CSB IAS ACADEMY

The Road Map to Mussoorie…

PRELIMS_EDGE

CURRENT AFFAIRS

MAY, 2025

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Polity

RIGHT TO DIGITAL ACCESS

Context: The Supreme Court recently held the right to digital access to be a part of the Right to Life.

About Right to Digital Access:

- Giving its judgement in two petitions **(*Pragya Prasun v. Union of India* and *Amar Jain v. Union of India*)** on providing equitable access to digital services for differently abled individuals, the **Supreme Court held that the right to digital access is part of the right to life and liberty under Article 21** of the Indian Constitution.
- In the judgment, a bench of Justices J.B. Pardiwala and Justice R. Mahadevan also emphasised the **obligation of the State to design an inclusive digital ecosystem which is accessible to all**, including the marginalised and vulnerable persons.
- Since many welfare schemes and government services are provided through online platforms, the Court said that **bridging the digital divide has become a necessity to ensure a dignified life**.
- In this context, the **Court traced the right to access digital services to Article 21 of the Constitution**.
- The Court directed that all government portals, learning platforms, financial technology servies must be "universally accessible" to all vulnerable and marginalized sections.

CASTE CENSUS

Context: The Cabinet Committee on Political Affairs (CCPA) has approved the inclusion of caste enumeration in the census for the first time since India's independence.

Census in India:

- The regular decennial census exercise in India **began in 1881.**
- Census is used by the government, policymakers, academics, and others to capture the Indian population, access resources, map social change, and conduct delimitation exercises.
- It is conducted by the **Registrar General and Census Commissioner** of India, who functions under the Union **Ministry of Home Affairs.**

About Socio-Economic Caste Census:

- First conducted in: **1931**.
    - This aimed to collect info on the economic status of families, both in rural and urban areas, to identify indicators of deprivation.
- SECC is meant to identify about every family:

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  - **Economic status** → to allow the government to come up with indicators of deprivation meant to identify the poor for targeted schemes.
  - **Caste status** → to allow the government to re-evaluate which caste groups are economically backward.
- SECC allows for a mapping of inequalities at a broader level.

Census v. SECC:

- Census provides a general portrait of the Indian population, while SECC is used to **identify beneficiaries of state support**.
- Census data is **confidential** under the **Census Act of 1948**, while personal **information in SECC is open for use by government departments** to grant or restrict benefits to households.

History of Caste-based Data Collection in India:

- Caste-based data collection has a long history in India, with information on castes being **included up to 1931.**
- **Post 1951, the decision to stop collecting caste data** was made to move away from a divisive approach and promote national unity.
- However, with changing socio-political dynamics and the need for accurate data, there has been a calls for a caste census.
- Caste census or more precisely, **Socio Economic Caste Census**, was conducted for the **first time in independent India in 2011. However, the findings were never made public**.
  - The 2011 SECC was conducted by Ministry of Rural Development.
- The last published data for all castes was done in the 1931 census.

CIVIL DEFENCE ACT, 1968

Context: The Union Home Ministry directed all states and UTs to conduct a Civil Defence Mock Drill to assess and enhance the readiness of India's civil defence mechanisms.

About the Civil Defence Act, 1968:

- The **Civil Defence Act, 1968** was enacted to ensure measures for civil defence to protect citizens, properties, and establishments from hostile attacks or natural disasters.
- Civil defence refers to **efforts to protect civilians, infra, and essential services during emergencies**, especially in wartime or during natural or man-made disasters. It aims to prepare the population to respond to emergencies such as military attacks, terrorist activities, and natural calamities.
- It provides a **framework for the Union Home Ministry to conduct a Civil Defence Mock Drill,** and thereby assess and enhance the readiness of India's civil defence mechanisms.

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- The drill aims to **improve response time for rescue and relief operations**, focusing on critical situations in the first few minutes of an emergency.

Civil Defence Corps:

- **Civil Defence Corps is formed at both national and state levels**. Volunteers from various sectors are enlisted and trained. The corps operates under the Union Govt's rules for civil defence.
    - Though the Act is pan-India, **active civil defence units are raised only in tactically vulnerable areas** such as power plants, ports, military bases, dams, oil refineries, and major cities. They are **manned primarily by volunteers** from various professions, trained to assist in emergency response.
- Key functions include: Evacuation of civilians; Protection from danger and destruction; Salvage of property; Managing hazardous materials.
- The **Union Govt has the authority to make rules** for civil defence across India, **enforce evacuation procedures**, control over dangerous substances, and manage disaster relief, and **impose penalties for non-compliance** with the civil defence regulations.

Civil Defence Districts:

- Civil Defence Districts are **specially designated areas where civil defence programmes are actively implemented** under the Civil Defence Act, 1968.
- The Ministry of Home Affairs selects Civil Defence Districts based on strategic vulnerability:
    - **Proximity to Borders:** E.g., Punjab, Rajasthan, Gujarat, J&K
    - **Critical Infra:** Nuclear plants, military bases, ports, telecom hubs
    - **Urban Density & Civilian Risk:** Metro cities requiring evacuation planning
    - **Coastal Sensitivity:** Maritime security in states like Tamil Nadu, Kerala, West Bengal

COMPETITION COMMISSION OF INDIA

Context: The CCI has notified new definitions for various costs it will use to judge whether a price charged by a company for a product or service is predatory or not.

About the Competition Commission of India (CCI):

- CCI is a statutory body of the Government of India, established under the **Competition Act, 2002.**
- The **Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act) was repealed** and replaced by the Competition Act, 2002, on the

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recommendations of the **Raghavan committee.**

- The commission is a **quasi-judicial body** which gives opinions to statutory authorities and also deals with other cases.
- Headquarters: New Delhi.

Eligibility criteria of members of CCI:

- It consists of **one chairperson and six additional members.**
- The Chairperson and every Member shall be a person who, **has been, or is qualified to be a judge of a High Court**, or, has special **knowledge of, and professional experience of >15 years** in international trade, economics, business, commerce, law, finance, management, industry, public affairs, and administration.
- The Chairperson and other Members shall be **whole-time Members.**
- All members of the CCI are appointed by the Central Government.

Working of CCI:

- The goal of CCI is to create and sustain fair competition in the economy that will provide a 'level playing field' to the producers and make the markets work for the welfare of consumers.
- The priority of the Commission is to eliminate practices having adverse effects on competition, promote and sustain competition, protect the interests of consumers, and ensure freedom of trade in the markets of India.
- **Mandate:** To implement provisions of The Competition Act, 2002, which –
    - prohibits anti-competitive agreements and abuse of dominant position by enterprises;
    - regulates mergers and acquisitions (M&A), which can have an adverse effect on competition within India. Thus, deals beyond a certain threshold are required to get clearance from CCI.
    - Appeals from CCI lie to the **National Company Law Appellate Tribunal.**

Anti-trust laws, also known as competition laws, aim to prevent monopolies, promote fair competition & protect consumers from unfair business practices. They seek to restrict activities like price-fixing, monopolistic mergers, and practices that limit market competition – thus ensuring a level playing field for businesses.

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.

NATIONAL COMPANY LAW APPELLATE TRIBUNAL (NCLAT)

Context: The NCLAT has dismissed an insolvency plea against PepsiCo holdings after observing that IBC provisions cannot be turned into a debt-recovery proceeding.

About National Company Law Appellate Tribunal:

- It is a **quasi-judicial body** constituted **under Section 410 of**

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the Companies Act, 2013 for hearing appeals against the orders of the National Company Law Tribunal(s) (NCLT), with effect from 1st June 2016.

- It aims to expedite the resolution of corporate disputes and promote transparency and efficiency in the corporate governance and insolvency processes in India.

Functions:

- Hear appeals against the orders passed by the **NCLT(s)**under Section 61 of the Insolvency and Bankruptcy Code, 2016 (IBC).
- Hear appeals against the orders passed **by Insolvency and Bankruptcy Board of India (IBBI)** under Sections 202 and 211 of the IBC.
- To hear and dispose of appeals against any direction issued, or decision made, or order passed by the **Competition Commission of India (CCI)**.
- It is also the Appellate Tribunal to hear and dispose of appeals against the orders of the **National Financial Reporting Authority**.
- It also enjoys advisory jurisdiction when a legal issue has been referred to it by the President of India for opinions and advice.

HQ: New Delhi.

Composition:

- It is composed of a **chairperson and judicial and technical members**.
- These members are **appointed by the Central Government** based on their expertise and experience in relevant fields such as law, finance, accountancy, management, and administration.

Disposing of cases:

- On the receipt of an appeal from an aggrieved person, the NCLAT would pass such orders, after giving an opportunity of being heard, as it considers fit, confirming, changing, or setting aside the order that is appealed against.
- The Appellate Tribunal is required to dispose of the appeal **within a period of six months** from the date of the receipt of the appeal.
- Its decisions **can be appealed to the Supreme Court**.

Powers:

- It has the authority to **regulate its own procedures** and has powers similar to those vested in a civil court under the Code of Civil Procedure, 1908.
- These powers include summoning and examining witnesses, requiring the production of documents, receiving evidence on affidavits, issuing commissions, and more.
- Any order made by the NCLAT can be enforced in the same manner as a decree made by a court in a suit.
- There shall be **no jurisdiction of a civil court to hear any suit or proceeding to any matter which the NCLAT has been authorised to determine** by or under the Companies Act, 2013, or any other law for the time being in force.
- No injunction shall be granted by any Court or other authority in respect of any action that is taken or that ought to be taken by the NCLAT in pursuance of any power conferred on

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it by or under this Act or any other law for the time being in force.

NATIONAL COMMISSION FOR WOMEN

Context: The National Commission for Women (NCW) on Friday (May 16, 2025) launched the 'Campus Calling' programme, an initiative that aims to enhance gender sensitivity, raise awareness on the prevention of sexual harassment, and address cybercrimes impacting students.

About National Commission for Women:

- The National Commission for Women (NCW) is an autonomous and statutory body established in 1992 under the National Commission for Women Act, 1990, to protect and promote women's rights in India.
- It is responsible for reviewing and addressing issues related to the rights of women and for making recommendations for the protection and promotion of these rights.
- As per Section 3 of the National Commission for Women Act 1990, the Commission shall consist of a **Chairperson, 5 members and a Member Secretary** who are nominated by the Central government.
- At least one Member shall be from amongst persons belonging to the Scheduled Castes and Scheduled Tribes, respectively.
- **Term:** The Chairperson and every Member shall hold office for a period of **three years**.
- **Removal:** The Central Government may by order remove the Chairperson or any other Member from office if the Chairperson or any other member:
- Is adjudged insolvent.
- Engages during his term of office in any paid employment outside the duties of his office.
- Refuses to act or becomes incapable of acting.
- Is of unsound mind and stands so declared by a competent court.
- Has so abused his office as to render continuance in office detrimental to the public interest.
- Is convicted and sentenced to imprisonment for an offense which in the opinion of the Central Government, involves moral turpitude.

Functions:

- **Investigate and examine** all matters relating to the **safeguards provided for women** under the Constitution and other laws.
- **Present to the Central Government annually reports** upon the working of these safeguards.
- Make **recommendations for the effective implementation of those safeguards** for improving the conditions of women by the union or any state.
- Review the existing provisions of the Constitution and other laws affecting women and recommend amendments thereto so as to suggest

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remedial legislative measures to meet any lacunae, inadequacies, or shortcomings in such legislations.

- Take up cases of violation of the provisions of the Constitution and of other laws relating to women with the appropriate authorities.
- Look into **complaints and take suo moto notice of matters relating to the deprivation of women's rights** and non-implementation of laws enacted to provide protection to women.
- Undertake promotional and educational research.
- Participate and advise on the **planning process of socio-economic development** of women.

In keeping with its mandate, the Commission initiated various steps to improve the status of women and worked for their economic empowerment:

- The Commission completed its visits to all the States/UTs and prepared **'Gender Profiles'** to assess the status of women and their empowerment.
- It received a large number of complaints and acted suo-moto in several cases to provide speedy justice.
- It took up the issue of child marriage and sponsored legal awareness programmes, **Parivarik Mahila Lok Adalats**, and reviewed laws such as **Dowry Prohibition Act 1961**, Pre Conception and Pre-Natal Diagnostic Techniques Act 1994, Indian Penal Code 1860, and the National Commission for Women Act 1990 to make them more stringent and effective.
- The Commission has proposed amendments to the Hindu Marriage Act 1955, Medical Termination of Pregnancy Act 1971, and the Indian Penal Code 1960, etc.
- It organized workshops, constituted expert committees on economic empowerment of women, conducted seminars for gender awareness, and took up publicity campaigns against female foeticide, violence against women.
- NCW has established a **"J&K and Ladakh Cell"** to address women's complaints and promote their development in all areas within these newly-formed UTs, due to the unique challenges faced by women there.
- Most recently, it launched the **'Campus Calling' programme**, an initiative that aims to enhance gender sensitivity, raise awareness on the prevention of sexual harassment, and address cybercrimes impacting students.

UNION PUBLIC SERVICE COMMISSION

Context: Former defence secretary Dr. Ajay Kumar was recently appointed as the new Chairman of the Union Public Service Commission.

About Union Public Service Commission:

- The UPSC is a **constitutional body** established under Articles 315 to 323 of the Indian Constitution.

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- It was initially formed on October 1, 1926, and **acquired constitutional status on January 26, 1950**.
- **Article 315** provides for the **establishment of a Public Service Commission for the Union and for each State.**

Composition and Appointment:

- The UPSC comprises a **chairman and other members**, whose **number is determined by the President of India**.
- Members are **appointed by the President**, and **at least half of them must have held office under the Government for at least 10 years**.
- The Chairman and members hold office for a **term of 6 years** or until they attain the age of **65 years**, whichever is earlier.

Resignation and Removal Provisions:

- A UPSC member or Chairman may **resign by writing to the President of India**.
- They may be removed by the President on specific grounds mentioned in the Constitution.
- In case of **'misbehavior'**, the President must refer the matter to the **Supreme Court for inquiry**.
- If the Supreme Court upholds the charges, the President can remove the individual based on its advice.

Post-Tenure Employment Restrictions:

- The UPSC Chairman is **not eligible for any further employment** in the Government of India or any State.
- Members (excluding Chairman) may be appointed as:
    - Chairman of the UPSC, or
    - Chairman of a State Public Service Commission,
- But they are not eligible for any other office of profit under the Government.
- The Chairman or any member **cannot be reappointed for a second term**.

Duties and Powers of UPSC:

- The UPSC is India's central recruitment agency, responsible for conducting:
    - Civil Services Examination (CSE),
    - Engineering Services Examination (ESE),
    - Combined Medical Services (CMS), and others.
- It **advises the President and Governors on matters related to:** Appointments, transfers, disciplinary actions, and Framing recruitment rules and procedures.

PANCHAYAT ADVANCEMENT INDEX

Context: The Panchayat Advancement Index is an important data source for evidence-based decision making at the Panchayat level.

About Panchayat Advancement Index:

- Panchayat Advancement Index is a composite index designed to **assess the performance and progress of Gram Panchayats (GPs)** across India using socio-economic indicators, identifies development gaps, and supports evidence-based planning.
- It is published by the **Ministry of Panchayati Raj**.

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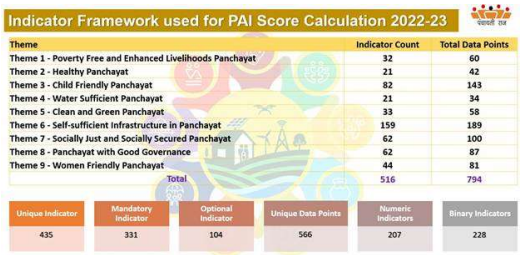
- It aligns with the **Localization of Sustainable Development Goals (LSDGs)** and the National Indicator Framework (NIF) developed by the Ministry of Statistics and Programme Implementation (MoSPI).
- It reflects India's commitment to the SDG 2030 Agenda by promoting participatory, bottom-up governance, assessing GPs development through socio-economic indicators, identifying gaps, and enabling evidence-based planning.

Purpose of Panchayat Advancement Index:

- Measure incremental progress on LSDGs using scores of GP over years
- Grading of Panchayats based on performance in achieving LSDGs
- Evidence Based Assessment and Planning – Prioritizing Development
- Better method for incentivization on developmental progress
    - PAI Data being used for incentivization by MoPR
    - States can also adopt the same system for incentivization of Panchayats
- No Inter-State comparison but States can compare GPs on
    - LSDG thematic scores on each theme
    - Composite PAI scores
- **Indicators of the PAI:** It is based on 435 unique local indicators across 9 LSDG-aligned themes.
- It is designed to provide a multi-domain and multi-sectoral assessment of Panchayat-level development.



Theme	Indicator Count	Total Data Points
Theme 1 - Poverty Free and Enhanced Livelihoods Panchayat	32	60
Theme 2 - Healthy Panchayat	21	42
Theme 3 - Child Friendly Panchayat	82	143
Theme 4 - Water Sufficient Panchayat	21	34
Theme 5 - Clean and Green Panchayat	33	58
Theme 6 - Self-sufficient Infrastructure in Panchayat	159	189
Theme 7 - Socially Just and Socially Secured Panchayat	62	100
Theme 8 - Panchayat with Good Governance	62	87
Theme 9 - Women Friendly Panchayat	44	81
Total	516	794

Unique Indicator	Mandatory Indicator	Optional Indicator	Unique Data Points	Numeric Indicators	Binary Indicators
435	331	104	566	207	228

- **Data Collection and Validation:** Over 2.16 lakh GPs from 29 States/Union territories (UTs) have entered data on the PAI Portal. Data entries are validated by respective States/UTs before inclusion.
- **Performance Categories of GPs:** Based on their PAI and thematic scores, GPs are classified into **five performance categories:** Achiever (90+), Front Runner (75–89.99), Performer (60–74.99), Aspirant (40–59.99), and Beginners (below 40).
- **PAI data for 2022-23:** Out of 2.56 lakh GPs, 2.16 lakh submitted validated data.
- **No Panchayat qualified as an Achiever**, while 0.3% were classified as Front Runners, 35.8% as Performers, 61.2% as Aspirants, and 2.7% as Beginners.

ZERO FIR

Context: The e-Zero FIR initiative has been launched on a pilot basis in Delhi.

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About Zero FIR:

- The **First Information Report (FIR)** is information recorded by a police officer on duty given either by the aggrieved person or any other person to the commission of an alleged offence.
- Zero FIR refers to a First Investigation Report (FIR) that is **registered irrespective of the area where the offense is committed**.
- The police in such a case can no longer claim that they have no jurisdiction.
- It is **later transferred to the police station that has the actual jurisdiction** so that the investigation can begin.
- It was **introduced on the recommendation of the Justice Verma Committee** formed at the backdrop of the brutal Nirbhaya gang rape in Delhi in 2012.
- This puts a legal obligation on the police to begin an investigation and take quick action without the excuse of the absence of jurisdiction.
- **Objective:** It is to ensure the victim doesn't have to run from pillar to post to get a police complaint registered. The provision is meant to provide speedy redressal to the victim so that timely action can be taken after the filing of the FIR.
- The **Indian Cybercrime Coordination Centre (I4C)** has introduced a new system that automatically **converts financial cybercrime complaints with a fraud value above ₹10 lakh**, and registered on the 1930 helpline or cybercrime.gov.in portal, **into First Information Reports (FIRs)**. The newly introduced process involves the integration of I4C's National Cybercrime Reporting Portal (NCRP) system, the Delhi Police's e-FIR system, and the National Crime Record Bureau's Crime and Criminal Tracking Network and Systems.

THE PLACES OF WORSHIP ACT, 1991

Context: The Allahabad HC upheld an order for surveying the Jama Masjid in Sambhal, Uttar Pradesh – and has led to debates about the need for the Places of Worship Act.

About the Places of Worship Act, 1991:

- It was enacted to freeze the status of religious places of worship as they existed on August 15, 1947.
- It **prohibits the conversion of any place of worship to any other religion** and ensures the maintenance of their religious character.
- It prevents the conversion of a place of worship, whether in full or part, from one religious' denomination to another or within the same denomination.
- Declares that any ongoing legal proceedings concerning the conversion of a place of worship's religious character before August 15,

1947, will be terminated, and **no new cases can be initiated**.

- It **does not apply to historical monuments**, archaeological sites, and remains covered by Ancient Monuments and Archaeological Sites and Remains Act, 1958.
- It also **excludes cases that have already been settled or resolved** and disputes that have been resolved by mutual agreement or conversions before the Act was enacted.
- It establishes **strict penalties for violations**, including imprisonment of up to three years and fines for attempting to change the religious character of a place of worship.
- In May 2022, the Supreme Court noted that **inquiries can be allowed into the religious character of places of worship, as long as such inquiries don't lead to a change in the religious character.**
    - The Allahabad High Court has taken the view that the **Act does not define "religious character".** A structure cannot have the dual character of being both Hindu and Muslim, and that only an examination of evidence can determine its religious character. Hence, the court has held that **the Act cannot be an absolute bar on proceedings to ascertain its religious character.**
- The Supreme Court views the Act as a legislative intervention that upholds the commitment to secularism, which is part of the basic structure of the Constitution.
- The Act enforces the **constitutional obligation of the State to ensure equality among all religions**. It guarantees the preservation of places of worship for every religious community.
- The Act also specifically excluded from its application, the specific site of the Ram Janmabhoomi-Babri Masjid dispute in Ayodhya.

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International Relations

National Security Advisory Board

Context: The government has revamped the National Security Advisory Board (NSAB), with former RAW chief Alok Joshi appointed Chairman.

About National Security Advisory Board:

- The National Security Advisory Board was **constituted in December 1998**, as an **advisory body of eminent persons outside the government** to render advice on national security issues referred to it by the National Security Council (NSC).
- It consists of **16 members** and includes people of diverse domains including industry, media and civil society.
- The **principal function** of the National Security Advisory Board is to undertake long term analysis and provide perspectives on national security issues to the National Security Council.
- It also recommends measures/solutions and policy options on the issues referred to it by the National Security Council.
- The **NSC Secretariat** assists the NSC, NSAB and the Strategic Policy group.

National Security Council

- ✓ The NSC was **established in 1998** by the government of then **Prime Minister Atal Bihari Vajpayee** following **nuclear tests by India and Pakistan**.
- ✓ It was recommended by the **K.C. Pant Task Force** of 1998.
- ✓ It is the **apex body for national security management** in India.
- ✓ Prior to the formation of the NSC, the functions related to national security were carried out by the **Principal Secretary to the Prime Minister**.
- ✓ It operates under a **three-tier structure** i.e. **Strategic Policy Group (SPG), National Security Advisory Board (NSAB) and National Security Council Secretariat (NSCS)**.

Strategic Policy Group (SPG):

- ✓ The SPG is chaired by the **Cabinet Secretary**, consisting of serving senior officials responsible for policy-making and for follow up action in matters concerning national security.
- ✓ It includes the **Chiefs of the Armed Forces, the Intelligence Bureau and the Research and Analysis Wing (R&AW).** Its main task is to **make policy recommendations to the NSC**.

National Security Council Secretariat (NSCS): It is overseen by

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the Prime Minister, operates with **NSA as its secretary**.

Members:

- ✓ The NSC is **headed by the Prime Minister** of India.
- ✓ The **National Security Advisor** acts as the **secretary of the NSC** and also as the primary advisor to the prime minister.
- ✓ The headquarters of the NSC is located in New Delhi.
- ✓ Besides the NSA, it includes **Deputy NSA and additional NSA**, Ministers of **Defence, External Affairs, Home Affairs, and Finance** of the Government of India, and the **Vice Chairman of the NITI Aayog** (National Institution for Transforming India).

GAVI VACCINE ALLIANCE

Context: WHO, UNICEF and Gavi have warned that vaccine preventable diseases might be on the rise as vaccine schedules are being missed.

About Gavi:

- It is an independent **public-private partnership** that was **created in 2000** to **improve access to new and underused vaccines** for children living in the world's poorest countries.
- Based in **Geneva, Switzerland**, Gavi brings together public and private sectors with the shared goal of creating **equal access to vaccines for children**, wherever they live.
- It brings together **developing country and donor governments**, the **World Health Organization, UNICEF, the World Bank**, the vaccine industry, research and technical agencies, civil society organizations, and private philanthropists.
- Gavi's main activities include supporting low- and middle-income countries' access to new and underused vaccines for vulnerable children through **financial support, technical expertise, and market-shaping efforts**, such as negotiating with manufacturers, to help lower the cost of procuring vaccines.
- By bringing the key stakeholders in global immunization together around one mission, Gavi combines the technical expertise of the development community with the business know-how of the private sector.
- Since its beginnings, Gavi has **vaccinated more than 1.1 billion children** and saved an estimated 18.8 million lives (2023 figures).
- Gavi was **one of the organizations leading COVAX**, a **multilateral effort that**

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supported the equitable development, procurement, and delivery of COVID-19 vaccines globally that began in 2020 and ended in 2023.

UNITED NATIONS CHILDREN'S FUND (UNICEF)

Context: WHO, UNICEF and Gavi have warned that vaccine preventable diseases might be on the rise as vaccine schedules are being missed.

About UNICEF:

- The **United Nations International Children's Emergency Fund (UNICEF)** was established in **1946**, in the aftermath of World War II.
- **Mandate:** To help children and young people whose lives and futures were at risk.
- It works in **over 190 countries and territories** to protect the rights of every child.
- **Funding:** UNICEF's work is funded entirely through the **voluntary support of millions of people around the world** and our partners in government, civil society and the private sector.
- **Awards:** It has received the **Nobel Peace Prize in 1965**, the **Indira Gandhi Prize in 1989**, and the **Princess of Asturias Award** in 2006.
- Publishes **The State of the World's Children** report
- **Global Initiatives:**
    - In 2012, UNICEF worked with **Save the Children and The United Nations Global Compact** to develop the **Children's Rights and Business Principles**, and now these guidelines form the basis of UNICEF's advice to companies.
    - UNICEF's **Data Must Speak Initiative (DMS)** help countries unlock existing data to expand access to education and improve learning for all.
- **Headquarters:** New York City.

The Big Catch-Up Initiative

- It was launched **in response to the COVID 19 pandemic** by the **WHO, UNICEF, Bill & Melinda Gates Foundation** along with **Immunization Agenda 2030** and many other global and national health partners, a targeted global effort to boost vaccination.
- It aims to **protect populations from vaccine-preventable outbreaks** like -measles, diphtheria, polio and yellow fever - and save children's lives and

strengthen national health systems.

- The initiative will pay **special attention to the 20 countries** — Afghanistan, Angola, Brazil, Cameroon, Chad, DPRK, DRC, Ethiopia, **India**, Indonesia, Nigeria, Pakistan, Philippines, Somalia, Madagascar, Mexico, Mozambique, Myanmar, Tanzania and Vietnam which are **home to a majority of the children who have missed their vaccine doses**.

FINANCIAL ACTION TASK FORCE (FATF)

Context: An Indian response to Pakistani terror could involve the use of international forums such as the Financial Action Task Force (FATF) to reign in terrorism.

About Financial Action Task Force (FATF):

- FATF is an **intergovernmental policy-making and standard-setting body** dedicated to **combating money laundering and terrorist financing**.
- FATF develops and promotes policies across various countries and jurisdictions.

Origin:

- It was **established in 1989** during the **G7 Summit in Paris** in response to a growing concern about money laundering.
- In **2001**, its **mandate expanded to include terrorism financing**.
- **Headquarters:** Paris, France.

Members:

- To become a member, a country must be considered **strategically important** (large population, large GDP, developed banking and insurance sector, etc.), must **adhere to globally accepted financial standards**, and be a **participant in other important international organizations**.
- FATF members include **39 countries**, including the **United States, India, China, Saudi Arabia, Britain, Germany, France, and the EU** as such.
- In addition, **more than 180 countries worldwide are affiliated** with the FATF through a network of FATF-style regional bodies (FSRBs).
- **India** became a member of FATF **in 2010**.
- India is also a member of **two FATF Style Regional Bodies (FSRBs)** -Asia Pacific Group (APG) and Eurasian Group of Combating Money Laundering and Financing of Terrorism (EAG).
- The FATF researches how money is laundered and terrorism is

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funded, promotes global standards to mitigate the risks, and assesses whether countries are taking effective action.

- FATF regularly publishes reports that raise awareness about the latest money laundering, terrorist financing, and proliferation financing techniques so that countries and the private sector can take the necessary steps to mitigate these risks.
- The FATF recommendations are recognized as the **global anti-money laundering (AML) and counter-terrorist financing (CFT) standard**.
    - The **40+9 recommendations** are important standards used to combat money laundering (ML) and terrorist financing (TF) given by the FATF.
- Once a member, a country or organization must endorse and support the most recent FATF recommendations, commit to being evaluated by (and evaluating) other members.
- The FATF holds countries to account that do not comply with the FATF Standards.
- If a country repeatedly fails to implement FATF Standards, then it can be named a **Jurisdiction under Increased Monitoring or a High-Risk Jurisdiction**. These are often externally referred to as **"the grey and black lists"**.
    - **Black List:** Countries known as **Non-Cooperative Countries or Territories (NCCTs)** are put on the blacklist.
    - These countries support terror funding and money laundering activities. The FATF revises the blacklist regularly, adding or deleting entries.
    - **Grey List:** Countries that are considered a **safe haven for supporting terror funding and money laundering** are put on the FATF grey list. This inclusion serves as a **warning to the country** that it may enter the blacklist.
- Three countries-**North Korea, Iran, and Myanmar**, are currently on FATF's blacklist.
- Consequences of being on the FATF blacklist:
    - **No financial aid** is given to them by the International Monetary Fund (IMF), the World Bank, the Asian Development Bank (ADB), and the European Union (EU).
    - They also face a number of international economic and financial restrictions and sanctions.

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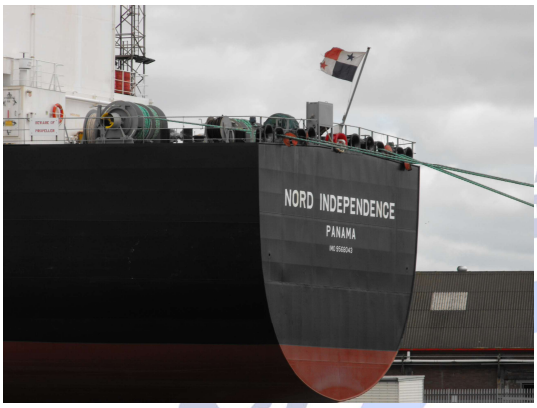
FLAGGING OF SHIPS

Context: As part of India's response to Pakistan following the Pahalgam terror attacks last month, the Directorate General of Shipping (DGS) on Saturday (May 3) banned the entry of ships bearing Pakistan flags to India.



About Flagging of Ships:

- Ships legally plying in international waters function under the flag of one or the other country.
- Flags on ships foremost **show which country the vessel has been registered with**, rather than the owner or the crew's nationality.
- As the **International Maritime Organization (IMO)** says, "By linking a ship to a State, the **system of ship registration indicates that that State has the right to protect that ship** in international law."
- This identification becomes necessary also because **ships move through international waters**, which are **not under the jurisdiction of any state**.
- It further gives **protection to the members of the crew** in case of casualties involving injuries and/or loss of life to claim compensation under the provisions of the law of the flag country.
- Under the framework of international law, all countries need to fix the conditions for granting their nationality to ships and the right to fly their flag.
- However, there is currently **no common, binding framework for the registration process**.

Can any ship fly any country's flag?

- The 1982 United Nations Convention on Law of the Sea (UNCLOS) is the global treaty on maritime activity.
- It states that a 'genuine link' must exist between the state and the ship registered with it, but there is no definition of such a link.
- Some countries only register vessels with ties to the country through ownership or crewing **("closed registries")**.
- Other countries allow foreign-owned or controlled vessels to use their flag through an **"open registry"**.
- Still others choose not to allow the use of their flag for international trade at all.

Flag of convenience

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Flagging a ship can mean a vessel has access to **state-specific tax breaks, certification, and security measures**. This is known as the **flag of convenience**, where ships choose states that offer the most benefits.

- Most merchant ships are registered in only a handful of countries, with the top eight flag states for 2023 listed as Panama, Liberia, the Marshall Islands, Hong Kong, Singapore, China, Malta, and the Bahamas.

UNSC 1267 COMMITTEE

Context: The Sanctions Committee of the UN Security Council has been in the news since the recent tensions between India and Pakistan due to cross-border terrorism.

Creation of the Committee:

- **Article 41 of the UN Charter** gives the Security Council the authority to use a variety of measures to enforce its decisions.
- The Council **regularly creates subsidiary organs** to support or implement these measures.
- By **Resolution 1267 (1999), the UN Security Council estd. a Committee to oversee implementation of targeted sanctions** measures against designated individuals, entities and aircraft that were owned, controlled, leased or operated by terrorists.
- The Committee is **supported by Groups of Experts** or other mechanisms to monitor implementation of sanctions.
- The "**1267 list of terrorists"** is a global list, with a UNSC stamp.

Sanctions Committee of UNSC:

- Each sanctions regime is administered by a **sanctions committee that consists of all 15 members** (5 permanent and 10 non-permanent) of the UNSC.
- These sanctions committees ensure the implementation of the sanctions and can **decide by consensus** to adopt targeted sanctions against specific individuals, enterprises or entities.

Procedure of Listing:

- Any member state can submit a proposal for listing an individual, group, or entity.
- The proposal must include acts or activities indicating the proposed individual/group/entity had participated "in the **financing, planning, facilitating, preparing, or perpetrating of acts or activities**" linked to terrorism.

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- **Decisions on listing and de-listing are adopted by consensus**. The proposal is sent to all the members, and if no member objects within five working days, the proposal is adopted.
- An **"objection" means end of the proposal**. Any member may also **put a "technical hold"** on the proposal and ask for more information from the proposing state. During this time, other members may also place holds.
- The matter remains on the **"pending" list of the Committee** until such time as the member state that has placed the hold decides to turn its decision into an approval or an objection.
- Pending issues must be **resolved in 6 months,** but the member state that has placed the hold **may ask for an additional 3 months**. After this period, if an objection is not placed, the matter is considered approved.

INTERNATIONAL MARITIME ORGANIZATION

Context: The 83rd session of the IMO's Marine Environment Protection Committee took place recently.

About International Maritime Organization (IMO):

- It is a **United Nations (UN) specialized agency** with responsibility for the **safety and security of shipping** and the **prevention of marine and atmospheric pollution** by ships.
- It has an integral role in meeting the targets set out in **UN Sustainable Development Goal (SDG) 14:** Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
- The IMO sets policies for international shipping and sets regulations on safety, security, and environmental best practices.
- The IMO is not responsible for enforcing its policies; **when a government accepts an IMO policy, that policy becomes a national law** that is the government's responsibility to enforce.
- It is also involved in legal matters, including **liability and compensation issues** and the facilitation of international maritime traffic.

Formation:

- It was **established as the Inter-Governmental Maritime Consultative Organization (IMCO)** in 1948, **became a specialized agency of the United Nations in 1959**, and was renamed the International Maritime Organization in 1982.

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- It currently has **174 member states**.

Structure:

- **Assembly:** It is the **highest governing body** of the IMO. It consists of all Member States, and it **meets once every two years in regular sessions**.
    - The Assembly is responsible for approving the work program, voting the budget, and electing the Council.
- **Council:** It is the **Executive Organ of the IMO** and is responsible, under the Assembly, for supervising the work of the Organization.
- **Committees:** The five policy-making committees are responsible for the development, review, updating, and approval of the organization's guidelines and regulations.
- **Funding** for the IMO comes from **contributions by member states**, as well as voluntary donations and commercial activities.
- **Headquarters:** London.

INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS (MARPOL CONVENTION)

Context: Discussions on maritime emissions reduction have been ongoing under the 83rd session of the IMO's Marine Environment Protection Committee bringing into focus the relevance of the MARPOL convention.

About Marpol Convention:

- MARPOL is the main international convention **aimed at the prevention of pollution from ships caused by operational or accidental causes**.
- The **Protocol of 1978** was adopted in response to a number of tanker accidents in 1976–1977.
- It is one of the most important international marine environmental conventions.
- It was **developed by the IMO** with an objective to minimize pollution of the oceans and seas, including dumping, oil and air pollution.
- The Convention includes regulations aimed at preventing and minimizing pollution from ships – both accidental pollution and that from routine operations – and currently includes **six technical Annexes**.
- **India is a signatory** to MARPOL.
- It has six annexes (I to VI) and it deals with prevention of:
    1. Pollution from ships by Oil,

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2. Noxious liquid substances,
3. Dangerous goods in packaged form,
4. Sewage,
5. Garbage and
6. Air pollution from ships respectively.

OVERSEAS CITIZEN OF INDIA

Context: British academic Nitasha Kaul has stated that the Indian government had cancelled her OCI registration for indulging in anti-India activities.

About Overseas Citizen of India:

- The Overseas Citizen of India (OCI) scheme was **introduced in August 2005** which provides for **registration of all Persons of Indian Origin (PIOs)** who were citizens of India on January 26, 1950, or thereafter, or were eligible to become citizens of India on the said date.
- An applicant is not eligible to get an OCI card **if his/her parents or grandparents have ever been a citizen of Pakistan or Bangladesh**.
- **Foreign military personnel** either in service or retired are also not entitled for grant of OCI.
- However, the **spouse of foreign origin of a citizen of India** or spouse of foreign origin of an OCI, whose marriage has been registered and subsisted for not less than two years, **can apply for an OCI card**.

Advantages of OCI card holders:

- An OCI card holder — essentially a foreign passport holder — gets a **multiple entry, multi-purpose life-long visa** for visiting India, and is **exempt from registration with local police authority for any length of stay** in the country.
- The OCI card holder is:
  - Not entitled to vote; to be a member of a Legislative Assembly or of a Legislative Council or of Parliament; to hold Indian constitutional posts such as that of the President, Vice President, Judge of the Supreme Court or High Court.
  - He or she **cannot normally hold**

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employment in the government.

Latest rules regarding OCIs:

- On March 4, 2021, the Ministry of Home Affairs issued a gazette notification amending the rules regarding OCI card holders.
- These rules **required OCI card holders to seek permission or a permit to visit protected areas** in India.
- The same restrictions apply to foreign nationals visiting Jammu & Kashmir and Arunachal Pradesh.
- They need to secure a **special permit to undertake "any research", to undertake any "missionary" or "Tablighi" or "journalistic activities"** or to visit any area in India notified as "protected", "restricted" or "prohibited".
- They are at par with "foreign nationals" in respect of "all other economic, financial and educational fields" for the purposes of the **Foreign Exchange Management Act, 2003** although past circulars by the Reserve Bank of India under FEMA continue to hold ground.

SHANGRI LA DIALOGUE

Context: The Chief of Defence Staff (CDS) General Anil Chauhan will visit Singapore to attend the 22nd edition of the Shangri La Dialogue.

About Shangri La Dialogue:

- It is Asia's **premier defence and security summit** that brings together defence ministers, military chiefs, policymakers and strategic experts across the globe.
- Since its birth in 2002, it has developed into the most influential multilateral security exchange platform in the Asia-Pacific region.
- It is held in **June every year** in Singapore's Shangri-La Hotel.
- It is **organized by the International Institute for Strategic Studies (IISS)** in London, UK, and co-organized by Singapore's Ministry of Defence.
- The agenda of the Shangri-La Dialogue is closely related to the security situation and development trend in the Asia-Pacific region, covering traditional and non-traditional security and other fields.

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  - These include traditional security issues such as territorial disputes and military cooperation, as well as non-traditional security issues such as terrorism, cybersecurity, and climate change.
  - Such agenda setting enables the dialogue to fully reflect the security challenges and cooperation needs of the Asia-Pacific region.

- Around the above issues, **Shangri-La Dialogue is divided into two forms: open general assembly exchanges and closed-door group meetings**.
  - **Open exchanges** at the conference allow delegates to make speeches and discuss issues of common interest, enhancing mutual understanding and trust.

Closed-door breakout sessions are more in-depth and specific, allowing participants to discuss and negotiate on a topic in depth and seek cooperation and solutions.

INTERNATIONAL EMERGENCY ECONOMIC POWERS ACT (IEEPA)

Context: The Court of International Trade in the US says the IEEPA does not confer unbounded authority on the US President to impose tariffs.

About International Emergency Economic Powers Act:

- It is a United States act which was legislated on 28 October 1977.
- It **gives the president broad powers to regulate various financial transactions** upon declaring a national emergency.
- The IEEPA empowers the US president to proclaim an **unusual and exceptional threat to the federal security, foreign policy, and economy** of the United States that originates in whole or in considerable part outside the United States.
- It also empowers the president to **restrict transactions and freeze assets** in response to such a statement.
- In the case of an actual attack on the United States, the president has the authority to seize property associated with a nation, group, or individual that assisted in the attack.

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- In addition, because the IEEPA is governed by the terms of the **National Emergencies Act (NEA)**, an emergency proclaimed under the Act must be **renewed annually** in order to stay in existence.
- IEEPA is a treaty that extends executive power over crises during times of peace.
- The IEEPA empowers the president to respond to uncommon and extraordinary risks to national security by altering the United States' economic policy.
- The IEEPA serves as the **governing authority for much of the US sanctions regime**.
- The US Congress initially passed IEEPA in an attempt to restrict the emergency economic powers granted to the president under the **Trading with the Enemy Act**, a 1917 law that gave the president expansive authority to regulate international transactions during wartime.
- President Richard M. Nixon used the precursor statute to briefly impose a 10 percent universal tariff in 1971.
- **No president has previously used IEEPA to put tariffs on imported goods**.

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Economy

Fair and Remunerative Price (FRP)

Context: The Cabinet Committee on Economic Affairs has approved fair and remunerative price for sugarcane for the 2025-26 season at 355 rupees.

About Fair and Remunerative Price:

- It is the price declared by the government, which **mills are legally bound to pay to farmers for the cane procured from them**.
- The FRP is fixed by the **Union government (Cabinet Committee on Economic Affairs (CCEA)** on the basis of recommendations of the **Commission for Agricultural Costs and Prices (CACP)**.
- The payment of FRP across the country is governed by the **Sugarcane (Control) Order, 1966** which mandates **payment within 14 days of the date of delivery** of the cane.
- Mills have the option of signing an agreement with farmers, which would allow them to pay the FRP in installments.
- Delays in payment can attract an **interest up to 15% per annum**, and the **sugar commissioner can recover unpaid FRP as dues in revenue recovery** by attaching properties of the mills.
- The amended provisions of the **Sugarcane (Control) Order, 1966** provides for fixation of FRP of sugarcane having regard to the following factors: -
    - cost of production of sugarcane
    - return to the growers from alternative crops and the general trend of prices of agricultural commodities
    - availability of sugar to consumers at a fair price
    - price at which sugar produced from sugarcane is sold by sugar producers;
    - recovery of sugar from sugarcane;
    - the realization made from sale of by-products viz. molasses, bagasse and press mud or their imputed value
    - reasonable margins for the growers of sugarcane on account of risk and profits.

One State-One RRB

Context: The 4th phase of Regional Rural Bank (RRB) consolidation under the 'One State-One RRB' (OS-OR) plan has been rolled out in 10 states and 1 UT, further shrinking the number of RRBs in India.

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About One State-One RRB (OS-OR):

- OS-OR Policy is a reform initiative by the **Department of Financial Services** aimed at consolidating multiple RRBs within a state into a single entity.
- The **consolidation of RRBs began in 2005**, following recommendations of the **Dr. Vyas Committee (2001),** which was constituted by the RBI.
- **Phases of Consolidation:** Implemented under **Section 23 A of the RRB Act, 1976**, which allows mergers in the public interest.
    - **Phase 1 (FY 2006 – FY 2010):** RRBs sponsored by same bank in a state were amalgamated. RRBs reduced from 196 to 82.
    - **Phase 2 (FY 2013– FY 2015):** RRBs across different sponsor banks within a state were amalgamated. RRBs were reduced from 82 to 56.
    - **Phase 3 (FY 2019– FY 2021):** Focused on the OS-OR principle, reducing RRBs in larger states and consolidating them into 43 smaller ones.
    - **Phase 4 (FY 2025 Onwards):** Under OS-OR, the consolidation of RRBs has reduced the total number from 43 to 28.
- Each **restructured RRB will have an authorized capital of Rs 2,000 crore,** providing a stronger base for credit expansion in their respective states.
- **Impact of OS-OR Policy:**
    - The **number of RRBs dropped from 196 in 2005 to 28 in 2025,** improving profitability, capital, asset quality, and business.
    - In FY 2023–24, **RRBs recorded their highest-ever net profit of Rs 7,571 crore.** The OS-OR model will further support inclusive rural development and boost the rural economy.

Regional Rural Bank (RRB):

- RRBs were established in 1975 after the recommendations of the **Narasimham Committee on Rural Credit** (1975), and formalised under the **RRB Act, 1976.**
- Their aim is to **strengthen the rural economy by providing credit and other banking services** to small and marginal farmers, agri-labourers, artisans, and small entrepreneurs in rural and semi-urban areas.
- The **first RRB was Prathama Bank** in Moradabad, Uttar Pradesh.
- The ownership of RRBs is shared among the **Govt of India (50%), the State Govt (15%), and the sponsor bank (35%).**
- RRBs are **regulated by the RBI under the Banking Regulation Act, 1949**, and supervised by NABARD. For taxation, they are treated as **cooperative societies under the Income Tax Act, 1961.**

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- RBI has set an enhanced target for RRBs to **lend 75% of their Adjusted Net Bank Credit (ANBC)** to the Priority Sector Lending (PSL). This is in contrast to the 40% target for commercial banks.

Nipah Virus

- Nipah virus infection is a **zoonotic illness** that is transmitted via animals to humans. It is caused by an R**NA virus of the family Paramyxoviridae,** genus Henipavirus, and is **closely related to Hendra virus.**
- It first broke out in Malaysia and Singapore in 1998 and 1999.
- The disease **spreads through fruit bats or 'flying foxes,'** of the genus Pteropus, who are natural reservoir hosts of Nipah and Hendra viruses.
    - The virus is present in bat urine and potentially, bat faeces, saliva, etc.
- Typically, the infection presents as an **encephalitic syndrome (brain inflammation)** marked by fever, headache, drowsiness, disorientation, coma, and potentially death
- There is **no definitive treatment** for the virus. And currently, there are **no vaccines** for both humans & animals.

Indo-Pacific Logistics Network (IPLN)

- Recently, the **Quad nations** gathered at the Asia-Pacific Centre for Security Studies in Honolulu, Hawaii, to launch the **Quad Indo-Pacific Logistics Network (IPLN).**
- IPLN is a multilateral initiative aimed at establishing a coordinated logistics framework to **support civilian-led disaster response across the Indo-Pacific region.** It is designed to ensure the swift and efficient deployment of humanitarian assistance.
- IPLN enhances regional preparedness through **shared infrastructure and interoperable systems.**
- Participating Countries: **India, United States, Japan, and Australia**
- The initiative aligns with broader efforts such as the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) and the Quad Pandemic Preparedness Workshop.

INS Tamal

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- The Indian Navy is set to receive advanced **stealth warship INS Tamal from Russia.**
- It was built as a part of the **2016 Indo-Russian deal,** with two ships built in Russia and two in India.
- INS Tamal is the 2nd Russian-built frigate in this batch, **following INS Tushil** (commissioned Dec 2024).
- It is an **upgraded Krivak III-class frigate of Project 11356.**
    - Project 11356 (Talwar Class) is an **India-Russia Joint Venture** for the production of **stealth-guided missile frigates.**
- The ship incorporates the latest stealth tech to reduce radar visibility and underwater noise signatures. The ship is equipped with up to **26% Indian-made components.**

Advanced Features:

- **Precision Strikes**: Speeds up to 30 knots and a range of 3,000 km per mission.
- **Anti-Submarine Weapons:** Equipped with torpedoes and rocket systems like BrahMos missile.
- **Helicopter Deployment:** Can operate a multi-role helicopter for enhanced surveillance and combat.
- **Stealth Design:** Built to evade radar, improving survivability in modern naval warfare.

UN Forum on Forests (UNFF20)

- India participated in the **20th session of the United Nations Forum on Forests (UNFF20)** held at the UN Headquarters, New York, reaffirming its commitment to the **United Nations Strategic Plan for Forests (UNSPF) 2017–2030**.
- **UNFF was established in 2000** by the UN Economic and Social Council (ECOSOC). It aims to promote sustainable forest management and global forest policy coordination.
- It holds a**nnual sessions at UN Headquarters**: Technical discussions in odd years and Policy-level dialogues in even years
- It has **universal membership** — includes all UN Member States and relevant forest-related agencies.
- **India is a founding member** and plays an active role in shaping forest policies.
- The UN Strategic Plan for Forests (UNSPF) is the guiding framework for achieving global forest goals by 2030.

Key Highlights of UNFF20:

- India reaffirmed its commitment to **Voluntary National Contributions (VNCs) under UNSPF** (2017–2030).
- It reported an **increase in forest and tree cover** to 25.17% of its geographical area.
- National efforts included the **Aravalli Green Wall,** a 7.86% rise in **mangrove cover**, 1.55 lakh hectares afforested under the **Green India Mission**, and 1.4 billion seedlings planted under the **Ek Ped Maa Ke Naam campaign**.
- India invited countries to join the **International Big Cat Alliance (IBCA)** for big cat conservation.

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- It urged support for outcomes of the **Country-Led Initiative (CLI) on forest fire management held in Dehradun** (2023).

RBI SURPLUS TRANSFER

Context: There have been reports that the RBI may transfer a record ₹2.5 to ₹3 lakh crore as surplus to the Union Government for FY 2024–25.

About RBI Surplus Transfer:

- The RBI **transfers its net profit—i.e., total income minus expenditure—to the Union Govt,** after making necessary provisions.
- This is done in accordance with the **Economic Capital Framework** (ECF) of the RBI.
- The ECF provides a method for determining risk provisions and profit distribution under **Section 47 of the RBI Act, 1934**. This requires RBI to pay profits to the Union Govt. It was recommended by the Expert Committee headed by Bimal Jalan.
- After making provisions for: **Bad and doubtful debts, Depreciation in assets, Staff benefits and superannuation, and other routine banking contingencies** – the RBI must transfer the remaining surplus.

RBI Sources of Income:

- **Interest from foreign assets** like bonds, treasury bills, and deposits with other central banks.
- **Interest on domestic securities**, mainly government bonds.
- **Short-term lending** to banks (e.g., repo operations).
- **Commission for managing borrowings** of Union and State govts.
- **Service charges** for managing the currency and payment systems.

Key Expenditures of RBI:

- **Printing of currency notes**.
- Staff **salaries** and retirement benefits.
- **Commission to banks and primary dealers** involved in public debt transactions.

Recommendations of the Bimal Jalan-led panel (all were accepted by the RBI):

- The **total economic capital** should be maintained between 20.8% to 25.4% of the RBI's balance sheet.
- **Contingency Risk Buffer (CRB):** Maintain within **5.5%-6.5%** of the RBI's balance sheet. The CRB is the country's savings for a financial stability crisis, which has been maintained with the RBI in view of its role as Lender of Last Resort.
- **Review Frequency:** Review ECF every five years, or sooner if risks change significantly.
- **Interim Dividend:** Remove the interim payout structure, restricting it to extraordinary circumstances.

How is the RBI Surplus Transfer Amount Decided ?

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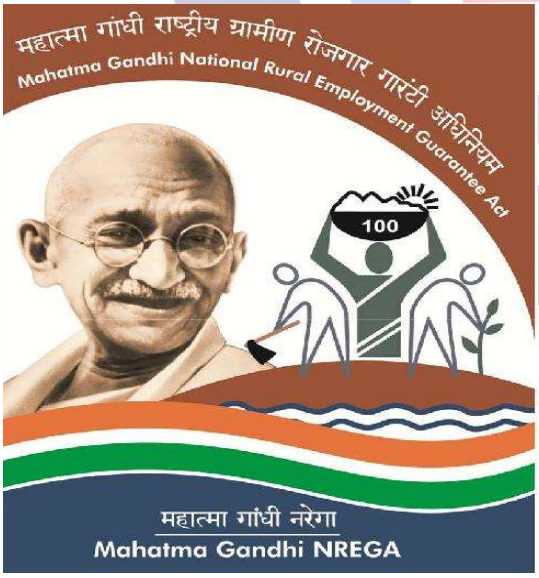
- It is based on ECF adopted in 2019, following the recommendations of the Bimal Jalan Committee.
- CRB is maintained within 5.5%–6.5% of the RBI's balance sheet.
- **Surplus = Income – Expenditure – Risk Provisions**
- **After accounting for operational expenses and CRB provisioning, the remaining balance is the transferable** surplus. It is approved by RBI Central Board and the decision is taken in the Board meeting post financial year-end (July–June).

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

Context: A review of the Mahatma Gandhi National Rural Employment Guarantee Scheme for the financial year 2024-25 reveals that while the coverage has increased, the delivery of promised employment has gone down.



About MGNREGA:

- MGNREGA is one of the **largest work guarantee programmes** in the world launched in 2005 by the **Ministry of Rural development**.
- It provides a legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manual work at the statutory minimum wage.
- **Active workers:** 14.32 Crore (2023-24)

Major Features:

- The cornerstone of MGNREGA's design is its **legal guarantee**, ensuring that any rural adult can request work and **must receive it within 15 days**.
- If this commitment is not met, an **"unemployment allowance"** must be provided.
- It requires that priority shall be given to women in such a way that **at least one-third of the beneficiaries shall be women** who have registered and requested for work.
- Section 17 of the MGNREGA has mandated **social audit** of all Works executed under the MGNREGA.

Implementation Agency: Ministry of Rural Development

Objective:

- This act was introduced with an aim of improving the Purchasing Power of the rural people, primarily semi or unskilled work to people living below poverty line in rural India.
- It attempts to bridge the gap between the rich and poor in the country.

Achievements of 2022-23:

- 11.37 crore households availed employment.

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- 289.24 crore person-days employment has been generated out of which:
  - 56.19% were for women
  - 19.75% were for Scheduled Castes (SCs)
  - 17.47% were for Scheduled Tribes (STs).

Initiatives under MGNREGS:

- ✓ **Amrit Sarovar:** Construction/ renovation of at least 75 Amrit Sarovars (ponds) in each district of the country; they will help in increasing the availability of water, both on surface and under-ground.
- ✓ **Jaldoot App:** It was launched in Sept 2022 for measuring the water level in a Gram Panchayat through 2-3 selected open wells twice a year.

Ombudsperson for MGNREGS: Ombudsperson App was launched in Feb 2022 for smooth reporting and categorization of grievances received from various sources related to the implementation of the MGNREGS

ALTERNATIVE INVESTMENT FUNDS

Context: Recently, the Reserve Bank of India (RBI) released revised draft directions regarding investments made by Regulated Entities (REs) in Alternative Investment Funds (AIFs).

About Alternative Investment Funds:

- AIFs are **privately pooled investment vehicles** established in India that collect capital from sophisticated Indian and foreign investors.
- These are **regulated by SEBI** under the SEBI (Alternative Investment Funds) Regulations, 2012.
- AIFs can be formed as **LLPs, companies, trusts, or other permissible entities**.
- Unlike mutual funds, they invest in a **wide range of asset classes** and are usually preferred by High Net-Worth Individuals (HNIs) and institutional investors.

Categories of AIFs:

Category	Details
Category I AIFs	• Invest in start-ups, SMEs, social ventures, infrastructure, and economically desirable sectors. • Examples: Venture Capital Funds, Angel Funds, SME Funds, Social Venture Funds, etc.
Category II AIFs	• Cannot undertake leverage, except for operational needs. • Examples: Private Equity Funds, Debt Funds, Real Estate Funds, Distressed Asset Funds.
Category III AIFs	• Employ diverse or complex trading strategies and may use

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	leverage (including derivatives). • Examples: Hedge Funds, PIPE Funds. • These can be open-ended or close-ended, while Category I and II AIFs are close-ended with a minimum 3-year tenure.

Regulated Entities:

- Regulated Entities (REs) are institutions that operate under the supervision of financial regulators like RBI, SEBI, IRDAI, etc.
- They are responsible for:
  - Maintaining financial stability,
  - Ensuring compliance with regulations,
  - Preventing financial crimes such as fraud and money laundering.
- Examples include Scheduled Commercial Banks, NBFCs, Insurance Repositories, etc.

INDEX OF CORE INDUSTRIES

Context: Output level in core sectors grew reached an eight-month low of 0.5% in April 2025, a slowdown from 4.6% recorded in March 2025.

About Core Industries in India:

- The core sector in India comprises **eight key industries**.
- Growth rate of core sector is a **crucial indicator of the overall health of the Indian economy**. A strong growth rate in the core sector often signals a positive economic outlook.
- The **Index of Eight Core Industries (ICI)** is prepared every month and released by the **Dept. for Promotion of Industry & Internal Trade (DPIIT),** Ministry of Commerce & Industry.
- ICI comprises various components that collectively reflect performance and vitality of India's industrial sector. These components include:
  - **Coal production,** excluding Coking coal.
  - **Electricity** from thermal, nuclear, and hydro sources & imports from Bhutan.
  - Total **crude oil** production.
  - **Cement production** in both large plants and mini plants.
  - Total production of **natural gas.**
  - Production of **alloy and non-alloy steel**.
  - Total **refinery production.**
  - **Fertiliser:** Production of urea, ammonium sulphate, calcium

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ammonium nitrate, single superphosphate, among others.

- The current weightage in ICI is Refinery Products (28.04%) > Electricity (19.85%) > Steel (17.92%) > Coal (10.33%) > Crude Oil (8.98%) > Natural Gas (6.88%) > Cement (5.37%) > Fertiliser (2.63%).
- Choice of base year of ICI is according to the choice of **base year for the Index of Industrial Production (IIP).** The base year in the current series of ICI and IIP is **2011-12.**
- IIP helps in measuring the growth rates in different industry groups of the economy in a fixed period.
    - It is a composite index that shows short-term changes in production volume of a basket of industries compared to a chosen base period.
- ICI comprises **40.27% of the weight of items included in the IIP.**

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Art & Culture

INTERNATIONAL BOOKER PRIZE

Context: Kannada writer and activist Banu Mushtaq along with translator Deepa Bhasthi win the 2025 International Booker Prize.

About International Booker Prize:

- The International Booker Prize is **awarded annually for a single fiction book translated into English** and published in the UK or Ireland.
- **Award:** The £50,000 prize money is **divided equally between the author and the translator**.
- It was **originally a biennial prize**, began in 2005 as the **Man Booker International Prize**.
- Originally there was no stipulation that the work awarded should be written in a language other than English.
- In 2015, after the rules of the original Booker Prize expanded to allow writers of any nationality to enter - as long as their books were written in English and published in the UK - the International Prize evolved to become the mirror image of the English-language prize.
- In 2019, the Man Booker International Prize was renamed the International Booker Prize.
- **Novels and collections of short stories** are both eligible.
- **1st Indian citizen winner:** Author Geetanjali Shree for her Hindi novel Tomb of Sand (2022).
- **2025 winner:** Banu Mushtaq and Deepa Bhasthi (translator) for Heart Lamp.

Booker Prize

- ✓ The Booker Prize was first awarded in **1969**. to **P.H. Newby** for his novel "Something to Answer For".
- ✓ It is awarded for **fiction written in English** (not the translated one) and published in the UK and Ireland.
- ✓ Until 2014, **only novels written by Commonwealth, Irish, and South African citizens** were eligible to receive the prize. Later, it was expanded to all nationalities.
- ✓ **Important winners:**
  - 1st Indian origin winner – VS Naipaul
  - 1st Indian citizen winner – Arundhati Roy.

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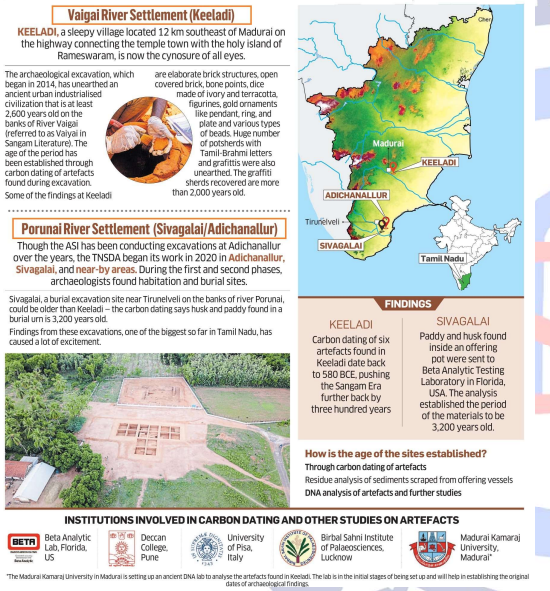
- Later other Indian citizens such as Arvind Adiga and Kiran Desai have won the award.

KEEZHADI ARCHAEOLOGICAL SITE

Context: The Archaeological Survey of India (ASI) has asked Amarnath Ramakrishna, the archaeologist who led the Keezhadi excavations, to resubmit his excavation report after revisions.



About Keezhadi:

- The Keezhadi excavation site is located **near Madurai in Tamil Nadu**, along the **Vaigai River**.
- It is a major **urban Sangam-era settlement**, estimated to date between the **5th century BCE and the 3rd century CE**.
- It represents one of the most significant archaeological findings in Tamil Nadu since the Adichanallur site.
- Excavations reveal an **urban, literate, and craft-oriented society**, suggesting **early urbanisation in South India independent of North Indian influences**.

Sangam period

- The term **'Sangam'** is derived from the Sanskrit word 'Sangha', meaning an assembly or association, and refers to **Tamil literary academies under the Pandya kings**.
- Sangam literature provides vital insights into ancient Tamil society, covering aspects like governance, economy, trade, war, social life, and agriculture.
- **Key texts** include:
  - Tolkappiyam (oldest Tamil grammar),
  - Pattupattu (Ten Idylls),
  - Ettutogai (Eight Anthologies),
  - Padinenkilkanakku (Eighteