ability to contribute to prosperity for themselves, their families and their communities.

What is Women Business and Law 2024 Report?

- Its indexes align **areas of the law and public policy** instruments with the economic decisions that women make throughout their lives and careers, identifying where and in what areas women continue to face hurdles.
- **Indicators:** It has 10 indicators- Safety, Mobility, Workplace, Pay, Child Care, Marriage, Parenthood, Entrepreneurship, Assets, and Pension.
 - **Safety from violence and access to childcare services** are very crucial indicators.

What are the Key Highlights of the Report?

➤ Legal Frameworks Index:

- Among the **Organisation for Economic Co-operation and Development (OECD)** high-income economies, 11 scored 90 or above, with **Italy leading at 95, followed by New Zealand** and Portugal with 92.5.
- By contrast, more than 37 economies **provide women with less than half of the legal rights** enjoyed by men, affecting approximately half a billion women. Notably, high-income economies have an **average score of 75.4**.

Note:

- Upper-middle-income economies follow closely, with an average score of 66.8. The gap in scores between the highest- and lowest scoring economies is most pronounced in high-income economies, with a substantial difference of 75 points.
 - **Women Enjoy Fewer Legal Rights than Men:**
 - Women around the world **enjoy only 64% of the legal protections** that men do, when legal differences involving violence and childcare are taken into account. This is even **lower than the previous estimate of 77%**.
 - **Gap Between Legal Reforms and Actual Outcomes for Women:**
 - Even though many countries have enacted laws promoting gender equality, there is a **significant gap between these laws** and the actual experiences of women.
 - **98 economies have enacted legislation** mandating equal pay for women for work of equal value.
 - Yet **only 35 economies**, fewer than one out of every five, have adopted pay-transparency measures to address the pay gap.
 - **Poor Performances by the Countries:**
 - **Togo** has been a **standout among Sub-Saharan economies**, enacting laws that give women roughly 77% of the rights available to men, more than any other country in the continent.
 - Yet Togo, so far, has **established only 27% of systems necessary for full implementation**.
 - This rate is average for Sub-Saharan economies.
 - In 2023, governments were assertive in advancing **three categories** of legal equal-opportunity reforms, **Pay, Parental Rights, and workplace protections**.
 - Still, nearly **all countries performed poorly** in the two categories being tracked for the first time—**access to childcare and women’s safety**.
 - **Women’s Safety:**
 - The **greatest weakness is in women’s safety**, with the global average score being **just 36**. Women have **barely a third of the necessary legal protections** against domestic violence, sexual harassment, child marriage, and femicide.
 - Although 151 economies have laws in place **prohibiting sexual harassment in the workplace**, just 39 have laws prohibiting it in public spaces. This often prevents women from using public transportation to get to work.
 - **Childcare:**
 - Women spend an average of **2.4 more hours a day** on unpaid care work than men, much of it on the care of children.
 - Only 78 economies, fewer than half, provide **some financial or tax support for parents** with young children.
 - **Only 62 economies**—fewer than a third—have **quality standards governing childcare services**, without which women might think twice about going to work while they have children in their care.
 - **Significant Obstacles for Women:**
 - Women face significant obstacles in other areas. In the area of **entrepreneurship**, for example, just **one in every five economies** mandates gender-sensitive criteria for public procurement processes, meaning **women are largely cut out of a USD 10-trillion-a-year economic opportunity**.
 - In the area of pay, **women earn just 77 cents for every USD 1 paid to men**. The rights gap extends all the way to retirement. In 62 economies, the ages at which men and women can retire are not the same.
 - Women tend to live longer than men, but because they receive lower pay while they work, **take time off when they have children**, and retire earlier, they end up with smaller pension benefits and greater financial insecurity in old age.
- How did India Perform in Women, Business and the Law 2024 Report?**
- India’s rank has marginally **improved to 113, with a score of 74.4%**. While the country’s score has remained constant since 2021, its ranking witnessed a **decline from 122 in 2021 to 125 in 2022** and further to 126 in the 2023 index.
 - Indian women have **just 60% of the legal rights compared to men**, slightly below the global average of 64.2%.
 - However, India **outperformed its South Asian counterparts**, where women have only 45.9% of the legal protections enjoyed by men.
 - When it comes to constraints on freedom of movement and constraints related to marriage, **India got a full score**.
 - India receives **one of its lowest scores** in the indicator evaluating **laws impacting women’s pay**.

Note:



- To enhance this aspect India could explore **measures such as mandating equal pay for equivalent work**, permitting women to work at night on par with men and enabling women to engage in industrial jobs on an equal footing with men.
- When it comes to **supportive frameworks**, India scored higher than both the global and South Asian averages.

What are the Recommendations of the Report?

- **Eliminating discriminatory laws and practices** hindering women from working or initiating businesses could result in a more than 20% increase in global **gross domestic product**.
 - It has the potential to **double the rate of global growth** in the upcoming decade.
- Effective implementation of equal-opportunity laws depends on an **adequate supporting framework**, including strong enforcement mechanisms, a system for tracking gender-related pay disparities, and the **availability of healthcare services** for women who survive violence.
- It is more urgent than ever to **accelerate efforts to reform laws** and enact public policies that **empower women to work** and start and grow businesses.
- Increasing **women's economic participation** is the key to amplifying their voices and **shaping decisions that affect them directly**.

Growing Obesity in India

Why in News?

A recent study published in *The Lancet* has shed light on the alarming increase in obesity rates among children, adolescents, and adults over the past few decades worldwide.

- This comprehensive analysis was conducted by the **NCD Risk Factor Collaboration (NCD-RisC)** in collaboration with the **World Health Organization**.
- The study looked at **body mass index (BMI)** to understand **how obesity and underweight** have changed worldwide from 1990 to 2022.

Note: NCD-RisC is a network of health scientists around the world that provides rigorous and timely data on major risk factors for **non-communicable diseases** for all of the world's countries.

What are the Key Highlights of the Study?

➤ India's Statistics:

○ Obesity:

- The Lancet revealed that in 2022, **12.5 million children** (7.3 million boys and 5.2 million girls) aged **between 5-19 years in India** were classified as **grossly overweight**, marking a significant increase from 0.4 million in 1990.
- In the prevalence of obesity category for girls and boys, **India ranked 174th** in the world in 2022.
- Among adults, in women, the obesity rate increased from 1.2% in 1990 to 9.8% in 2022 and men from 0.5% to 5.4% in the same period.

○ Undernutrition:

- The prevalence of undernutrition has also remained high in India, as a result, India has become one of the countries with a high "double burden," of **Malnutrition**.
 - 13.7% of women and 12.5% of men were underweight.
- **Thinness**, a measure of being underweight in children, in Indian girls is the highest in the world, with a prevalence of 20.3%.
 - It was the second highest in Indian boys, with a prevalence of 21.7%.

➤ Global:

- The total number of children, adolescents and adults worldwide living with **obesity has surpassed one billion**.
 - In total, 159 million children and adolescents, and 879 million adults were obese in 2022.
- The **combined burden of underweight and obesity** has increased in most countries, driven by an increase in obesity, while **underweight and thinness remain prevalent in South Asia and parts of Africa**.
- In 2022, the **combined prevalence of underweight and obesity was highest in island nations** in the Caribbean Polynesia and Micronesia, and countries in the Middle East and North Africa.
- The countries with the **highest combined prevalence of thinness and obesity in 2022** were **Polynesia, Micronesia** and the **Caribbean** for both sexes and Chile and Qatar for boys.

Note:

- Combined prevalence was also high in some countries in South Asia, such as India and Pakistan, where thinness remained prevalent despite having declined.

➤ Factors Contributing Obesity:

- **Women are more prone to gaining weight** because they **often don't have time for exercise** and prioritise their family's nutrition over their own.
- They also tend to **get less sleep** due to household responsibilities.
- Additionally, **unhealthy junk food is cheaper and more readily available** than nutritious options, leading to increased obesity rates, even among those with lower incomes in places like Tamil Nadu, Punjab, and Goa.

What are Overweight, Thinness, and Obesity?

➤ Body Mass Index:

- BMI is a measure of **weight-to-height** commonly used to classify underweight, overweight, and obesity in adults.
- It is calculated by dividing weight in kilograms by the square of height in meters (kg/m^2).
 - For example, an adult weighing 58 kg and standing 1.70 m tall will have a BMI of 20.1 ($\text{BMI} = 58 \text{ kg} / (1.70 \text{ m} * 1.70 \text{ m})$).

➤ Obesity and Overweight:

- Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a health risk.
- **Overweight is a condition of excessive fat** deposits and **Obesity is a chronic disease** that occurs when the body stores excess calories as fat.
 - Obesity is a major risk factor for chronic diseases like cardiovascular diseases, diabetes, musculoskeletal disorders, and certain **cancers**.
 - Childhood obesity is associated with serious health complications and an increased risk of premature onset of related illnesses.
- Obesity is one side of the **double burden of malnutrition**, and today **more people are obese than underweight** in every region except the South-East Asia Region.

➤ Thinness and Underweight:

- Thinness and Underweight refers to having a **lower-than-normal body weight** relative to height. It is often associated with insufficient calorie intake or underlying health conditions.
- Underweight is **one of the four broad sub-forms of undernutrition**.
 - An adult is considered underweight if their **BMI is less than 18 kg/m²**. School-aged children and adolescents are considered underweight if their BMI is two standard deviations below the mean.
 - **Undernutrition manifests in four broad forms: wasting, stunting, Underweight, and micronutrient deficiencies.**
- Being underweight can lead to various health problems, including osteoporosis, skin, hair, or teeth issues, frequent illnesses, fatigue, **anaemia, irregular periods, premature births, impaired growth, and increased mortality risk.**

What are India's Initiatives Related to Nutrition?

- [Eat Right Mela](#)
- [Fit India Movement](#)
- [Eat Right Station Certification](#)
- [Mission Poshan 2.0](#)
- [Mid-Day Meal Scheme](#)
- [Poshan Vatikas](#)

- [Anganwadi](#)
- [Integrated Child Development Services \(ICDS\) Scheme](#)
- [Pradhan Mantri Matru Vandana Yojana \(PMMVY\)](#)

Rare Disease Day 2024

Why in News?

Recently, **Rare Disease Day** was observed on the last

Note:

day of February. This international awareness day is dedicated to raising awareness of rare diseases and their significant impact on patients and their families.

What is Rare Disease Day?

- Rare Disease Day is a globally coordinated movement dedicated to advocating for **equity in social opportunity, healthcare, and access to diagnosis** and therapies for individuals with rare diseases.
- The theme for Rare Disease Day 2024 is **“Share Your Colours,”** which emphasizes collaboration and support.
- It was established in 2008 and observed annually on **28th February (or 29 in leap years)**. Rare Disease Day is coordinated by the **European Organisation for Rare Diseases (EURORDIS)** and over 65 national alliance patient organization partners.
- It serves as a focal point for advocacy work on local, national, and international levels, engaging individuals, families, caregivers, healthcare professionals, researchers, policymakers, industry representatives, and the general public.

What is a Rare Disease?

- **About:**
 - Rare diseases are loosely defined as **occurring infrequently in the population**, with prevalence varying between nations.
 - The **World Health Organization** defines rare diseases as often debilitating lifelong conditions with a prevalence of **1 or less per 1000 population**.
 - Different countries have their own definitions; for instance, the US considers diseases affecting fewer than 200,000 patients rare, while the European Union sets the limit at no more than 5 in 10,000 people.
 - **India currently does not have a standard definition**, but the **Organisation of Rare Diseases India (ORDI)** has suggested that a disease is to be defined as rare if it affects 1 in 5,000 people or less.
- **Global Rare Diseases Burden:**
 - **300 million people** worldwide are affected by rare diseases.
 - Rare diseases affect approximately **3.5% to 5.9% of the population**.
 - 72% of rare diseases are **genetic**, with over 7000 characterized by diverse disorders and symptoms.
 - **75% of rare diseases affect children**. 70% of rare diseases have their onset during childhood.

➤ Characteristics and Impact of Rare Diseases:

- Rare diseases present with a **broad diversity of disorders and symptoms**, varying not only between diseases but also among patients with the same disease.
- The **chronic, progressive, degenerative, and often life-threatening nature** of rare diseases significantly affects patients' quality of life.
- Lack of effective cures exacerbates the pain and suffering endured by patients and their families.

➤ Challenges Faced by Individuals with Rare Diseases:

- Delayed diagnosis due to lack of **scientific knowledge and quality information**.
- Inequalities in **access to treatment** and care leading to **social and financial burdens**.
- **Common symptoms** can mask underlying rare diseases, leading to initial misdiagnosis.
- According to EURORDIS, 5 years is the time it takes on average for rare disease patients to get a diagnosis.
 - 70% of people with rare diseases wait more than 1 year to get a confirmed diagnosis after coming to medical attention.
- Physicians' **lack of awareness and training in interpreting rare disease** signs and symptoms contributes to diagnostic challenges.

What is the Landscape of Rare Diseases in India?

➤ Impact:

- India represents **one-third of global rare disease cases**, encompassing over 450 identified diseases.
- Despite this significant prevalence, rare diseases remain largely overlooked in India, with limited awareness, diagnosis, and drug development.
- Over **8 to 10 crore Indians are estimated to suffer from rare diseases**, with **over 75% being children**.

➤ Challenges in Policy and Implementation:

- The Ministry of Health and Family Welfare formulated a national policy for rare diseases in 2017 but withdrew it in 2018 due to implementation challenges.
- The revised **first National Policy for Rare Diseases (NPRD) was announced in 2021**, but problems persist, including the **absence of a clear definition for rare diseases**.

Note:

- **Treatment Accessibility and Funding:**
 - Less than **50% of identified rare diseases in India are treatable**, with approved treatments available for only about 20 diseases.
 - Access to approved treatments is limited to designated **Centres of Excellence (CoEs)**, which are few (12) in number, unevenly distributed, and often lack coordination.
 - The NPRD guidelines provide limited financial assistance per patient, insufficient for lifelong management and therapy of chronic rare diseases.
- **Challenges in Fund Utilization:**
 - Budget allocations for **rare diseases have increased but remain low**, with Rs 93 crore allocated for 2023-2024.
 - Confusion and disparities in **fund utilization among CoEs** highlight inefficiencies in resource allocation.
 - A staggering 51.3% of allocated funds remain unutilized, despite patients urgently needing treatment.
 - Some CoEs struggle with **underutilization of allocated funds**, while others **exhaust their budgets quickly**, leading to unequal access to treatment.
 - For instance, **Mumbai exhausted all its funds** while treating only 20 out of 107 patients, **Delhi utilized less than 20% of its funds**.
 - The burden of funding treatment often falls on patients and their families, with governmental support falling short.
 - Patients and advocacy groups call for sustainable funding from both the central and state governments to support rare disease treatment.
 - Sustainable funding is crucial for patients, especially those who have exhausted their allotted funds and are struggling to continue treatment.

National Policy for Rare Diseases (NPRD), 2021

- The NPRD, 2021 aims to reduce the prevalence and incidence of rare diseases.
- Rare diseases are categorized into three groups: **Group 1, Group 2, and Group 3** based on treatment requirements.
 - **Group 1:** Disorders amenable to one-time curative treatment.
 - **Group 2:** Diseases requiring long-term/lifelong treatment with relatively lower treatment costs.

- **Group 3:** Diseases with definitive treatment available, but challenges exist in patient selection and **high treatment costs**.
- NPRD, 2021 has the provision for financial support of up to Rs. 50 lakhs for patients suffering from any category of rare diseases and for treatment in any of the CoE mentioned in NPRD-2021, outside the Umbrella Scheme of **Rashtriya Arogya Nidhi (RAN)**.
 - RAN offers a maximum financial assistance of Rs 20 lakh for patients suffering from specified rare diseases.

Marriage Can't be Grounds to Sack Women from the Military

Why in News?

Recently, the **Supreme Court (SC)** has directed the Ministry of Defence to pay Rs 60 lakh in compensation to a former permanent commissioned officer in the **Military Nursing Service (MNS)**.

- It is ruled that the officer was “wrongly” released from **service in 1988 on grounds of her marriage**.

Note: As of Aug 2023, over 7,000 women personnel are serving in the Indian Army followed by 809 in the Indian Air Force and 1306 in the Navy.

What are the Key Facts of the Case?

- **Background:**
 - **Former permanent commissioned officer of the MNS**, was released from employment in **1988 on grounds of her marriage**, as stipulated by Army Instruction No. 61 of 1977 titled “**Terms and Conditions of Service for the Grant of Permanent Commissions in the Military Nursing Service**.” It was later withdrawn by a letter dated 9th August, 1995.
 - It governed the **terms and conditions of MNS**.
 - Clause 11 dealt with the termination of an appointment on certain grounds. These included “**being pronounced** by a medical board to be unfit for further service in the Armed Forces”; **getting married; misconduct; breach of contract, or if services are found unsatisfactory.**”

Note:

- In 2016, she sought recourse through the **Armed Forces Tribunal (AFT)**, established under the Armed Forces Tribunal Act of 2007 to adjudicate disputes related to commission, appointments, enrollment, and conditions of service. The **AFT deemed her termination “illegal” and directed her reinstatement with back wages.**
- However, the **Central government contested this ruling by moving the Supreme Court** in the case titled **‘Union of India & Others vs. Ex. Lt. Selina John’.**
- **SC’s Observations:**
 - The SC stated that her release from the service was **“wrong and illegal”.**
 - The court also rejected the Centre’s argument, based on a **rule in force at the time.**
 - Such **rule was ex facie manifestly arbitrary**, as terminating employment because the **woman has got married** is a coarse case of gender discrimination and inequality.

Policy Framework to Recruit Women Military Officers

- Women officers were initially inducted into the Indian Army under the **Women Special Entry Scheme (WSES) in 1992.**
 - Under WSES, they served **for five-year periods in certain streams**, like the Army Education Corps and the Corps of Engineers.
- However, they faced restrictions on certain roles, such as infantry and armored corps.
- In **2006, WSES was replaced by the Short Service Commission scheme**, which allowed women officers the option to switch from WSES to SSC.
 - Men under SSC were commissioned for ten years, extendable up to fourteen years. Men in SSC have an option to **opt for a PC.**

How has the SC Acted in Favour of Women Officers in the Armed Forces?

- **Union of India v. Lt Cdr Annie Nagaraja Case, 2015:**
 - In 2015, seventeen **women officers who had joined the Indian Navy** as Short Service Commissioned (SSC) officers in various cadres (such as Logistics, Law, and Education) filed writ petitions **before the Delhi High Court.**

- These officers had **completed fourteen years of service as SSC officers** but were not considered for the grant of **Permanent Commissions (PCs)** and were subsequently discharged from service.
 - In 2020, the SC held that serving women Short Service Commission Officers in the Indian Navy were entitled to Permanent Commission at par with their male counterparts.
- **Secretary, Ministry of Defence vs. Babita Puniya Case, 2020:**
 - In February 2020, SC upheld the demands of women in the SSC, stating that seeking a **Permanent Commission (PC) or a full-length career was “justified”.**
 - Before the ruling, only male officers on Short Service Commission (SSC) could opt for PC after 10 years of service, leaving women unable to qualify for a government pension.
 - The court’s decision brought women officers in **10 streams of the Army at par with men.**
- **Government’s Arguments:**
 - The Centre argued that the issue was a matter of policy, adding that **Article 33** of the Constitution allows **fundamental rights to be restricted** when it comes to the armed forces.
 - It also argued that there were “dangers involved in serving in the army” and adverse service conditions including **“absence of privacy** in field and insurgency areas, maternity issues and child care”.
 - The case was first filed in the Delhi HC by **women officers in 2003** and the **HC awarded Permanent Commissions to women officers** in all branches where they were serving in 2010.
- **Following the 2020 Ruling:**
 - Following the 2020 ruling, the Army constituted the **Number 5 Selection Board**, directing the Army to induct all eligible female officers as Permanent Commission (PC) officers.
 - The **special board came into effect in September 2020**, led by a senior general officer. It also includes a woman officer of the rank of brigadier.
 - Here, women officers qualifying for the screening process will be granted PC status, subject to being in the acceptable medical category.
- **Permanent Commission for Women In Indian Coast Guard:**
 - In **Priyanka Tyagi v. Union of India Case, 2024**, SC underscored the necessity for the Central

Note:

government to ensure **that eligible women officers receive permanent commission in the Indian Coast Guard.**

- The Attorney General presented arguments citing operational challenges in granting permanent commissions to women officers.
 - However, the Court dismissed these arguments, emphasising that in the year 2024, such justifications hold no merit.
- The SC further urged the Centre to develop a **gender-neutral policy on this matter**, calling for a departure from patriarchal norms.
 - This instance underscores the ongoing struggle for gender equality and the necessity for proactive measures to ensure women's inclusion and empowerment in all spheres of society, including the armed forces.

What is the Significance of Increasing the Representation of Women in the Armed Forces?

- **Gender is not a Hindrance:** As long as an **applicant is qualified for a position**, one's gender is arbitrary. In the modern high technology battlefield, technical expertise and decision-making skills are increasingly more valuable than simple brute strength.
- **Military Readiness:** Allowing a **mixed gender force keeps the military strong**. The armed forces are severely troubled by falling retention and recruitment rates. This can be addressed by allowing women in the combat role.
- **Effectiveness:** The blanket restriction for women limits the **ability of commanders in theatre to pick the most capable person for the job**.
- **Tradition:** Training will be required to facilitate the **integration of women into combat units**. Cultures change over time and the masculine subculture can evolve too.



- **Global Scenario:** When women officially became eligible for combat positions in the **American military in 2013**, it was widely hailed as another step towards the equality of sexes. In **2018, the UK military lifted a ban on women serving in close combat ground roles**, clearing the way for them to serve in elite special forces.

What is MNS?

- MNS is the **only all women corps of the Armed Forces**. The MNS, an integral part of the **Armed Forces Medical Services (AFMS)**, encompasses the Army Medical Corps (AMC) and Army Dental Corps (ADC).
- The mission of Military Nursing Service is **'Excellence in patient care'** both in peace and war.
 - Officers of Military Nursing Service have always been resilient in meeting the ever changing and expanding demands of AFMS clientele in health care services and became the front line warriors in the healthcare system.
- Personnel of the AFMS serve in India's medical establishments and have actively participated in **United Nations Peacekeeping Missions** abroad.
- **Military nurses marched in the 2024 Republic Day parade for the first time**, they were still denied the status of ex-servicemen.
 - In February 2024, the Punjab and Haryana HC ruled that MNS officers cannot be denied ex-serviceman status under the **Punjab Recruitment of Ex-Servicemen Rules, 1982**.
 - Under this, officers who were released from service on completion of their term with a gratuity (as SSC officers do), are categorised as ex-servicemen.

Note:

Science & Technology

Highlights

- New Satellite-Based Toll Collection System
- India's 5G Fighter Aircraft and LCA Tejas
- Multiple Independently Targetable Re-entry Vehicle Technology
- New Rocket Launchport in Tamilnadu
- Carbon Footprint of Artificial Intelligence
- Genome India Project
- Claude 3 AI Chatbot
- Obelisks
- Gene Therapy for Hemophilia A
- Laser Cooling of Positronium
- India's first Indigenous Hydrogen Fuel Cell Ferry
- Sustainable Funding for Research and Development

New Satellite-Based Toll Collection System

Why in News?

Recently, the Ministry of Road Transport and Highways of India announced in **Parliament** that the government intends to roll out a **new highway toll collection system** based on the **global navigation satellite system (GNSS)** before the **model code of conduct for the 2024 election** becomes effective.

What is the New Proposed Highway Tolling System?

➤ Salient Features:

- The proposed highway tolling system utilises the **GNSS**, including the **Indian satellite navigation system GAGAN (GPS Aided GEO Augmented Navigation)** for accurate location tracking.
 - The GNSS is a term used to refer to any satellite-based navigation system, including the US' **Global Positioning System (GPS)**.
 - It uses a large constellation of satellites to provide more accurate location and navigation information to users globally as compared to the GPS alone.
- Implementation involves fitting vehicles with an **On-Board Unit (OBU)**, or tracking device, which communicates with **satellites to determine location**.
- Coordinates of national highways are logged using **digital image processing**, allowing software to calculate toll rates based on distance travelled.

- Toll amounts are deducted from a digital wallet linked to the OBU, ensuring seamless and cashless transactions.

- Enforcement measures including gantries equipped with CCTV cameras along highways to monitor compliance and deter evasion tactics.
- The new system will likely **coexist with the existing FASTag-based toll collection initially**. A decision on mandating OBUs for all vehicles is yet to be made.

➤ Benefits:

- **Smoother Traffic Flow:** Elimination of toll plazas is expected to significantly reduce traffic congestion, especially during peak hours.
- **Faster Commutes:** Frictionless toll collection should lead to quicker travel times and a more efficient highway network.
- **Fairer Billing:** The system aims to offer **users the benefit of paying tolls only for the actual distance travelled**, promoting a **pay-as-you-use model**.

➤ Challenges:

- **Payment Recovery:** Recovering tolls from users with depleted digital wallets or those who tamper with the system remains a concern.
- **Enforcement Infrastructure:** Setting up a nationwide network of **Automatic Number-Plate Recognition (ANPR)** cameras for enforcement purposes requires significant infrastructure development.
- **Privacy Concerns:** **Data security and user privacy** need to be addressed effectively.

Note:

FASTag

- **FASTag** is a device that employs **Radio Frequency Identification (RFID)** technology for making toll payments directly while the vehicle is in motion.
- FASTag (RFID Tag) is affixed on the windscreen of the vehicle and enables a **customer to make toll payments directly from the account** which is linked to FASTag.
 - It is operated by the **National Highway Authority of India (NHAI)** under the supervision of the Ministry of Road Transport and Highways.

GAGAN

- **GPS Aided GEO Augmented Navigation (GAGAN)** is an initiative by the Indian Government for Satellite-based Navigation Services in India.
- It aims to enhance the accuracy of global navigation satellite system (GNSS) receivers through reference signals.
- The **Airports Authority of India (AAI)** and the **Indian Space Research Organization (ISRO)** have collaborated to develop the GAGAN as a regional **Satellite Based Augmentation System (SBAS)**.
- The GAGAN's goal is to provide a navigation system to assist aircraft in accurate landing over the Indian airspace and the adjoining area and applicable to safety-to-life civil operations. **GAGAN is interoperable with other international SBAS systems.**

India's 5G Fighter Aircraft and LCA Tejas

Why in News?

The **Cabinet Committee on Security (CCS)** approved a Rs 15,000 crore project to design and develop India's **fifth-generation fighter** multirole jet, the **Advanced Medium Combat Aircraft (AMCA)**.

- In a related incident, a Court of Inquiry has been initiated to investigate the cause of an Indian Air Force Light Combat Aircraft (LCA) Tejas crash during an operational training sortie in Rajasthan.

What are the Fifth-generation Fighter Jets?

- **About:**
 - **Fifth-generation (5G) fighters** are aircraft capable of operating in **heavily contested combat zones**, characterised by the presence of the most advanced air and ground threats, both current and anticipated.

- 5G fighter jets have **stealth capabilities** and can **cruise** at **supersonic speeds** without engaging afterburners.
- It stands out from fourth-generation (4G) peers due to its **multi-spectral low-observable design**, self-protection, radar jamming capabilities, and integrated avionics.
- **5G jets** are possessed by **Russia (Sukhoi Su-57)**, **China** (Chengdu J-20), and the **US** (F-35).

Need for India:

- The IAF currently **has around 30 fighter squadrons** against the **sanctioned strength of 42**.
 - The squadrons of MiG-21s, MiG-29s, Jaguars, and Mirage 2000s are scheduled to be phased out by the middle of the next decade.
- India must enhance its air defences against **China and Pakistan**, with China possessing 3,304 aircraft, while India and Pakistan have 2,296 and 1,434 aircraft, respectively.
- India aims to **enhance its self-sufficiency in defence**, focusing on strengthening its air force and replacing ageing aircraft, albeit with the recognition that acquiring fighter jets and other equipment is a time-consuming process.
- India is developing the **Advanced Medium Combat Aircraft (AMCA)**, with five prototypes to be collaboratively manufactured by **ADA, HAL, and private industries**, building on the success of the **LCA Tejas**.
 - Once it acquires these fifth-generation fighters, India will join a select group comprising the **US, Russia, and China**.

What are the Features of Advanced Medium Combat Aircraft (AMCA)?

- **Nodal Agency:** The **Aeronautical Development Agency (ADA)** under the **Defence Research and Development Organisation (DRDO)** will be the **nodal agency** for executing the programme and designing the aircraft.
 - **Manufactured By:** State-owned Hindustan Aeronautics Limited (HAL).
- **Features:**
 - **Stealth:** The **25-tonne twin-engine aircraft** is set to surpass current Indian Air Force fighters in size, and will feature **advanced stealth to outmatch global 5G stealth fighters**.

Note:

- **Fuel and Weapon:** The aircraft will have a **large, concealed internal fuel tank** of 6.5-tonne capacity, and an **internal weapons bay** for a range of weapons, including indigenous weapons.
- **Engine:** The **AMCA Mk1** will feature the **US-built GE414 engine** (90 kilo Newton class), while the more advanced **AMCA Mk2** will use a more powerful **110 kN engine** developed by **DRDO's-Gas Turbine Research Establishment (GTRE)** in collaboration with a foreign defence major.
- **Development Timeline:** The **ADA** aims for the **aircraft's first flight in 4-5 years**, with full development expected to take around 10 years; five prototypes will precede HAL's manufacturing, involving the private industry.

What are the Features of Light Combat Aircraft (LCA) Tejas?

- **About:**
 - The **Light Combat Aircraft (LCA) programme** was started by the Government of India in 1984 when they established the ADA to manage the LCA programme.
 - It replaced the ageing Mig 21 fighter planes.
- **Designed by:**
 - ADA under the **Department of Defence Research and Development.**
- **Manufactured by:**
 - State-owned Hindustan Aeronautics Limited (HAL).
- **Features:**
 - The **lightest, smallest, and tailless** multi-role supersonic fighter aircraft in its class.
 - Designed to carry a range of **air-to-air, air-to-surface**, precision-guided, weapons.
 - Air-to-air refueling capability.
 - Maximum payload capacity of 4000 kg.
 - It can attend the **maximum speed of Mach 1.8.**
 - The range of the aircraft is 3,000km
- **Variants of Tejas:**
 - **Tejas Trainer:** 2-seater operational conversion trainer for training air force pilots.
 - **LCA Navy:** Twin- and single-seat carrier-capable for the Indian Navy.
 - **LCA Tejas Navy MK2:** This is phase 2 of the LCA Navy variant.

- **LCA Tejas Mk-1A:** This is an improvement over the LCA Tejas Mk1 with a higher thrust engine.

Multiple Independently Targetable Re-entry Vehicle Technology

Why in News?

India has recently made a significant advancement in missile technology, joining the select group of nations possessing **Multiple Independently Targetable Re-entry Vehicle (MIRV) capabilities**.

- This milestone was achieved through the successful **flight test named Mission Divyastra**, conducted by the **Defence Research and Development Organisation (DRDO)**. It marked the first time the indigenously developed **Agni-5 missile** integrated MIRV technology.

What are the Key Facts About MIRV Technology?

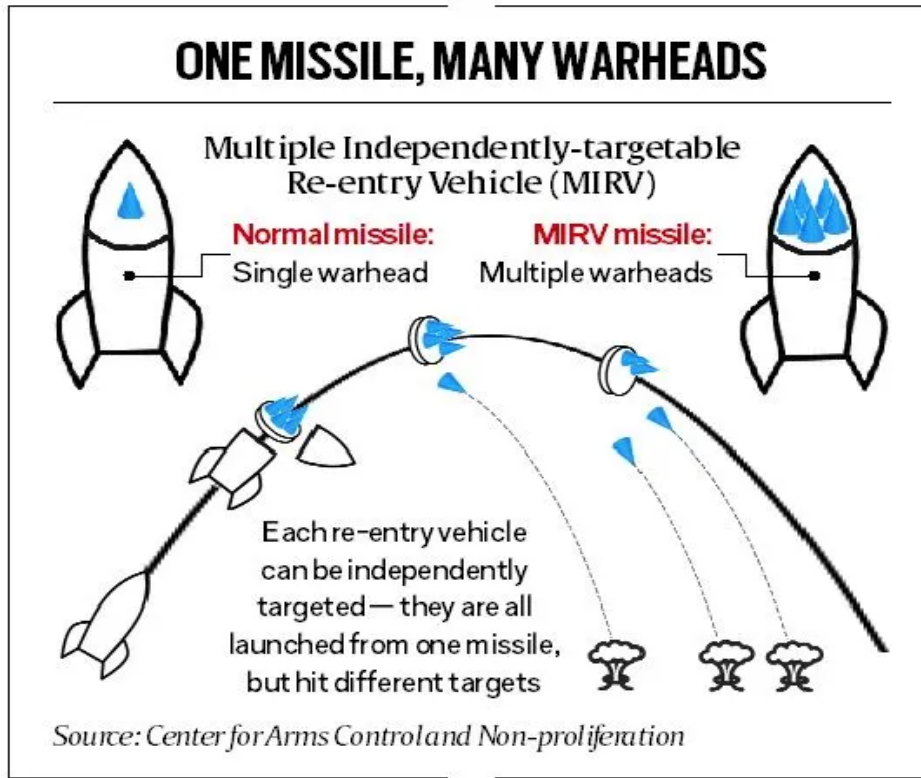
- **Inception:**
 - MIRV technology originated in the **United States**, with the deployment of a **MIRVed Intercontinental Ballistic Missile (ICBM)** in 1970.
 - MIRV allows a **single missile to carry multiple warheads (3-4)**, each capable of targeting different locations independently.
 - MIRV technology enhances the **missile's effectiveness by increasing the number of potential targets** it can engage.
 - MIRVs can be launched from both land-based platforms and sea-based platforms, such as submarines, expanding their operational flexibility and range.
- **Global Adoption and Proliferation:**
 - Nations possessing MIRV technology include major nuclear powers such as the **United States, the United Kingdom, France, Russia, China, and India**, while Pakistan tested the technology (Ababeel Missile) in 2017.
 - The test flight of **Agni-5** marked the **first time that the MIRV technology was tested in India**, which aims to deploy multiple warheads at different locations in a single launch.

Note:

- The Agni-5 weapon system is equipped with indigenous avionics systems and high-accuracy sensor packages, which ensured that the re-entry vehicles reached the target points within the desired accuracy.
- **Strategic Significance:**
- MIRVs were initially designed to **enhance offensive capabilities** rather than to defeat ballistic missile defences.
 - Their ability to deploy multiple warheads independently makes them significantly more

challenging to defend against compared to traditional missiles.

- **Challenges:**
- Deploying MIRV technology presents complex challenges, including the **miniaturisation of warheads**, the development of **advanced guidance systems**, and ensuring the reliability of individual re-entry vehicles.
 - Addressing these challenges is crucial for maintaining the effectiveness and reliability of MIRV systems in strategic operations.



Agni-5 Missile

- Agni is an **Inter-continental ballistic missile (ICBM) developed indigenously** by the DRDO.
- It is capable of carrying nuclear warheads and has a target range of more than 5,000 km. It uses a three-stage solid-fuelled engine.
 - Agni-5 has been successfully tested several times since 2012. In December 2022, DRDO also tested the night-time capabilities of Agni-5.
- **Missiles in Agni Family:**
 - **Agni I:** Short-range ballistic missile (Range more than 700 km).
 - **Agni II:** Medium-range ballistic missile (Range more than 2000 to 3500 km).
 - **Agni III:** Intermediate-range ballistic missile (Range more than 3000 km).

Note:

- **Agni IV:** Intermediate-range ballistic missile (Range more than 3500 km).
- **Agni-P (Agni Prime):** A nuclear-capable, two-stage canisterised solid propellant ballistic missile (Range 1,000 to 2,000 km).
- The next upgrade of the Agni missile, **Agni-6**, is expected to be a full-fledged **intercontinental ballistic missile with a range well over 7,000 km.**

FORMIDABLE ARSENAL																														
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New Rocket Launchport in Tamilnadu

Why in News?

Recently, the Indian Prime Minister laid the foundation stone of the second rocket launchport of the **Indian Space Research Organisation (ISRO)** at Kulasekarapattinam in Tamil Nadu.

What is the Need for a New Launchport?

- **Capacity and Overburdening:**
 - The opening of the space sector to private players is expected to lead to a significant increase in commercial launches.
 - This surge in demand could potentially overwhelm existing launch facilities, such as the **Satish Dhawan Space Centre (SDSC) SHAR (Sriharikota Range)** in Sriharikota.
 - Therefore, establishing a new launch port ensures that there is sufficient capacity to accommodate the increased number of launches without overburdening existing facilities.
- **Diversification of Launch Services:**
 - By dedicating the SDSC SHAR primarily for **bigger and heavy-lift-off missions**, and creating the Kulasekarapattinam launchport for smaller payloads, the ISRO can **diversify its launch services.**

- This specialisation allows for **more efficient utilization of resources** and infrastructure tailored to specific mission requirements.

➤ Support for Private Players:

- The establishment of a new launchport provides **private players with dedicated infrastructure** to develop space-qualified subsystems, build satellites, and launch vehicles.
- This encourages private investment and participation in the space sector, fostering innovation and competition.

What is the Significance of Kulasekarapattinam Launchport?

➤ Geographical Advantage:

- Geographically, scientifically, and strategically, the Kulasekarapattinam launchport provides a **natural advantage to ISRO's future launches** pertaining to the **Small Satellite Launch Vehicle (SSLV).**
- Allowing a **direct southward and smaller launch trajectory** for the lightweight SSLVs carrying less fuel, the Kulasekarapattinam facility will boost **ISRO's attempts to enhance payload capacities.**

➤ Optimised Trajectory:

- Launches from Kulasekarapattinam can follow a **straight southward flight path**, as opposed to the

Note:

longer trajectory followed by launches from the Satish Dhawan Space Centre (SDSC) SHAR, which necessitates skirting eastwards around Sri Lanka (**dogleg manoeuvring**).

- This optimised trajectory **minimises fuel consumption**, particularly crucial for SSLVs with limited onboard fuel capacity.

➤ **Equatorial Location:**

- Like the SDSC SHAR, Kulasekarapattinam is **also situated near the equator**.
- Launch sites near the equator benefit from the **Earth's rotation, which imparts a significant velocity boost** to rockets during liftoff.
- This boost in **velocity allows for increased payload capacity**, particularly advantageous for missions aiming for geostationary orbit.



Note:


What is a Small Satellite Launch Vehicle?

About:

- **Small Satellite Launch Vehicle (SSLV)** is a three stage Launch Vehicle configured with three Solid Propulsion Stages and a liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage.
 - SSLV is capable of launching 500kg satellites in

500km planar orbit from Satish Dhawan Space Centre (SDSC).

- A **planar orbit, also known as a low Earth orbit (LEO)**, is an orbit around the Earth that lies close to the Earth's equatorial plane. In this type of orbit, the satellite's path forms a **relatively flat plane around the Earth..**



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/remotesensing 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





Drishti IAS

Key Features:

- Low cost,
- Low turn-around time,
- Flexibility in accommodating multiple satellites,
- Launch demand feasibility,
- Minimal launch infrastructure requirements, etc.

Note:

➤ Significance:

- The Era of small satellites:
 - Earlier, the bigger satellite payloads were given importance, but as the sector grew many players emerged like Businesses, government agencies, universities, and laboratories began to send satellites.
 - Mostly all of them fall in the category of small satellites.
- The Rise in Demand:
 - The demand for the launch of small satellites has increased at a rapid pace in the **last eight to ten years**, due to the ever-growing need for space-based data, communication, surveillance, and commerce.
- Saves cost:
 - Satellite manufacturers and operators do not have the luxury of waiting months for space on a rocket or paying exorbitant trip charges.
 - Therefore, Organizations are increasingly developing a constellation of satellites in space.
 - Projects like **SpaceX's Starlink and One Web** are assembling a constellation of hundreds of satellites.
- Business Opportunity:
 - With the rise in demand, the rockets could be launched frequently with less cost, this provides a business opportunity for space agencies like ISRO **to tap the potential of the sector** as most of the demand comes from companies that are launching satellites for commercial purposes.

➤ Journey of SSLV:

- In August 2022, the first SSLV mission (SSLV-D1) encountered failure when it attempted to **deliver two satellites, EOS-02 and AzaadiSat**.
- However, six months later, in February 2023, ISRO succeeded with its second attempt, SSLV-D2.
 - The rocket effectively placed **three satellites into a 450 km circular orbit** after a 15-minute journey. Both launches **took place from SHAR**.

What are the Features of SHAR?

- SHAR is situated along the **east coast of Andhra Pradesh** and is located 80 km off Chennai.
 - It currently provides launch **infrastructure to all ISRO missions**.
- It is equipped with a **solid propellant processing setup**, static testing, and launch vehicle integration facilities, telemetry services, tracking and command network to oversee the launch, and a mission control centre.
- SHAR has two launch complexes that are **routinely used to launch the Polar Satellite Launch Vehicle (PSLV), the Geosynchronous Space Launch Vehicle (GSLV) and the Geosynchronous Satellite Launch Vehicle Mk-III (renamed as LVM3)**.
- The maiden launch of the First Launch Pad, built in the **early 1990s**, was in September 1993.
- Operational since 2005, the **Second Launch Pad saw its maiden launch in May 2005**.

Carbon Footprint of Artificial Intelligence

Why in News?

As **artificial intelligence (AI) technology** grows, its **energy-intensive operations pose significant environmental concerns**. Despite challenges, advancements like **Spiking Neural Networks (SNNs)** and **lifelong learning** offer promising avenues to **reduce AI's carbon footprint** while leveraging its **potential to address climate change**.

What are the Spiking Neural Networks and Lifelong Learning?

- Spiking Neural Networks (SNNs):
 - SNNs are a type of **artificial neural network (ANNs)** inspired by the human brain's neural structure.
 - Unlike traditional ANNs, which use continuous **numerical values for processing data**, SNNs operate based on **discrete spikes or pulses of activity**.
 - Just as **Morse code uses specific sequences** of dots and dashes to convey messages, SNNs use **patterns or timings of spikes** to process and transmit information, similar to how **neurons in the brain communicate** through **electrical impulses called spikes**.

Note:

- This **binary, all-or-none characteristic of spikes** allows SNNs to be more **energy-efficient than ANNs**, as they consume energy only when a spike occurs, unlike artificial neurons in ANNs which are always active.
 - In the absence of spikes, SNNs exhibit remarkably low energy consumption, contributing to their energy-efficient nature.
 - SNNs have shown the potential to be **up to 280 times more energy-efficient than ANNs** due to their sparsity in activity and event-driven processing.
 - The energy-efficient properties of SNNs make them suitable for various applications, including space exploration, defence systems, and self-driving cars, where energy resources are limited.
 - Ongoing research aims to optimise SNNs further and develop learning algorithms to harness their energy efficiency for a wide range of practical applications.
 - **Lifelong Learning (L2):**
 - Lifelong Learning (L2) or **Lifelong Machine Learning (LML)** is a **machine learning** paradigm that **involves continuous learning**. It involves accumulating knowledge from previous tasks and using it to help with future learning and problem-solving.
 - L2 serves as a strategy to **mitigate the overall energy demands** of ANNs throughout their lifetime.
 - Training ANNs sequentially on new tasks **leads to forgetting previous knowledge**, necessitating retraining from scratch with changes in the operating environment, thus increasing AI-related emissions.
 - L2 encompasses a collection of algorithms enabling **AI models to undergo sequential training** on multiple tasks with **minimal forgetting**.
 - This approach facilitates continual learning, leveraging existing knowledge to adapt to new challenges without the need for extensive retraining.
- Why is the Carbon Footprint of Artificial Intelligence High?**
- **Growing Energy Consumption:**
 - The carbon footprint of artificial intelligence is the **amount of greenhouse gas emissions** that are generated by the creation, training, and use of AI systems.
 - The proliferation of data centres, driven by the increasing demand for AI, is significantly **contributing to the world's energy consumption**.
 - By 2025, it's estimated that the IT industry, fueled by AI advancements, **could consume up to 20% of all electricity** produced globally and emit approximately **5.5% of the world's carbon emissions**.
 - **AI Training Emissions:**
 - Training large AI models, such as **GPT-3 and GPT-4**, consumes substantial energy and **emits considerable carbon dioxide (CO₂)**.
 - Research indicates that training a single **AI model can emit CO₂ equivalent to several cars over their lifetimes**.
 - GPT-3 emits 8.4 tonnes of CO₂ annually. Since the AI boom started in the early 2010s, the energy requirements of AI systems known as **large language models** (the type of technology that's behind ChatGPT) have gone up by a factor of 300,000.
 - **Hardware Consumption:**
 - AI's computational demands rely heavily on specialised **processors**, like **GPUs provided by companies such as Nvidia**, which consume substantial power.
 - Despite advancements in energy efficiency, these **processors remain formidable consumers of energy**.
 - **Cloud Computing Efficiency:**
 - Major cloud companies, essential for AI deployment, pledge commitments to **carbon neutrality and energy efficiency**.
 - Efforts to improve energy efficiency in data centres have shown promising results, with only a modest increase in energy consumption despite a significant rise in computing workloads.
 - **Environmental Concerns:**
 - Despite **AI's promising future**, concerns persist regarding its environmental impact, with experts urging greater consideration of the carbon footprint in AI deployment.
 - The rush for AI advancement may overshadow immediate environmental concerns, highlighting the **need for a balanced approach towards sustainability in AI development and deployment**.

Note:

Water Footprint of AI

- The **water footprint of AI** is determined by the **water used for electricity generation and cooling** in data centres running AI models.
 - The water footprint consists of **direct water consumption** (from cooling processes) and **indirect water consumption** (for electricity production).
- **Factors affecting the water footprint** include AI model type and size, data centre location and efficiency, and electricity generation sources.
- Training a large AI model like GPT-3 can consume up to 700,000 litres of fresh water, equivalent to producing 370 BMW cars or 320 Tesla electric vehicles.
 - Interactions with AI chatbots like ChatGPT can consume up to 500 ml of water for 20-50 Q&A sessions.
 - GPT-4, with a larger model size, is expected to increase water consumption, but exact figures are hard to estimate due to data availability.
- **Data centres use water-intensive cooling systems** due to the heat generated, requiring freshwater for cooling and power generation.

How AI Can Help in Addressing Climate Change?

- **Enhanced Climate Modelling:** AI can **analyse vast amounts of climate data** to improve climate models and make more accurate predictions, aiding in anticipating and adapting to climate-related disruptions.
- **Advancements in Material Science:** AI-driven research can develop lighter and stronger materials for wind turbines and aircraft, reducing energy consumption.
 - Designing materials with reduced resource usage, and improved battery storage, and enhanced carbon capture capabilities contributes to sustainability efforts.
- **Efficient Energy Management:** AI systems optimise **electricity usage from renewable sources**, monitor energy consumption, and identify efficiency opportunities in smart grids, power plants, and manufacturing.
- **Environmental Monitoring:** High-end trained AI systems can detect and predict environmental changes like **floods, deforestation, and illegal fishing in real-time**.
 - Contributes to sustainable agriculture by identifying crop nutrition, pest, or disease issues through image analysis.

- **Remote Data Collection:** AI-powered robots gather data in **extreme environments** like the Arctic and oceans, enabling research and monitoring in inaccessible areas.
- **Energy Efficiency in Data Centers:** AI-driven solutions optimise data centre operations to reduce energy consumption while maintaining safety standards.
 - For example, Google has created artificial intelligence that's able to save the amount of electricity it uses to power its data centres. Using machine learning developed by the firm's AI research company, DeepMind, it was possible to reduce the energy used for cooling the centres by a staggering 40%.

How AI Can Be Made Sustainable?

- **Transparency in Energy Usage:**
 - Standardising **measurements of AI carbon footprints** enables developers to assess electricity consumption and carbon emissions accurately.
 - Initiatives like **Stanford's energy tracker** and **Microsoft's Emissions Impact Dashboard** facilitate monitoring and comparison of AI's environmental impact.
- **Model Selection and Algorithmic Optimization:**
 - Choosing **smaller, more focused AI models for simpler tasks** conserves energy and computational resources.
 - Utilising the **most efficient algorithms for specific tasks** reduces energy consumption.
 - Implementing algorithms that prioritise energy efficiency over computational accuracy minimises electricity usage.
- **Advancements in Quantum Computing:**
 - The exceptional computing power of **quantum systems** holds the potential to accelerate training and inference tasks for both **Artificial Neural Networks (ANNs)** and **Spiking Neural Networks (SNNs)**.
 - Quantum computing offers superior computational capabilities that could facilitate the **discovery of energy-efficient solutions** for AI on a significantly larger scale.
 - Harnessing the power of quantum computing could revolutionise the **efficiency and scalability of AI systems**, contributing to the development of sustainable AI technologies.

Note:

- **Renewable Energy Adoption:**
 - Major cloud providers should commit to operate the **data centres with 100% renewable energy**.
- **Advancements in Hardware Design:**
 - Specialised hardware like **Google's Tensor Processing Units (TPUs)** enhances the speed and energy efficiency of AI systems.
 - Developing more energy-efficient hardware tailored specifically for AI applications contributes to sustainability efforts.
- **Innovative Cooling Technologies:**
 - Liquid immersion cooling and underwater data centres offer energy-efficient alternatives to traditional cooling methods.
 - Exploring cooling solutions like underwater data centres and space-based data centres harness renewable energy sources and minimise environmental impact.
- **Government Support and Regulation:**
 - Establishing regulations for transparent reporting of AI's carbon emissions and sustainability.
 - Providing **tax incentives to incentivize the adoption of renewable energy** and sustainable practices in AI infrastructure development.

- This huge dataset of 8 petabytes will be stored at the **Indian Biological Data Centre (IBDC) in Faridabad**.
 - Inaugurated in 2022, the IBDC is **India's first national repository for life science data**.
- **Significance:**
 - An India-specific genetic database is crucial because mutations like MYBPC3, linked to early **cardiac arrest**, are more prevalent locally than globally, affecting **4.5%** of the Indian population.
 - India, boasting the world's largest genetic laboratory, plays a pivotal role in driving the country's burgeoning biology sector, which has seen exponential growth from **USD 10 billion in 2014** to over **USD 130 billion in 2024**, shaping India's future trajectory.

Note: The **first whole human genome** was sequenced with the collaboration of an international team. It took 13 years and \$3 billion, and **was completed in 2003**. India announced its **first complete human genome in 2009**.

- However, now, it takes only about 5 days to sequence an entire human genome and perform all the quality checks.

Genome India Project

Why in News?

The **Genome India Project**, a project funded and coordinated by the Department of Biotechnology (DBT), announced that it had finished sequencing 10,000 Indian genomes.

What is the Genome India Project?

- DBT initiated the ambitious Genome India Project (GIP) on 3rd January 2020. It is led by the **Centre for Brain Research at the Indian Institute of Science, Bengaluru**, and involves collaboration with 20 institutions.
- The project involves **whole-genome sequencing** and data analysis of **10,000 individuals** to understand disease nature in the Indian population and develop predictive diagnostic markers.
 - India's population of 1.3 billion comprises over 4,600 population groups, many of which are **endogamous (Matrimony in Close Ethnic Groups)**, contributing to **genetic diversity** and disease-causing mutations.

What is Genome Sequencing?

- **Gene and DNA:** DNA (Deoxyribonucleic acid) is the molecule that carries the genetic instructions for the development, functioning, growth, and reproduction of all known living organisms and many viruses.
 - Genes are specific segments of DNA that contain the instructions for producing proteins, which are essential for various biological functions.
- **Genome:** The genome represents the **entirety of an organism's hereditary information**, serving as a biological instruction manual inherited from parents.
 - Composed of four nucleotide bases: **adenine (A), cytosine (C), guanine (G), and thymine (T)**, the genome contains approximately 3 billion base pairs in humans.
 - This complex sequence encodes **essential information governing an individual's physical characteristics**, susceptibility to diseases, and other biological traits.
- **Genome Sequencing:** Genome sequencing is the process of determining the **precise order of nucleotides** within an organism's genome.

Note:

- Whole genome sequencing is a laboratory procedure that determines the order of all four bases in the genome of an organism in one process.
- **Procedure of Genome Sequencing:**
 - Firstly, the researchers extract DNA from a sample, typically obtained from blood.
 - Then, the DNA is fragmented into smaller, more manageable pieces, which are then tagged with fluorescent markers.
 - These tagged fragments undergo sequencing using **specialised equipment known as DNA sequencers**, which read the sequence of nucleotide bases.
 - Finally, computational algorithms are employed to reconstruct the complete genetic sequence from the generated data, providing valuable insights into the individual's genetic makeup.
- **Applications:**
 - **Biomedical Research:** Genome sequencing aids in understanding the genetic basis of diseases, **identifying disease-causing mutations, and discovering potential drug targets.**
 - It helps researchers study genetic variations associated with complex diseases such as cancer, diabetes, and neurological disorders.
 - **Pharmacogenomics:** Genome sequencing helps in predicting how individuals will respond to different drugs based on their genetic makeup.
 - This information can optimise drug selection, dosage, and treatment strategies leading to more effective and personalised therapies.
 - **Agricultural Genomics:** Genome sequencing is utilised in crop improvement programs to identify **genes responsible for desirable traits such as disease resistance, yield, and nutritional content.**
 - It aids in breeding efforts to develop improved crop varieties with enhanced agronomic traits.
 - **Evolutionary Biology:** Genome sequencing provides insights into the evolutionary history and relationships among species.
 - It helps in studying genetic diversity, population dynamics, and evolutionary adaptations in different organisms.
 - **Conservation Biology:** Genome sequencing assists in conservation efforts by assessing genetic diversity, identifying endangered species, and developing strategies for species preservation and management.

Claude 3 AI Chatbot

Why in News?

Recently, the **Artificial Intelligence (AI)** start-up Anthropic announced its latest family of AI models called **Claude 3**, stating that it “sets new industry benchmarks across a wide range of cognitive tasks”.

- The family **includes three state-of-the-art AI models** in the ascending order of capabilities – Claude 3 Haiku, Claude 3 Sonnet, and Claude 3 Opus.

Note:

- Anthropic is an OpenAI rival started by former leaders at the ChatGPT maker.
- While OpenAI has closely tied itself to its business partner Microsoft, Anthropic's primary **cloud computing partner is Amazon.**

What is Claude 3?

➤ About Claude:

- Claude is a group of **Large Language Models (LLMs)** developed by Anthropic.
 - LLMs are a specific class of **generative AI** models that are trained to understand and generate human-like text.
- The chatbot is capable of **handling text, voice messages, and documents.**
- The chatbot is **capable of generating faster**, contextual responses compared to its peers.

➤ Training:

- Claude sources include the **Internet and some licensed datasets** using two methods, **Supervised Learning (SL)** and **Reinforcement Learning (RL)**.
- In the SL phase, the LLM produces responses to prompts, and then **self-assesses them** based on a set of guiding principles.
 - It later revises the responses — and according to its makers, this process is aimed at **reducing the harmful effects of the AI's outputs.**
- RL phase involves **training the model based on AI-generated feedback**, in which the AI evaluates responses based on a set of constitutional principles.
 - These methods, and the general approach, has been chosen with the aim of making Claude helpful and harmless.

Note:

- **Claude 3:**
 - Among the new releases, **Claude 3 Opus** is the most powerful model, Claude 3 Sonnet is the **middle model that is capable and price competitive**, and **Claude 3 Haiku** is relevant for any use case that requires instant responses.
 - Claude Sonnet powers the Claude.ai chatbot for free at present and users only need an email sign-in.
 - However, Opus is only available through Anthropic's web chat interface and if a user is subscribed to the Claude Pro service on the Anthropic website.
- **Limitations of Claude 3:**
 - Claude 3 performs well in tasks such as answering factual questions and optical character recognition (OCR), meaning the ability to extract text from images.
 - Reportedly, the new model is good at following instructions and completing tasks like writing Shakespearean sonnets.
 - However, it **struggles with complex reasoning and mathematical problems** at times. It also **exhibited biases in its responses**, such as favouring a certain racial group over others.

Obelisks

Why in News?

Scientists at Stanford University have identified a new, remarkably simple form of life, which they have named "**obelisks**."

- These obelisks bridge the **gap between viruses and viroids** in terms of complexity, adding a new category to the existing spectrum of life forms.

- Obelisks were identified through an extensive analysis of RNA sequences from bacteria in the human gut, using **next-generation sequencing (NGS) technology**.

Note:

- NGS is a **Deoxyribonucleic acid (DNA) sequencing technology** that uses parallel sequencing to determine the **sequence of multiple small fragments of DNA**. It is used to determine the **order of nucleotides** in entire genomes or targeted regions of DNA or RNA.
 - Nucleotides are organic molecules that are the basic building blocks of nucleic acids DNA and Ribonucleic acid (RNA).

What are Obelisks?

- Obelisks are a new class of virus-like entities. They are composed of diverse RNA molecules that reside within the human body and the global microbiome.
- Obelisks exhibit **highly symmetrical, rod-like structures** resembling the iconic **monuments (Obelisk)**.
- Their genetic sequences are approximately 1,000 nucleotides long, with no detectable similarities to known biological agents.
- The new study analyzed RNA data from gut and oral bacteria but couldn't determine which bacteria hosted a given obelisk.
 - While initial findings suggest a possible link to the bacterial species ***Streptococcus sanguinis***, commonly found in the human mouth.
- The discovery of obelisks raises questions about their genome replication, transmission, pathogenicity, evolution, and potential roles in human health and disease.
 - Further research is needed to unravel the mysteries surrounding Obelisks, shedding light on their ecological significance and impact on human health.

Note:

Feature	Viruses	Viroids
Discovery	Dmitry Ivanovsky was the first to discover viruses at the end of the 19 th century.	Discovered by Theodor Diener in 1971 while studying the pathogen causing potato spindle tuber disease.
Composition	Each virion contains a nucleic acid (DNA or RNA) core surrounded by a protein coat , sometimes with a lipid layer outside.	Consists of naked RNA without a lipid layer or protein coat, primarily composed of a single-stranded circular RNA molecule .
Size	Varied in size, generally smaller (30-50 nm).	Smaller compared to viruses.
Host Range	Can infect a wide range of organisms , including plants and animals.	Primarily infect plant cells , causing various diseases characterized by stunted growth, leaf distortion, and other symptoms.
Replication Method	Depends on host cells to replicate and propagate themselves.	Enter a cell as RNA, force the cell to produce more copies of itself, and then infect other cells, primarily through mechanical transmission, seed transmission, pollen, and insect vectors.
Genetic Material	Contains either DNA or RNA, which may code for proteins.	Contains RNA, but does not code for any protein.
Examples	<i>Influenza virus, rabies virus, Herpes virus, SARS-CoV-2.</i>	<i>Potato spindle tuber viroid (PSTVd), Citrus exocortis viroid (CEVd), Coconut cadang-cadang viroid (CCCVd).</i>

Gene Therapy for Hemophilia A

Why in News?

Recently, the Union Minister of Science & Technology addressing the **National Science Day 2024** programme stated that India conducted its first human clinical trial of gene therapy for **hemophilia A (FVIII deficiency)** at Christian Medical College (CMC) Vellore.

- India's progress in **science and technology (S&T)** was also highlighted at the event.

What is Hemophilia A?

- **About:** Hemophilia is a group of **rare bleeding disorders** caused by a congenital deficiency in specific clotting factors. The most prevalent form is **Hemophilia A**.
 - **Hemophilia A** results from a deficiency in a crucial blood clotting protein known as **factor VIII**.
 - Due to this deficiency, individuals experience prolonged bleeding after injuries, as their blood takes longer to clot than usual.

- **Causes:** It is primarily inherited (**genetic**) and follows an **X-linked recessive pattern**, meaning the gene responsible for **factor VIII production** is located on the X chromosome.
 - Males have **one X and one Y chromosome**, while females have two X chromosomes.
 - If a male inherits an X chromosome with the defective gene from his mother, he will have hemophilia A.
 - Females with one defective copy typically do not experience symptoms because the other X chromosome usually provides enough factor VIII.
 - However, females can have hemophilia A if they **inherit two defective copies**, one from each parent (much less common).
- **Symptoms:** The severity of hemophilia A varies depending on the level of factor VIII activity in the blood. Common symptoms can include:
 - **Easy bruising** and excessive bleeding from minor injuries (cuts, scrapes)

Note:

- Bleeding in the joints (especially knees, elbows, and ankles), causing pain, swelling, and stiffness
- Bleeding after surgery or dental procedures.
- **Treatment:** The treatment involves replacing the missing blood clotting factor so that the blood can clot properly. This is typically done by injecting treatment products, called **clotting factor concentrates**, into a person's vein. The two main types of clotting factor concentrates available are:
 - **Plasma-derived Factor Concentrates:** Derived from human plasma, which is the liquid component of blood containing various proteins, including clotting factors.
 - **Recombinant Factor Concentrates:** Introduced in 1992, recombinant factor concentrates are **genetically engineered using DNA technology** and do not rely on human plasma.
 - They are free from plasma or albumin, eliminating the risk of transmitting bloodborne viruses.
 - However, gene therapy is now gaining prominence.
 - In recent trials, they used a new method that involves using a special type of virus called a **lentiviral vector to insert a gene that produces FVIII** into the patient's own stem cells.
 - These modified stem cells then produce FVIII when they develop into specific types of blood cells.
- **Acquired Hemophilia A:** While Hemophilia A is typically inherited, it can also be acquired later in life as a **result of auto-antibodies targeting factor VIII**.
 - This condition, known as acquired hemophilia A, is **rare** and differs from the congenital form in its onset and progression.

Note: **World Haemophilia day** is celebrated on **17th April every year**, aiming to increase awareness about hemophilia and other inherited bleeding disorders. The day is celebrated in the honor of **Frank Schnabel**, founder of the World Federation of Haemophilia (WHF).

What is National Science Day?

- The National Science Day is celebrated on **28th February** every year to commemorate the discovery of '**Raman Effect**' in 1928 by **Sir Chandrasekhara Venkata Raman**, which led to the **Nobel Prize being awarded to him in 1930**.
 - **Raman effect** is a method for identifying materials based on how they scatter light.

- By shining light on a substance, scientists can analyze the unique way it interacts with molecules, revealing its chemical composition and structure.
- The purpose of celebrating this day is to **enhance scientific temper, popularization of science** and encouraging innovative activities by infusing scientific temperament in the masses and creating a positive scientific research culture.
 - Theme for National Science Day 2024: '**Indigenous Technologies for Viksit Bharat.**'

What are India's Recent Advancements in Science and Technology?

- India has emerged as the **world's third-largest startup ecosystem**, boasting over 100 unicorns, showcasing remarkable entrepreneurial growth.
- The **bio-economy sector** has witnessed an extraordinary **13-fold increase** in the past decade, reaching a staggering USD 130 billion in 2024.
- India ranks among the **top five countries for scientific research publications** and holds the **40th position in the Global Innovation Index (GII)**, highlighting its commitment to innovation.
- Groundbreaking initiatives like the **Aroma Mission** and **Purple Revolution** have revolutionized agriculture, fostering a thriving community of agri-startups.
- The development of **Maya OS** by the **Indian Defence Research and Development Organisation** has bolstered cybersecurity measures, protecting against online threats from foreign entities.
- India's intellectual property landscape is experiencing a surge, with **patent filings surpassing 90,000**, marking the highest in two decades.
- The successful **Chandrayaan-3 Mission** has showcased India's prowess in space exploration, paving the way for the historic **Gaganyaan mission**.
- **Related Government Initiatives:**
 - **India Semiconductor Mission**
 - **Artificial Intelligence Mission**
 - **Unified Payment Interface**
 - **INS Vikrant**
 - **Bharat 6G project**
 - **Initiative on Critical and Emerging Technology (India and US)**

Note:

Laser Cooling of Positronium

Why in News?

The **AEGIS collaboration** has achieved a significant breakthrough by demonstrating the **laser cooling of Positronium**.

- The experiment was performed at the **European Organisation for Nuclear Research**, more popularly known as CERN, in Geneva.

What are the Key Highlights of the Study?

- **About AEGIS:**
 - Anti-hydrogen Experiment: Gravity, Interferometry, Spectroscopy (AEGIS) is a collaboration of physicists from a number of countries in Europe and from India.
 - In 2018, AEGIS became the **first in the world to demonstrate the pulsed production of antihydrogen atoms**.
- **Aim:**
 - This is an important precursor experiment to the formation of antiHydrogen and the measurement of Earth's gravitational acceleration on antihydrogen in the AEGIS experiment.
 - This scientific feat could open prospects to produce a **gamma-ray laser** that would eventually allow researchers to look inside the atomic nucleus and have applications beyond physics.
- **Positronium:**
 - **Positronium**, comprising a bound **electron (e⁻) (matter)** and **positron (e⁺) (matter)**, is a fundamental atomic system.
 - Electrons and positrons are leptons. They interact through electromagnetic and weak forces.
 - Since Positronium is only made up of electrons and positrons, and no usual nuclear matter, it has the unique **distinction of being a purely leptonic atom**.
 - Due to its very short life, it annihilates with a half life of **142 nano-seconds**. Its mass is **twice the electron mass**.
- **Cause of Choosing Laser Cooling as the Method:**
 - Positronium is the **lightest known particle system**, and it's extremely unstable. When produced in the clouds for experimental studies, positronium zips around at a huge range of velocities, making it really difficult to pin down.

- One way to resolve this would be to **cool down the positronium** which would **slow its particles** so more accurate measurements of its properties could be taken.

➤ Laser Cooling:

- It is a method of **temperature reduction** based on particles absorbing and emitting photons. If **laser light** is directed along the path of incoming particles, those particles will **absorb the photon, and re-emit** it in a random direction that changes its momentum and slows it down.

- Scientists **first proposed** the method of laser cooling for positronium decades ago in **1988**.

- Experimentalists achieved laser cooling of **Positronium atoms**, reducing their temperature from **~380 Kelvin to ~170 Kelvin** using an alexandrite-based laser system.

➤ Significance and Future Prospects:

- Laser cooling of Positronium opens avenues for spectroscopic comparisons necessary for **Quantum Electrodynamics (QED)** studies.
- **High-precision measurements** of the properties and **gravitational behaviour of antimatter** could reveal new physics and provide insights into the matter-antimatter asymmetry.
- The creation of a **Bose-Einstein condensate** of antimatter, proposed as a means to produce coherent **gamma-ray light**, holds promise for **fundamental and applied research**, including peering into the **atomic nucleus**.
 - In a **Bose-Einstein condensate, matter (or antimatter)** is in a coherent state analogous to photons in a laser beam, and individual atoms lose their independent identity. This allows many atoms to be stored in a small volume.

India's first Indigenous Hydrogen Fuel Cell Ferry

Why in News?

Recently, Prime Minister of India flagged off India's first indigenously built **hydrogen fuel cell ferry boat** in virtual.

- The hydrogen cell-powered inland waterway vessel launched under the **Harit Nauka initiative**.

Note:



What are the Other Key Highlights About the Ferry?

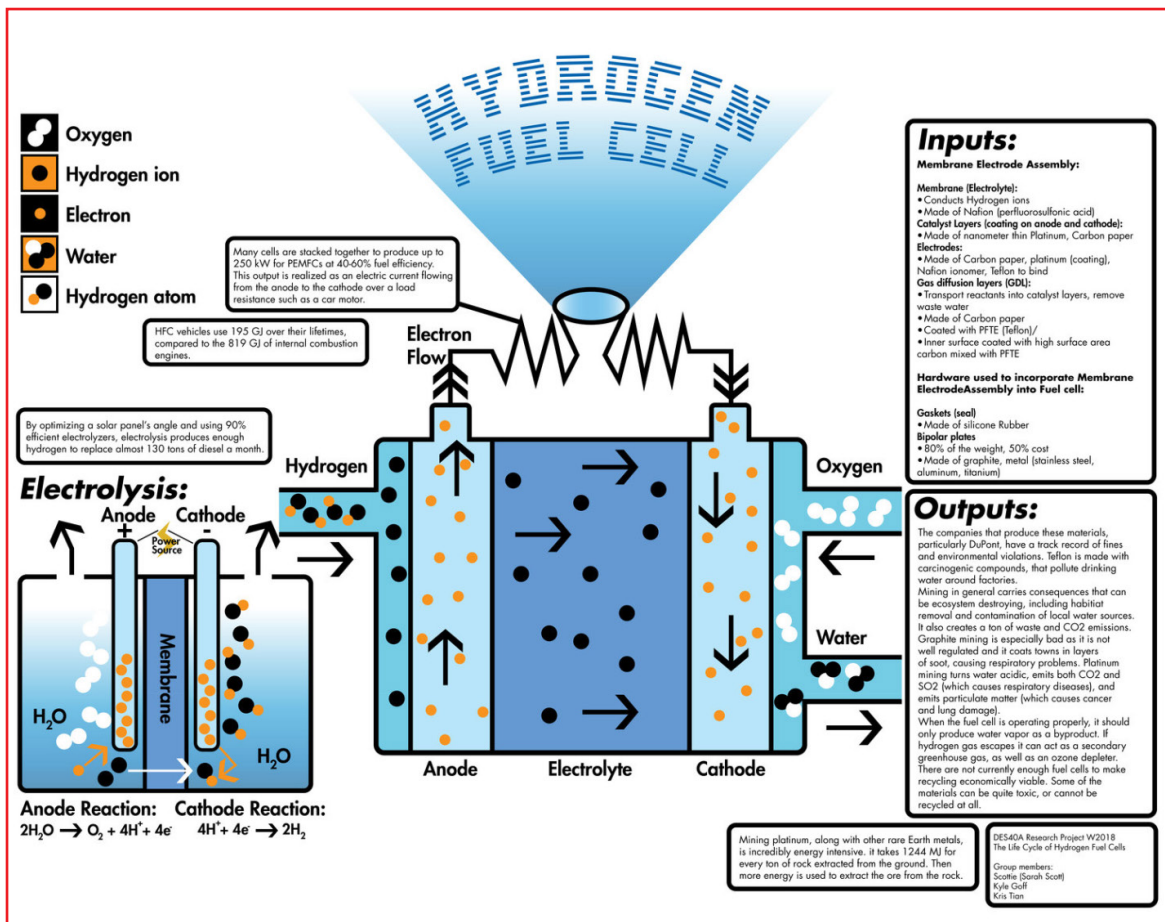
- **About:**
 - The vessel's flagging off was a key component of a major program that involved the foundation stone laid for a ₹17,300-crore project, including the outer harbor at the **V.O. Chidambaranar Port**.
 - The vessel has been built at the **Cochin Shipyard**.
- **Importance:**
 - It will make urban mobility smooth and easy through **inland waterways**. The vessel underscores the pioneering step for embracing **clean energy**

solutions and aligning with the nation's **net-zero commitments**.

Note: The V.O. Chidambaranar Port is the **first Green Hydrogen Hub Port** of the country and the projects include a **desalination plant, hydrogen production and bunkering facility**.

What is the Harit Nauka initiative?

- **About:**
 - The **Ministry of Ports, Shipping and Waterways** unveiled the **Harit Nauka guidelines** for inland vessels in January 2024.



- **Guidelines:**
 - As per the guidelines, all states have to make efforts to use **green fuels** for **50% of inland waterways-based passenger fleets** in the **next one decade**, and **100% by 2045**.
 - This is to reduce **greenhouse gas emissions** as per the **Maritime Amrit Kaal Vision 2047**.
- Globally, the shipping industry is increasingly transitioning to green fuels due to **environmental regulations**, **sustainability goals**, and **advancements** in green fuel technologies.
- Hydrogen and its derivatives are gaining attention for promising **zero-emission fuels** for the industry.

Note:

What is a Hydrogen Fuel Cell?

- **About:**
 - Hydrogen fuel cells are a **clean, reliable, quiet**, and efficient source of **high-quality electric power**.
 - They use hydrogen as a fuel to drive an **electrochemical process** that produces electricity, with **water** and **heat** as the only by-products.
 - Hydrogen is one of the most abundant elements on earth for a cleaner alternative fuel option.
- **Significance:**
 - **Zero Emission Solutions:** It is one of the best **Zero Emission solutions**. It is completely environment friendly with no **tailpipe emissions** other than water.
 - **Tailpipe emissions:** Emission of something such as gas or radiation into the atmosphere.
 - **Quiet Operation:** The fact that the fuel cells make little noise means that they can be used in challenging contexts, such as in hospital buildings.
- **Initiatives Taken:** The **Union Budget** for **2021-22** has announced a **National Hydrogen Energy Mission (NHM)** that will draw up a road map for using hydrogen as an energy source.
- **Other Initiatives for Renewable Energy:**
 - **Jawaharlal Nehru National Solar Mission (JNNSM)**
 - **International Solar Alliance**
 - **PM- KUSUM**
 - **National Wind-Solar Hybrid Policy**
 - **Rooftop Solar Scheme**

Net-Zero Target

- It is referred to as **carbon neutrality**, which does not mean that a country would bring down its emissions to zero. Rather, it is a state in which a country's emissions are compensated by the absorption and removal of **greenhouse gasses** from the atmosphere.
 - Further, absorption of the emissions can be increased by creating more carbon sinks such as forests.
 - While the removal of gasses from the atmosphere requires futuristic technologies such as **carbon capture** and **storage**.
- More than 70 countries have promised to become **Net Zero** by the middle of the century i.e., by **2050**.
- India has promised to cut its emissions to **net zero** by **2070** at the **Conference of Parties (COP)-26 Summit of UNFCCC**.

Sustainable Funding for Research and Development

Why in News?

National Science Day, celebrated annually on **28th February**, honours the discovery of the Raman Effect and acknowledges scientists' contributions to India's development.

- It highlights the importance of Science in Fostering Sustainable Development.

What is National Science Day?

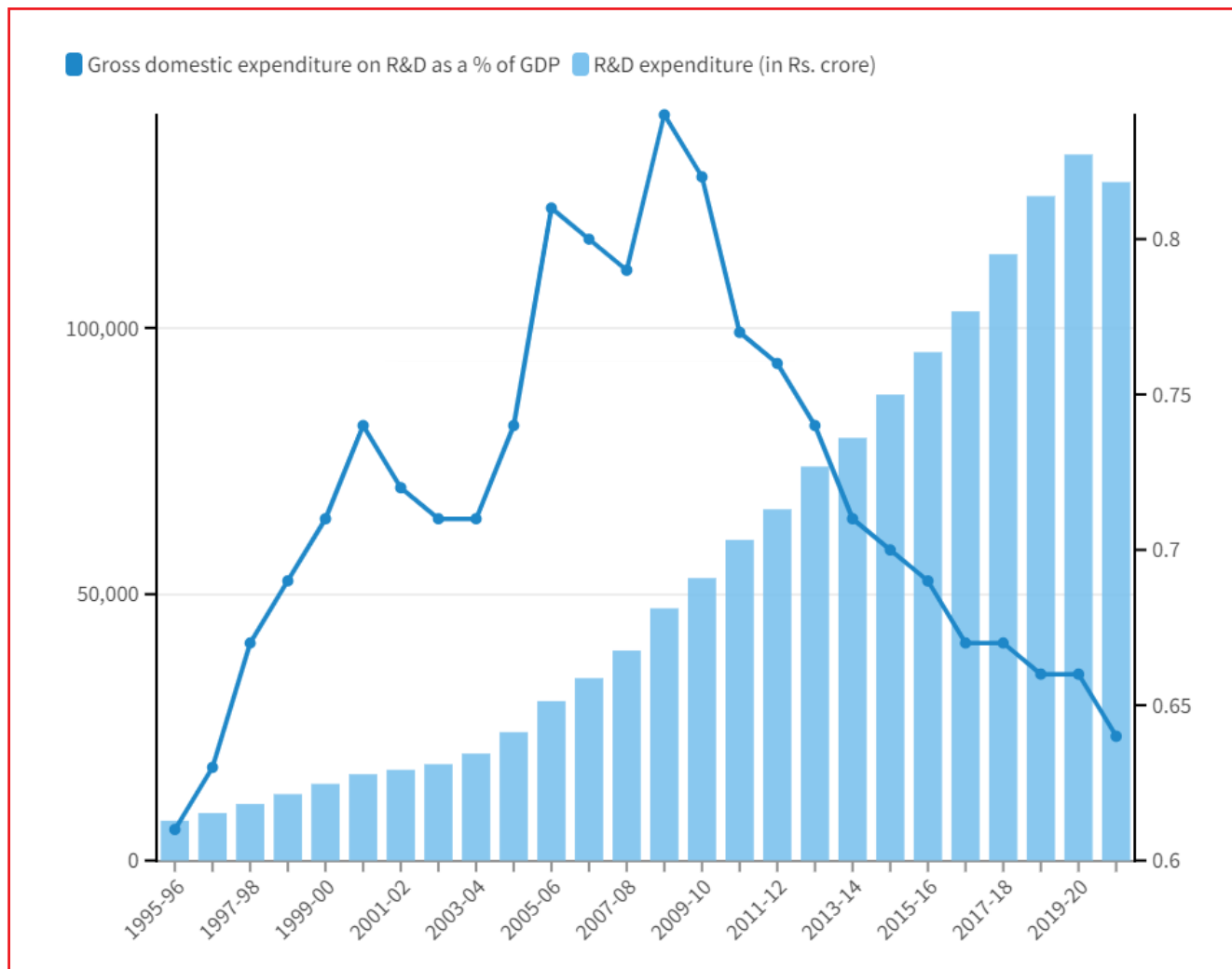
- **About:**
 - **National Science Day** is observed on the day Indian Physicist Chandrasekhara Venkata Raman discovered the **Raman Effect**.
 - The Raman Effect is the phenomenon where **light gets scattered when passed through a transparent material**, leading to changes in wavelength and energy.
 - In 1928, on 28th February CV Raman discovered the Raman Effect.
 - He also received the **Nobel Prize in Physics** in 1930 due to his significant contribution to the field of Physics.
- Theme: Indigenous Technologies for Viksit Bharat
- Significance:
 - The day is observed to **raise awareness about the importance of scientific applications** in our daily lives.
 - The day also aims to celebrate and acknowledge the efforts and achievements of scientists in human welfare.
 - The best **way to observe National Science Day** is by understanding the way science and technology have progressed and exploring the spaces where more efforts need to be made.

How much is India Spending on Research and Development (R&D)?

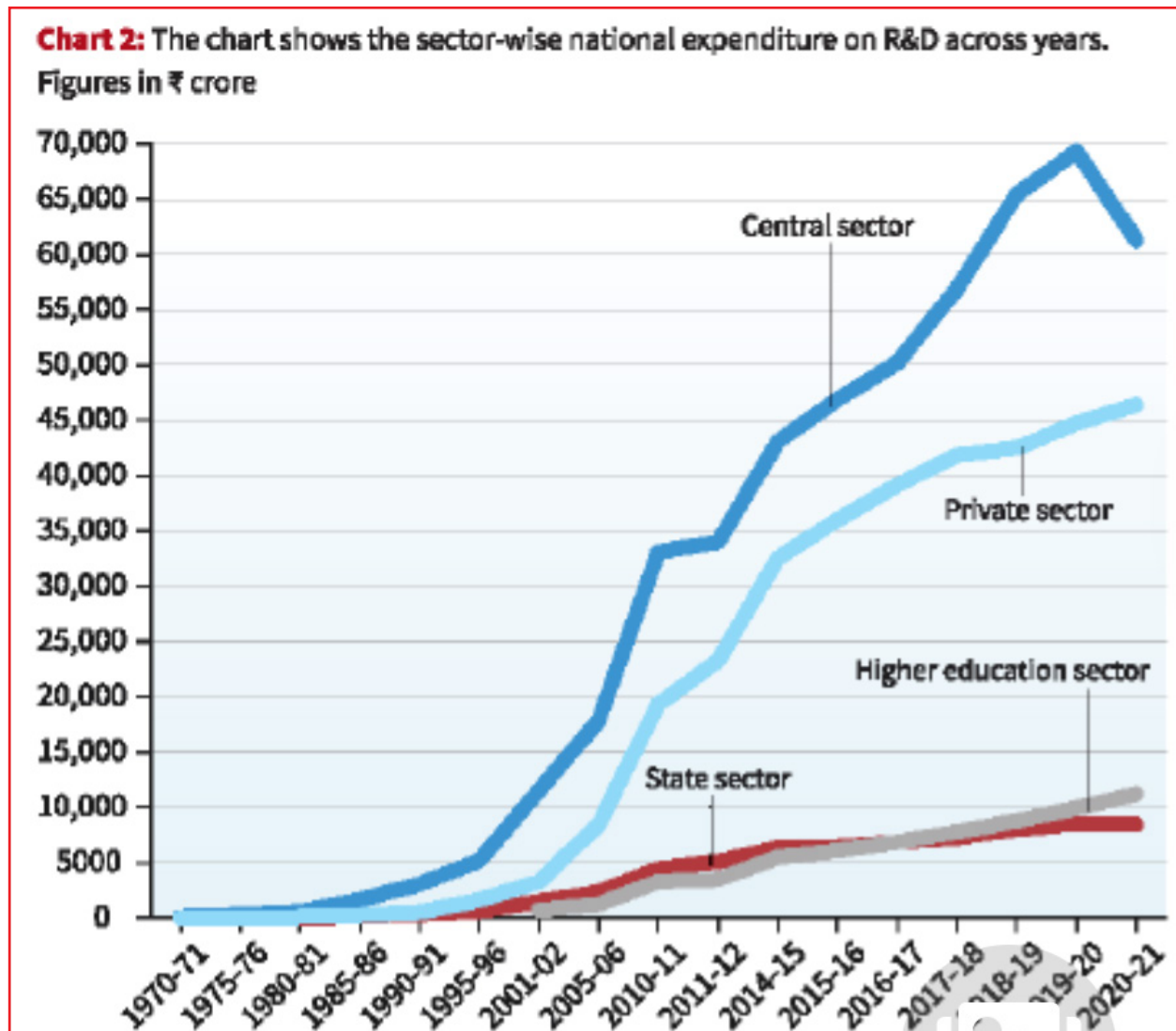
- **India's Declined R&D Expenditure:**
 - India's expenditure on Research and Development (R&D) has **declined to 0.64% in 2020-21 of GDP (Gross Domestic Product)**, down from 0.8% in 2008-2009 and 0.7% in 2017-2018.

Note:

- This decrease is concerning, especially considering repeated calls from government agencies to double R&D spending.
- The **2013 Science, Technology, and Innovation Policy** aimed to increase **Gross Expenditure on R&D (GERD)** to 2% of GDP, a goal reiterated in the 2017-2018 **Economic Survey**.
 - However, the reasons for the reduction in R&D spending are unclear. Potential factors may include **insufficient coordination among government agencies** and a **lack of strong political will** to prioritise R&D expenses.
- **Developed Countries' R&D Expenditure:**
 - Comparatively, **most developed countries** allocate between **2% and 4% of their GDPs to R&D**.
 - In 2021, **Organisation for Economic Co-operation and Development (OECD)** member-countries **averaged 2.7% of GDP on R&D**, with the U.S. and the U.K. consistently exceeding 2% over the past decade.
 - To drive meaningful development through science, experts advocate for India to allocate at **least 1%, ideally 3%, of its GDP annually to R&D until 2047**.



Note:



What are the Challenges in Sustainable Funding for R&D?

➤ Under-utilisation of Budgets:

- Despite allocations, departments such as the **Department of Biotechnology (DBT)**, **Department of Science and Technology (DST)**, and **Department of Scientific and Industrial Research (DSIR)** have consistently under-utilised their budget allocations.
 - In 2022-2023, **DBT used only 72% of its estimated budget allocation**, **DST used only 61%**, and **DSIR spent 69% of its allocation**.

➤ Delays in Disbursements:

- The **lack of capacity** also results in **delays in grant and salary disbursements**, impacting the progress of scientific research and development projects.

- The broader issue of India's under-spending on research and development exacerbates the impact of under-utilization, **indicating a need for both increased funding and improved efficiency in spending**.

➤ Uncertain Government Budget Allocation:

- **Government funding for science is uncertain and subject to changes in political priorities**, economic conditions, and competing demands for resources across various sectors.
- **Non-prioritisation of R&D funding within government budgets**, leading to insufficient allocations compared to other sectors.
 - This could be due to a lack of recognition of the importance of scientific research for national development and innovation.

Note:



➤ **Insufficient Private Sector Investment:**

- In 2020-2021, the private sector industry contributed **36.4% of the GERD** whereas the **Union government's share was 43.7%**.
 - In economically developed countries, a major share (70% on average) of R&D investment comes from the private sector.
- The **hesitancy of private-sector funding** may be because of the **poor capacity to evaluate R&D in India**, ambiguous regulatory roadmaps that can deter investors, **lack of clear exit options for investors in sectors** such as biotechnology, and fears of intellectual property rights theft.

How can India Improve Its R&D Spending?

➤ **Consistent Investment:**

- Science requires consistent, **large-scale investment to bear fruit**. For India to reach 'developed nation' status, **it needs to spend more to scale R&D** than developed countries spend to maintain that status.

➤ **Philanthropic Funding:**

- Encouraging wealthy individuals, corporations, and foundations **to invest in R&D through philanthropy** can significantly boost funding.
- Establishing dedicated **funds or grants for scientific research** can attract donations from those interested in contributing to societal progress.

➤ **Industry-Academic Collaboration:**

- Facilitating **partnerships between academia and industry** can leverage resources and expertise from both sectors.
- Industry can provide funding, equipment, and real-world problems for research, while academic institutions offer scientific knowledge and talent. Government incentives or tax breaks can incentivise such collaborations.

➤ **Venture Capital and Angel Investors:**

- Encouraging venture capital firms and angel investors to invest in R&D projects with high potential for commercialisation can provide a significant source of funding.
- Startups and small enterprises often drive innovation and can benefit from private investment to scale their research efforts.

➤ **Government Initiatives:**

- It is important to accelerate the implementation of initiatives like the **Anusandhan National Research Foundation**, ensuring adequate funding and efficient utilization to support R&D activities.

What are the Government Initiatives related to R&D?

- Development of **Centres of Excellence**.
- Creation of **National Research Foundation**
- **VAIBHAV Fellowship**
- **Global Innovation Index 2023**: India secured the **40th position** in the latest GII 2023.
- **Atal New India Challenge 2.0**
- **Announcement of New Science Awards** (Vigyan Yuva-Shanti Swarup Bhatnagar).
- **Post-Doctoral Fellowships (PDFs)**: The government has **increased the number of Post-Doctoral Fellowships (PDFs) from 300 annually to 1000**.
 - In addition, the **SERB-Ramanujan Fellowship, SERB-Ramalingaswami re-entry Fellowship and SERB-Visiting Advanced Joint Research Faculty Scheme (VAJRA)** have been devised to promote brain gain by attracting bright researchers of Indian origin to work and contribute to STI (science, technology and innovation) ecosystem in India.



Note:

Environment and Ecology

Highlights

- Tiger Safari in Tiger Reserve
- Human-Animal Conflict
- Coral Bleaching in Great Barrier Reef
- The Unjust Climate: FAO
- Groundwater Contamination in India
- India's Battle Against Single-Use Plastics
- Status of Leopards in India 2022
- Himalayas More Prone to Extreme Weather Events
- Nitrogen Pollution
- Article 371A and Its Impact on Coal Mining in Nagaland

Tiger Safari in Tiger Reserve

Why in News?

The **Supreme Court** expressed inclination towards approving the establishment of a **Tiger Safari at Pakhrau, Uttarakhand** in the **buffer area of Corbett Tiger Reserve (CTR)**.

- The court emphasised that safari parks are intended only for local tigers that are injured, conflicted, or orphaned, and not those sourced from zoos.
- The court gave the **Central Bureau of Investigation (CBI)** a three-month deadline to conclude its investigation into alleged irregularities within CTR.

Note:

- In its interim order related to the case challenging the **Forest (Conservation) Amendment Act, 2023**, the **Supreme Court** stated that the **creation of zoos or safaris by any government or authority must receive final approval from the apex court.**

What Does a Tiger Safari Really Mean?

- **About:**
 - A tiger safari is an expedition undertaken to observe tigers in their natural habitat.
 - These safaris typically take place in protected areas like **national parks** and **wildlife sanctuaries**, particularly in India, which is home to over **70%** of the **world's wild tiger population**.
- **Definition:**
 - The **Wildlife (Protection) Act, 1972** does not define "**tiger safari**".
 - The act mandates that "no construction of **commercial tourist lodges, hotels, zoos and safari parks** shall

be undertaken inside a sanctuary except with the prior approval of the **National Board for Wild Life** constituted under the Act.

➤ Establishment:

- The concept of a tiger safari was introduced in the **2012 Guidelines for Tourism** by the **National Tiger Conservation Authority (NTCA)**, allowing for such establishments in the **buffer areas of tiger reserves**.
- **NTCA guidelines of 2016** permitted the establishment of "**Tiger Safaris**" in **buffer and fringe areas** of tiger reserves for **injured, conflicted, or orphaned tigers**, stipulating that no tigers should be obtained from zoos.
- **In 2019, the NTCA permitted** animals to be sourced from zoos for tiger safari, granting the **Central Zoo Authority (CZA)** the authority to select these animals.

What are the Needs and Concerns Related to Building a Tiger Safari in the Forest?

➤ Need:

- The **2012 NTCA guidelines** supported safari parks as a strategy to **alleviate the tourism pressure within tiger reserves**, which can stress wildlife.
- There is resistance to transferring **animals that are not suited for the wild**, like those that are **injured, orphaned, or caught in conflicts, to distant zoos**.
 - Safari parks provide a way to **keep such animals captive within** their natural environment.
- Buffer areas were designated to accommodate **activities supporting the livelihood** and development **needs of local communities**.
 - Safari parks contribute to **generating income** and fostering **local support for tiger conservation**.

Note:

TIGER


Royal Bengal Tiger (*Panthera tigris*) is the National animal of India.

Subspecies of Tiger

- * The continental (*Panthera tigris tigris*)
- * The Sunda (*Panthera tigris sondaica*)

Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas



Countries Where Tiger Population Is Found

- ▣ Found only in 13 Tiger Range countries- India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
- ◆ As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

Protection Status

- ▣ IUCN Red List: Endangered
- ▣ CITES: Appendix I
- ▣ WPA 1972: Schedule I

Threats


- ▣ Habitat loss
- ▣ Poaching and illegal trade
- ▣ Human-Wildlife conflict

Conservation Efforts

- ▣ International Big Cats Alliance (IBCA): For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- ▣ Tx2 campaign: Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- ▣ National Tiger Conservation authority (NTCA): Constituted under the WPA, 1972
- ▣ Project Tiger: Launched in 1973
- ▣ Tiger Census: Every 4 years

Tigers In India

- ▣ India has the largest population
 - ◆ As of 2022, India has 3167 tigers
 - ◆ Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- ▣ Tiger Reserves: India now has 53 tiger reserves
 - ◆ Ranipur in UP is the latest
 - ◆ Nagarjun Sagar (Andhra Pradesh) is the largest while Orang (Assam) is the smallest (Core area)



Concerns

- Housing zoo tigers or other captive animals within tiger habitats poses a risk of disease transmission to wild tigers and other wildlife.
- Keeping captive animals in different locations doesn't change their captive status. Creating safari parks for "rescued" tigers in reserves might focus more on the welfare of individual tigers than on conserving the species, which could disturb natural habitats.
 - The concept of displaying "rescued" tigers in safari parks diverges from the norm of keeping distressed animals away from public view.
 - The 2016 guidelines were cautious about this policy shift, mandating assessment by the NTCA for every "recovered/treated animal" before placement in safari parks.
- The Supreme Court held that the NTCA's interpretation of tiger safaris as essentially zoos within tiger reserves contradicts the purpose of tiger conservation.
- Efforts to reduce tourist crowds around tigers in reserves have often failed, with new safari routes attracting even more visitors.

Note:

Corbett Tiger Reserve

➤ About:

- It is located in the Nainital district of Uttarakhand. The **Project Tiger** was launched in 1973 in **Corbett National Park (first National Park of India)**, which is part of **Corbett Tiger Reserve**.
 - The national park was established in **1936** as **Hailey National Park** to protect the endangered Bengal tiger.
- The **core area** forms the **Corbett National Park** while the **buffer contains reserve forests** as well as the **Sonanadi Wildlife Sanctuary**.
- The entire area of the reserve is mountainous and falls in the **Shivalik and Outer Himalaya geological provinces**.
- **Ramganga, Sonanadi, Mandal, Palain and Kosi** are the major rivers flowing through the Reserve.

➤ Other Major Protected Areas of Uttarakhand:

- **Nanda Devi National Park**.
- Valley of Flowers National Park.
 - Valley of Flowers National Park and Nanda Devi National Park together are a **UNESCO World Heritage Site**.
- Rajaji National Park.
- Gangotri National Park.

Rajaji National Park

➤ About:

- **Location:** Haridwar (Uttarakhand), along the foothills of the Shivalik range.
- **Background:** Three sanctuaries in the Uttarakhand i.e. **Rajaji, Motichur and Chila** were amalgamated into a large protected area and **named Rajaji National Park** in the year 1983 after the famous freedom fighter **C. Rajgopalachari**; popularly known as **“Rajaji”**.
- **Features:**
 - This area is the North Western Limit of habitat of **Asian elephants**.
 - Forest types include sal forests, riverine forests, broad-leaved mixed forests, scrubland and grassy.
 - It was declared a **Tiger Reserve** in **2015**.
 - It is home to the **Van Gujjars** tribes in the winters.

Human-Animal Conflict

Why in News?

Amid repeated deaths from animal attacks and rising anger over them, Kerala has declared the **Human-Animal Conflict** as a **state-specific disaster**.

- This declaration signals a significant shift in how the government addresses this pressing issue, altering the responsibilities and authorities involved.

How State Handle Human-Animal Conflict as a State-Specific Disaster?

Aspect	Current Management	Proposed Change (State Specific Disaster)
Responsibility	Forest department under the Wild-life Protection Act, 1972 .	State disaster management authority under the Disaster Management Act
Decision Making Authority	Chief Wildlife Warden	State Disaster Management Authority (Chief Minister at State Level)

Note:

District Level Authority	District Collector as the executive magistrate	District Collector as a Chairperson of District Disaster Management Authority
Intervention Capability	Limited by Wildlife Protection Act	Enhanced powers to take decisive actions under Disaster Management Act 2005
Judicial Oversight	Decisions may be questioned in court under wildlife laws	Limited judicial interference due to provisions of Disaster Management Act
Jurisdiction of Courts	Courts can entertain suits under relevant wildlife laws	Only the Supreme Court or High Court can entertain suits related to actions under Disaster Management Act, 2025 (Section 71) .
Norms Override Capability	Limited under Wildlife Protection Act	Authority to override other norms, including wildlife laws, during the declared disaster period (Under Section 72)

- As per **section 71 of the Disaster Management Act, no court** (except the Supreme Court or a High Court) **shall have jurisdiction to entertain any suit** or proceeding in respect of anything done by relevant authorities in pursuance of any power conferred by this Act.
 - Section 72 of the Act says that the provisions of **this Act will have an overriding effect on any other law during the specific period** that a disaster has been declared.
- **Other State-Specific Disasters:**
- In 2015, Odisha declared **snakebite a state-specific disaster**.
- In 2020, Kerala declared **Covid-19 as a state specific disaster**.
 - Besides, **heat waves, sunburn and sunstroke** have been declared so in 2019, the phenomenon of **soil piping** in 2017, and **lightning** and **coastal erosion** in 2015.

What is Human-Animal Conflict?

- **About:**
 - Human-animal conflict refers to situations where human activities, such as agriculture, infrastructure development, or resource extraction, come into conflict with wild animals, leading to negative outcomes for both humans and animals.
- **Implications:**
 - **Economic Losses:** Human-animal conflict can result in **significant economic losses for people**, especially farmers and livestock herders. Wild animals can destroy crops, damage infrastructure, and kill livestock, leading to financial hardship.
 - **Threats to Human Safety:** Wild animals can pose a **threat to human safety**, especially in areas

where people and wildlife coexist. Attacks by large predators such as lions, tigers, and bears can result in serious injury or death.

- **Ecological Damage:** Human-animal conflict can have a negative impact on the environment. For example, when humans kill predators, it can lead to an **increase in prey populations**, which can then cause ecological imbalances.
- **Conservation Challenges:** Human-animal conflict can also pose a challenge to conservation efforts, as it can lead to negative perceptions of wildlife and make it difficult to implement conservation measures.
- **Psychological Impacts:** Human-animal conflict can also have psychological impacts on people, **especially those who have experienced attacks or property damage**. It can lead to fear, anxiety, and trauma.

What Strategies Can be Implemented to Mitigate Human-Animal Conflict?

- **Habitat Management:**
 - Protecting and **restoring natural habitats for wildlife** can reduce their need to encroach on human settlements in search of food and shelter.
 - This can **involve creating wildlife corridors**, establishing protected areas, and implementing sustainable land-use practices.
- **Crop Protection Measures:**
 - Implementing techniques such as **fencing, scare devices, and crop diversification** can help protect **crops from wildlife damage**, reducing economic losses for farmers.

Note:


- **Early Warning Systems:**
 - Developing and **deploying early warning systems**, such as alerting communities about the presence of wildlife nearby, can help prevent human-wildlife conflicts and mitigate threats to human safety.
- **Community Engagement and Education:**
 - Educating local communities about **coexisting with wildlife**, raising awareness about the **importance of conservation**, and providing training in conflict resolution techniques can foster greater understanding and tolerance toward wild animals.
- **Conflict Resolution Mechanisms:**
 - Setting up conflict resolution mechanisms, such as **wildlife conflict response teams or hotlines**, can facilitate timely interventions and minimise conflicts between humans and animals.

What are the Government Measures to Tackle Human-Animal Conflict?

- **The Wildlife Protection Act, 1972:** The act provides the legal framework for the activities, Prohibition of hunting, Protection and management of wildlife habitats, and establishment of protected areas etc.

- **The Biological Diversity Act, 2002:** India is a part of the **United Nations Convention on Biological Diversity**. It ensures that the Biological Diversity Act **complements rather than contradicts** existing laws concerning forests and wildlife.
- **National Wildlife Action Plan (2002-2016):** It focuses on strengthening and enhancing the protected area network, on the conservation of Endangered wildlife and their habitats, on controlling trade in wildlife products and on research, education, and training.
- **Project Tiger:** **Project Tiger** is a **Centrally Sponsored Scheme**, launched in 1973. It provides havens for tigers in the country's national parks.
- **Project Elephant:** It is a centrally sponsored scheme and was launched in February 1992 for the protection of elephants, their habitats and corridors.
- **National Disaster Management Authority (NDMA):** It lays down guidelines to be followed by different Ministries or Departments of Central Government for the purpose of integrating **measures for disaster prevention or mitigation of its effects** in their development plans and projects

HUMAN-WILDLIFE CONFLICT


When encounters between humans and wildlife lead to negative results, such as loss of property, livelihoods, and even life

Causes of HWC

- Agricultural Expansion
- Urbanization
- Infrastructure Development
- Climate Change
- Wildlife Populations Growth and Range Expansion

Impacts of HWC

- Grave injuries, Loss of life
- Damage to farms and crops
- ↑ violence against animals

WWF India during 2003-2004 developed the **Sonitpur Model** by which community members were connected with Assam Forest Dept and given training on how to drive elephants away from crop fields and human habitations safely.

In 2020, the SC upheld Madras HC's decision on the Nilgiris elephant corridor, affirming the right of passage of the animals and closure of resorts in the area.

Data on HWC

- Tigers killed 125 humans between 2019 and 2021
- Death of 329 tigers due to poaching, natural and unnatural causes.
- Elephants killed 1,579 humans in three years
- Death of 307 elephants due to poaching, electrocution, poisoning and train accidents

Advisory for HWC Management (Standing Committee of the National Board of Wildlife)

- Gram Panchayats empowered to deal with problematic wild animals (WPA 1972)
- Compensation against crop damage due to HWC (PM Fasal Bima Yojna)
- Local/State depts. to adopt early warning systems and create barriers
- Paying a part of ex-gratia as interim relief within 24 hours of the incident to the victim/family

State - Specific Initiatives

- **UP** - Man-animal conflict under **listed disasters** (in State Disaster Response Fund)
- **Uttarakhand** - **Bio-fencing** carried out by growing various species of plants in areas
- **Odisha** - Casting **seed balls** inside different forests to **enrich food stock for wild elephants**



Note:

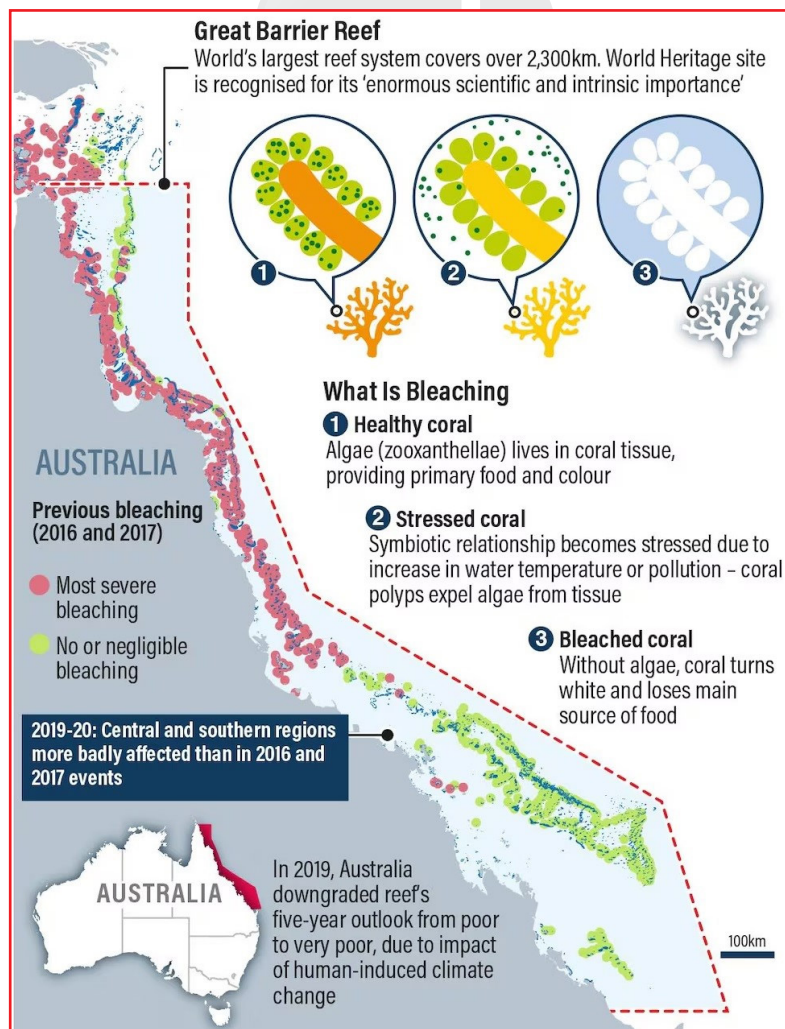
Coral Bleaching in Great Barrier Reef

Why in News?

Recent aerial surveys conducted by Australian authorities confirm widespread **coral bleaching** across **two-thirds of the Great Barrier Reef (GBR)**, signalling a dire threat exacerbated by **climate change**. Urgent action is needed to mitigate the impacts and protect this vital marine ecosystem.

Great Barrier Reef (GBR)

- The GBR is the **world's largest coral reef system**. It's located in the Coral Sea off the coast of Queensland, Australia.
 - The GBR stretches across 2,300 km and is made up of around 3,000 individual reefs and 900 islands.
- The GBR is home to 400 types of coral, and 1,500 species of fish. It's also home to endangered species such as the **dugong** and the large green turtle. The **GBR is a UNESCO World Heritage site** and was inscribed in 1981.
 - In 2023, the UNESCO Heritage Committee **refrained from listing Australia's Great Barrier Reef as a site "in danger"** but warned that the world's biggest coral reef ecosystem remained under **"serious threat" from pollution and the warming of oceans**.
- Widespread mass bleaching of the Great Barrier Reef was first seen in 1998 and happened again in 2002, 2016, 2017, 2020, 2022 and now in 2024.




Note:

What Factors are Contributing to the Coral Bleaching in GBR?

- **Temperature Stress:**
 - Warmer water temperatures can trigger coral bleaching, causing corals to expel the **algae (zooxanthellae)** living in their tissues and turn white.
 - Above-average sea surface temperatures over an extended period have led to significant **heat stress on the reef**, exacerbating the bleaching phenomenon.
 - Bleached coral isn't dead, but weakened and susceptible to starvation and disease. Persistent stress can lead to coral death.
- **Climate Change Impact:**
 - Rising ocean temperatures, exacerbated by **climate change**, increase coral **susceptibility to stress and mortality**, leading to widespread bleaching events globally due to **El Niño conditions**.
- **Other Environmental Stressors:**
 - Cold water temperatures, pollution, runoff, and extreme low tides can also induce coral bleaching, highlighting the **multifaceted nature of this phenomenon**.
- **Algae Relationship:**
 - Coral bleaching occurs when the **symbiotic relationship between corals and algae is disrupted**, impacting the corals' food source and making them vulnerable to disease.

What are the Implications of Coral Bleaching?

- **Ecological Impact:**
 - Coral reefs (also called **Rainforest of seas**) are vital ecosystems that support a diverse range of marine life. Coral bleaching can lead to the **loss of habitat and biodiversity**, affecting **fish populations, marine plants**, and other organisms that depend on coral reefs for survival.
- **Economic Consequences:**
 - Coral reefs are important for **coastal protection, tourism, and fisheries**. Coral reef ecosystems provide society with resources and services worth **USD 375 billion per year**. The degradation of coral reefs due to bleaching can have economic repercussions, impacting **industries such as tourism and fishing**, which rely on healthy reef ecosystems.



Coral Reefs

(Rainforests of the seas)

About


- ✦ **Large underwater structures** – made of skeletons of **colonial marine invertebrates 'coral'** – individually called **polyp**
- ✦ **Symbiotic Relationship with algae 'zooxanthellae'** (responsible for beautiful colours of corals)
- ✦ Support over 25% of marine biodiversity

Hard Corals vs Soft Corals

- ✦ **Hard Corals** - Rigid skeleton made of **CaCO₃** - reef-building corals
- ✦ **Soft Corals** - Non reef-building


Great Barrier Reef (Australia)

- ✦ Largest Coral Reef in the World
- ✦ World Heritage Site (1981)
- ✦ Endures Mass Coral Bleaching



Corals in India

- ✦ Present in the areas of Gulf of Kutch, Gulf of Mannar, Andaman & Nicobar, Lakshadweep Islands and Malvan



Significance


- ✦ Coral reefs **protect coastlines from storms/erosion**, provide jobs, offer opportunities for recreation
- ✦ Source of **food/medicines**

Threats

- ✦ **Natural:** Temperature, Sediment Deposition, Salinity, pH, etc.
- ✦ **Anthropogenic:** Mining, Bottom Fishing, Tourism, pollution, etc.

Coral Bleaching


- ✦ Corals under stress - expel algae – thus turning white (bleached)
- ✦ Bleached corals - not dead – but, more risk of starvation/disease



Initiatives to Protect Corals

Technology

- ✦ **Cyromesh:** Storage of the coral larvae at (-196°C) - Can be later reintroduced to the wild
- ✦ **Biorock:** Creating artificial reefs on which coral can grow rapidly



Global


- ✦ International Coral Reef Initiative
- ✦ The Global Coral Reef R&D Accelerator Platform

Indian

National Coastal Mission Programme

- **Food Security:**
 - Coral reefs provide food and livelihoods for millions of people worldwide. Coral bleaching threatens the **availability of seafood and can disrupt the livelihoods of communities** dependent on fishing and reef-related tourism.
- **Climate Change Indicator:**
 - Coral bleaching serves as a **visible indicator of climate change** impacts on marine ecosystems.
- **Loss of Ecosystem Services:**
 - Coral reefs provide essential ecosystem services, including shoreline **protection, nutrient cycling, and carbon sequestration**.

Note:



drishti

- Bleaching diminishes the ability of reefs to provide these services, affecting the overall health of marine ecosystems and coastal communities.

The Unjust Climate: FAO

Why in News?

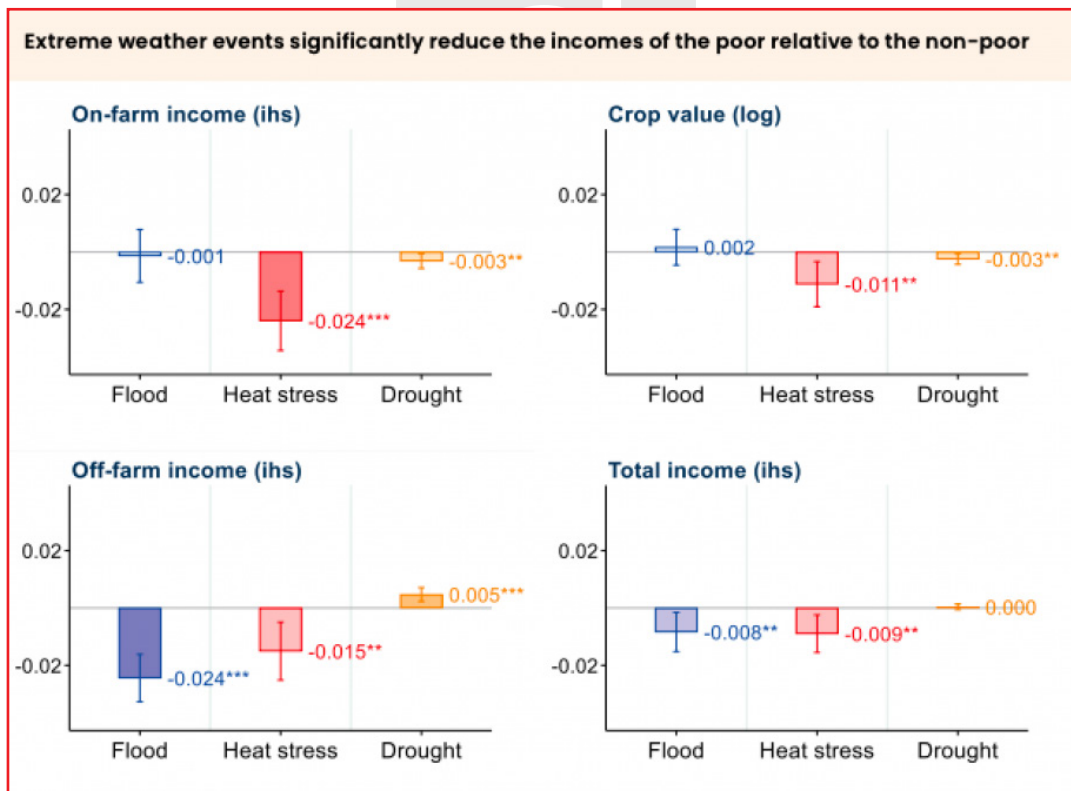
Recently, the **Food and Agriculture Organization of the United Nations (FAO)**, has released a report titled- **The Unjust Climate**, shows how the effects of **Climate Change** on income and adaptation in rural areas vary with gender, wealth and age.

- FAO analyzed **socioeconomic data from over 100,000 rural households** representing more than 950 million people across 24 **LMICs (Lower Middle Income Countries)**.
- The study integrated this information with **70 years of georeferenced daily precipitation and temperature**

data to examine the impacts of climate stressors on incomes, labour, and adaptation strategies, differentiating based on wealth, gender, and age.

What are the Key Findings of the Report?

- **Impact of Extreme Weather on Poor Rural Households:**
 - Every day of extreme heat results in **poor rural households losing 2.4% of on-farm incomes**, 1.1% of crop value, and 1.5% of off-farm income compared to non-poor households across India and 23 other LMICs (Lower Middle Income Countries).
 - A 1°C increase in long-term temperatures would **push rural poor households to rely more on climate-dependent agriculture**, leading to a **33% decrease in off-farm incomes**.
 - Similarly, every day of **extreme Precipitation** causes poor households to lose 0.8% of their incomes **relative to non-poor households**, mainly driven by losses in off-farm incomes.



- **Income Inequality Widening Due to Climate Stressors:**
 - In an average year, poor households **lose 5% of their total income** due to **Heat Stress** and **4.4% due to floods** compared to better-off households.
 - **Floods** and heat stress widen the income gap between poor and non-poor households in rural areas by approximately USD 21 billion and USD 20 billion a year, respectively.

Note:

➤ **Maladaptive Coping Strategies:**

- Extreme weather events **push poor rural households to adopt maladaptive coping strategies**, including distress sale of livestock and redirecting expenditures away from their farms.
- Poor households **reduce their investments in agriculture relative to non-poor households** when faced with floods and droughts, as they redirect their scarce resources away from agricultural production **towards immediate consumption needs**.
- These maladaptive **coping strategies are likely to make them more vulnerable** to future climate stressors than non-poor rural households.

Measuring climate stressors

■ **Floods**

The number of extreme precipitation days. Extreme precipitation occurs when precipitation exceeds the 95th percentile of daily precipitation.

■ **Heat stress**

The number of extreme temperature days. Extreme temperature occurs when the maximum temperature exceeds the 99th percentile of daily maximum temperatures.

■ **Drought**

The number of days exceeding an extreme dry spell. An extreme dry spell is an event with a length that exceeds the 95th percentile of consecutive dry days.

■ **Climate change**

Long-term change in average temperature between two periods of time: 1951–1980 and the 30 years prior to the survey.

➤ **Inadequate Inclusion in National Climate Policies:**

- Rural people and their climate vulnerabilities are largely absent in national climate policies.
- Less than 1% of **Nationally Determined Contributions (NDC)** and national adaptation plans (NAP) of the 24 analysed countries mention poor people, and only about 6% **refer to farmers in rural communities**.
- **Only 7.5% of tracked climate finance** in 2017-18 went towards climate change adaptation, with less than **3% allocated to agriculture**, forestry, and other land uses.

- **Agricultural policies also miss** the opportunity to address gender equality and women's empowerment and intersecting vulnerabilities such as climate change.
 - An analysis of agricultural policies from 68 low- and middle-income countries done by FAO in 2023 showed that about **80% of policies did not consider women and climate change**.

What are the Recommendations of the Report?

- It is suggested that addressing these challenges **requires targeted interventions to empower various rural populations** to engage in climate-adaptive measures.
- It is imperative to invest in **policies and programmes that address the multidimensional climate vulnerabilities** of rural people and their specific constraints, including their limited access to productive resources.
- It is recommended to link **social protection programmes to advisory services** that can encourage adaptation and compensate farmers for losers, such as cash-based social assistance programs.
- Gender-transformative methodologies that directly challenge discriminatory gender norms, **could also tackle the entrenched discrimination** that often prevents women from exercising full agency over economic decisions that impact their lives.

What are the FAO's Initiatives to Tackle the Impact of Climate Change?

- Inclusive climate actions are embedded in **FAO's Strategy and Action Plan on Climate Change** and in the **FAO Strategic Framework 2022–2031**, where tackling the impact of climate change is mainstreamed in efforts to achieve the four betters: better production, better nutrition, better environment and better life for all.
- **FAO's Global Roadmap for Achieving SDG (Sustainable Development Goal) 2** without breaching the 1.5 °C threshold, establishes that gender inequalities, climate actions and nutrition are simultaneous considerations, and actions must encompass these dimensions and promote inclusivity for women, youth and Indigenous Peoples.

What is the Food and Agriculture Organization?

- **About:**
 - FAO is a specialised agency of the **United Nations** that leads international efforts to defeat hunger.

Note:

- **World Food Day** is celebrated every year around the world on 16th October. The day is celebrated to mark the anniversary of the founding of the FAO in 1945.
- It is one of the UN food aid organisations based in Rome (Italy). Its sister bodies are the **World Food Programme** and the **International Fund for Agricultural Development (IFAD)**.
- **Initiatives Taken:**
 - **Globally Important Agricultural Heritage Systems (GIAHS)**.
 - Monitors the **Desert Locust** situation throughout the world.
 - The **Codex Alimentarius Commission (CAC)** is the body responsible for all matters regarding the implementation of the Joint FAO/WHO Food Standards Programme.
 - The **International Treaty on Plant Genetic Resources for Food and Agriculture** was adopted by the Thirty-First Session of the Conference of the FAO in 2001.
- **Flagship Publications:**
 - The State of World Fisheries and Aquaculture (SOFIA).
 - The State of the World's Forests (SOFO).
 - **The State of Food Security and Nutrition in the World (SOFI)**.
 - The State of Food and Agriculture (SOFA).
 - The State of Agricultural Commodity Markets (SOCO).

Groundwater Contamination in India

Why in News?

The **National Green Tribunal (NGT)** recently expressed dissatisfaction over the **Central Groundwater Authority's (CGWA)** response to the widespread issue of **toxic arsenic and fluoride** in **groundwater** across India.

- Groundwater contamination due to arsenic is prevalent in **230 districts across 25 states of India** while that caused due to **fluoride** is prevalent in **469 districts across 27 states**.

Note:

- India is one of the **world's largest users of groundwater**, where groundwater contributes to more than **60% of the country's irrigation resources**.
- This **over-extraction of groundwater is non-renewable** since recharge rates are less than extraction rates and replenishing this resource can take thousands of years.

What are the Sources of Groundwater Contamination?

- **Naturally Occurring Contaminants:** High levels of **arsenic, fluoride, iron, and uranium** exist naturally in some geological formations, contaminating groundwater.
 - In terms of arsenic and iron pollution, **West Bengal and Assam** are the worst affected states respectively.
- **Agriculture:** Excessive use of fertilisers, pesticides, and herbicides leach harmful chemicals into the water table.
- **Industrial Waste:** Untreated industrial effluents often find their way into groundwater sources, introducing **heavy metals** and other toxins.
- **Urbanisation:** Leaky sewage systems and improper waste disposal in urban areas contribute to groundwater pollution.
- **Saltwater Intrusion:** In coastal areas, **over-pumping of groundwater** can cause saltwater from the ocean to infiltrate freshwater aquifers, rendering the water unusable for drinking or irrigation.
 - **Rajasthan** has the highest number of rural habitations affected by (salinity) contamination.

What is the Central Ground Water Authority?


- **About:** The authority has been constituted under **Section 3 (3) of the Environment (Protection) Act, 1986** to regulate and control the development and management of groundwater resources in the country.
- **Major Functions:**
 - To regulate, control, manage and development of groundwater in the country and to issue necessary regulatory directions for the purpose.
 - Exercise of powers under **section 4 of the Environment (Protection) Act, 1986** for the appointment of officers.

Note:

What are the Primary Agents Responsible for Contaminating Groundwater?

- **Arsenic:** While arsenic occurs naturally, it is also present in human-made forms used in agriculture, mining, and manufacturing.
 - Seepage from industrial and mining discharges, as well as from **fly ash ponds** in thermal power plants, can introduce arsenic into groundwater.
 - Chronic exposure to arsenic can cause **black foot disease**.

- **Fluoride:** In India, fluorosis is a prevalent issue due to the consumption of water with high fluoride content.
 - Excessive fluoride intake can result in neuromuscular disorders, gastrointestinal problems, dental deformities, and skeletal fluorosis, characterised by painful and stiff joints.
 - **Knock-knee syndrome**, marked by outward bending of the legs from the knees, can also occur.




OECD
BETTER POLICIES FOR BETTER LIVES

What are the impacts of water pollution?


Urban and domestic use

Increased water treatment and inspection costs, maintenance costs from scouring and premature ageing of infrastructure, increased wastewater treatment costs with implementation of more strict regulations. Emergency and clean-up costs from spills/accidents.




Ecosystem health

Damage to freshwater and marine ecosystems (e.g. fish kill, invertebrates, benthic fauna, flora, habitat degradation) and loss of ecosystem services, which may require investment in additional or different grey infrastructure alternatives to replicate these services.




Human health

Polluted water is the world's largest health risk, and continues to threaten both quality of life and public health. Associated with this are health service costs, loss life expectancy, and emergency health costs associated with major pollution events.




Industrial productivity

Exclusion of contaminated water for industrial use results in increasing water scarcity. Scouring of infrastructure, and clean-up costs from spills/accidents.




Social values and tourism

Prohibition from recreational use (e.g. swimming, fishing, seafood gathering), beach closure, impacts on aesthetics, cultural and spiritual values. Losses in fishing, boating, rafting and swimming activities to other tourism activities or to other ventures with superior water quality.




Agricultural productivity

Exclusion of contaminated water for irrigation results in increasing water scarcity. Irrigation with contaminated water causes damage to, and reduced productivity of, pasture and crops, soil contamination, impacts to livestock health and production, and scouring of infrastructure.




Commercial fisheries

Direct and indirect fish kill, contamination of shellfish.



Property values

Waterfront property values can decline because of unsightly pollution and odour.



Diffuse Pollution, Degraded Waters: Emerging Policy Solutions

<http://oe.cd/diffusepollution>

Note:

- **Nitrates:** Excessive nitrate levels in drinking water react with haemoglobin, forming non-functional **methaemoglobin** and hindering oxygen transport, leading to methemoglobinemia and **blue baby syndrome**.
 - High nitrate levels can also contribute to the formation of **carcinogens** and accelerate eutrophication.
 - **Blue Baby Syndrome** cause a bluish discolouration of the skin in babies, **not just methemoglobinemia**, due to excessive nitrate levels in drinking water.
 - **Methemoglobinemia** is a condition where an **abnormal form of haemoglobin** (methemoglobin) is present in the blood, reducing its ability to carry oxygen.
- **Uranium:** **Uranium**, weakly radioactive with a **long physical half-life**, is found in concentrations above WHO guidelines in localised pockets in India.
 - In regions like **Rajasthan and northwestern states**, uranium is primarily present in alluvial aquifers, while in southern states like **Telangana**, it originates from crystalline rocks such as granite.
 - Elevated uranium levels in drinking water can cause kidney toxicity.
- **Radon:** Recently, in some areas of Bengaluru, groundwater used for drinking has been found to contain significantly high levels of **radioactive radon**.
 - Radon originates from **radioactive granites and uranium**, which undergoes decay to radium and radon.
 - The presence of radon in air and water can **damage lung tissues, increasing the risk of lung cancer**.
- **Other Trace Metals:** Water may also be contaminated by trace metals such as **lead, mercury, cadmium, copper, chromium, and nickel**, which possess carcinogenic properties.
 - Water contaminated with cadmium can cause **Itai Itai disease**, also called **ouch-ouch disease**.
 - Mercury in water causes **Minamata (a neurological syndrome)** in humans

What are the Current Government Initiatives Related to Groundwater Management?

- **Atal Bhujal Yojana**
- **Jal Shakti Abhiyan**
- **Aquifer Mapping and Management Programme (NAQUIM)**
- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)**
 - **Water (Prevention and Control of Pollution) Amendment Bill, 2024**
 - **National Green Tribunal**
 - **Central Pollution Control Board (CPCB)**
 - **Environment (Protection) Act, 1986**

India's Battle Against Single-Use Plastics

Why in News?

India had committed to phase out Single-Use Plastics (SUP) by 2022, three years later, while some progress has been made with the ban on selected SUP items, challenges persist.

- According to a report launched during the **6th United Nations Environmental Assembly (UNEA-6)**, the thriving street food sector across India depends heavily on single-use plastics.

What are the Key Highlights of the Report Released at UNEA-6 Regarding SUP?

- **Street Food Sector's Reliance on SUP:**
 - Single-use plastics such as plates, bowls, cups, and containers are extensively **used in India's street food sector**. Despite their affordability, these items contribute significantly to the country's waste management challenge.
- **Benefits of Reuse System:** The findings reveal the reuse system offers a compelling business case with various benefits:
 - **Reduced costs:** Both vendors and customers experience cost savings.
 - **Waste reduction:** The system significantly reduces the amount of packaging material needed.
 - **Financial viability:** The report highlights a potential 21% return on investment with a payback period of 2-3 years.

Note:

- **Additional considerations:** Material choice, retention time, return rate, deposit amounts, and government incentives are crucial factors for optimizing the system's effectiveness.
- **Recommendation:**
 - Adopting a reusable packaging system in India's street food sector presents a win-win solution.
 - It is both economically viable and environmentally sustainable, benefiting all stakeholders and paving the way for a more resilient and sustainable future for Indian cities.

What is Single-Use plastic?

- It refers to a "plastic item intended to be used once for the same purpose before being disposed of or recycled."
 - Single-use plastic has among the highest shares of plastic manufactured and used — from packaging of items to bottles (shampoo, detergents, cosmetics), polythene bags, face masks, coffee cups, cling film, trash bags, food packaging etc.

- On the current trajectory of production, it has been projected that **single-use plastic could account for 5-10% of greenhouse gas emissions by 2050.**

What is the Current Landscape of Single-Use Plastics?

- **Share of Banned Single-Use Plastic Items:**
 - India banned **19 identified single-use plastic items in 2021**, but it fell short of addressing the broader spectrum of single-use plastics still in circulation.
 - The annual share of banned single-use plastic items is roughly 0.6 million tonnes per year.
 - The remaining single-use plastic items, comprising mostly packaging products, are covered under the **Extended Producer Responsibility (EPR)** policy introduced by the Ministry of Environment, Forest and Climate Change (MOEFCC) in 2022.
 - The **EPR policy specifies target collection and recycling**, ignoring the fact that some single-use plastics that are not banned (such as multilayered packaging) are non-recyclable.

PARAMETERS FOR THE BAN ON SINGLE-USE PLASTIC IN INDIA

Utility Index—parameters (100)	Environmental Impact—parameters (100)
Hygiene (20)	Collectability (20)
Product safety (20)	Recyclability (20)
Essentiality (20)	Possibility of end-of-life solutions (20)
Social Impact (20)	Environmental Impact of alternative products (20)
Economic Impact (20)	Littering propensity (20)

- **India's share in Plastic Production:**
 - According to the report **Plastic Waste Makers Index 2019**, India was the 13th largest investor in **single-use plastic polymer production** globally.
 - India ranked 3rd globally, contributing 5.5 million tonnes of single-use plastic (SUP) waste, and ranked 94th with **per capita single-use plastic waste of 4 kg per year**, indicating that the SUP ban in India addresses roughly 11% of the entire gamut of single-use plastic waste.
- **India's Mismanagement in Plastic Waste:**
 - The UNEP's country-wise plastic data revealed that **India mismanages 85% of its plastic waste.**

- This waste, **predominantly single-use in nature**, is dumped or even burnt at roadsides, choking drains and flowing into the rivers from where it disperses into the ocean, **harming marine life directly or indirectly as it degrades into micro- and nano-sized particles** over months, years and decades.

What are the Challenges in Tackling Single-Use Plastic?

- **Lack of Alternatives:**
 - One of the major hurdles in phasing out single-use plastics is the **limited availability of viable alternatives.**
 - While there are some alternatives available, they

Note:

may not be **cost-effective, convenient, or widely accessible**, making it difficult for consumers and businesses to transition away from single-use plastics.

➤ **Economic Considerations:**

- Single-use plastics are often **preferred for their affordability and convenience**. Transitioning to alternatives may require investments in research, development, and infrastructure, which **can be costly for both businesses and governments**.
- Additionally, **consumers may be unwilling to pay higher prices** for alternative products.

➤ **Infrastructure:**

- Adequate waste **management infrastructure is essential for managing the disposal** and recycling of plastics. However, many regions, particularly in developing countries, lack the **necessary infrastructure for proper waste management**, leading to plastic pollution and environmental degradation.

➤ **Policy and Regulation:**

- While some governments have implemented regulations to restrict the use of single-use plastics, enforcement and compliance can be challenging.
- There may also be resistance from industries that rely on single-use plastics, as well as from consumers who are accustomed to their convenience.

➤ **Consumer Behavior:**

- Changing consumer behavior and attitudes towards single-use plastics is crucial for reducing their use.
- However, this can be difficult to achieve, as habits are deeply ingrained, and there may be a lack of awareness about the environmental impacts of single-use plastics.

➤ **Impact on Livelihoods:**

- In some cases, bans or restrictions on single-use plastics may have unintended consequences for livelihoods, particularly for those employed in industries that rely on the production or sale of single-use plastics.
- Efforts to phase out single-use plastics must consider the socio-economic implications and provide support for affected individuals and communities.

What Measure can be Taken to Deal With the Issue of Single-Use Plastic?

➤ **Enforce Laws:**

- **Upgrade the capacity of officials**, especially

those issuing challans, on what to look for during inspections. **Equip inspection teams with instruments** like gauge meters. Ensure reporting on inspection scale in various facilities.

➤ **Mandate Public Disclosure of Environmental Compliance:**

- The **CPCB (Central Pollution Control Board)** and **MOEFCC** should mandate local governments and states to provide quarterly updates on their websites, including **information on environmental compensation**, units shut, and fines imposed.
- States should also submit enforcement reports to the CPCB fortnightly. The CPCB should ensure **this information is included in its Annual Report as per the Plastic Waste Management Rules, 2016**, and share data collected from private players and state authorities.

➤ **Stop the Micron Business:**

- Carry bags irrespective of thickness should be banned. This has been done successfully in countries that are weaker economies than India such as various East African countries, for example, **Tanzania and Rwanda**.
- The Indian state of Himachal Pradesh through its **Non-biodegradable Garbage Control Act of 1998** has completely **banned** the production, distribution, storage and **use of carry bags**.
 - This is not just a policy on paper but has been implemented at scale in the entire state of Himachal Pradesh.

➤ **Invest in the SUP Alternative Market:**

- The **scarcity of alternatives is a major obstacle to moving away from SUP**. The market will transition when cost-effective and convenient options become widely available.
- However, **substitutes are currently not abundant**. This scarcity is largely due to the government's past neglect in promoting the alternative industry, while also attempting bans at the national and state levels.

How are other Countries Dealing with SUP?

➤ **Sign Resolution:**

- In 2022, 124 countries, parties to the **United Nations Environment Assembly**, including **India**, signed a resolution to draw up an agreement which will in the future make it **legally binding for the**

Note:

signatories to address the full life of plastics from production to disposal, to end plastic pollution.

- As of July 2019, **68 countries have plastic bag bans** with varying degrees of enforcement.
- **Countries which Ban Plastic:**
 - **Bangladesh:**
 - Bangladesh became the **first country to ban thin plastic bags in 2002.**
 - **New Zealand:**
 - New Zealand became the latest country to **ban plastic bags in July 2019.**
 - **China:**
 - China issued a ban on plastic bags in 2020 with phased implementation.
 - **US:**
 - **Eight states in the US have banned single-use plastic bags**, beginning with California in 2014. Seattle became the first major US city to ban plastic straws in 2018.
 - **European Union:**
 - In July, 2021, the Directive on Single-Use Plastics took effect in the European Union (EU).
 - The directive **bans certain single-use plastics** for which alternatives are available, single-use plastic plates, cutlery, straws, balloon sticks and cotton buds cannot be placed on the markets of the EU member states.
 - The same measure applies to cups, food and beverage containers made of expanded polystyrene, and all products made of oxo-degradable plastic.

Status of Leopards in India 2022

Why in News?

The Ministry of Environment, Forest and Climate Change has released a report on the **Status of Leopards in India 2022**. The survey covered 20 States of India, and focussed on about 70% of the animals' expected habitat.

- Recently, the Union Government, while commemorating the 50th anniversary of **Project Tiger**, has approved the establishment of the **International Big Cat Alliance (IBCA)** with headquarters in India with a one-time budgetary support of Rs.150 crore for a period of five years from **2023-24 to 2027-28**.

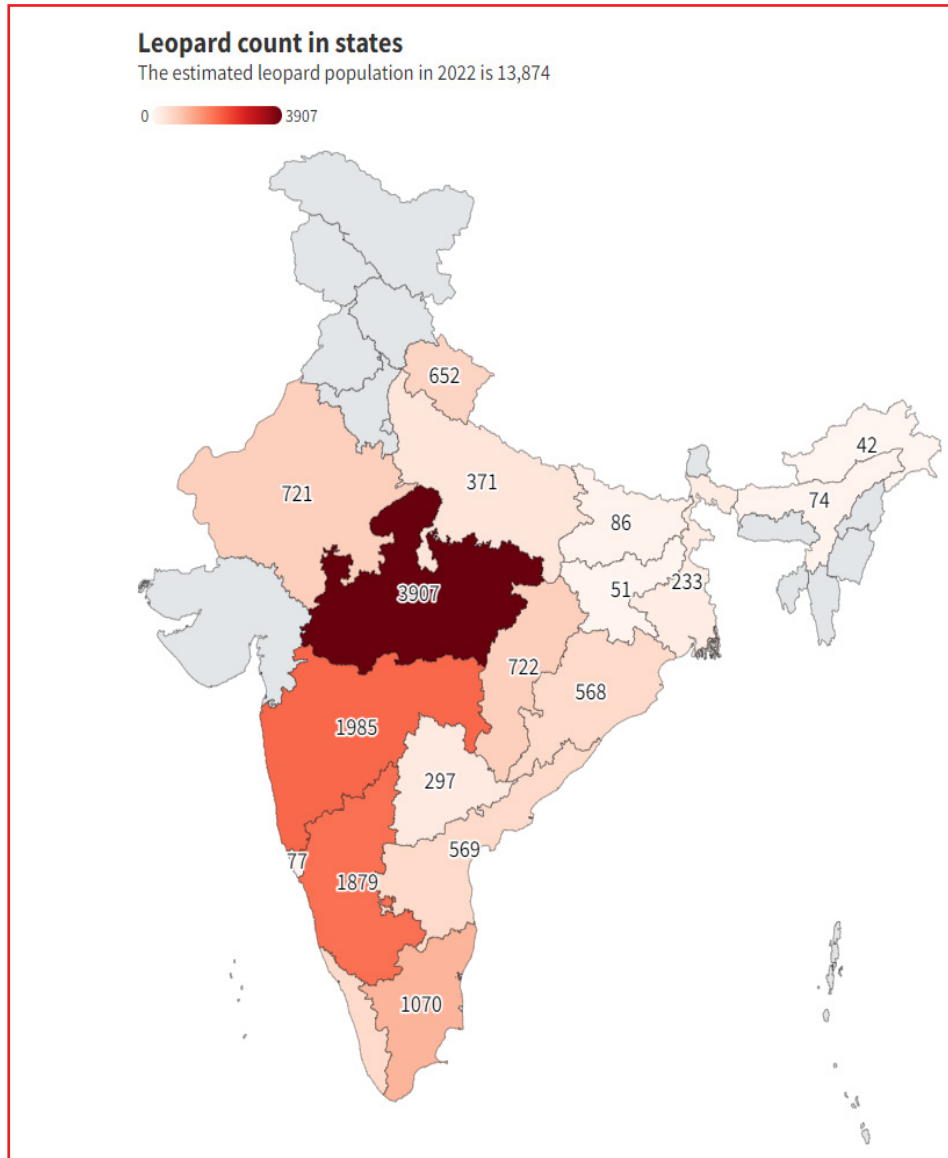
What are the Key Highlights of the Report on the Status of Leopards in India 2022?

- **Overall population:**
 - India's leopard population **rose by 8% from 12,852 in 2018 to 13,874 in 2022.**
 - About 65% of the leopard population is **present outside protected areas** in the Shivalik landscape. Only about a third of the leopards are within protected areas.
 - The Shivalik landscape refers to the **outermost range of the Himalayas, known as the Shivalik Hills** or the Shivalik Range. This range extends across several states in northern India, including Uttarakhand, Himachal Pradesh, Haryana, Punjab, and parts of Jammu and Kashmir and Uttar Pradesh.
- **Regional variation:**
 - Central India shows a stable or **slightly growing population** of leopards (2018: 8071, 2022: 8820), **Shivalik hills and Gangetic plains** experienced decline (2018: 1253, 2022: 1109).
 - In Shivalik hills and Gangetic plains, there is a 3.4% decline per annum, while the largest growth rate was in **Central India and Eastern Ghats of 1.5%.**
- **State-level distribution:**
 - Madhya Pradesh has the **highest number of leopards (3,907)**, followed by Maharashtra, Karnataka, and Tamil Nadu.
 - In Odisha the number of leopards dropped from 760 in 2018 to 562 in 2022, and in Uttarakhand, the population declined from 839 in 2018 to 652 in 2022.
 - Kerala, Telangana, Chhattisgarh, Bihar, and Goa too reported population declines.
- **Benefits From Tiger Conservation Efforts:**
 - The Central India and Eastern Ghats landscape is home to the largest population of leopards, which is growing due to protective measures within the framework of tiger conservation.
 - The report highlights that **leopard densities are higher in Tiger Reserves compared to areas outside Protected Areas**, despite the regulatory pressure exerted by tigers on leopards.

Note:

➤ **Common Threats:**

- Common threats are **poaching of prey for bush meat**, targeted poaching for tiger and leopard skins and body parts and habitat loss due to mining and other human activities.
 - In Odisha, as many as **59 leopard skins were seized from wildlife smugglers** between 2018 and 2023.
- Additionally, **road accidents** are a significant cause of leopard fatalities.



What is the International Big Cat Alliance (IBCA)?

➤ **About:**

- The IBCA is a multi-country, multi-agency coalition aimed at conserving big cat species and their habitats.
- It brings together **96 big cat range countries**, non-range countries interested in big cat conservation, conservation partners, scientific organizations, and businesses.

➤ **Objective:**

- The primary goal of the alliance is to collaborate on efforts to secure the future of **big cats, including Tigers, Lions, Leopards, Snow Leopards, pumas, jaguars, and cheetahs**, and the landscapes they inhabit.

Note:

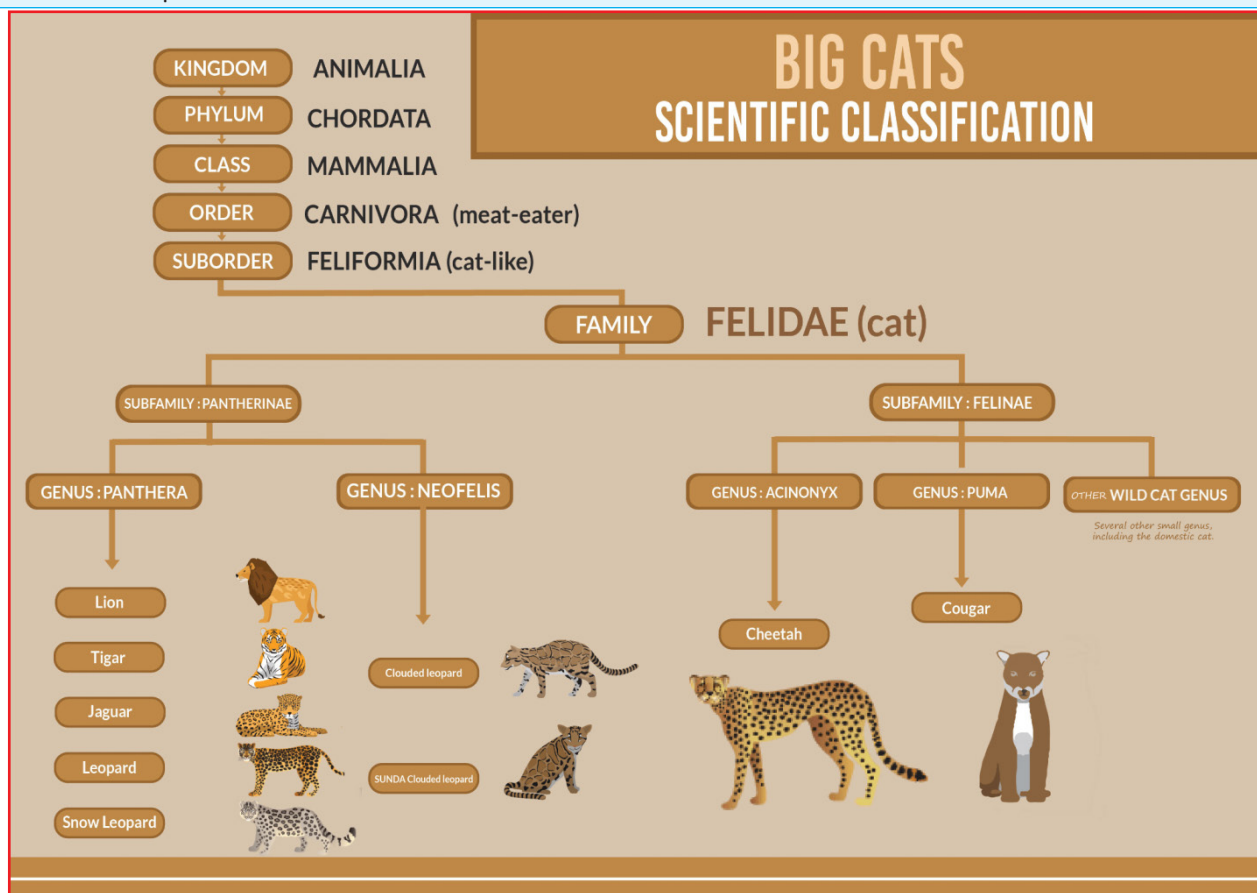
- IBCA would work towards **mitigating the adverse effects of climate change**. It will advocate for policy initiatives that **align biodiversity conservation efforts** with local needs and contribute towards the attainment of **United Nations**-mandated **Sustainable Development Goals** within member countries.

➤ **Structure:**

- The grouping's structure will consist of an Assembly of Members, a Standing Committee and a Secretariat, **with its headquarters in India**.

➤ **Conservation Efforts of India:**

- **Project Lion**
- **Project Leopard**
- **Cheetah Reintroduction Project**
- **Wildlife Protection Act, 1972**
- **Snow Leopard** Conservation:
 - Conservation efforts **include habitat protection**, community engagement, research, and anti-poaching measures.
 - Collaboration with neighbouring countries and international organizations helps in safeguarding this high-altitude predator.



What are the Key Points Related to Leopards?

➤ **Scientific Name:** *Panthera pardus*

➤ **About:**

- The leopard is the smallest of the Big Cat family (of **genus Panthera** namely the **Tiger, Lion (*Panthera leo*), Jaguar, Leopard, and Snow Leopard**), and is known for its ability to adapt in a variety of habitats.

Note:



- A **nocturnal animal**, feeds on smaller species of herbivores found in its range, such as the chital, hog deer and wild boar.
- Melanism is a common occurrence in leopards, wherein the entire skin of the animal is black in colour, including its spots.
 - A melanistic leopard is often called a **black panther** and is mistakenly thought to be a different species.
- **Habitat:**
 - It occurs in a wide range in **sub-Saharan Africa**, in small parts of Western and Central Asia, on the Indian subcontinent to Southeast and East Asia.
 - The **Indian leopard (*Panthera pardus fusca*)** is a leopard widely distributed on the Indian subcontinent.
- **Threats:**
 - Poaching for the illegal trade of skins and body parts.
 - Habitat loss and fragmentation
 - Human-Leopard conflict
- **Conservation Status:**
 - **IUCN Red List: Vulnerable**

- **CITES: Appendix-I**
- **Indian Wildlife (Protection) Act, 1972: Schedule-I**

Himalayas More Prone to Extreme Weather Events

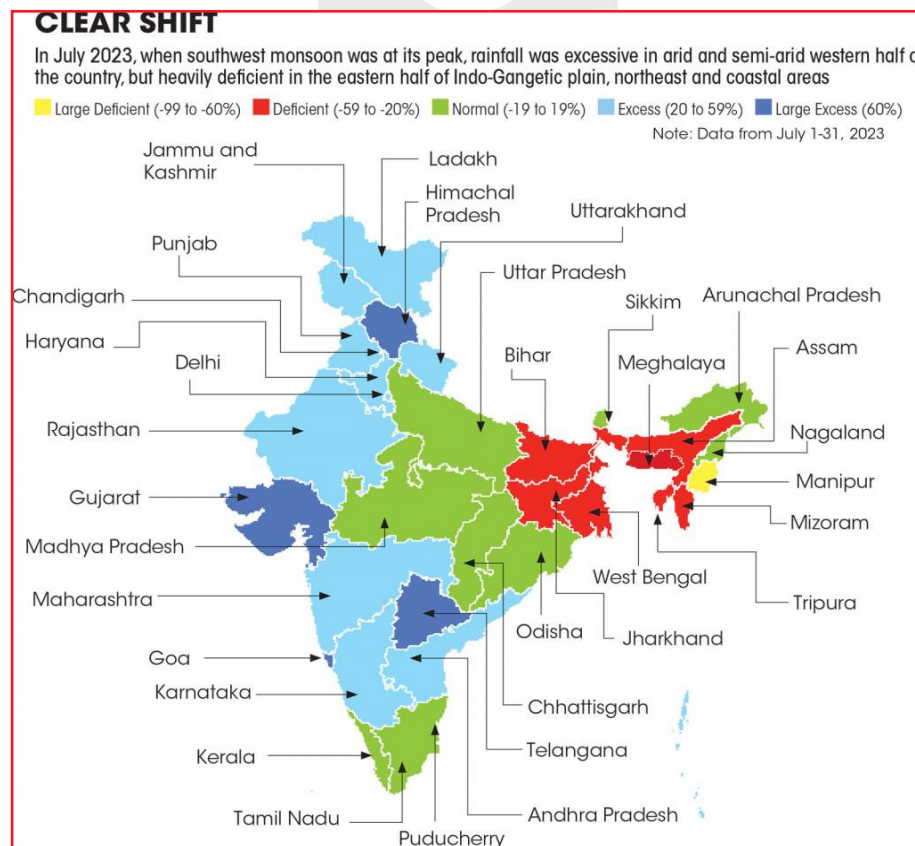
Why in News?

The **Himalayan Region**, prone to cloudbursts and extreme weather events, is experiencing accelerated impacts of **Global Warming**.

How are the Shifts in Weather Patterns Increasing the Frequency of Extreme Events?

➤ Shift in Monsoon Patterns:

- There is evidence suggesting a **shift in southwest monsoon patterns**, with deviations occurring more frequently in the **Indo-Gangetic plain** rather than the **southern half of the sub-continent**.
- This includes **excessive rainfall** in the arid and **semi-arid western half of India** and deficient rainfall in the eastern half and coastal areas, indicating a reversal of historical precipitation patterns.



Note:

➤ **Temperature Rise in the Arabian Sea:**

- The uppermost layer of the Arabian Sea has experienced abnormal warming, leading to **increased evaporation and potentially** altering the behaviour of the southwest monsoon.
- This warming trend has also contributed to **more Cyclonic storms in the Arabian Sea**, including some making landfall on the west coast of India.

➤ Between 2001 and 2019, there has been a **50% increase in the frequency of cyclones in the Arabian Sea**. About half of these dissipate before they land.

➤ **Extreme Rainfall and Cloudbursts:**

- Cloudbursts are not just intense rain showers, but a **genetically different form of rain**. Even in heavy showers, the raindrops are usually about 2 mm in diameter.
- Their size grows to between 4-6 mm during severe thunderstorms and cloudbursts. Being heavier, these raindrops fall faster, thus they trigger **landslides with their tremendous pounding power**.
 - Number of thunderstorms, cloudbursts and hailstorms has increased from between two and 4 per annum during the four decades between **1970-2010, to 53 in Himachal Pradesh alone in 2023**.

SHARP RISE

Himachal Pradesh now records more cloudbursts, more often

Year	Number of cloudbursts (per annum)
1972-2012	3 to 4
2018	21
2019	16
2020	NA
2021	30
2022	39
2023	53

➤ **Glacial Melting and Glacier Lake Outbursts:**

- Rising temperatures in the Himalayas have caused glaciers to melt rapidly, **leading to the formation of glacial lakes**.
- The **increasing frequency and ferocity of cloudbursts** are causing these lakes to overflow or burst their banks, resulting in floods and loss of lives and property downstream.
 - The number of such lakes in Uttarakhand and east of Himachal Pradesh, has increased from 127 in 2005 to 365 in 2015.

➤ **Loss of Glacial Ice:**

- The Himalayas have **already lost more than 40% of their ice**, and this trend is expected to continue, with projections indicating a **potential loss of up to 75% by the end of the century**.
 - This loss of ice is affecting the vegetation line, agricultural practices, and water resources in the region.

What can be the Adaptation Measures to Tackle the Impact of Climate Change?

- There is a growing need for improved **monitoring of glaciers and glacial lakes**, as well as **better forecasting and early warning systems** for **landslides** and glacial lake outbursts.
 - However, these measures alone may not be sufficient to address the long-term impacts of climate change in the Himalayas.
- Reducing **Greenhouse Gas (GHG)** emissions and transitioning to **renewable energy sources** are seen as essential steps to mitigate the effects of global warming and safeguard the **Himalayan region** and its inhabitants.
- There should be **Sustainable Construction Activities** in the Himalayas region, which can withstand any calamitous event if it occurs. **Some of the steps are-**
 - **Understanding Terrain Characteristics:** Recognising the **impact of slope, drainage, and vegetation cover** on the stress that an area can endure is fundamental. By delineating zones based on these factors, authorities can better manage construction activities and mitigate risks associated with unstable terrain.
 - **Assessing Climate Vulnerability:** Given the increasing frequency of extreme weather events like floods and landslides, it's essential to project

Note:



future climate scenarios and identify vulnerable areas. **Projections and simulations can help in devising strategies to adapt** to and mitigate the impacts of climate change.

- **Managing Development Impacts:** Development projects, particularly **hydropower ventures**, often have significant **ecological consequences in hilly regions**. Regulations should incorporate risk assessments and consider cumulative impacts to safeguard against forest degradation, changes in river courses, and loss of biodiversity.
- **Enhancing Adaptive Capacity:** As hill town populations grow, **their ability to cope with climate change diminishes** due to various challenges such as water scarcity, inadequate infrastructure, and limited livelihood options.
 - Improving adaptive capacity involves bolstering services and infrastructure while prioritising sustainable solutions with community involvement.

What are the Government Initiatives Related to the Himalaya?

- **National Mission on Sustaining Himalayan Ecosystem (2010):**
 - **Covers 11 states** (Himachal Pradesh, Uttarakhand, Sikkim, all northeast states, and West Bengal) **and 2 UTs** (Jammu & Kashmir and Ladakh).
 - Part of the **National Action Plan on Climate Change (NAPCC)**, comprising eight missions.
- **Indian Himalayas Climate Adaptation Programme (IHCAP):**
 - It aims to enhance the **resilience of vulnerable communities in the Indian Himalayas** by strengthening the capacities of Indian institutions in climate science, with a specific focus on glaciology and related areas
- **SECURE Himalaya Project:**
 - Integral to the “**Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development**” (Global Wildlife Program), funded by the **Global Environment Facility (GEF)**.
 - Focuses on promoting sustainable management of alpine pastures and forests in the high-range Himalayan ecosystems.

➤ **Mishra Committee Report 1976:**

- Named after MC Mishra, the then **Garhwal commissioner in erstwhile Uttar Pradesh**. It provided findings **on land subsidence in Joshimath**.
- Recommendations included **imposing restrictions on heavy construction** work, blasting, excavation for road repairs and other construction activities, and **tree felling in the region**.

Nitrogen Pollution

Why in News?

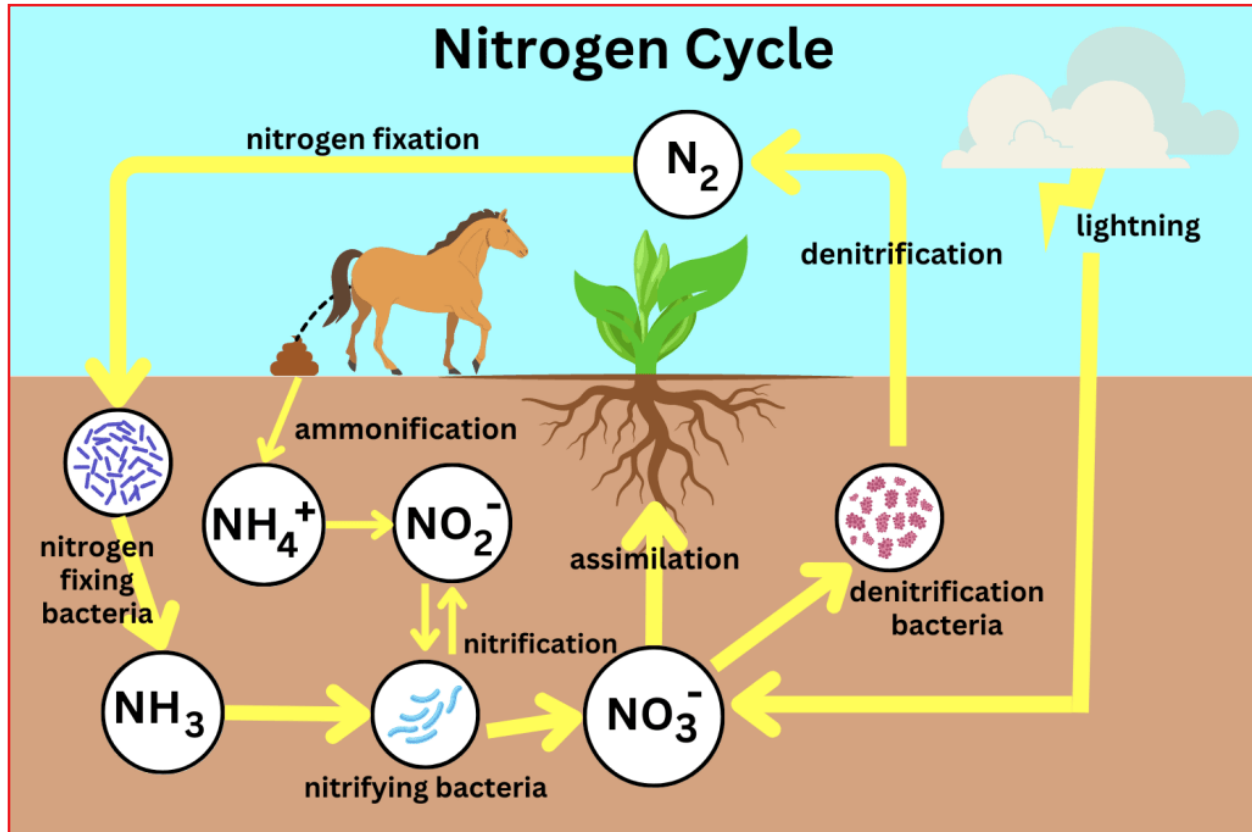
Recent research has stated that by 2050, one-third of **global river sub-basins** are projected to face severe **scarcity of clean water due to nitrogen pollution**.

What is Nitrogen Pollution?

- **About:** Nitrogen pollution refers to the **excessive presence of nitrogen compounds in the environment**, primarily in water bodies like rivers and lakes.
 - According to the **United Nations Environment Programme (UNEP)**, each year, 200 million tonnes of reactive nitrogen, 80% of the total, is lost to the environment.
 - One of the main drivers of nitrogen pollution has been the rising consumption of **nitrogen-based fertiliser**, which doubled between **1978 and 2014 globally**.
 - The amount of reactive **nitrogen produced by humans is now greater than the amount created through natural processes**.
- **Sources of Nitrogen Pollution:**
 - **Agricultural Activities:** One of the main drivers of nitrogen pollution has been the rising consumption of **nitrogen-based fertilizer**, which can leach into groundwater or runoff into surface water bodies.
 - **Industrial Processes:** Manufacturing processes, particularly those involved in the **production of nitrogen-based chemicals** and fertilisers, release nitrogen compounds into the environment.
 - **Combustion of fossil fuels in industries** also emits nitrogen oxides (NOx) into the atmosphere.
 - **Livestock Farming:** Livestock waste, primarily from **manure and urine**, contains nitrogen compounds such as **ammonia**.

Note:

- Improper storage and management of livestock waste can lead to nitrogen runoff, contaminating water bodies and contributing to eutrophication.
- The livestock sector currently emits **65 teragrams (Tg) of nitrogen per year**, equivalent to one-third of current human-induced nitrogen emissions.
- **Biomass Burning:** Wildfires and burning of **cow dung cake as a fuel** release nitrogen oxides (NOx) and nitrous oxide (N₂O) into the atmosphere.
 - These emissions contribute to **air pollution** and can have regional and global impacts on atmospheric chemistry and **climate**.



➤ Major Impacts of Nitrogen Pollution:

- **Eutrophication:** Excess nitrogen acts as a **nutrient fertiliser for aquatic plants**, leading to excessive growth of **algae** and other aquatic vegetation. This phenomenon is known as **eutrophication** and leads to algal blooming.
 - This **creates oxygen-depleted zones (dead zones)**, where aquatic life suffocates and dies.
- **Human Health Impacts:** Nitrogen pollution can have direct and indirect effects on human health.
 - High levels of nitrogen dioxide (NO₂) in the air can exacerbate respiratory conditions such as **asthma** and **increase the risk of respiratory infections**.
 - An estimated 77% of people breathe annual average concentrations of nitrogen dioxide beyond safe levels.
 - Nitrate contamination of drinking water can also pose health risks, particularly to infants, by causing **methemoglobinemia** or “**blue baby syndrome**.”
 - **Ozone Depletion:** Nitrous oxide (N₂O) released into the atmosphere can lead to the depletion of the **stratospheric ozone layer**, which protects the Earth from harmful ultraviolet (UV) radiation.
 - Depletion of the ozone layer can increase the **risk of skin cancer, cataracts, and other health problems in humans**, as well as harm marine ecosystems and agricultural crops.
 - It also leads to the **creation of tropospheric ozone** which creates respiratory illnesses.

Note:

- Related Government Initiatives:
 - **Bharat Stage (BS VI) Emission Standards:** Stricter emission standards for vehicles and industries aim to curb the release of nitrogen oxides and particulate matter, which are precursors to air and water pollution.
 - **Nutrient-Based Subsidy (NBS):** This policy incentivizes the use of controlled-release fertilisers, encouraging more efficient nutrient management.
 - **Soil Health Cards:** Issued to farmers, these cards provide soil nutrient status and customised fertiliser recommendations, promoting balanced nutrient application.
 - **Nano Urea:** It is a fertiliser patented and sold by the Indian Farmers Fertiliser Cooperative Limited (IFFCO), and has been approved by the government for commercial use.
 - Nano urea reduces the unbalanced and indiscriminate use of conventional urea and increases crop productivity.

Note: In March 2019, the **United Nations Environment Assembly** adopted a resolution calling for sustainable nitrogen management.

What are the Key Points Related to Nitrogen?

- **About:** Nitrogen is the most prevalent element in living organisms. It is a constituent of amino acids, proteins, hormones, chlorophylls, and many vitamins.
 - There is an inexhaustible supply of nitrogen (N₂) in the atmosphere, but most living organisms cannot use the elemental form directly.
 - Nitrogen must be 'fixed' (converted to ammonia, nitrites, or nitrates) before plants can take it up.
- **Nitrogen Fixation:** Nitrogen fixation on earth is accomplished in three different ways:
 - By N-fixing microbes (bacteria and blue-green algae)
 - By industrial processes (fertilizer factories)
 - To a limited extent by atmospheric lighting.
- **Major Compounds of Nitrogen:**

Compound	Source	Benefits	Effects
Nitrous Oxide (N₂O)	Agriculture, industry, combustion	Used in rocket propellants. Used in medical procedures as laughing gas.	As a Greenhouse gas , 300 times more potent than carbon dioxide - Causes depletion of the stratospheric ozone layer, which shields humanity from harmful ultraviolet radiation
Di-Nitrogen (N₂)	Makes up 78% of the air we breathe	Maintains a stable atmosphere for life on Earth	Harmless and chemically unreactive
Ammonia (NH₃)	Manure, urine, fertilisers, biomass burning	Foundation for amino acids, proteins, and enzymes- Commonly used as fertiliser	Causes eutrophication and affects biodiversity, Forms particulate matter in the air, affecting health by causing shortness of breath, affecting lung function, and exacerbating respiratory diseases such as asthma

Note:

Nitrate (NO₃)	Wastewater, agriculture, oxidation of NO _x	Widely used in fertilisers and explosives	Forms particulate matter in the air and affects health when ending up in groundwater, causing what's known as blue baby syndrome, Leads to eutrophication in water bodies
Nitric Oxide and Nitrogen Dioxide	Combustion from transport, industry, energy sector	Essential in human physiology (NO)	Major air pollutant, contributing to heart disease and respiratory illness

Way Forward

- **Sustainable Agricultural Practices:** Implementing techniques like **precision agriculture (applying the right amount of fertiliser in the right place)** and cover cropping (planting vegetation during off-seasons to prevent soil erosion and nutrient runoff) can help minimize fertiliser use and reduce pollution.
- **Improved Wastewater Treatment:** Upgrading and expanding wastewater treatment infrastructure ensures proper treatment and disposal of industrial and urban sewage, **preventing nitrogen-rich compounds from entering water bodies.**
- **Incentivizing Green Infrastructure:** Offering incentives and subsidies for the implementation of green infrastructure projects, such as **green roofs, rain gardens, and permeable pavements**, which help mitigate nitrogen runoff by absorbing and filtering stormwater.
- **Enhancing Public Awareness:** Raising awareness about responsible water and nitrogen management practices amongst farmers, industrial operators, and the general public is crucial to promoting sustainable practices and reduce pollution.

Article 371A and Its Impact on Coal Mining in Nagaland

Why in News?

In Nagaland, **Article 371A of the Indian Constitution** poses a major obstacle to regulating **coal mining**. This provision, upholding Naga customary law, complicates government efforts to **oversee small-scale mining**, especially after recent fatalities in a **rat-hole mine explosion**.

What is Article 371A of the Indian Constitution?

- Article 371A was introduced into the Constitution (Part XXI) as part of the **13th Amendment in 1962**, granting **special provisions to Nagaland (then Naga Hills and Tuensang Area)**.
- Article 371A states that **no act of Parliament shall apply to Nagaland in respect of the religious or social practices of the Nagas, the Naga customary law and procedure, the administration of civil and criminal justice** involving decisions according to the Naga customary law, and the **ownership and transfer of land** and its resources, unless the Nagaland Legislative Assembly decides otherwise by a resolution.
- This means that the state government has limited authority and jurisdiction over the land and its resources, which are **owned and controlled by the local communities** and governed by their customary laws and practices.

Note:

Articles Related to Special Provisions for some States at a Glance

Article No.	Subject-matter
371.	Special provision with respect to the states of Maharashtra and Gujarat
371A.	Special provision with respect to the state of
	Nagaland
371B.	Special provision with respect to the state of Assam
371C.	Special provision with respect to the state of Manipur
371D.	Special provisions with respect to the state of Andhra Pradesh or the state of Telangana
371E.	Establishment of Central University in Andhra Pradesh
371F.	Special provisions with respect to the state of Sikkim
371G.	Special provision with respect to the state of Mizoram
371H.	Special provision with respect to the state of Arunachal Pradesh
371-I.	Special provision with respect to the state of Goa
371J.	Special provisions with respect to the state of Karnataka

How is Rat-Hole Mining Regulated in Nagaland?

- Coal Mining in Nagaland:
 - Nagaland possesses significant coal reserves totalling 492.68 million tonnes, but **dispersed erratically and inconsistently** in small pockets spread over a large area.
 - The **Nagaland Coal mining policy, established in 2006**, permits **rat-hole mining due to the scattered nature** of coal deposits, making large-scale operations unfeasible.
 - Rat-hole mining is a method of **extracting coal from narrow horizontal tunnels or rat-holes**, which are often dug by hand and are prone to accidents and environmental hazards.
 - Rat-hole mining licences, known as **small pocket deposit licences**, are exclusively granted to **individual landowners for limited durations and specific conditions**.
 - According to Section 6.4(ii) of the **Nagaland Coal Policy (First Amendment) of 2014**, these licences are restricted to mining areas not exceeding **2 hectares**, with an annual coal production cap of **1,000 tonnes** and a prohibition on heavy machinery usage.
 - Rat-hole mining operations necessitate consent from relevant departments, including **Forest and Environment**, ensuring compliance with environmental regulations.
 - Despite proper clearances and defined mining plans issued by the State government, **instances of illegal rat-hole mining persist in Nagaland**.
 - The dependence of local communities on **coal mining for sustenance further complicates regulatory efforts**, as stringent regulations may impact livelihoods, necessitating a delicate balance between economic interests and environmental concerns.

Note:

➤ **Article 371A and Controlling Rat-Hole Mining in Nagaland:**

- This Article 371A grants Nagaland special rights over its land and resources, **making it difficult for the governments** to impose regulations that might be perceived as infringing on these rights.
- The Nagaland government struggles to effectively regulate small-scale mining operations, particularly those practised by **individual landowners due to the limitations posed by Article 371A.**
- The recent deaths in a **rat-hole mine highlight the safety risks associated with unregulated mining practices.** These incidents raise concerns about the lack of proper safety measures and highlight the urgency for effective regulations.

Note:

- The **Supreme Court** and **National Green Tribunal (NGT)**, banned **rat hole mining in 2014** as it causes environmental degradation and is a threat to the life of miners. The Tribunal termed it as **unscientific.**



Note:

Security

Highlights

- *INS Jatayu in the Lakshadweep Islands*
- *DefConnect 2024*
- *Exercise MILAN 2024*

INS Jatayu in the Lakshadweep Islands

Why in News?

The commissioning of INS Jatayu, an upgraded naval base in the **Lakshadweep Islands**, marks a significant development in **India's maritime security strategy**, particularly in the context of growing **Chinese influence in the Indian Ocean Region**.

- Additionally, the Indian Navy commissioned its **first MH-60R multi-role helicopter squadron Indian Naval Air Squadron (INAS) 334** at Kochi, a major capability boost for its rotary fleet and its anti-submarine warfare capabilities.

What are the Key Highlights of INS Jatayu?

- INS Jatayu, formerly **Naval Detachment Minicoy**, is commissioned as an upgraded naval base on Minicoy Island in the Lakshadweep archipelago.
 - It will operate under the operational control of the Naval Officer in Charge (Lakshadweep), Southern Naval Command.
- The base enhances the operational reach of the **Indian Navy** in the Indian Ocean, bolstering its capabilities for **anti-piracy, anti-narcotics, and surveillance operations**.
 - Situated in Minicoy, the southernmost atoll of the Lakshadweep archipelago, INS Jatayu strategically overlooks vital **Sea Lines of Communications (SLOCs)**, strengthening India's maritime presence in the region.
- In light of China's increasing presence in the Indian Ocean, INS Jatayu reinforces **India's ability to counterbalance and deter any attempts** to undermine its maritime dominance and territorial integrity.
- INS Jatayu will effectively be the **country's second naval base in Lakshadweep**. The Navy's first base

on the islands, **INS Dweeprakshak** in Kavaratti, was commissioned in 2012.

- INS Jatayu will be equipped with additional infrastructure, including an airfield and personnel housing, to support naval operations and ensure comprehensive security coverage.
- Minicoy Island, where INS Jatayu is located, sits at the **intersection of crucial Sea Lines of Communications (SLOCs)** like the **Eight Degree Channel** and the **Nine Degree Channel**, making it susceptible to maritime pollution due to heavy maritime traffic.
 - Eight Degree Channel separates **Indian Minicoy island from Maldives**.
 - The Nine Degree Channel separates the **island of Minicoy from the Lakshadweep archipelago**.

The Lakshadweep Islands

- India's smallest Union Territory, Lakshadweep ('a hundred thousand islands' in Sanskrit and Malayalam) is an archipelago consisting of **36 islands located between 220 km and 440 km from Kochi**.
- The islands, only 11 of which are inhabited, have a total area of only 32 sq km. It is directly under the control of the Centre through an administrator.
- The Lakshadweep is part of a **chain of coralline islands in the Indian Ocean that includes the Maldives to the south, and the Chagos archipelago farther beyond, to the south of the equator**.

What are the Key Highlights of the INAS 334 Squadron?

- The Indian Naval Air Squadron (INAS) 334 is the first squadron of the **MH-60R helicopters**, also known as the **"Seahawks"**. The squadron was commissioned at **INS Garuda, Kochi**.
- The squadron is a part of the 24-aircraft Foreign Military Sales (FMS) contract signed with the **United States government** in February 2020.

Note:

- The MH 60R Seahawk, a maritime variant of the Blackhawk helicopter, is designed for various roles including:
 - Anti-submarine warfare, Anti-surface warfare, Search and rescue, Medical evacuation and Vertical replenishment.
- Deployment of Seahawks in the Indian Ocean Region (IOR) strengthens the Indian Navy's maritime presence, dissuading potential threats and ensuring a secure environment in this strategically crucial region.

Commands of Indian Navy

It has **three operational** and **one theatre commands**. Each command is headed by a Flag Officer Commanding-in-Chief holding the rank of Vice Admiral.

Command	Establishment	Headquarters	Area of Responsibility
Western Naval Command	1963	Mumbai	Arabian Sea, coastline Gujarat to Maharashtra, including Goa, Lakshadweep and Minicoy Islands
Eastern Naval Command	1971	Visakhapatnam	Bay of Bengal, coastline of Odisha, Andhra Pradesh, and Tamil Nadu
Southern Naval Command	1951	Kochi	Indian Ocean, the coastline of Kerala, Karnataka, and Lakshadweep and Minicoy Islands

- **Andaman and Nicobar Command, 2001:** It is a **unified tri-services theatre command** based at Port Blair, A&N Islands.
 - It includes the **Indian Navy, Indian Army, Indian Air Force and Indian Coast Guard**.

DefConnect 2024

Why in News?

Recently, the Ministry of Defence has organised DefConnect 2024, aimed at promoting innovation, entrepreneurship, and **Self-Reliance** in defense production.

- The event serves as a platform to showcase the latest advancements in defense technology, foster collaboration between the public and private sectors, and encourage investment in defence startups

What are the Key Highlights of the DefConnect 2024?

- **Technology Showcase:**
 - The event features a technology showcase organized by **iDEX-Defence Innovation Organisation (DIO)**, where various startups present cutting-edge innovations in areas such as **Artificial Intelligence**, Robotics, **Cybersecurity, Unmanned Aerial Vehicles**, and Wearable Technology.
 - This showcase underscores the potential of the

Indian innovation ecosystem to contribute to defence technology.

- **Panel Discussions:**
 - DefConnect 2024 hosts panel discussions on pertinent topics related to defense innovation and entrepreneurship.
 - These discussions provide insights into the Indian defence landscape, future trends, opportunities for startups, and strategies to **promote diversity and inclusion in the sector**.
- **Felicitation of Women Entrepreneurs:**
 - In recognition of the contributions of women entrepreneurs to the defense innovation ecosystem, DefConnect 2024 features a special **felicitation ceremony for women entrepreneurs associated with iDEX**.
- **iDEX Internship Program:**
 - As part of efforts to **nurture young talent and groom the next generation** of innovators, DefConnect 2024 launches a rolling internship program under the iDEX initiative.

Note:

- This program aims to provide hands-on experience and mentorship to aspiring innovators in defense technology.
- **Launch of Initiatives:**
 - DefConnect 2024 witnesses the launch of various initiatives aimed at promoting innovation and self-reliance in defence production, such as the **ADITI (Aging Development of Innovative Technologies with iDEX) Scheme** and **DISC 11 (Defense India Startup Challenge)**.
 - These initiatives underscore the government's commitment to fostering a vibrant defense innovation ecosystem.

Note:➤ **Innovations for Defence Excellence (iDEX):**

- iDEX, launched in 2018, is an initiative taken by the government to contribute towards modernization of the **Defence Industry**.
- It aims to promote innovation and technology development in Defence and Aerospace by engaging Industries (which includes **MSMEs**, start-ups, individual innovators, R&D institutes & academia).
- iDEX will be funded and managed by Defence Innovation Organization (DIO), and will function as the executive arm of DIO.
- **iDEX Prime** is a specific program under the broader **iDEX initiative**, focusing on larger, more complex challenges requiring greater financial support.
- **Funding: iDEX Prime offers significantly higher grants** compared to other programs under iDEX.
- **There are different editions of iDEX Prime** catering to specific needs:
 - **iDEX Prime (X):** This edition has larger challenges and grants compared to the regular iDEX Prime.
 - **iDEX Prime (SPRINT):** This edition focuses on **faster development cycles and shorter deadlines** for specific problem statements from the **Indian Navy**.

➤ **Defence Innovation Organisation (DIO):**

- **Defence Innovation Organisation (DIO)**, is a not for profit organisation formed under section 8 of the Companies Act 2013.
- It is funded by Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL). It provides high-level policy guidance to iDEX.

What is Aging Development of Innovative Technologies with iDEX (ADITI) scheme?➤ **About:**

- The ADITI scheme worth Rs 750 crore for the period 2023-24 to 2025-26 falls under the **iDEX (Innovations for Defence Excellence) framework** of Department of Defence Production (DDP), Ministry of Defence.
- Under the scheme, **start-ups are eligible to receive grant-in-aid** of up to Rs 25 crore for their research, development, and innovation endeavours in defence technology.
- The scheme will nurture the innovation of youth, and help the country leap forward in the field of technology.

- In the first edition of ADITI, 17 challenges – Indian Army (3), Indian Navy (5), Indian Air Force (5) and Defence Space Agency (4) - have been launched.

➤ **Objective:**

- It aims to develop about **30 deep-tech critical and strategic technologies** in the proposed timeframe.
- It also envisages to create a **'Technology Watch Tool'** to bridge the gap between the expectations and requirements of the modern Armed Forces and the capabilities of the defence innovation ecosystem.

What is the Significance of State of the Art Technology in Defence?➤ **Strategic Advantage:**

- Cutting-edge technology provides a strategic advantage to nations in terms of defence capabilities.
- Advanced weaponry, surveillance systems, communication networks, and cyber capabilities can significantly enhance a country's ability to deter potential threats and protect its interests.

➤ **Operational Effectiveness:**

- State-of-the-art technology enables military forces **to operate more efficiently and effectively**.
- This includes precision-guided munitions, advanced reconnaissance and surveillance systems, and sophisticated command and control systems, all of which contribute **to mission success and minimise collateral damage**.

➤ **Adaptability and Flexibility:**

- In modern warfare, adaptability and flexibility are

Note:

crucial. State-of-the-art technology allows for rapid adaptation to changing threats and environments.

- Systems that can be upgraded or reconfigured quickly provide a significant advantage in dynamic situations.
- **Force Multiplier:**
 - Advanced technology acts as a force multiplier, **enabling smaller forces to achieve disproportionate effects.** With the right technology, a smaller, well-equipped force can effectively counter a larger, less advanced adversary.
- **National Sovereignty and Autonomy:**
 - Relying on indigenous state-of-the-art technology **enhances a nation's sovereignty and autonomy.** Dependence on **foreign suppliers** for critical defense technology **can compromise national security interests** and limit strategic decision-making.

What are Government Initiatives Regarding Defense?

- [First Negative Indigenisation](#)
- [Positive Indigenisation List](#)
- [New FDI Policy in Defence Sector](#)
- [Defence Acquisition Procedure 2020](#)
- [Defence Industrial Corridors](#)

Exercise MILAN 2024

Why in News?

[Exercise MILAN 2024](#) recently concluded with the closing ceremony held aboard the [INS Vikrant](#), marking the end of the Sea Phase off [Visakhapatnam](#).

What is MILAN 2024?

- **MILAN 2024** is the 12th edition of the biennial [Multilateral Naval Exercise](#) held at Visakhapatnam, under the aegis of Eastern Naval Command.
 - The central aim of MILAN is to enhance professional interaction between friendly navies and gain experience in multilateral large-force operations at sea.
 - It made a beginning in the [Andaman and Nicobar Islands](#) in 1995. The navies of [Indonesia](#), [Singapore](#), [Sri Lanka](#) and [Thailand](#) participated in this edition.
- **The 2024 exercise consisted of two phases:**
 - **Harbour Phase** featuring International Maritime Seminar, city parades, tech exhibitions, expert exchanges, youth officer gatherings, and sports events.

- The International Maritime Seminar was themed '**Partners across Oceans: Collaboration, Synergy, Growth**'
 - **Sea Phase** involves the participation of ships, and aircraft from friendly nations, Indian Navy's carriers, and other units.

What are the Recent Major Developments Related to the Indian Navy?

- **Commissioning of New Ships:**
 - **INS Vikrant:** India's **first indigenously-built aircraft carrier**, a major milestone in achieving self-reliance in defense manufacturing.
 - **INS Mormugao:** A stealth guided-missile destroyer, part of the [Project 15B](#) for enhancing anti-surface warfare capabilities.
 - **INS Vagir:** A new **Kalvari-class submarine**, bolstering the Navy's underwater power.
 - **INS Sandhayak:** It is the first Survey Vessel Large (SVL) ship commissioned into the Indian Navy recently.
- **Recent Acquisition Programs:**
 - [Project 17A Frigates:](#) Advanced stealth frigates under construction at indigenous shipyards.
 - [Project 75I Submarines:](#) Program to build six indigenously-designed submarines with advanced stealth and firepower
- **Submarine Rescue Advancements:**
 - Acquisition of advanced [Deep Submergence Rescue Vehicles \(DSRVs\)](#) by the Indian Navy in 2018 and 2019 from the United Kingdom, enhancing submarine rescue capabilities.
 - India is among the 12 countries possessing this niche technology, highlighting its strategic importance.
 - Also, induction of two indigenous **Diving Support Vessels (DSVs)** by Hindustan Shipyard Ltd, Visakhapatnam, further strengthened submarine rescue operations.
 - DSRV system's capabilities include locating submarines up to 1,000 metres depth using advanced sonar technology and remotely operated vehicles.

Note: The Indian Navy recently announced that it had successfully engaged a land target with the [BrahMos missile](#) at an enhanced range of 900 km.

Note:

Art and Culture

Highlights

- ASI Survey of Bhojshala Complex
- Temple Discoveries Highlight Chalukya Expansion
- GI Tag to Majuli masks, Manuscript and Narasapur Crochet Lace Craft

ASI Survey of Bhojshala Complex

Why in News?

The Indore Bench of the Madhya Pradesh **High Court** has ordered the **Archaeological Survey of India (ASI)** to conduct a scientific survey of the **Bhojshala Temple-Kamal Maula Mosque complex** in Dhar district to clarify its original nature.

What is the Bhojshala Temple-Kamal Maula Mosque Complex?

➤ About:

- The **Bhojshala Temple-Kamal Maula Mosque complex** was originally a temple of **goddess Sarasvati** built by **Parawara King Bhoja** in **11th Century AD**.
- The mosque is built using structural members of the temple. The monument also retains some slabs inscribed with **Sanskrit and Prakrit** literary works.
- Noted as a great patron of art and literature, **King Bhoja** is said to have established a school, now known as **Bhojashala**.
- Under an agreement with the ASI, Hindus perform puja in the temple every Tuesday, and Muslims offer Namaz every Friday.

➤ Dispute:

- The controversy revolves around the **original status of the site as a temple**.
- The petitioner cites an ASI report claiming that the **original Bhojshala and Vagdevi temples** were demolished to build a mosque. A survey was requested to determine the actual history of the site.
- One respondent challenged the suit's maintainability, citing the **principle of res judicata** (a thing adjudged), noting a similar petition was **dismissed** by the High Court's Principal Bench in 2003.

➤ High Court's Order:

- The court noted that the temple's character remains mysterious until determined. All parties agree on the need to clarify the monument's nature, a task assigned to the ASI under the **Monument Act, 1958**.
- The court mandated the ASI to promptly conduct a **comprehensive scientific survey**, excavation, and investigation using advanced methods like **GPR-GPS** and **carbon dating**, encompassing not only the site but also its 50-meter peripheral ring area.

What are the Methods Adopted by the ASI for Excavation?

➤ Invasive Methods:

- **Excavation**, the most invasive **archaeological technique**, involves digging using **stratigraphic principles** to gather information about the past while simultaneously destroying it.
 - **Stratigraphy** is adopted by archaeologists to peel off layers in reverse order and understand the **logical formation of the archaeological record**.

➤ Non-Invasive Methods: Non-invasive methods are used when investigations are undertaken inside a **built structure** and no excavation is permitted. It has several Methods:

- **Active Methods:** Inject energy into the ground and measure the response. The methods provide an estimate of the **ground's material properties**, such as **density, electrical resistance, and wave velocity**.
 - **Seismic Techniques:** Use shock waves to study subsurface structures.
 - **Electromagnetic Methods:** Measure electromagnetic responses after energy injection.
- **Passive Methods:** Measure existing physical properties.

Note:

- **Magnetometry:** Detect magnetic anomalies caused by buried structures.
- **Gravity Surveying:** Measure gravitational force variations due to subsurface features.
- **Ground-Penetrating Radar (GPR):**
 - ASI uses GPR to produce a **3-D model** of buried archaeological features.
 - GPR operates by introducing a short radar impulse from a surface antenna and records the time and magnitude of return signals from the subsoil.
 - Radar beam spreads like a cone, causing reflections before the antenna passes over the object.
 - Radar beams spread out in a cone, leading to reflections that may not directly correspond to physical dimensions, creating false images.
- **Carbon Dating:**
 - Determine **organic material age** by measuring carbon content (C-14).

What are the Limitations of Various Methods in Archaeological Surveys?

- Similar physical properties of different materials can generate the same response, leading to **ambiguity** in identifying targets.
- The **data collected is limited** and contains **measurement errors**, making it challenging to accurately estimate the spatial distribution of properties.
- Archaeological structures are often made of **heterogeneous materials** with complex geometry, making data interpretation challenging.
- Geophysical tools might not accurately reconstruct target images, especially in complex scenarios.
- In cases like disputes over religious sites, **emotional and political factors** can influence interpretations and decisions.

Archaeological Survey of India (ASI)

- ASI, under the **Ministry of Culture**, is the premier organization for the archaeological research and protection of the cultural heritage of the nation.
- It administers more than 3650 ancient monuments, archaeological sites, and remains of national importance.
- Its activities include carrying out surveys of antiquarian remains, exploration and excavation of archaeological sites, conservation and maintenance of protected monuments, etc.

- It was founded in 1861 by **Alexander Cunningham**- the first Director-General of ASI. Alexander Cunningham is also known as the **“Father of Indian Archaeology”**.

Temple Discoveries Highlight Chalukya Expansion

Why in News?

Archaeologists from the **Public Research Institute of History, Archaeology, and Heritage (PRIHAH)** have unearthed two ancient temples dating back to the **Badami Chalukyan** period, along with a rare inscription, in **Mudimanikyam village** of Nalgonda district, **Telangana**.

What are the Major Highlights of the Recent Excavation?

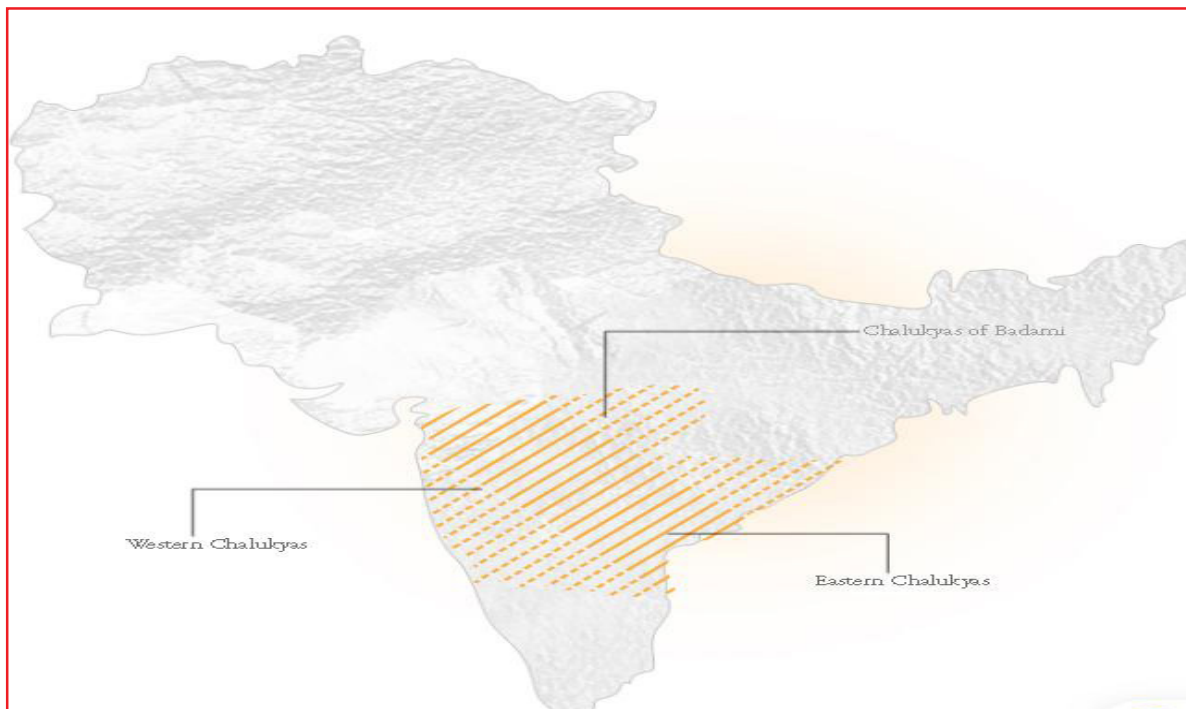
- **Temples:** Located at the end of the village, the two temples date back to between 543 AD and 750 AD, corresponding to the rule of the **Badami Chalukyas**.
 - They showcase unique architectural styles, blending **Badami Chalukyan and Kadamba Nagara** style in the Rekha nagara format.
 - In one temple, a **panavattam (base of a Shiva lingam)** in the sanctum sanctorum has been found.
 - In another, a **Vishnu idol** was recovered.
- **Inscription:** The discovery also includes an inscription, labeled as **‘Gandaloranru’**, dating back to the **8th or 9th Century AD**.
- **Significance:** Previously, the **Jogulamba temples at Alampur** and the **submerged sites of Yeleswaram** were considered the farthest reaches of the **Badami Chalukya influence**.
 - The new discovery extends the known boundaries of the Chalukya kingdom significantly.



Note:

What are the Key Features Related to the Chalukya Dynasty?

- **About:** The Chalukya dynasty governed significant territories in southern and central India from the 6th to the 12th centuries.
 - It comprised three distinct dynasties: the **Chalukyas of Badami, the Eastern Chalukyas, and the Western Chalukyas.**
 - The Chalukyas of Badami, originating in **Vatapi (modern Badami in Karnataka)**, ruled from the early 6th century until the mid-8th century, reaching their zenith **under Pulakeshin II.**
- After Pulakeshin II's reign, the Eastern Chalukyas emerged as an independent kingdom in the eastern Deccan, centred around **Vengi (in present-day Andhra Pradesh)** until the 11th century.
- The rise of the Rashtrakutas in the 8th century overshadowed the Chalukyas of Badami in the western Deccan.
 - However, their legacy was revived by their descendants, the Western Chalukyas, who ruled from **Kalyani (modern Basavakalyan in Karnataka)** until the late 12th century.



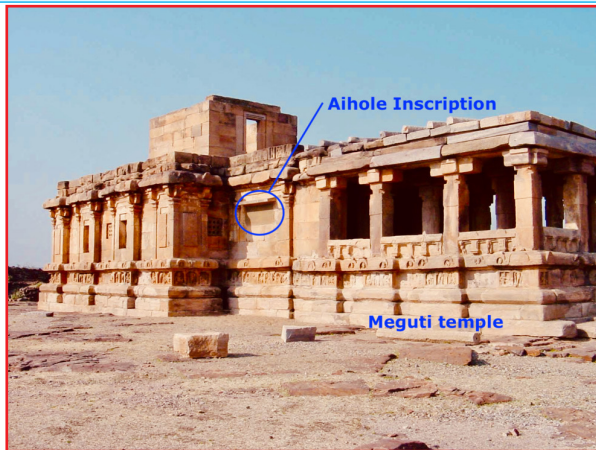
- **Foundation: Pulikesin I** (c. 535-566 CE) is credited with fortifying a hill near Badami, laying the foundation for the Chalukya dynasty's ascendancy.
 - The **city of Badami** was formally founded by **Kirtivarman (566-597)**, serving as the epicentre of Chalukya power and culture.
- **Polity and Administration:** The Chalukyas implemented a structured administrative system, dividing their realm into political units for effective governance.
 - These divisions included **Vishayam, Rastram, Nadu, and Grama.**
- **Religious Patronage:** The Chalukyas were notable patrons of both **Saivism and Vaishnavism.**
 - Beyond mainstream Hinduism, the Chalukyas also patronized heterodox sects, such as **Jainism and Buddhism**, exemplifying their commitment to religious diversity.
 - **Ravikirti**, the poet-laureate of Pulikesin II, was a Jain scholar.
 - According to the traveller Hiuen Tsang, there were many Buddhist centres in the Chalukya territory wherein more than 5000 followers of the **Hinayana and Mahayana** sects lived.

Note:

- **Architecture:** Historically, in Deccan, Chalukyas introduced the technique of building temples using **soft sandstones as medium**.
 - Their temples are grouped into two: **excavated cave temples and structural temples**.
 - Badami is known for both structural and excavated cave temples.
 - **Pattadakal and Aihole** are popular for structural temples.
- **Literary:** Chalukya rulers utilised **Sanskrit for official inscriptions**, showcasing their commitment to classical literature and language.
 - Despite Sanskrit's prominence, the Chalukyas also acknowledged the significance of regional languages like **Kannada**, recognizing them as the language of the people.
- **Painting:** Chalukyas adopted the **Vakataka style in painting**. Paintings are found in a cave temple dedicated to Vishnu in Badami.

Aihole Inscription of Pulikesin II:

- Situated in the **Megudi temple at Aihole, Karnataka**, the Aihole inscription provides invaluable insights into Chalukya history and achievements.
 - Aihole is considered as the cradle of Indian temple architecture.
- Crafted by the renowned poet **Ravikriti**, the inscription is a lyrical tribute to the Chalukya dynasty, particularly **King Pulakesin II**, lauded as the embodiment of truth (Sathyasraya).
- The inscription chronicles the Chalukya dynasty's triumphs over adversaries, including the renowned defeat of **Harshavardhana**.



GI Tag to Majuli masks, Manuscript and Narasapur Crochet Lace Craft

Why in News?

The traditional **crochet lace craft of Narasapur in Andhra Pradesh** receives a **Geographical Indications (GI) tag** to preserve its unique identity amidst competition from machine-made lace from China.

- Similarly, **Majuli masks and manuscript painting in Assam** gain GI recognition, enhancing their cultural significance and safeguarding against decline.
- These GI tags aim to rejuvenate and promote traditional crafts, ensuring their continued legacy and heritage preservation.

What are the Key Highlights About Narasapur Crochet Lace Craft?



- **Narasapur Crochet Lace Craft:**
 - The crochet lace craft originated in **1844** and endured challenges like the **Indian famine (1899)** and the **Great Depression (1929)**. By the early 1900s, more than 2,000 women were involved in lace crafting in the **Godavari region**, highlighting its cultural importance.
 - The craft involves transforming thin **cotton threads into intricate artefacts** using delicate **crochet needles** of varying sizes.
 - Artisans use a single crochet hook to create loops and interlocking stitches, forming delicate lace patterns.
 - Narasapur's **hand-made crochet industry produces** a diverse range of products made of lace— **garments, home furnishings and accessories** including Doilies, Pillow covers, Cushion covers, Bedspreads, Table-runners, Table cloths, Hand purses, Caps, Tops, Stoles, Lampshades, and Wall hangings.

Note:

- Narsapur's crochet lace products find their way to global markets, with exports reaching destinations such as the UK, USA, and France.
- **Geographical Indication (GI) Tag:**
 - The **Department of Promotion of Industry and Internal Trade (DPIIT)** under the **Ministry of Commerce and Industry** registered the craft in the **Geographical Indications Registry (GIR)**, certifying that the craft is geographically limited to **19 mandals in West Godavari and Dr. B.R.Ambedkar Konaseema districts** in the Godavari region.
 - Narsapur and Palacole are the major trade points for lace products in West Godavari district. In Konaseema region, Razole and Amalapuram are known for the craft.
- **Challenges Faced by Narasapur Artisans:**
 - The craft market has been stagnant since the **Covid-19 pandemic**, resulting in a lack of new orders and decreased production.
 - While over 15,000 women are associated with the craft, only around 200 are actively involved in regular production.
 - Machine-made lace products from China have dominated the market, posing a significant threat to the demand for Narasapur lace products.

What are Majuli masks and Majuli Manuscript Painting?

- **Majuli Masks:**
 - Majuli masks are intricately crafted masks made by hand using traditional techniques.
 - The handmade masks are traditionally used to **depict characters in bhaonas (a traditional form of entertainment, with religious messages), or theatrical performances** with devotional messages under the **neo-Vaishnavite tradition**, introduced by the 15th-16th century reformer saint **Srimanta Sankardeva**.
 - The masks can depict gods, goddesses, demons, animals and birds — Ravana, Garuda, Narasimha, Hanuman, Varaha Surpanakha all feature among the masks.
 - Made from a variety of materials including bamboo, clay, dung, cloth, cotton, and wood, the masks can vary in size from covering just the face to encompassing the entire head and body of the performer.
 - Traditional practitioners are modernizing Majuli mask-making by moving beyond the confines of

sattras (Monastery) to embrace contemporary contexts.

- Sattras were founded by Srimanta Sankardev and his disciples to serve as centres of religious, social, and cultural reform.
- Majuli, with its 22 sattras, is a hub for these cultural practices. The mask-making tradition is predominantly found in four sattras: **Samaguri Sattra, Natun Samaguri Sattra, Bihimpur Sattra, and Alengi Narasimha Sattra**.



➤ Majuli Manuscript Painting:

- The manuscript paintings of Majuli are a form of religious art closely linked to the island's Vaishnavite culture, centred around worship.
- One of the earliest examples of this art form is attributed to Srimanta Sankardev, depicting the Adya Dasama of the Bhagwat Purana in Assamese. It continues to be practised in every sattra in Majuli.
- **Majuli Manuscript Painting** are inspired by the **Pala school of Painting art**.
 - Pala art refers to the **style of Buddhist art** that developed in the **Pala Empire of eastern India** (8th-12th centuries). It is characterized by its vibrant colors, detailed work, and emphasis on religious themes.



Note:



drishti

History

Highlights

- Sabarmati Ashram Redevelopment Project

Sabarmati Ashram Redevelopment Project

Why in News?

Recently, on the 94th anniversary of the Dandi March, the Prime Minister of India laid the foundation for the Sabarmati Ashram Redevelopment Project in **Ahmedabad**.

- The Sabarmati Ashram Redevelopment Project is a Rs 1,200 crore initiative to restore, conserve, and rebuild the original **Sabarmati Ashram** founded by **Mahatma Gandhi**.

What is the Historical Significance of the Sabarmati Ashram?

- **Establishment:**
 - Founded in 1917 by Mahatma Gandhi, the Sabarmati Ashram is situated on the **western bank of the Sabarmati River**, near the village of Juna Vadaj in Ahmedabad.
 - Gandhi set up five settlements during his lifetime, two in South Africa (**Phoenix Settlement** in Natal, and **Tolstoy Farm** outside Johannesburg), and three in India.
 - Gandhi's first Ashram in India was established in the **Kochrab area of Ahmedabad** in 1915, and the others are **Sabarmati Ashram (Ahmedabad)**, and **Sevagram Ashram (in Wardha)**.
 - It is currently managed by the Sabarmati Ashram Preservation and Memorial Trust (SAPMT).
- **Role in India's Independence Movement:**
 - The ashram served as a base for **Gandhi's socio-political activities** and experiments with truth and non-violence.
 - It witnessed the launch of several seminal movements, including the **Dandi March in 1930**.
 - Apart from the Dandi March, Gandhiji also launched the **Champaran Satyagraha (1917)**, the **Ahmedabad**

mills strike and Kheda Satyagraha (1918), the **Khadi movement (1918)**, the **Rowlatt Act and Khilafat Movements (1919)**, and the **Non-Cooperation movement (1920)** while living in Sabarmati.

- **Vinoba Bhave** lived in a cottage at Sabarmati Ashram called "Vinoba Kutir".
- **Architectural and Philosophical Significance:**
 - Gandhi designed the ashram himself, embodying simplicity, self-sufficiency, and communal living.
 - Constructed using local materials and traditional techniques, the ashram exemplified Gandhi's principles of sustainability and harmony with nature.
- **Legacy and Symbolism:**
 - The Sabarmati Ashram stands as a testament to Gandhi's enduring legacy and his pivotal role in India's freedom struggle.
 - It remains a pilgrimage site for admirers of Gandhian philosophy, offering insights into his life, teachings, and principles.

What is the Dandi March?

- **Origins:**
 - **The tradition of making salt in India dates back to ancient times, primarily carried out by farmers, who were often referred to as salt farmers.**
 - Over time, **salt became a commercial commodity**, and the British imposed a salt tax, making it a symbol of **colonial exploitation**.
 - Mahatma Gandhi recognized the **salt tax as a particularly oppressive** measure and saw it as an opportunity to mobilise the masses in a **non-violent protest against British rule**.
 - On March 2, 1930, Mahatma Gandhi wrote a letter to **Lord Irwin, the Viceroy of India**, informing him of his intention to break the salt law as an act of civil disobedience.

Note:

- The Dandi March, also known as the **Salt Satyagraha or Salt March**, marked a pivotal moment in the country's fight for independence from British colonial rule.

➤ **Dandi March:**

- The Dandi March commenced from the **Sabarmati Ashram in Ahmedabad on March 12, 1930**, with Mahatma Gandhi leading.
 - The 24-day march spanned four districts and passed through 48 villages.

- On April 6, 1930, Gandhi symbolically broke the salt law by picking up a handful of salt from the shores of Dandi, starting the civil disobedience movement against the British salt monopoly.
 - Gandhi chose 6 April to start the mass breaking of the salt laws for a symbolic reason - it was the first day of National Week, which began in **1919 when Gandhi planned the national hartal (strike)** against the Rowlatt Act.

Mohandas Karamchand Gandhi



"The weak can never forgive. Forgiveness is the attribute of the strong."

Brief Description

Birth: 2nd October 1869, Porbandar (Gujarat).

2nd October is observed as **International Day of Non-Violence**.

Profile: Lawyer, Politician, Social activist, Writer and led Nationalist Movement.

Father of the Nation (first called by Netaji Subhash Chandra Bose).

Ideology: Believed in the ideas of non-violence, Truth, Honesty, Care for Mother Nature, Compassion, Welfare of Downtrodden etc.

Political Mentor: Gopal Krishna Gokhale

Death: Shot dead by Nathuram Godse (30th January, 1948).

30th January is observed as **Martyrs' Day**

Nominated for the Nobel Peace Prize five times.



Gandhi in South Africa (1893-1915)

Used satyagraha against racist regime (Native Africans and Indians were discriminated).

Pravasi Bharatiya Divas (PBD) is celebrated every year on 9th January, to commemorate his return from South Africa.

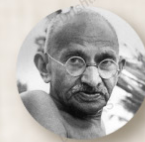
Contribution in India's Freedom Struggle

Small-scale movements like Champaran Satyagraha (1917)—First Civil Disobedience, Ahmedabad Mill Strike (1918)—First Hunger Strike, and Kheda Satyagraha (1918)—First Non-Cooperation.

Nationwide Mass Movements: Against Rowlatt Act (1919), Non-Cooperation Movement (1920-22), Civil Disobedience Movement (1930-34), Quit India Movement (1942).

Gandhi-Irwin Pact (1931): Between Gandhi and Lord Irwin that marked the end of a period of civil disobedience.

Poona Pact (1932): Between Gandhi and **B.R. Ambedkar**; this abandoned the idea of separate electorates for the depressed classes (Communal Award).



Books Written

Hind Swaraj, My Experiments with Truth (Autobiography)

Weeklies

Harijan, Navjivan, Young India, Indian Opinion.

Gandhi Peace Prize

is given by India for social, economic, and political transformation through Gandhian methods.

"Happiness is when what you think, what you say, and what you do are in harmony."

"You must not lose faith in humanity. Humanity is an ocean; if a few drops of the ocean are dirty, the ocean does not become dirty"

Note:



drishti

Geography

Highlights

- Surge in Demand of Copper

Surge in Demand of Copper

Why in News?

As demand for **copper** grew by 16% yearly-on-year in **FY23**, policymakers and corporations have increasingly turned their attention to the **critical role of copper in spurring economic growth**.

What are the Key Points Related to Copper?

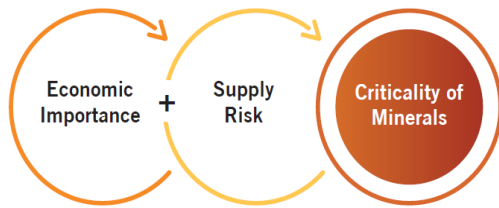
- **About:** Copper is a **malleable, ductile metal** known for its excellent heat and electricity conductivity. It possesses corrosion resistance and antimicrobial properties.
 - **Malleability** refers to the ability of a material to be pressed, or **rolled into thin sheets without breaking or cracking**.
 - **Ductility** is the property of a material that allows it to be stretched or **drawn out into a thin wire without losing** its strength or breaking.
- **Applications:** It is widely utilised in **construction, consumer durables, transportation, and industrial manufacturing**.
 - It is also Integral to clean energy technologies such as **solar panels, electric vehicles (EVs)**, and energy-efficient motors.
 - It is a **100%** recyclable metal (allows for a **circular economy**).
- **Occurrence and Composition:** It is naturally found in various forms in the Earth's crust.
 - It can be found in sulphide deposits (as **chalcopyrite, bornite, chalcocite, covellite**), in carbonate deposits (as **azurite and malachite**), in silicate deposits (as

chrysocolla and diopside) and as pure native copper.

- Most commercial copper ore deposits contain an average grade of 0.8% copper, while copper ore in India has an average copper content of **around 1%**.
- **Mining Methods:** There are two primary methods of copper mining: **open-pit and underground mining**.
 - Open-pit mining dominates, constituting **80% of global copper mining operations**.
- **Copper Deposits in India:** Mainly located in **Singhbhum (Jharkhand), Balaghat (Madhya Pradesh), and Jhunjhunu and Alwar (Rajasthan) districts**.
 - Minor deposits are found in Agnigundala (Andhra Pradesh), Chitradurg and Hasan (Karnataka), and South Arcot (Tamil Nadu) districts.
- **India's Copper Appetite:** India's demand for copper is soaring due to rising infrastructure projects, renewable energy initiatives, and urbanisation.
 - Despite this, the country heavily relies on copper imports due to limited domestic reserves.
 - To address this, the government is promoting investments in smelters and refineries while **Indian companies are acquiring copper mines abroad** to secure a stable supply and reduce dependence on international markets.
 - Recently, the **Ministry of Mines** has proposed sending an Indian industry delegation to **copper-rich Zambia** to discuss potential copper exploration and mining projects in the southern African country
 - Recognizing copper's criticality, the government has included it in its list of **critical minerals**, highlighting the need to reduce import dependence.

Note:





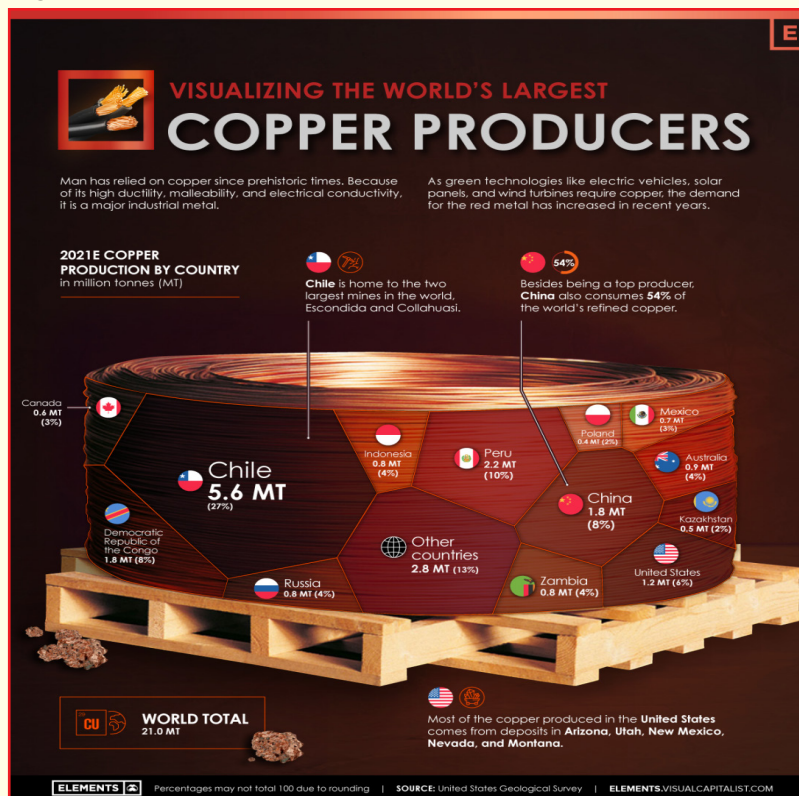
Economic Importance	Supply Risk
Disruption Potential	Governance-Weighted Mineral Concentration
Substitutability Index (EI)	End-of-life Recycling Rates (EOL-RR)
GVA Multiplier Score	Import Reliance (IR) and Self-Sufficiency (SS)
Cross-Cutting Index (CCI)	Substitutability Index (SR)

➤ **Hindustan Copper Limited (HCL):** Established in 1967 under the Companies Act, It is a **Miniratna Category-I enterprise** operating under the **Ministry of Mines, Government of India.**

- It was formed to consolidate all copper exploration and exploitation projects from the **National Mineral Development Corporation Ltd.**
- HCL is India's **only vertically integrated copper producing company.**
- **Copper's Key Importance:**
 - **Copper as an Economic Barometer:** Copper prices reflect **demand/supply dynamics**, monetary markets, and speculation, making it a global economic indicator.
 - Unlike sector-specific commodities, copper is integral across all economic sectors.
 - **Copper for Energy Efficiency:** Copper plays a vital role in promoting energy efficiency in buildings.
 - Its excellent thermal and electrical conductivity make it ideal for **wiring, heat exchangers, and roofing**, leading to reduced energy consumption for heating, cooling, and lighting.
 - By minimising energy losses throughout a building's lifespan, copper contributes to a more sustainable future.

Note:

➤ **Chile is the top copper producer** in the world, with 27% of global copper production. In addition, the country is home to the two largest mines in the world, **Escondido and Collahuasi.**



Note:

Ethics

Highlights

- Ethical Implications of Judge Resigning for Politics

Ethical Implications of Judge Resigning for Politics

Why in News?

Recently, the former Calcutta High Court judge has resigned and joined a political party, sparking a conversation on the **propriety of such a move by a judge**.

- The concerns raised by the Judge's resignation from the judiciary to join politics have significant **ethical implications that affect the perception of judicial propriety**, impartiality, and the integrity of the judiciary.

Note: In 1967, former **Chief Justice of India (CJI) Koka Subba Rao** resigned three months before he was to retire to contest the presidential election as the Opposition candidate.

- Supreme Court Justice Baharul Islam resigned **six weeks before retirement in 1983 to contest the Lok Sabha polls**.

What are the Ethical Concerns Related to the Resignation of a Judge for Politics?

- **Judicial Impartiality:**
 - Judges are expected to remain neutral and make decisions based solely on the facts and the law, without being influenced by **personal biases or external pressures**.
 - The sitting judge's decision to join a political party after being involved in controversies raises questions about his impartiality **while presiding over cases involving political matters**.
 - This undermines public confidence in the judiciary's ability to dispense justice fairly.
- **Judicial Independence:**
 - Judicial independence is crucial for **maintaining the rule of law and democracy**.

- Judges must be free from interference or influence from any outside parties, including political entities.
- The decision of the judge to align himself with a political party shortly after his resignation/retirement calls **into question the independence of his previous judicial decisions** and raises concerns about the influence of political considerations on the judiciary's functioning.

➤ Conflict of Interest:

- Judges are expected to **avoid conflicts of interest and maintain the integrity** of the judicial process.
- His 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 fulfill its role in society. When judges engage in actions that undermine the perception of judicial integrity and impartiality, it erodes public trust in the entire judicial system.
- Justice's transition from the judiciary to active involvement in politics may lead to scepticism and cynicism among the public regarding the judiciary's independence and integrity.

➤ Issue of Post-Retirement Appointments:

- Over the years, some retired judges have accepted government posts after retirement. This practice blurs the **clear demarcation between the judiciary and the executive**.

What is Restatement of Values of Judicial Life 1997?

- The Supreme Court of India adopted the **Restatement of Values of Judicial Life in 1997**, outlining ethical standards and principles for judges. Some key points from the Restatement include:

Note:



- **Impartiality:** Justice must not only be done but also be seen to be done. Judges' behaviour should reaffirm people's faith in the judiciary's impartiality.
- **Avoiding Conflicts:** Judges should avoid close associations with individual members of the Bar, refrain from hearing cases involving family members who are lawyers, and not enter public debates on political matters.
- **Financial Benefits:** Judges should **not seek financial benefits** unless clearly available and should not speculate in shares or engage in trade or business.
- **Public Gaze:** Judges must always be conscious that they are under public scrutiny, and their actions should benefit the high office they occupy.

Post-Retirement Assignments for Judges:

- While the Indian Constitution doesn't explicitly prohibit judges from taking up post-retirement assignments, there have been suggestions for implementing a **cooling-off period to mitigate potential conflicts** of interest.
- **Former CJI R M Lodha** recommended a **cooling-off period of at least 2 years**.
 - Officials who retire from sensitive positions are barred from accepting any other appointment for some time, normally two years.
 - These cooling-off periods in **posts are premised on the snapping off of the nexus between previous incumbency** and new appointment by the interposition of a sufficient time gap.
- **International Practices:** Comparatively, in the United States, Supreme Court justices do not retire but **hold their positions for life to prevent conflicts of interest**.

- In the **United Kingdom**, while there is no law preventing judges from taking post-retirement jobs, **no judge has done so**, reflecting a different approach to the issue of post-retirement roles.

What can be Done to Address Judges Taking Post Retirement Jobs?

- **Implement a Cooling-Off Period:**
 - Similar to the suggestion of former Chief Justice R M Lodha, there should be a **mandatory cooling-off period** between a judge's retirement and their eligibility for any post-retirement assignment.
 - This period would help mitigate potential conflicts of interest and ensure impartiality.
- **Recommendations of Law Commission:**
 - The recommendations of the **14th Law Commission Report, 1958**, highlighted this concern and advocated for a system that **ensures financial security to the judges without compromising independence**.
- **Enhance Judicial Ethics and Standards:**
 - Strengthening the **ethical guidelines and standards for judges**, both during their tenure and post-retirement, **can help maintain the integrity** and impartiality of the judiciary. Judges should be encouraged to prioritise public trust and confidence in the judiciary over personal interests.
- **Increase Transparency:**
 - There should be greater transparency in the process of appointing retired judges to post-retirement positions.
 - This includes disclosing the criteria for selection, ensuring open competition for these roles, and making public the reasons behind each appointment.



Note:

Miscellaneous

Highlights

- France Considers Legalising Assisted Dying
- Sangeet Natak Akademi Fellowships and Awards for 2022 and 2023
- Bureau of Energy Efficiency
- Belgium Recognises Ecocide as a Crime
- Leap Year

France Considers Legalising Assisted Dying

Why in News?

France, after recently adding **abortion** as a **constitutional right**, is now considering legalising a form of assisted dying called “aid in dying”.

- The proposed bill will have strict conditions, allowing assisted dying for individuals with incurable illnesses expected to cause death in the short- or middle-term.
- The country already allows **passive euthanasia**.

What is Assisted Dying and Passive Euthanasia?

- **Assisted Dying:** Assisted dying involves individuals who are terminally ill seeking medical assistance to obtain lethal drugs, which they then **administer themselves to end their own lives**.
 - It typically occurs **when patients are facing unbearable suffering** due to a terminal illness and wish to have control over the timing and manner of their death.
 - The primary distinction of assisted dying is that **individuals actively participate in the process of ending their lives** with the aid of medical professionals.
- **Passive Euthanasia:** Passive euthanasia occurs when **life-sustaining treatments are withheld or withdrawn**, allowing the patient to die naturally.
 - This may involve decisions to **stop medical interventions** such as ventilators, feeding tubes, or medications that sustain life.
 - Passive euthanasia is often considered distinct from active euthanasia because it does not involve directly causing the patient’s death but rather allows death to occur by natural means.

- **Active euthanasia** involves deliberately using **lethal substances** or actions to end a person’s life.
- **Countries with Legalised Assisted Dying or/and Euthanasia:**
 - **Netherland, Luxembourg, Belgium, Spain** allows both euthanasia and assisted suicide for anyone who faces “**unbearable suffering**” that has no chance of improvement.
 - **Switzerland bans euthanasia** but allows assisted dying in the presence of a doctor or physician.
 - The United States has different laws in different states. **Euthanasia is allowed** in some states like **Washington, Oregon, and Montana**.
 - **India allows for passive Euthanasia.**

- In ***Aruna Ramachandra Shanbaug v. Union of India Case, 2011***, Supreme Court **recognised passive euthanasia in this case** (for Aruna Shanbaug, who was in vegetative state) by which it had permitted **withdrawal of life-sustaining treatment from patients** not in a position to make an informed decision.

The Supreme Court of India **legalised passive euthanasia**, in ***Common Cause V/s Union of India Case, 2018***, citing the importance of a ‘**living will**.’

- The ruling allows mentally competent adults to refuse medical treatment or opt not to receive it, thus embracing a natural death, under specific circumstances.
- The court emphasised that **dignity in the dying process is integral to the right to life** guaranteed by **Article 21 of the Constitution**.
- In 2023, the Supreme Court revised rules for passive euthanasia to simplify and expedite the process.

Note:



- SC eliminated the requirement for a judicial magistrate to validate a living will, stating that attestation by a notary or a gazetted officer is adequate.

Sangeet Natak Akademi Fellowships and Awards for 2022 and 2023

Why in News?

Recently, the President of India presented **Sangeet Natak Akademi (SNA) Fellowships and Awards** for the years 2022 and 2023 in New Delhi.

What are the Sangeet Natak Akademi Fellowships and Awards?

- **Sangeet Natak Akademi Fellowship:**
 - The Sangeet Natak Akademi Fellowship (Akademi Ratna Sadasyata) is the most prestigious honour conferred by the SNA.
 - Established individuals in the fields of music, dance, and drama are considered for this fellowship. However, the criteria stipulate that **individuals below the age of 50 are not ordinarily considered for this honour.**
 - The Akademi Fellowship includes purse money of **Rs. 3.00 lakhs, a Tamrapatra (copper plaque), and an Angavastram (shawl).**
 - Recommendations for the fellowship are received from the current fellows of the Akademi and members of the General Council of the Akademi.
 - The fellowship initially had 30 seats until 2008. In 2010, the General Council amended the rules to add 10 more seats, to be filled over five years with two seats added annually.
- **Sangeet Natak Akademi Awards:**
 - The SNA Awards have a rich history spanning over 70 years. These awards aim to honour practitioners, gurus, and scholars in the field of music, dance, and drama, representing the nation's highest achievement in these art forms.
 - The Awards in **Hindustani** and **Carnatic music** were instituted as early as 1951, even before the establishment of the Akademi.

- Initially known as the **Presidential Awards**, they were later incorporated into the **Sangeet Natak Akademi Awards** after the formation of the Akademi.
- Each award includes purse money of **Rs. 1.00 lakh, a Tamrapatra (copper plaque), and an Angavastram (shawl).**
- Currently, the number of awards to be conferred annually is 41, and till date, over 1298 artists have been honoured with the Sangeet Natak Akademi Awards.

Sangeet Natak Akademi

- The SNA, established in 1953, is the apex body in India dedicated to the preservation and promotion of the rich intangible heritage expressed through music, dance, and drama.
 - It was created by a resolution of the (then) Ministry of Education, Government of India, in 1952 with Dr P.V. Rajamannar as its first Chairman.
- The management of the Akademi is overseen by its **General Council**, with the **Chairman appointed by the President of India** for a five-year term.
- The registered office of the Akademi is located at Rabindra Bhavan, New Delhi. **Operating as an autonomous body under the Ministry of Culture**, the Sangeet Natak Akademi holds a significant position in promoting and preserving India's cultural heritage.
- The SNA gives the **Ustad Bismillah Khan Yuva Puraskar** to artists under 40 who have excelled in dance, music, and theatre. The award was introduced in 2006. The SNA's Chairman gives the winner a prize of Rs. 25,000 besides a Tamrapatra and Angavastram.
- More than **100 rare art forms that were on the verge of extinction** are now being **revived** through training programmes under the name of '**Kala Deeksha**' by the Akademi.

Bureau of Energy Efficiency

Why in News?

The **22nd Foundation Day** of the **Bureau of Energy Efficiency** was recently celebrated with the theme "Energy Transition through Electrification and Decarbonization in India" and the **State Energy Efficiency Index 2023** was released.

Note:

What is the State Energy Efficiency Index (SEEI) 2023?

➤ About:

- It is the **5th edition** of the index, developed by the Bureau of Energy Efficiency (BEE), a **statutory body** under the **Ministry of Power**, in association with the **Alliance for an Energy-Efficient Economy (AEEE)**.
- It evaluates the performance of 36 states and UTs across **seven demand sectors** using 65 indicators, including qualitative, quantitative, and outcome-based measures.

- In **SEEI 2023**, states and UTs are classified as 'Front runner' (≥ 60), 'Achiever' (50-59.75), 'Contender' (30-49.75), and 'Aspirant' (< 30) according to their total scores.
- States and UTs are also classified into **four groups** based on their total final energy consumption (TFEC) **for peer-to-peer performance comparison**: Group 1 (> 15 million tonnes of oil equivalent (MTOE)), Group 2 (5-15 MTOE), Group 3 (1-5 MTOE), and Group 4 (< 1 MTOE).
 - The **top-performing states in each group** are Karnataka (Group 1), Andhra Pradesh (Group 2), Assam (Group 3), and Chandigarh (Group 4).

		Sectors							
Categories									
Policy		Cross-sector	Buildings	Industries	Municipal Services	Transport	Agriculture	DISCOM	Total
Finance									
Institutional Capacity									
Adoption of EE Measures									
Energy Savings									
		Programme-specific Indicators							
		Common Indicators							
Sector weights		15	22	17	11	16	8	11	100
Indicator Weights	Common	15	9	6	2	7	3	6	48
	Programme		13	11	9	9	5	5	52

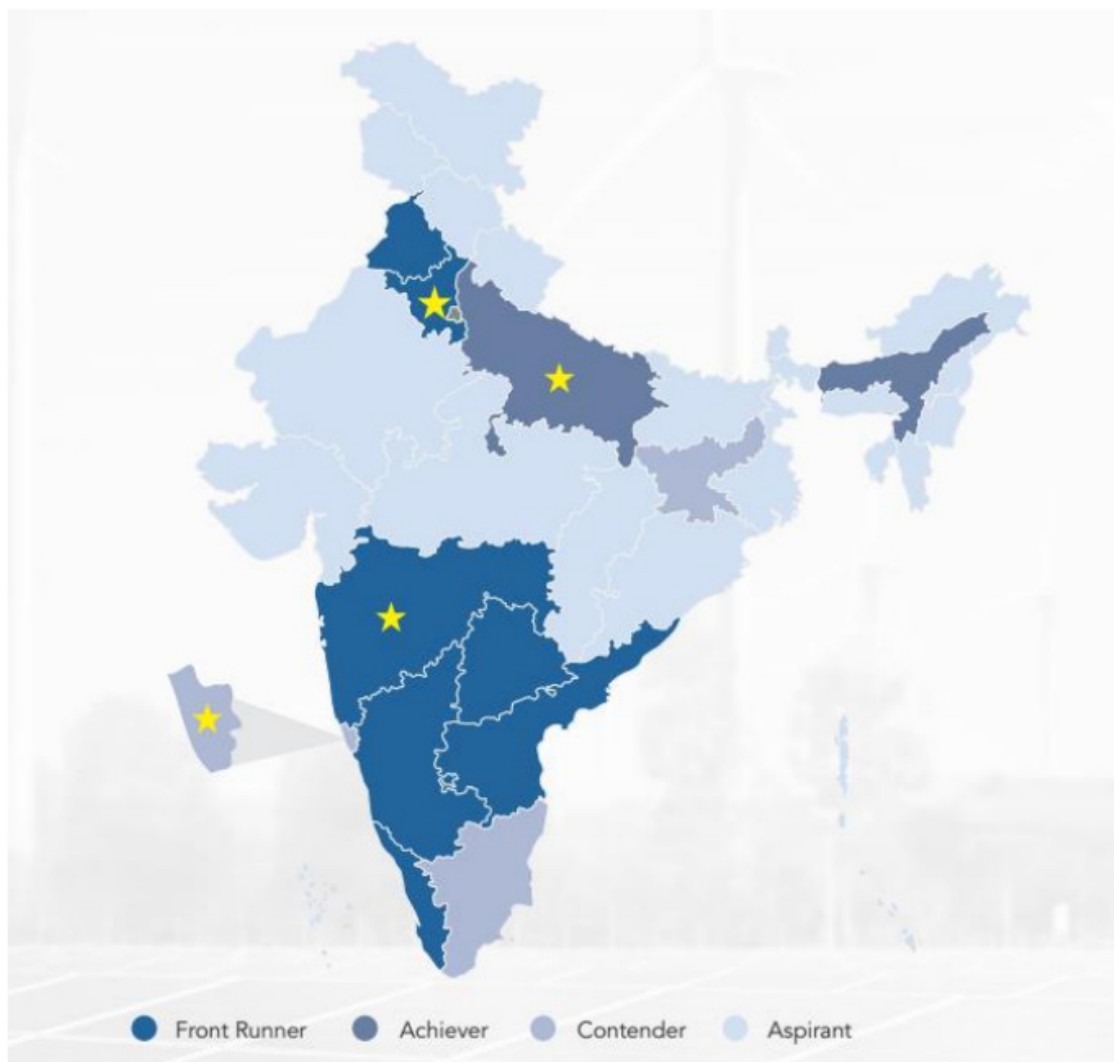
Framework for SEEI 2023

➤ Key Findings of SEEI 2023:

- **Front runner (≥ 60):**
 - Seven states in 'Front runner' category in SEEI 2023: Karnataka (score 86.5), Andhra Pradesh (83.25), Haryana, Kerala, Maharashtra, Punjab, and Telangana.
- **Achiever (50-59.75):**
 - Two states, **Assam and Uttar Pradesh** are in the 'Achiever' category,
- **Contender (30-49.75):**
 - Three states, **Goa, Jharkhand, and Tamil Nadu**, are in the 'Contender' category.

Note:

- **Aspirant (<30):**
 - **Maharashtra and Haryana** most improved states, with score increases of 18.5 and 17 points, respectively.
- **15 states have improved** their scores compared to SEEI 2021- 22.
- **Substantial decline in score** observed in **Rajasthan**, primarily attributed to **lack of reported data**.



Performance of states and UTs under SEEI 2023

Bureau of Energy Efficiency (BEE)

- **BEE** was established on 1st March 2002, under the provisions of the **Energy Conservation Act, 2001**, under the **Ministry of Power**.
- The mission of BEE is to assist in **developing policies** and strategies for energy efficiency with the primary objective of reducing the **energy intensity** of the Indian economy.
- **Functions:** It is responsible for **regulatory and promotional functions** outlined in the Energy Conservation Act, 2001.
- **BEE has helped India reduce its energy consumption by around 3.5%.**

Note:

Belgium Recognises Ecocide as a Crime

Why in News?

The Federal Parliament of **Belgium** has made history by becoming the **first country in the European Continent** to recognise **'ecocide'** as a national as well as an **international crime**.

- The law targets individuals in positions of decision-making power and corporations, aiming to prevent and punish severe environmental degradation such as extensive oil spills.

Note:

- **Belgium is a federal and constitutional monarchy** divided into two main linguistic and cultural regions: **Flemish (Dutch)-speaking Flanders** and **French-speaking Wallonia**.
- Belgium is called the **'Cockpit of Europe'** because it is where the largest number of European battles have taken place in history.
- Its capital, Brussels, is also the seat of the European Union (EU).



What is Ecocide?

- Ecocide is defined as **"unlawful or wanton acts committed with knowledge** that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts."

- The definition was provided by the **Independent Expert Panel for the Legal Definition of Ecocide**, formed by the Stop Ecocide Foundation.
- Ecocide is considered a form of **environmental crime** and is often associated with significant **negative impacts on biodiversity, ecosystems, and human well-being**.
- Recognizing ecocide as a crime aims to hold individuals and corporations accountable for their actions and to prevent further environmental degradation.
- Ecocide is a crime in 12 countries, with nations mulling laws around criminalising environmental damage that is wilfully caused and harms humans, animals and plant species.

What is India's Stance on Criminalising Ecocide?

- **Ecocide as Law:** Some Indian court judgments have referenced the term **'ecocide,'** the concept has **not been formally incorporated into Indian law**.
 - **Chandra CFS and Terminal Operators Pvt. Ltd. v. The Commissioner of Customs (2015):** The court noted that certain sections of people have been continuing ecocide by removing valuable timbers.
 - **T.N. Godavarman Thirumulpad vs Union Of India & Ors (1997):** **Supreme Court** called attention to an "anthropogenic bias" and argued that "environmental justice could be achieved only if we drift away from the principle of anthropocentric to **ecocentric.**"
 - However, India has yet to take concrete steps towards enacting legislation specifically targeting ecocide.
- **Existing Legal Framework:** India's environmental legal framework includes statutes like the **Environmental (Protection) Act of 1986, The Wild Life (Protection) Amendment Act, 2022, and the Compensatory Afforestation Fund Act, 2016 (CAMPA)**.
 - Despite these laws, there remains a **gap in addressing ecocidal activities directly**, necessitating the incorporation of ecocide as a distinct criminal offence

Leap Year

Why in News?

In 2024, February 29th marks Leap Day, an additional day added to the calendar during leap years. This extra

Note:



day, known as Leap Year Day, extends the year to a total of 366 days.

What is a leap year?

➤ Leap Year:

- A leap year has **366 days** in a year as opposed to the regular 365 days. The extra day is added to February, the shortest month of the year, as February 29.
- A solar calendar signifies one complete orbit of the Earth around the Sun. The Earth's orbit takes about **365 days, 5 hours, 48 minutes, and 46 seconds** to simplify, a regular year is rounded to 365 days.
 - To account for the extra time, **rounded up to six hours, 24 hours (one full day)** are added to every fourth year.
- Without leap years, the **calendar would become out of sync with the seasons** over time.
 - The extra day keeps calendars and seasons from gradually falling out of sync and **impacting harvesting, planting and other cycles based on the seasons.**

➤ Evolution of Leap Years:

- The Julian calendar's approximation of the solar year led to accumulating errors over time, primarily due to a slight overcompensation.
- By the 16th century, the calendar was approximately **10 days ahead of the solar year, prompting the need for reform.**

- Pope Gregory XIII initiated calendar reform in 1582, removing ten days to realign the calendar with the solar year.
- To prevent future errors, the Gregorian calendar introduced a refined leap year rule, **omitting three leap years every 400 years.**

➤ Math of Leap Year:

- Leap years are always **multiples of four like 2016, 2020, 2024**, but a year that is a multiple of four is not always a leap year.
- The Gregorian leap year rule states that the **year number must be divisible by four**, except for **end-of-century years (ending in '00'), which must be divisible by 400.**
 - This means that the year **2000 was a leap year, although 1900 was not.** 2024, 2028, 2032 and 2036 are all leap years.
- This extra rule is needed because **adding a leap day every four years actually overcompensates for the slight difference** in the solar year. It turns out that adding a leap day every four years adds a little too much time, about 44 minutes more than necessary.
 - So, by skipping leap years for **centuries that aren't divisible by 400**, we fine-tune the calendar to stay even closer to the actual solar year and keep the seasons in check.



Note:

Rapid Fire Current Affairs

Highlights

- Internet in Remote Tribal Villages (VSAT)
- Lead Iodide Perovskites
- SEBI Warns Against Fraudulent Trading Platforms
- Empowering the Sikh Community
- GI Tag to Cuttack Rupa Tarakasi
- Rural Digital Empowerment
- Vocal for Local initiative
- PB-SHABD
- Marine Security Belt 2024
- Haiti
- National Speed Breeding Crop Facility
- Pritzker Architecture Prize 2024
- Karnataka Ban Harmful Food Colouring Agents
- Connectome
- Italian Court Ruling Against Returning Sea Migrants
- Yaounde Declaration
- Pi Chatbot Powered by Inflection-2.5
- India to Become Third Largest Economy by 2031
- Revamped PM-Surya Ghar Muft Bijli Yojna
- Sea Defenders-2024
- Argentina Withdraws from BRICS Plan
- Kerala-Owned OTT Platform
- EU Fines Apple for Antitrust Violations in App Store
- Mahatari Vandana Yojana
- Blue Line
- IRIS: India's First AI Teacher Robot
- James Webb Telescope Spots Oldest Dead Galaxy
- Cavum Clouds
- Stalled Negotiations on Pancheshwar Multipurpose Project
- Decline in Indian Diamond Exports
- International Women's Day
- Lineman Diwas
- Mythical Dwarka
- Dak Karmayogi Project
- India's First Underwater Metro Service
- Global Cervical Cancer Elimination Forum
- Arctic and Great Lakes Ice Trends
- Chakshu and the Digital Intelligence Platform
- Dry Ice
- e-Kisan Upaj Nidhi
- World Hearing Day
- Quality Control Order on Viscose Staple Fibre
- Bharat Tex 2024
- World Wildlife Day
- Samudra Laksamana
- India's First Dolphin Research Centre
- National Bank for Financing Infrastructure and Development
- Electronic Data Interchange (EDI) Launched for North East
- Google Removes a Few Indian Apps from Play Store
- Successful Flight Tests of VSHORADS Missile by DRDO
- Women Exporters in the Digital Economy (WEIDE) Fund
- Shri Morarji Desai Birth Anniversary
- Alliance for Global Good – Gender Equity and Equality
- Advancing Pregnancy Care with India-Specific AI Model
- Melanochlamys Droupadi
- Mission Utkarsh Against Anaemia
- New Chairperson of Lokpal
- Chromosomal Disorders from Prehistoric Skeletal Remains

Internet in Remote Tribal Villages (VSAT)

Recently, The **Ministry of Tribal Affairs** plans to collaborate with the **Indian Space Research Organisation (ISRO)** to deploy **V-SAT (very small aperture terminal) stations** on a pilot basis for approximately 80 tribal villages in **Jharkhand, Madhya Pradesh, Odisha, and Maharashtra**.

- The initiative aims to provide Internet services to geographically remote tribal villages that have been historically difficult to connect due to challenging terrain. It will facilitate **e-governance** and improve connectivity in remote areas.

Note:



drishti

- Apart from this, the Ministry also discussed proposals for partnerships with institutes such as [AIIMS Delhi](#), [IIT Delhi](#), [IIM Calcutta](#), and [IISc Bengaluru](#).
 - Partnerships with [AIIMS Delhi](#) include conducting advanced research on tribal health issues, particularly on [Sickle Cell Anaemia](#).
 - Additionally, plans are in place to establish a training facility with the [Indian Institute of Science](#) in [Bengaluru](#) to offer courses on [semiconductors](#) to tribal students.

Read More: [Indian Space Research Organisation \(ISRO\)](#)

Lead Iodide Perovskites

- A study led by [Bharat Ratna](#) Professor C.N.R. Rao explores [atomic rearrangements](#) in [lead iodide perovskites](#) during phase transitions caused by [temperature](#) and [pressure changes](#).
 - **Perovskite structure:** perovskite refers to any material that has a [crystal structure](#) like the [mineral perovskite](#). Ex: Lead Iodide Perovskites and calcium titanium Perovskites.
- [Lead iodide perovskites](#) exhibit excellent [optoelectrical properties](#), making them promising materials for [solar cells](#). However, their [instability \(decomposition in humid air\)](#) is a concern due to [structural changes](#) under varying conditions.
 - Despite instability issues, it has commercial potential due to their unique crystalline structures and optoelectronic properties.
 - Lead iodide perovskites's [energy conversion efficiency can be higher than](#) even that of commercial [silicon-based solar cells](#)
- Addressing instability could lead to more efficient renewable energy generation using lead iodide perovskites in solar cells, [LEDs](#), [X-ray](#) shielding, and [Energy Storage Systems](#).

Read More: [Viability Gap Funding Scheme for Battery Energy Storage Systems](#)

SEBI Warns Against Fraudulent Trading Platforms

The Securities and Exchange Board of India (SEBI) has issued a cautionary statement regarding deceptive

trading platforms falsely asserting ties with its registered [Foreign Portfolio Investors \(FPIs\)](#).

- Pretending as SEBI-registered FPIs, they entice individuals to download applications promising access to stock purchases, IPO subscriptions, and exclusive [‘institutional account benefits.’](#)
 - These platforms lure individuals through online trading courses, seminars, and mentorship programs, exploiting social media platforms like WhatsApp or Telegram.
- SEBI clarified that the [FPI route is not accessible to resident Indians](#), with limited exceptions outlined in the [SEBI \(Foreign Portfolio Investors\) Regulations, 2019](#).
 - Also, there is [no provision for an Institutional Account](#).
- FPIs encompasses financial investments made by foreign individuals, corporations, and institutions in Indian financial assets like [stocks](#), [bonds](#), and [mutual funds](#).
 - Unlike [Foreign Direct Investment \(FDI\)](#), which involves long-term ownership of assets, FPI is primarily driven by the aim of [achieving short-term gains and portfolio diversification](#).



Read more: [Securities and Exchange Board of India \(SEBI\), Foreign Portfolio Investors](#)

Empowering the Sikh Community

In a move to empower the [Sikh community](#), on the occasion of [Sikh New Year](#), the Union Minister of Minority Affairs launched a comprehensive skill development, leadership, and entrepreneurship promotion program.

- The program is part of the [“Sabka Sath, Sabka Vikas, Sabka Vishwas, Sabka Prayas”](#) initiative under the [Pradhan Mantri Virasat Ka Samvardhan \(PM VIKAS\)](#)

Note:

Scheme through the **Delhi Sikh Gurdwara Management Committee (DSGMC)**, which is a **Statutory Body** established for the welfare of the Sikh community.

- It targets 10,000 youth and women for **modern skills training in employment-oriented job roles**, promotes **Sikh artisans**, fosters women's leadership and entrepreneurship, and provides education for school dropouts.
- The program aims to assist **socio-economically disadvantaged groups** within the Sikh community and promote communal and social harmony.
- State-of-the-Art **Gurmukhi Script** learning centres will be established in Khalsa colleges under the University of Delhi for preserving and promoting the rich cultural heritage and traditions of the Sikh community.
 - The Gurmukhi script was developed from the Śāradā script, standardised and used by the second **Sikh guru, Guru Angad**.
 - The Śāradā script is part of the **Brahmic family of scripts**.
- The Ministry will provide infrastructure and ancillary services, including developing Studios/Smart Classrooms under the **PM Jan Vikas Karyakram**.

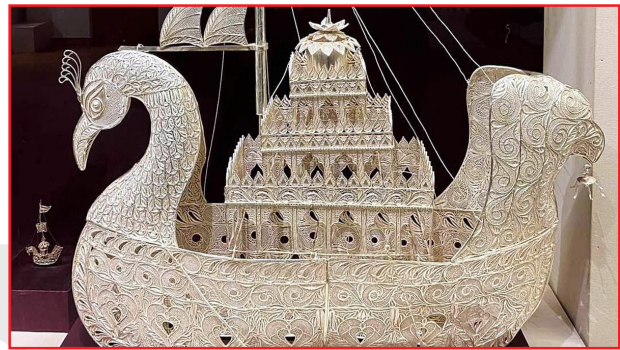
Read more: [Welfare Schemes for the Minority Communities, Sikhism](#)

GI Tag to Cuttack Rupa Tarakasi

The renowned **Cuttack Rupa Tarakasi (Silver Filigree)** has been granted the **Geographical Indication (GI) tag**, marking its distinct heritage and craftsmanship.

- Dating back to ancient **Mesopotamia**, where filigree adorned jewellery as early as 3500 BCE, its journey to Cuttack potentially via Persia and Indonesia speaks volumes about cultural exchange through maritime trade routes.
 - Filigree is ornamental work especially of fine wire of gold, silver, or copper applied chiefly to gold and silver surfaces.
- Alongside Cuttack Rupa Tarakasi, other crafts like **Banglar muslin (West Bengal)**, **Narasapur crochet lace (Andhra Pradesh)**, and **Kutch rogan craft (Gujarat)** have also earned GI status, emphasising the diversity and excellence of India's traditional crafts.

- A GI tag is a label used on products linked to a specific geographic area, ensuring only authorised users from that region can use the product's name.
 - It guards against imitation and lasts for **10 years** once registered.
 - The Department for Promotion of Industry and Internal Trade (DPIIT) manages GI registration in India under the **Geographical Indications of Goods Act, 1999**, in line with the **TRIPS agreement**.



Read more: [Geographical Indication Tag](#)

Rural Digital Empowerment

The **Universal Service Obligation Fund (USOF)**, under the **Department of Telecommunications (DoT)**, has signed a tripartite MoU with **Prasar Bharati** and **Open Network for Digital Commerce (ONDC)** to democratise digital services access in rural India.

- The tripartite MoU aims to expand **affordable and accessible digital services nationwide**, leveraging the BharatNet infrastructure under USOF.
- USOF's role in providing **high-speed broadband in Gram Panchayats and villages** will complement **Prasar Bharati's OTT platform**, offering linear channels, Live TV, and on-demand content.
- Prasar Bharati will **curate content for its OTT platform**, utilising its extensive legacy, consumer reach, and brand recognition.
- ONDC will **contribute technical expertise and infrastructure** for enabling digital commerce in various sectors, expanding beyond e-commerce to include education, health, finance, and agriculture.

Note:

Organization	Establishment and Statutory Status	Purpose
Universal Service Obligation Fund (USOF)	Established in 2002 under Ministry of Communications; Statutory support under Indian Telegraph (Amendment) Act, 2003	Ensure universal access to quality ICT services in rural and remote areas at efficient prices
Prasar Bharati	Established in 1997 under Prasar Bharati Act; Statutory autonomous body	Public Service Broadcaster of the country
Open Network for Digital Commerce (ONDC)	Established in late 2021 under Department for Promotion of Industry and Internal Trade; Part of Digital India initiative	Network of interconnected e-marketplaces facilitating direct sales from sellers to customers

Read more: [Universal Service Obligation Fund \(USOF\)](#), [Prasar Bharati](#), [ONDC and its Potential](#)

Vocal for Local initiative

Recently, the [NITI Aayog \(National Institution for Transforming India\)](#) launched the 'Vocal for Local' initiative under its [Aspirational Blocks Programme \(ABP\)](#).

- Initiative aims to boost **sustainable growth by showcasing indigenous products** through 'Aakanksha.' A dedicated window on the GeM portal facilitates e-commerce for local products.
 - As a part of this initiative, indigenous local products from **500 Aspirational Blocks** have been mapped and consolidated under Aakanksha.
- The CEO of NITI Aayog urged district collectors and block-level officials to collaborate with partners such as [Government e-Marketplace \(GeM\)](#) and [Open Network for Digital Commerce \(ONDC\)](#) to facilitate sustainable growth of microenterprises in Aspirational Blocks.
- The ABP is a development initiative announced in the **Union Budget 2022-23**, it aims to **provide direction, guidance, and support for social and economic advancement** in the most underdeveloped regions in India and to direct development benefits towards marginalised and vulnerable sections of the population.

Read more: [Aspirational Blocks Programme](#)

PB-SHABD

Union Minister of Information and Broadcasting launched the [Prasar Bharti - Shared Audio Visuals for Broadcast and Dissemination \(PB-SHABD\)](#), a news-sharing service from [Prasar Bharati](#), aimed at transforming news dissemination in India.

- PB-SHABD will serve as a single-point source of news content for smaller news organisations lacking extensive networks.
- SHABD service is offered free for the first year, providing news stories in major Indian languages across fifty categories.
- The minister highlighted the revamped platforms for **Doordarshan News** and Akashvani News, and updated News on the Air mobile app, emphasising their role in **democratising access to news and fostering collaboration within the media industry**.
- Prasar Bharati is India's largest public broadcasting agency. It is a **statutory autonomous body set up by the Prasar Bharati Act, 1997**.
 - The Prasar Bharati Corporation's main objective is to provide autonomy to Doordarshan and Akashvani to "educate and entertain the public."

Read more: [Broadcasting only through Prasar Bharati](#)

Marine Security Belt 2024

Iran, Russia, and China began a joint naval drill in the **Gulf of Oman**. The drill, called "**Marine Security Belt 2024**". The drill, which includes warships and aviation, is their fourth joint military exercise since 2019.

- Naval representatives from Pakistan, Kazakhstan, Azerbaijan, Oman, India, and South Africa are acting as **observers** during the exercise.
- The Gulf of Oman is a western extension of the **Arabian Sea** and is situated in the Middle East between the countries of **Iran, Oman, and the United Arab Emirates**.

Note:

- The Gulf connects the **Arabian Sea with the Strait of Hormuz**, which then empties into the **Persian Gulf**.
 - The Gulf of Oman is bordered by Pakistan and Iran in the north; by the United Arab Emirates in the west and by Oman in the south.



Read more: [China-Iran Strategic Cooperation Pact](#)

Haiti

Recently, **Haitian Prime Minister Ariel Henry** announced his intention to resign, once a **transitional presidential council** is created.

- **About:**
- It is located between the **Caribbean Sea and the North Atlantic Ocean**.
- It occupies the **western one-third of the island of Hispaniola**, sharing a border with the **Dominican Republic on the eastern side**.

Note:



- Haiti is also neighbored by **Jamaica to the west and Cuba to the northwest**.
 - **Official Languages:** French, Haitian Creole.
 - **Major Mountain Ranges:** Massif de la Selle, Massif du Nord.
 - It is the **world's first independent Black-led republic**.
- The nation underwent about two centuries of **Spanish colonial rule** and more than a century of French rule.



National Speed Breeding Crop Facility

Recently, the **Union Minister of Science & Technology**, inaugurated the first-of-its-kind “**National Speed Breeding Crop Facility**” at the premier **National Agri-Food Biotechnology Institute (NABI)** in Mohali.

- The facility will be used to **develop new varieties such as wheat, rice, soybean, pea, tomato, etc.**, by using a precisely controlled environment to achieve more than four generations of a crop per year.
- The facility will help agricultural and biotechnology researchers for improved crop varieties, plant breeders and farmers in adopting varieties of superior yield and nutritional traits.
- The facility will cater to all the States of India but it will especially be useful for the North Indian States like **Punjab, Himachal Pradesh, Haryana** and the **UT of J&K**.

- **NABI** is the first **Agri-Food Biotechnology Institute**, established in India on **18th February 2010**.
 - The NABI has significantly contributed to **‘Atal Jai Anusandhan Biotech (UNaTI) Mission, Poshan Abhiyan**, and **Biotech Kisan Hubs** for **Jammu & Kashmir, Ladakh, Himachal Pradesh, Punjab, Haryana** etc.

Read More: [Technology in Indian Agriculture](#)

Pritzker Architecture Prize 2024

Recently, Japanese architect **Riken Yamamoto** was declared the winner of the prestigious 2024 **Pritzker Architecture Prize**, often called the “**Architecture Nobel**”. This award is the highest international honour in the field. **Yamamoto is the ninth laureate from Japan**.

- The prize was established by **Jay A Pritzker** and his wife **Cindy** in **1979** to honour living architects whose work demonstrates **talent, vision, and commitment to humanity** and the **built environment**.
- Riken Yamamoto’s architectural vision prioritises **family and community**, with a focus on the visible and tangible aspects of architecture.
 - Yamamoto’s designs often incorporate innovative concepts such as “**relational living**” and **preserving natural landscapes**, as seen in projects like **Hotakubo Housing** and the **Yokosuka Museum of Art**.
- **Balkrishna Doshi**, is the first Indian architect to win a **Pritzker Prize (2018)**. His renowned work is the **Aranya Low-Cost Housing Complex**, located in the city of Indore.
 - The complex connects a community through a cluster of buildings stitched together by a network of courtyards and pathways.

Karnataka Ban Harmful Food Colouring Agents

Recently, the Karnataka Government has announced a ban on the use of harmful **colouring agents** in popular food items like **cotton candy** and **Gobi Manchurian**.

- The ban targets **Rodamine B** in **cotton candy** and imposes restrictions on **Tartrazine** usage in **Gobi Manchurian**.

Note:

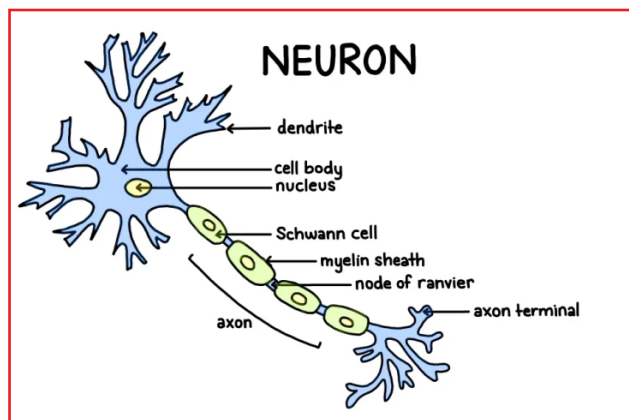
- **Rhodamine B** is a chemical compound commonly employed in synthetic dyes for colouring silk, jute, leather, cotton, and wool, as well as in the cosmetics and plastics industries.
 - **Tartrazine is a bright yellow azo dye** that is more stable and a cheaper alternative to natural food dyes.
- According to the **Food Safety and Standards Authority of India (FSSAI)**, no colouring matter should be added to food unless permitted in the **Food Safety and Standards (Food Products Standards and Food Additives) Regulation, 2011**.

Read more: [Food Safety and Standards Authority of India](#)

Connectome

The human brain, comprising billions of **neurons**, forms a complex network vital for our existence and cognition. Understanding this intricate network, known as the **connectome**, offers profound insights into brain function and neurological disorders.

- Connectome Concept represents a comprehensive **map of neural connections**, akin to a **blueprint illustrating the electrical and chemical signals** exchanged between neurons.
- A neuron consists of a **cell body containing the nucleus, dendrites for receiving input**, and an **axon for sending messages**, sometimes enveloped by a **myelin sheath** for faster signal transmission.



- Neurons communicate through synapses, where dendrites **receive chemical signals, convert them to electrical impulses**, and transmit them through axons to other neurons.

- Despite the brain's complexity and data volume, the **connectome simplifies scientists' understanding**, facilitating advancements in neuroscience and neurological health research.
- Mapping the connectome aids in comprehending brain function and the impact of conditions like **Attention deficit hyperactivity disorder (ADHD)** and **Alzheimer's disease** on neural processes.

Read more: [Brainware](#), [Mysterious Cells in Human Brain](#)

Italian Court Ruling Against Returning Sea Migrants

Italy's highest court, the Court of Cassation, ruled that **it is illegal to return rescued sea migrants to Libya**.

- The court's ruling is based on the **principle of non-refoulement** that forbids the forced return of people to countries where their lives or rights are at risk.
 - The court's ruling affirms Libya as unsafe for migrants, highlighting the risk of "inhuman and degrading treatment" in detention centres under coastguards and militias if returned.
- Italy's top court ruling that it is illegal to return sea migrants to Libya aligns with **Article 98 of the United Nations Convention on the Law of the Sea (UNCLOS)**.
 - This article obligates **states to help anyone found at sea** in danger of being lost and to rescue those in distress if they can do so without serious danger to their own ship or people.



Read more: [UNCLOS Maritime Zones](#), [Conflict in Libya](#)

Note:

Yaounde Declaration

Recently, the **Yaoundé Declaration** marked a significant milestone in the fight against malaria, as health ministers from 11 African countries pledged to **end malaria deaths**.

- The **total number of malaria cases globally increased from 233 million in 2019 to 249 million in 2022**.
- Africa witnessed a significant rise in malaria cases during this period, reaching 233 million cases. **Africa accounts for 94% of global malaria cases and 95% of malaria-related deaths**.
- While progress against malaria has stagnated in the **WHO Africa region**, the 11 African countries involved in the Yaounde conference account for **over 70% of the global malaria burden**.
 - The declaration aims to strengthen health infrastructure, expand personnel capacity, and enhance program implementation. They also seek to foster partnerships for funding, research, and innovation.
- Despite the declaration, **experts highlight the need for concrete action** on the ground. The **African Union's goal to control and eliminate malaria by 2030** faces significant financial gaps, with USD 1.5 billion needed to sustain basic malaria services and additional funds required for climate adaptation in the health sector.

Read more: [2023 World Malaria Report](#), [World Malaria Day](#)

Pi Chatbot Powered by Inflection-2.5

Pi, the world's 'friendliest' chatbot, powered by the new **Inflection-2.5 large language model (LLM)**, has emerged as a breakthrough in conversational AI technology, offering deep and meaningful interactions.

- Pi, developed by **Inflection AI, a California-based company**, offers empathetic, helpful, and safe conversations, setting it apart from other chatbots.
 - Inflection 2.5 is an **upgrade to a large language model (LLM)** created by Inflection AI.
- Inflection 2.5 allows Pi to access and process information from the real-time web, providing users with up-to-date answers to questions.

- Inflection 2.5, competes with leading LLMs like GPT-4 while using only 40% of its computational power for training.
- Unlike **ChatGPT** and **Gemini**, Pi is designed as a companion rather than a personal assistant, offering support, intelligence, and companionship.

Read more: [Large Language Models](#)

India to Become Third Largest Economy by 2031

CRISIL, a major rating agency in India, forecasts the country's **Gross Domestic Product (GDP) growth** to be 6.8% in the next fiscal year (FY25).

- CRISIL expects India's economic growth to moderate slightly from the current fiscal year (FY24) due to factors like **higher interest rates** but still sees a healthy 6.8% growth for FY25.
- Over the next seven years, CRISIL predicts an average **annual growth rate of 6.7%**, potentially propelling India to become the **world's third-largest economy by 2031, trailing behind the US and China**.
 - India, with a GDP size of USD 3.7 trillion, is currently the **fifth largest economy in the world**, after the US, China, Japan and Germany.
- The projected growth is expected to elevate India's **per capita income** (reach \$4,500 by 2031), allowing it to reach **upper-middle-income status by 2031**.
- Crisil's India Outlook report projects that between fiscal 2025 and 2031, the size of the Indian economy will inch closer to the **USD 7 trillion mark**.

Read more: [India's Economic Outlook](#)

Revamped PM-Surya Ghar Muft Bijli Yojna

The Centre has tweaked the new ₹75,000-crore **PM-Surya Ghar Muft Bijli Yojna (Prime Minister's Rooftop Solar: Free Electricity Scheme)**

- Originally intended to **fully subsidise installation of 1-3 Kilowatt (KW) solar systems in 1 crore households**, the scheme now offers **up to 60% coverage of costs**, with households required to cover the remainder, albeit with accessible loans.

Note:

- The scheme envisaged to generate up to 300 units of free electricity every month which would translate to benefits of ₹15,000-18,000 annually for households.
- India had aimed to install 40 GW of **rooftop solar** by 2022 but has only achieved approximately 12 GW thus far.
- Currently a rooftop solar system costs about ₹50,000 per KW.

Read more: [Pradhan Mantri Suryodaya Yojana](#)

Sea Defenders-2024

Recently, the maritime security exercise 'Sea Defenders-2024' was held between the **Indian Coast Guard (ICG)** and the United States Coast Guard (USCG) at **Port Blair, Andaman and Nicobar Islands**.

- The Exercise included a variety of scenarios including a **Pollution Response Demonstration**, in which Indian Coast Guard ships and aircraft showcased their expertise in responding to **oil spills** and other environmental hazards at sea.
- It also simulated **Visit Board Search and Seizure (VBSS) Operations** for inspecting vessels suspected of illegal activity.
- Furthermore, the joint exercise provided a platform for personnel from both coast guards to refine their firefighting and damage control skills, fostering a spirit of collaboration and camaraderie.

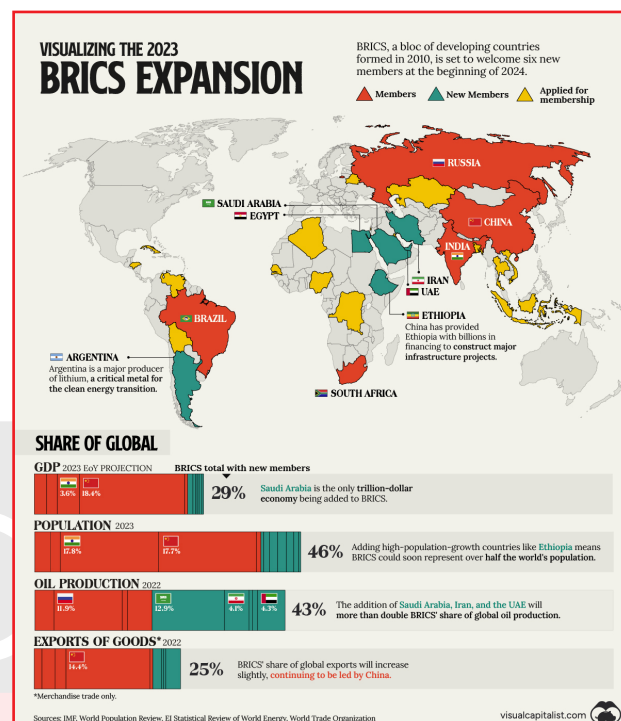
Read more: [Indian Coast Guard](#)

Argentina Withdraws from BRICS Plan

Recently, Argentina, under the leadership of **President Javier Milei**, has decided not to join the **BRICS bloc** of developing economies, despite being scheduled to join.

- **Argentina** was among six countries **invited in August to join the BRICS bloc**, which currently consists of **Brazil, Russia, India, China, and South Africa**.
- Argentina was set to join on **1st January 2024**.
- These points highlight Argentina's decision under Milei's leadership to distance itself from the **BRICS** and align more closely with the **United States** and **Israel**, reflecting a shift towards **right-wing populism** in its foreign policy.

- The initial stage of enlargement involves extending invitations to countries such as **Argentina, Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE** to join BRICS.
- More than **40 nations** have shown keen interest in becoming members of BRICS.



Read More: [15th BRICS Summit](#)

Kerala-Owned OTT Platform

Recently, Kerala has launched a **government-owned OTT platform** called **CSpace**, aimed at promoting quality films with **artistic and cultural value**.

- CSpace, emphasised its role in promoting **Malayalam cinema and culture**.
- The platform will only stream films already released in theatres to avoid harming the interests of producers and exhibitors.
- CSpace will be managed by the **Kerala State Film Development Corporation (KSFDC)**, with transparency in profit-sharing and viewer statistics.
- A 60-member curator panel, will select content based on its artistic, cultural, and infotainment merit.

Read More: [OTT Platform](#)

Note:

EU Fines Apple for Antitrust Violations in App Store

The **European Union's** recent 1.8 billion euro fine against **Apple** sheds light on the tech giant's alleged **antitrust violations**, specifically regarding its treatment of competitors and the imposition of fees within its App Store ecosystem.

- Apple was accused of **unfairly favouring its own music streaming service, "Apple Music"**, over competitors like **Spotify** by restricting their ability to inform users about alternative subscription options and by imposing significant fees for in-app purchases.
- The European Commission found that Apple's actions violated European Union antitrust laws, particularly regarding the **abuse of its dominant market position** and anti-steering provisions that hindered competition.
- The fine underscores the EU's stance against anti-competitive practices and sets a precedent for future tech antitrust cases.
- Apple denies antitrust allegations, stating no evidence of anti-competitive behaviour, and plans to appeal the EU decision.

Read more: [Market Monopoly and Laws in India](#)

Mahatari Vandana Yojana

In a move towards women empowerment, the Prime Minister recently launched the **Mahatari Vandana Yojana** in Chhattisgarh.

- The scheme aims to ensure the **economic empowerment of women**, provide them with financial security, promote gender equality, and strengthen their decisive role within families.
- All married women above the **age of 21 as of 1st January 2024**, including widows, divorced, and deserted women, are eligible to benefit from this scheme.
 - Eligible married women in Chhattisgarh will receive financial aid of **Rs 1000 per month** through **Direct Benefit Transfer (DBT)**.
 - Approximately **70 lakh women are expected to benefit** from the Mahatari Vandana Yojana in Chhattisgarh, contributing to their socio-economic upliftment.

- The other initiatives aimed at enhancing women's well-being are the **Pradhan Mantri Matru Vandana Yojana, Lakhpati Didi, Jan Dhan Accounts, Mudra Loans, Beti Bachao Beti Padhao** and **Ujjwala**.

Blue Line

Recently, the borders between **Israel** and **Lebanon** have been under intensified attack by **Hezbollah**.

- The border between **Israel** and **Lebanon**, known as the **"Blue Line,"** was set by the **United Nations** in **2000** after Israel withdrew its military from **southern Lebanon**.
 - It's not an **official international border** but a **demarcation line**.
- Originally, it was the boundary established by **Britain** and **France** in the **1920s**, between **Lebanon, Syria** and **Palestine**.
- **Hezbollah** is a **Shia Islamist political party and militant group** based in **Lebanon**. It emerged in the **1980s** as a response to the **Israeli occupation of southern Lebanon**. It is also designated as a terrorist organisation by several countries, including the **United States** and **Israel**.



Read More: [Israel-Lebanon: Maritime Border Deal](#)

IRIS: India's First AI Teacher Robot

A school in Thiruvananthapuram, Kerala has unveiled a groundbreaking innovation in education with the introduction of **India's first Generative Artificial Intelligence(AI) teacher robot** named 'Iris'. Developed

Note:

in collaboration with Makerlabs Edutech, Iris aims to transform traditional teaching methods through personalised learning experiences for students.



- Equipped with voice assistant and IRIS engages students in interactive learning activities.
- IRIS responds to user queries, provides explanations, and delivers educational content through personalised interactions.
 - With a 4-wheel chassis and 5 degrees of freedom (DoF) movements, IRIS can move freely and engage in hands-on learning activities.
- IRIS promises to enhance learning outcomes and inspire students in new ways, ushering in a future where AI complements traditional teaching methods.
 - Generative AI refers to deep-learning models that can generate high-quality text, images, and other content based on the data they were trained on.
- In August 2023, India inaugurated its **first-ever AI school** in Kerala.

Read more: [Generative Artificial Intelligence](#)

James Webb Telescope Spots Oldest Dead Galaxy

The [James Webb Space Telescope \(JWST\)](#) has recently uncovered fascinating insights into the universe's history by capturing the oldest-known dead galaxy, which **ceased star formation approximately 13 billion years ago**, 700 million years after the [Big Bang event](#) that gave rise to the universe.

- The dead galaxy underwent a short but intense period of star formation between 30 and 90 million years, abruptly ceasing star formation between 10 and 20 million years before the JWST's observation.

- Its mass is comparable to that of the **Small Magellanic Cloud (SMC)**, a dwarf galaxy near the Milky Way.

- Insights suggest abundant gas cloud collapses in the early universe facilitated star formation, but internal factors like supermassive black holes or gas depletion can halt this process.
 - Gas depletion may result from rapid consumption without replenishment, leading to galaxies transitioning from star-forming to dormant states.
 - The dynamic nature of the early universe implies potential rejuvenation of dead galaxies, subject to further observations.
- JWST is an international collaboration between NASA, the European Space Agency (ESA) and the Canadian Space Agency which was launched in December 2021.
 - It is **currently at a point in space known as the Sun-Earth L2 Lagrange point**, approximately 1.5 million km beyond Earth's orbit around the Sun.
 - It's the largest, most powerful infrared space telescope ever built and is **successor to the Hubble Telescope**.

Read more: [James Webb Telescope spots 6 Monster Galaxies](#)

Cavum Clouds

Cavum clouds, also known as **hole-punch clouds** or **fallstreak holes**, have long captivated observers with their unusual appearance, often sparking speculation about extraterrestrial origins.

- Recently, it was found that Cavum clouds are formed when **aircraft pass through mid-level altocumulus clouds** containing supercooled liquid water droplets.
 - Altocumulus Clouds are mid-level clouds (ranging 2-7 kms) that form white or grey patches or layers. They often have a wavy or lumpy appearance.
- As the planes disrupt the air around them, the droplets freeze into ice crystals, which eventually become heavy and fall out of the sky, leaving voids in the cloud layer.
 - The falling ice crystals are visible as wispy trails of precipitation called **virga**.
 - This phenomenon was captured recently by [NASA's Terra satellite](#) showing cavum clouds over the **Gulf of Mexico** off Florida's west coast.

Note:

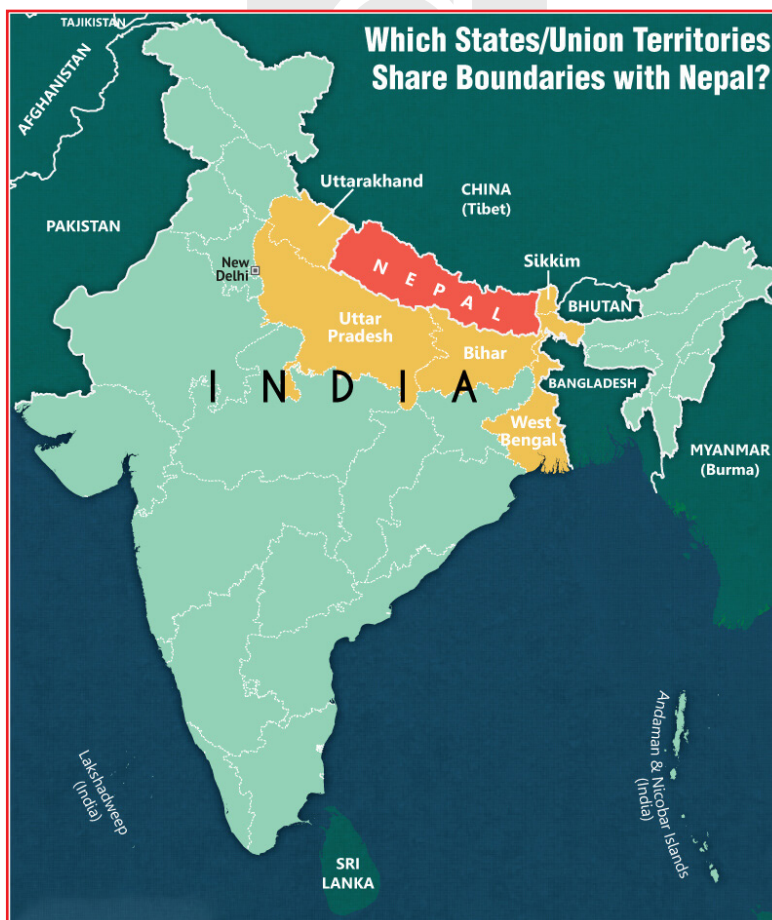


Stalled Negotiations on Pancheshwar Multipurpose Project

Despite the recent signing of an agreement on

long-term power sharing between India and Nepal, progress on the **Pancheshwar Multipurpose Project (PMP)** remains at a standstill.

- The impasse surrounding the PMP, particularly concerning the equitable distribution of benefits, poses a challenge to the advancement of relations between India and Nepal.
- In January 2023, India and Nepal signed a bilateral agreement for the export of **10,000 MW of power** in the next 10 years.
- Pancheshwar Multipurpose Project (PMP) is a bi-national hydropower project to be developed on the Mahakali River bordering India and Nepal.
 - India and Nepal had signed a Treaty known as **Mahakali Treaty in February, 1996**. Implementation of the **Pancheshwar Multipurpose Project** is the centrepiece of the Mahakali Treaty.



Read more: [India and Nepal Relations](#)

Note:

Decline in Indian Diamond Exports

India's **diamond** export is anticipated to witness a significant downturn, with projections indicating a decrease to a 5-year low of approximately **USD 15-16 billion in 2023-24**.

- This bleak outlook is attributed to subdued demand from major markets such as the **U.S. and China**, which collectively contribute around 65% of India's diamond exports.
- Factors including the **emergence of alternative spending options**, the growing popularity of **lab-grown diamonds (LGDs)**, and geopolitical tensions further exacerbate the export slowdown.
 - **LGDs** are manufactured in laboratories, as opposed to naturally occurring diamonds. However, the **chemical composition and other physical and optical properties of the two are the same**.
- **Major Diamond Producing Countries:** Russia, Botswana, Canada, South Africa, and the Democratic Republic of the Congo.
 - In India, **Surat is dubbed as the Diamond City**. It holds a commanding position in processing precious gems, with roughly **90% of the world's rough diamonds cut and polished in the city**.

Read more: [Lab-grown Diamonds](#)

International Women's Day

International Women's Day is an annual celebration observed on **8th March** every year, dedicated to honouring the achievements of women and advocating for **gender equality** worldwide.

- This global event serves as a reminder of the progress made towards women's rights and the ongoing challenges that women still face in many aspects of life.
- The celebration's origin lies in the **labour movements of Europe and North America**. The first International Women's Day was held in **March 1911**.
 - It was celebrated for the first time by the **United Nations** in 1975.

- Theme 2024: Inspire Inclusion

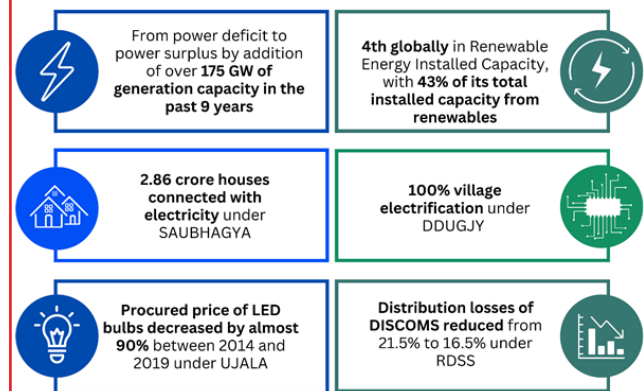
Read more: [International Women's Day](#)

Lineman Diwas

The **Central Electricity Authority (CEA)**, Ministry of Power, pays tribute to the nation's power sector frontline workers on the **fourth edition of Lineman Diwas (4th March 2024)** in New Delhi.

- Lineman Diwas celebrates the dedication and service of **linemen and ground maintenance staff** who ensure uninterrupted electricity distribution nationwide.
 - The theme for Lineman Diwas '**Seva, Suraksha, Swabhiman**' underscores the linemen's commitment, sacrifice, and contribution to society.
 - The event facilitated the exchange of safety best practices, showcasing safety equipment and tools, and screening videos to reinforce workplace safety protocols.
- The CEA is constituted under the repealed **Electricity (Supply) Act, of 1948**, which has since been substituted by **Section 70 of the Electricity Act, 2003**.
 - The primary functions of the Central Electricity Authority include providing **advice on policy matters and plans for the development and regulation** of the electricity systems.

Transforming the Power Sector in India



Read more: [India's Power Sector in 2030](#)

Mythical Dwarka

The Indian Prime Minister's recent visit to **Dwarka, Gujarat**, was marked by a blend of inaugurating the **Sudarshan Setu** and cultural exploration of the city of Dwarka.

Note:

- Present-day Dwarka is a coastal town located at the **mouth of the Gulf of Kutch, facing the Arabian Sea.**
 - It is home to the **13th-century Dwarkadheesh temple** dedicated to Lord Krishna.
 - However, the exact location of this ancient city remains a subject of debate among scholars.
- Various expeditions, both on land and underwater, have been conducted since the 20th century. However, the findings have often been **inconclusive**, leaving the exact location and authenticity of Dwarka shrouded in mystery.

Read more: [Sudarshan Setu](#)

Dak Karmayogi Project

The **Department of Posts, Government of India**, marked a significant achievement with the release of a Special Cover marking the completion of the second Phase of **Dak Karmayogi Project**.

- The Dak Karmayogi is an **e-learning platform** to enhance the competencies of about **4 lakh Gramin Dak Sevaks** and **Postal Department employees**.
 - This portal has been developed 'In-House' under the vision of **Mission Karmayogi**.
- The **Meghdoot Awards** are a national-level award

given by India Post to top-performing employees in the Department of Posts.

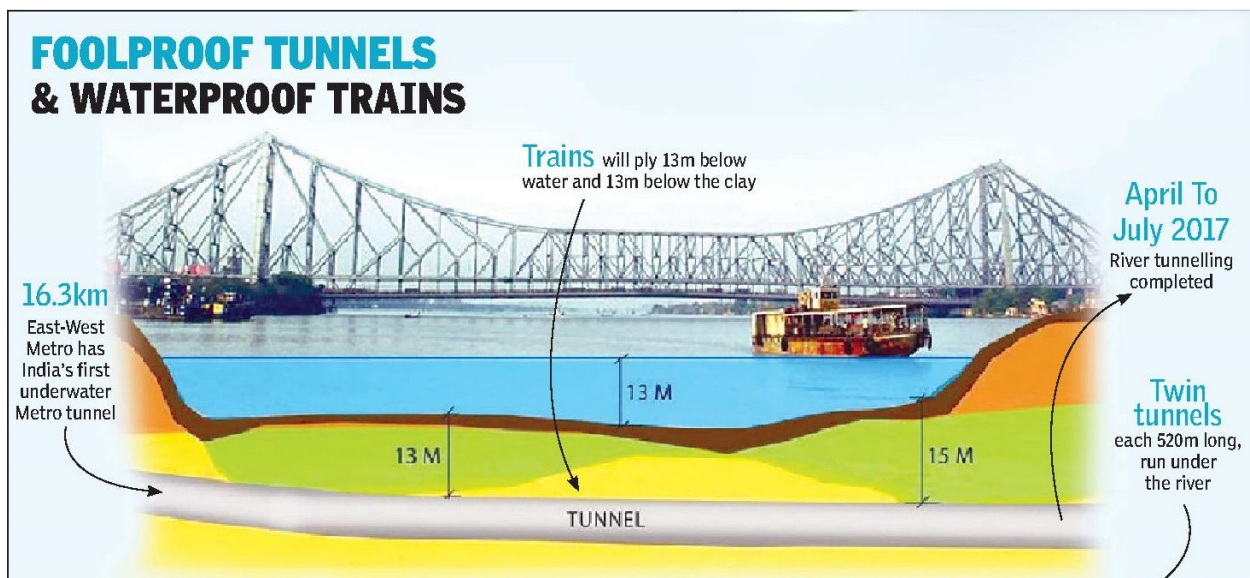
- The awards were introduced in **1984** to recognize outstanding performance and encourage postal employees

Read more: [Dak Karmayogi Project](#)

India's First Underwater Metro Service

The Prime Minister inaugurated the **Kolkata Metro's Esplanade-Howrah Maidan section**, marking the inauguration of **India's first underwater transportation tunnel**.

- The section, passing below the **Hooghly River**, showcasing the nation's engineering prowess hosts the **deepest Metro station (the Howrah metro station at 30 metres) in India**.
- The Hooghly River, also known as the **Bhagirathi-Hooghly and Kati-Ganga Rivers**, is one of the significant rivers in **West Bengal**. It is a **distributary or arm of the Ganges River, about 260 km long**. Formed in Murshidabad, where Ganga splits into two parts – while the part flowing through Bangladesh is called the Padma. The other part is the Hooghly.



Read more: [Atal Setu Nhava Sheva Sea Link](#), [Sudarshan Setu](#)

Note:

Global Cervical Cancer Elimination Forum

The first ever **Global Cervical Cancer Elimination Forum (GCF)** in Cartagena de Indias, Colombia, secured nearly USD 600 million in funding from the **World Bank**, Bill & Melinda Gates Foundation, and UNICEF.

- The funds will be utilised to **enhance global access to vaccination**, screening and treatment for **cervical cancer**.
- The Forum aims to catalyse governments, donors, civil society, and others to commit to cervical cancer elimination and galvanize the global community.
- Cervical cancer is a cancer that starts in the **cervix**, which is the lower end of the uterus that connects it to the vagina. It's caused by a **long-lasting (human papillomavirus) HPV infection**, which is a common virus transmitted through sexual contact.
 - Cervical cancer is **ranked as the fourth most prevalent cancer** among women globally.
 - Despite available tools for prevention and elimination, it claims a **woman's life every 2 minutes globally**, with over **90% of cervical cancer deaths in 2022 occurring in low- and middle-income nations**.
- **WHO's Global Strategy for Cervical Cancer Elimination**, launched in **November 2020**, targets, by **2030**:
 - 90% of girls vaccinated against HPV by age 15
 - 70% of women screened with a high-performance test by ages 35 and 45
 - 90% of women with cervical disease receive treatment.
- Indian Government intends to initiate a **three-phase vaccination drive against human papillomavirus (HPV) for girls aged 9-14**, aiming to mitigate the **risk of cervical cancer**.

PREVENTING CERVICAL CANCER



FACTS ABOUT CERVICAL CANCER:



Human Papillomavirus (HPV) is the main cause of cervical cancer



99.8% of UK cervical cancer cases are preventable

WHAT ARE THE SYMPTOMS OF CERVICAL CANCER?

- ✗ Unscheduled bleeding (during or after sex, between periods)
- ✗ Unusual discharge
- ✗ Pain or discomfort during sex
- ✗ Post-menopausal bleeding
- ✗ Lower back or pelvic pain

MYTH

VS

FACT

Cervical screening checks for cervical cancer



Cervical screenings are used to check the health of your cervix and identify cell changes.

If your cervical screening comes back abnormal, you have cervical cancer.



An abnormal test result means changes to the cervical cells, which could potentially cause cancer in the future.

Older women do not need to undergo cervical screenings.



Women aged 50-64 should undergo a cervical screening every 5 years.

Smoking is not linked to cervical cancer.



Around 20% of cervical cancers in the UK are linked to smoking.

CONCLUSION:

If you are aged between 25-64, it is crucial to attend all your scheduled cervical screenings to detect any cervical cell changes early on and get the necessary treatment.

Visiting your GP or gynaecologist at the earliest sign of any symptoms is also vital in detecting cervical changes early and preventing cervical cancer.

London Women's Centre specialises in the treatment of abnormal cervical screening results (dyskaryosis). For more information, please visit

Read more: [Expanding Cervical Cancer Prevention Initiatives, HPV Vaccine for Cervical Cancer](#)

Arctic and Great Lakes Ice Trends

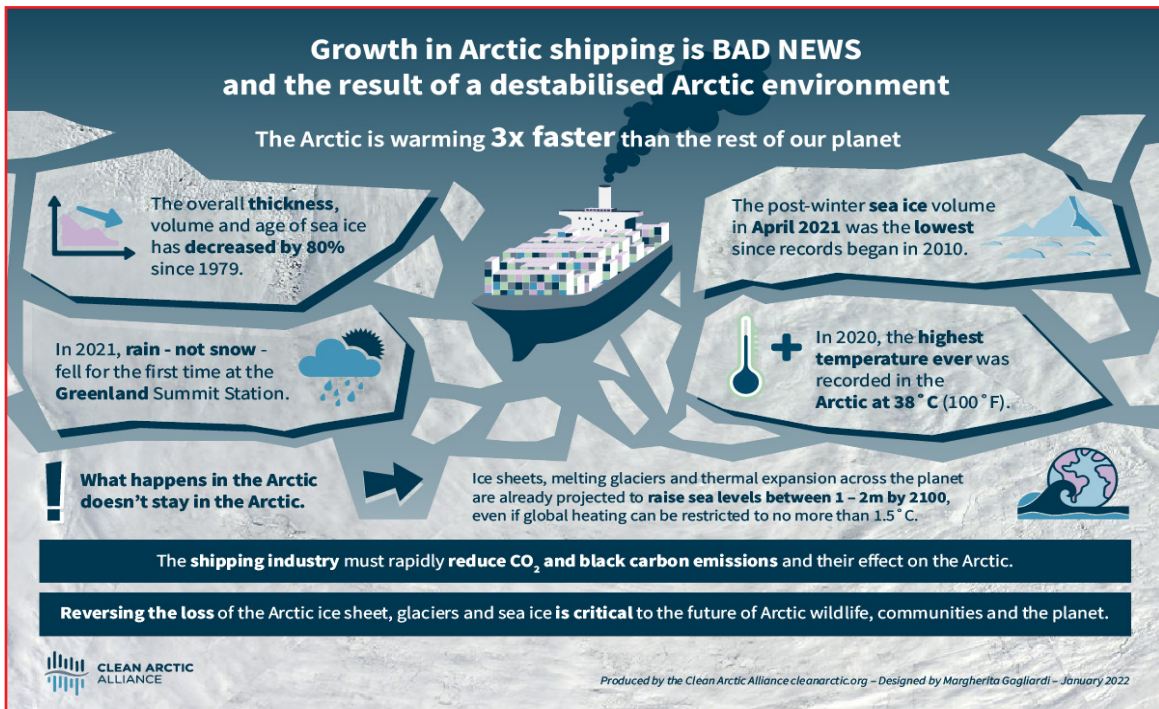
A recent study forecasts the **Arctic's initial ice-free conditions by August or September of 2030**, regardless of emission scenarios, with the possibility of recurring occurrences by mid-century (2035–2067).

- In recent years, the Arctic Ocean had around **3.3 million km² of sea ice** at its minimum in September 2023.
 - Arctic sea ice reaches its minimum extent in September every year.

Note:



drishti



- Concurrently, the **Great Lakes**, comprising **Superior, Michigan, Huron, Erie, and Ontario** have witnessed notably reduced ice cover for 2 consecutive years.
 - They are renowned as Earth's 'freshwater tower,' and are now witnessing unprecedented declines in ice cover, attributed to **global warming and the El Nino phenomenon**.
 - The year 2023 was designated as the hottest on record, largely influenced by **El Nino**.



Note:

Chakshu and the Digital Intelligence Platform

The [Department of Telecommunications \(DoT\)](#) introduced two initiatives, **Chakshu and the Digital Intelligence Platform (DIP)**, to combat spam and fraud calls through the [Sanchar Saathi portal](#).

- Chakshu (meaning eyes) is accessible at [sancharsaathi.gov.in/sfc](#), facilitating citizens to report suspicious communications.
 - The platform allows users to **report various types of fraud**, including those related to bank accounts, payment wallets, SIM cards, gas and electricity connections, KYC updates, impersonation, and sextortion.
- The primary objective of Chakshu is to **enable proactive reporting of suspicious activities**, contributing to the prevention and mitigation of **telecom-related fraud and spam calls**.
 - [Telecom Regulatory Authority of India \(TRAI\)](#) is working on developing an app for the Chakshu platform, further streamlining the reporting process for users.
- The DIP is a secure and integrated platform created by the **DoT for curbing the misuse of telecom resources** and data through intelligence sharing and information exchange among the stakeholders covering a wide spectrum of telecom service providers, law enforcement agencies (LEAs), banks and financial institutions.
 - It would be a **non-public data-sharing resource** for “Telecom Service Providers (TSPs), LEAs, banks and financial institutions, social media platforms, identity document issuing authorities etc.

Read more: [World Telecom Day 2023](#)

Dry Ice

Recently, mistaking **dry ice for a mouth freshener** at a Gurugram restaurant caused a severe incident, emphasising the lethal nature of the substance.

- **Dry Ice is the solid form of carbon dioxide**, is commonly used as a cooling agent for food products like ice cream, frozen desserts etc. But it poses a significant health risk if not handled properly.
 - It sublimates into **carbon dioxide gas**, which, if inhaled in large quantities, can lead to breathlessness (**hypercapnia**) and other serious complications.

- According to the [Food Safety and Standards Authority of India \(FSSAI\)](#), the [United States Food and Drug Administration \(FDA\)](#), and the **Centers for Disease Control and Prevention (CDC)**, dry ice must **never be touched or ingested** due to its potential to cause severe damage to both skin and internal organs.
- Dry ice’s unique **sublimation property**, transitioning from solid to gas, makes it versatile for various applications:
 - It is crucial for **preserving perishable items** like food and medical supplies during transport, maintaining ultra-low temperatures.
 - It also finds use in **industrial cleaning processes like dry ice blasting**.

Read more: [Food Safety and Standards Authority of India](#)

e-Kisan Upaj Nidhi

Recently, the Minister of Consumer Affairs, Food & Public Distribution launched the ‘**e-Kisan Upaj Nidhi (Digital Gateway)**’ of [Warehousing Development and Regulatory Authority \(WDRA\)](#) to leverage technology for easing farmers’ warehousing logistics and ensuring fair prices for their produce.

- The ‘e-Kisan Upaj Nidhi’ platform simplifies the digital process, allowing farmers to store their produce at any registered WDRA warehouse for **up to six months at 7% interest per annum**.
 - This initiative, featuring a **no collateral, extra security deposit policy**, aims to **prevent distress sales by farmers**, enabling better post-harvest storage opportunities.
- The Minister highlighted that the integration of e-Kisan Upaj Nidhi and **e-NAM** enables farmers to leverage interconnected markets, **extending benefits beyond government Minimum Support Price (MSP)**.
- WDRA was established in October 2010, under the **Warehousing (Development and Regulation) Act, 2007**, with the aim of **developing and regulating warehouses**, promoting negotiability of warehouse receipts, and facilitating orderly growth of the warehousing business in India.
 - WDRA operates as a **statutory authority under the Department of Food and Public Distribution**, with its headquarters located in New Delhi.

Read more: [Minimum Support Price \(MSP\)](#)

Note:

World Hearing Day

- National institutes and Regional Centers, under the **Department of Empowerment of Persons with Disabilities**, conducted awareness programs to promote an inclusive society and empower individuals to overcome hearing challenges.
- **World Hearing Day (WHD)** is celebrated on the **3rd March** each year to raise awareness on how to prevent deafness and hearing loss and promote ear and hearing care across the world.
 - Globally, over 80% of ear and hearing care needs remain unmet.
- Theme of WHD 2024: Changing mindsets: Let's make ear and hearing care a reality for all!
 - **Normal hearing range:** 0-20 dBHL (Decibel Hearing Level).
 - A person who is not able to hear as well as someone with normal hearing – hearing thresholds of 20 dB or better in both ears is said to have **hearing loss**.
 - **Hard of hearing** refers to people with hearing loss ranging from mild to severe. Deaf' people mostly have profound hearing loss, which implies very little or no hearing.

Read More: [World Hearing Day](#)

Quality Control Order on Viscose Staple Fibre

Significant shifts have occurred in the textile supply chain in less than a year since the enforcement of a strict **Quality Control Order (QCO)** on **viscose staple fibre (VSF)** in India.

- VSF imports **dropped by 65%** after the enforcement of the QCO in April 2023.
 - VSF is a **natural, biodegradable, semi-synthetic fibre** that has similar characteristics to cotton. It's made from wood or cotton pulp and is versatile, easily blendable, and light and breathable.
 - It is widely used in apparel, home textiles, dress material, knitted wear and non-woven applications.
- A QCO is a **non-tariff trade barrier** that bars manufacturers, importers, and distributors from storing or selling a product without a licence from the **Bureau of Indian Standards (BIS)** that certifies specific quality standards being met.

- The implementation of QCO holds significant importance in regulating the **influx of sub-quality and cheaper imports** to ensure customers get quality products
- Small and medium-sized spinning mills faced challenges due to restricted access to cheaper VSF imports.
- Industry representatives advocate for reversing QCOs on raw materials, proposing enforcement solely on finished products.

Read more: [Quality Control Orders](#)

Bharat Tex 2024

Bharat Tex 2024, the largest global **textile** event in India, concluded at Bharat Mandapam, New Delhi, inspired by the **5F Vision of the Prime Minister of India**.

- The **'5F' Formula** encompasses - **Farm to fibre; fibre to factory; factory to fashion; fashion to foreign**.
- The event was organised by a consortium of 11 Textile Export Promotion Councils and supported by the Ministry of Textiles.
- Leading textile states including Uttar Pradesh, Maharashtra, Gujarat, Madhya Pradesh, Telangana, Tamil Nadu and Karnataka actively participated with dedicated pavilions.
- Bharat Tex served as a launchpad for initiatives like the **'Innovative Business Practices and Economic Models in the Textile Value Chain in India'** (IndiaTex) and **Textile Grand Innovation Challenge**, aiming to drive innovation and sustainability in the textile industry.
 - IndiaTex is a four-year **UN Environment Programme** project that aims to accelerate the transition of the **Indian textile sector towards circularity**.
- Multiple **Memorandum of Understandings (MoUs)** were signed across various domains, including academic collaboration, research, product development, and market linkage.

Read more: [PM MITRA Scheme and Textile Sector](#)

World Wildlife Day

United Nations World Wildlife Day (WWD) is celebrated every year on **3rd March** to celebrate the vast array of wild animals and plants on our planet and raise awareness about the threats they face.

Note:

- The 2024 theme is: **Connecting People and Planet: Exploring Digital Innovation in Wildlife Conservation.**
 - It highlights the growing role of technology in protecting wildlife. From tracking endangered species to monitoring illegal wildlife trade, digital tools are offering new hope for safeguarding biodiversity.
- On **20th December 2013**, during the **68th Session of the United Nations General Assembly (UNGA)**, 3rd March was established as **WWD**.
 - This date commemorates the signing of the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** in 1973.

Read more: [World Wildlife Day](#)

Samudra Laksamana

The **Samudra Laksamana** (Bilateral Maritime Exercise) between **India and Malaysia** was recently concluded off the coast of **Visakhapatnam**.

- It involved the participation of the **Indian Naval Ship Kiltan** and **Royal Malaysian Ship KD Lekir** aimed to reinforce ties and promote interoperability between the two navies.
- The other exercises between India and Malaysia are:
 - **Exercise Udarashakti**: Air Force
 - **Exercise Harimau Shakti**: Army



Read more: [Samudra Laksamana](#)

India's First Dolphin Research Centre

India's inaugural **National Dolphin Research Centre (NDRC)** marks a significant milestone in the conservation efforts for the endangered **Gangetic dolphin (*Platanista gangetica*)**.

- Located strategically near the **Ganga river in Patna, Bihar**, the NDRC aims to be a hub for comprehensive research on various aspects of Gangetic dolphins, including behaviour, survival skills, and causes of mortality.

Note:



- Bihar is home to around half of the estimated 3,000 Gangetic dolphins in India.
- The Ganges river dolphin, discovered in 1801, historically inhabits the **Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems in India, Nepal, and Bangladesh.**
- Recent studies in the Ganga River Basin show their presence in the mainstream and tributaries like **Ghagra, Kosi, Gandak, Chambal, Rupnarayan, and Yamuna.**

GANGES RIVER DOLPHIN

(Platanista gangetica gangetica)

National aquatic animal of India

Facts

- ✦ Can only live in freshwater; prefer deep water
- ✦ Essentially blind; hunts by emitting ultrasonic sound
- ✦ Can't breathe in water; must surface every 30-120 seconds for air
- ✦ Also called 'susu' because of sound they make while breathing

Habitat & Distribution

- ✦ Distributed in Ganges and Brahmaputra River basins of India, Nepal and Bangladesh.
- ✦ Distribution range in India covers 7 states namely, Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal.

Protection Status


- ✦ **IUCN Red List:** Endangered
- ✦ **CITES:** Appendix I
- ✦ **Wildlife Protection Act 1972:** Schedule I

Threats

- ✦ Habitat destruction
- ✦ Pollution
- ✦ Bycatch
- ✦ Climate Change
- ✦ Hunting

Conservation Efforts

- ✦ **Project Dolphin (2021):** On Lines of project Tiger
- ✦ **National Dolphin Research Centre (2021):** India's and Asia's First; in Patna University (Bihar)
- ✦ **Dedicated Dolphin Sanctuary:**
 - ▣ Vikramshila sanctuary (Bihar) – 1991
 - ▣ Hastinapur sanctuary (UP) – Proposed



Read more: [Gangetic River Dolphin](#)

National Bank for Financing Infrastructure and Development

Recently, the Union Finance Minister chaired a meeting to evaluate the performance of **National Bank for Financing Infrastructure and Development (NaBFID)**,

- NaBFID, established by the Government of India in **April 2021**, is the nation's 5th **All India Financial Institution (AIFI)**, aimed at fostering long-term non-recourse infrastructure financing.
- NaBFID serves both developmental and financial objectives, facilitating credit flow and enhancing infrastructure finance accessibility.
 - It plays a pivotal role in advancing India's infrastructure sector by addressing financing gaps through innovative tools like **longer tenor loans, blended finance, and partial credit enhancement.**
- **The other 4 AIFIs in India are:**
 - **National Bank for Agriculture and Rural Development**

Note:

- [National Housing Bank \(NHB\)](#)
- [Small Industries Development Bank of India \(SIDBI\)](#)
- Export-Import Bank of India (EXIM Bank)

Read more: [National Bank for Financing Infrastructure and Development](#)

Electronic Data Interchange (EDI) Launched for North East

- Union Minister for Finance launched the **Electronic Data Interchange (EDI)** at **Land Customs Stations (LCS)** of the **North East Region (NER)** aiming to enhance **regional trade** and foster **economic growth** by making the movement of goods and customs clearances more efficient.
- The implementation of Electronic Data Interchange (EDI) is set to **empower trade community** members and stakeholders in **customs clearance** by reducing dwell time and costs in **cross-border trade**.
 - The export basket at these LCSs consists primarily of **minerals** and **agricultural produce**, whereas the import basket includes **processed food items, cement, and plastic products**.
- Digitizing these LCSs along the **India-Bangladesh** and **India-Myanmar** borders, established from 1948 onwards to boost trade and travel, complements the **Act East Policy**, enhancing market linkages and regional development through secure, paperless transactions and online payments.
 - The **Central Board of Indirect Taxes and Customs (CBIC)** has successfully enabled Electronic Data Interchange (EDI) at various LCSs along the Indo-Bangladesh and Indo-Myanmar borders, overcoming challenges posed by **remote locations** without **Optical Fibre** or Mobile Networks.

Read more: [Act East Policy](#)

Google Removes a Few Indian Apps from Play Store

Google has delisted a few popular **Indian apps** from its **Play Store**, citing non-compliance with its billing policies.

- The recent **Supreme Court of India** order declined to prevent Google from delisting apps from its Play Store, paving the way for app removal if they don't comply with Google's billing policy.

- The issue revolves around Google's requirement for **developers to pay fees for in-app purchases made by their customers**.
 - **In-app purchasing allows users to buy goods or services within a mobile app**. This includes **virtual items, premium features, subscriptions**, and more. Payments are made directly through the app, often using stored payment methods. It's a common way for app developers to **generate revenue**.
- Google adjusted its fees for in-app purchases in India, ranging from 11 to 26%, but the delisted companies failed to meet these revised terms.

Read more: [CCI Penalty on Google](#), [Google Unveils Project Gemini](#)

Successful Flight Tests of VSHORADS Missile by DRDO

Recently, the **Defence Research and Development Organization (DRDO)** conducted two successful flight tests of the **Very Short-Range Air Defence System (VSHORADS) missile**.

- These tests were carried out from a ground-based portable launcher off the **coast of Odisha** at the **Integrated Test Range, Chandipur**, and targeted high-speed unmanned aerial targets in various interception scenarios.
- VSHORADS, a **Man Portable Air Defence System (MANPAD)**, is an indigenous creation developed by the **Research Centre Imarat (RCI)** in collaboration with other DRDO laboratories and Indian industry partners.
- The missile incorporates advanced technologies such as a **miniaturized Reaction Control System (RCS)** and integrated **avionics**.
- Propelled by a **dual-thrust solid motor**, the missile is designed to **neutralize low-altitude aerial threats** at short ranges while ensuring easy portability due to highly optimized design.

Read more: [Very Short-Range Air Defence System](#)

Women Exporters in the Digital Economy (WEIDE) Fund

- The **World Trade Organization (WTO)** and the

Note:

International Trade Centre (ITC) launched a **USD 50 million Women Exporters in the Digital Economy (WEIDE) Fund** to assist women in accessing opportunities in **international trade and the digital economy**, coinciding with the **13th Ministerial Conference in Abu Dhabi, UAE**.

- The Women Exporters in the Digital Economy (WEIDE) Fund aims to assist **women-led businesses** and entrepreneurs in developing and least-developed countries to adopt **digital technologies** and enhance their online presence.
- The United Arab Emirates (UAE) has allocated **USD 5 million as the first donor to the fund**.
- The **WTO-ITC SheTrades Summit** convened over 250 women entrepreneurs from 60+ countries, along with business leaders and development partners, to **discuss solutions** and access new markets in a **green and digital trading system**, featuring masterclasses by experts.

Read more: [National and Global Efforts for Women's Equality](#)

Shri Morarji Desai Birth Anniversary

The Prime Minister paid tributes to [Shri Morarji Desai](#) on his birth anniversary.

- Born on **29th February 1896** in Bhadeli village, Gujarat. Graduated from Wilson Civil Service in Bombay and served as a **Deputy Collector for twelve years**.
- Morarji Desai was an Indian politician and activist who served as the **fourth Prime Minister of India from 1977 to 1979**.
 - The **Forty-fourth Amendment of the Constitution** of India was enacted during his tenure as Prime Minister.
- Morarji Desai joined Congress during the **Civil Disobedience Movement**. Imprisoned thrice and actively participated in **individual Satyagraha and Quit India Movement**.
 - He became **Chief Minister of Bombay in 1952** and also served as Minister for Commerce and Industry, then Finance Minister. **Resigned under the Kamraj Plan** and led the **Administrative Reforms Commission**. Became Prime Minister in 1977.

- Desai emphasised the importance of **improving the living standards of the poor and underprivileged**, enacted progressive legislation to help peasants and tenants, believed in the **rule of law for all**, and upheld truth as an article of faith.



Read more: [Morarji Desai](#)

Alliance for Global Good – Gender Equity and Equality

Recently, the Ministry of Women & Child Development, Government of India launched the logo and the website for the [Alliance for Global Good – Gender Equity and Equality](#).

- It marks a significant milestone in the global pursuit of gender equality. Launched in **Davos 2024 (54th annual World Economic Forum)**, it is a testament to India's unwavering commitment to the **cause of women-led development**.
 - The alliance aims to consolidate global best practices, foster knowledge exchange, and attract investments in women's health, education, and entrepreneurship, in line with various **Sustainable Development Goals (SDGs)**.
- It is being supported by influential partners like the **Bill & Melinda Gates Foundation** and anchored by institutions such as the **CII Centre for Women Leadership**

Read more: [Alliance for Global Good – Gender Equity and Equality](#)

Advancing Pregnancy Care with India-Specific AI Model

Researchers at the **Indian Institute of Technology Madras** and the **Translational Health Science and**

Note:

Technology Institute, Faridabad, have collaborated to develop an India-specific artificial intelligence model named **Garbhini-GA2**, tailored for accurately determining the **gestational age (GA) of foetus** in the second and third trimesters of pregnancy.

- GARBH-Ini GA-2 is based on **genetic algorithms**. A genetic algorithm is an optimisation technique inspired by evolution and natural selection principles.
 - In addition to aiding neonatal care, Garbhini-GA2 also contributes to precise epidemiological estimates.
 - It minimises the **margin of error** in accurately determining the **age of a foetus** within the Indian population by nearly threefold.
- This initiative is a part of the **GARBH-Ini programme**, addressing the critical need for precision in prenatal care.
 - The **GARBH-Ini** is a flagship programme of the Department of Biotechnology (DBT), Govt of India.
 - It advocates for the health of both mothers and children while also creating predictive tools for identifying **preterm birth** risks.
- Published in the **Lancet Regional Health Southeast Asia**, this research marks a significant stride towards improving pregnancy care in India.

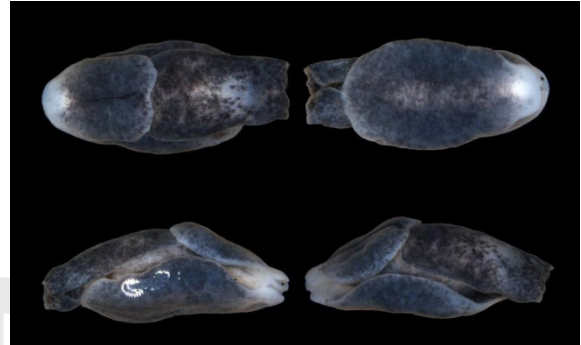
Read more: [Medical Termination of Pregnancy \(MTP\) Amendment Act, 2021](#)

Melanochlamys Droupadi

The **Zoological Survey of India (ZSI)** has named a new marine species **ofhead-shield sea slug with ruby red spot** which was discovered along the coasts of West Bengal and Odisha, after President Droupadi Murmu, named ***Melanochlamys droupadi***.

- Species of the genus *Melanochlamys* are characterised **morphologically by a short, blunt and cylindrical body** and a **smooth dorsal surface** with two dorsal equal or unequal shields, named the anterior cephalic and posterior shield.
- The species is small, brownish-black, with a ruby red spot at the hind end, and is a hermaphrodite.
- Reproduction of the species is observed between **November and January**.

- *Melanochlamys droupadi* **secrete transparent mucus, shielding them from sand grains** while crawling beneath smooth sand, making its body rarely visible.
- The ZSI states that while species in this group are **typically found in temperate regions of the Indo-Pacific Oceanic** realm, three species are truly tropical: ***Melanochlamys papillata*** from the Gulf of Thailand, ***Melanochlamys bengalensis*** from West Bengal and Odisha coast, and the ***Melanochlamys droupadi***.



Mission Utkarsh Against Anaemia

The **Ministry of Ayush** and the **Ministry of Women and Child Development** have partnered to enhance the nutrition of adolescent girls through **Ayurveda** interventions as a part of **Mission Utkarsh**.

- Under Mission Utkarsh, 15 central ministries or departments will work to elevate districts at the bottom, to state and national averages.
 - In the first phase, the focus may be on improving the anaemic status of adolescent girls (14-18 years) in five **aspirational districts** of five states namely **Assam (Dhubri), Chhattisgarh (Bastar), Jharkhand (Paschimi Singhbhum), Maharashtra (Gadchiroli), and Rajasthan (Dhaulpur)**.
- The objective is to combat anaemia and work towards achieving an **“Anaemia Mukh Bharat” (Anaemia Free India)**.
 - Anaemia is a medical condition characterised by a deficiency of red blood cells or haemoglobin in the blood, leading to reduced oxygen-carrying capacity

Note:



What causes anaemia?



Inherited red blood cells disorders



Deficiency of nutrients: Iron, vitA, folate, vitB12



Chronic diseases



Heavy menstruation and pregnancy-related issues



HIV



Parasitic infection



World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean

Read more: [Anaemia Mukht Bharat](#)

New Chairperson of Lokpal

Recently, former Supreme Court Justice Ajay Manikrao Khanwilkar was appointed as the chairperson of Lokpal. This came nearly two years after the post was vacant.

- The chairperson and members of the Lokpal are appointed by the President after obtaining the recommendations of a Selection Committee having the Prime Minister as its chairperson.
- Apart from a chairperson, the Lokpal can have eight members, four judicial and four non-judicial.

LOKPAL

It is a statutory body functioning as "Ombudsman" to investigate corruption allegations against specific public officials and related issues.

HISTORICAL BACKGROUND

World

- 1809: Institution of Ombudsman first created in Sweden

India

- 1963: Idea of ombudsman first came up in Parliament
- 1971: First Lokayukta established in Maharashtra
- 2011: Anna Hazare Movement for Lokpal

- 2013: Lokpal and Lokayuktas Bill, 2011 passed
- 2014: Lokpal and Lokayuktas Act, 2013 came into force and amended in 2016
- 2019: Justice (Retd) Pinaki Chandra Ghose as first Lokpal of India

Statutory Provision: Lokpal And Lokayuktas Act (2013)

Seeks to establish institution of Lokpal at Centre and Lokayukta at State

Jurisdiction

- Includes Prime Minister, Ministers, MPs and Groups A, B, C and D officers, officials of Central Govt
- Institutions financed fully or partly by Government
- Entities getting over ₹10 lakhs annually in foreign donations under FCRA

Power

- Authority to approve public servants' prosecution instead of government or relevant authority
- Power of superintendence and direction over any investigating agency, including CBI, for cases referred to them by Lokpal
- Incorporates provisions for attachment and confiscation of property of public servants acquired by corrupt means, even while prosecution pending

Punishment

- Enhances maximum punishment under Prevention of Corruption Act, 1988

Appointment

- Selection of Chairperson and members through Selection Committee (PM, Speaker-LS, Leader of largest opp. party, CJI or sitting SC Judge nominated by CJI and an eminent jurist nominated by President)
- Search Committee assists Selection Committee in process of selection

Structure

- Chairperson + maximum 8 members
- 50% Judicial members
- 50% from SCs, STs, OBCs, minorities and women

Term of office

- 5 yrs or until the age of 70 yrs

Drishti IAS

Read More: [Lokpal and Lokayukta](#)

Note:

Chromosomal Disorders from Prehistoric Skeletal Remains

Recently, the researchers have identified **chromosomal disorders** in prehistoric skeletal remains dating back approximately 5,500 years, shedding light on the presence of genetic conditions such as **Down syndrome and Edwards syndrome** in ancient populations.

- Individuals with chromosomal **trisomy carry three copies of a chromosome**, leading to conditions like **Down syndrome (trisomy 21)** and **Edwards syndrome (trisomy 18)**.
 - **Down syndrome** is a genetic condition that occurs when a person has an **extra copy of chromosome 21**. It's the most common chromosomal anomaly in humans and can cause intellectual disabilities and health issues.
 - **Edwards syndrome** is a genetic condition that occurs when a baby is born with **three copies of chromosome 18 instead of two**. It causes **physical growth delays** during fetal development.
- Some cases date back to ancient periods, including the **Bronze Age (about 2,700 BCE)** and the **Neolithic period (about 3,500 BCE)**.
 - In early Iron Age Spain (800-400 BCE), three cases of Down syndrome and one case of Edwards syndrome were detected, suggesting a **potentially higher frequency of trisomy carriers in those societies**.

Read more: [Genome Sequencing in India](#)



Note: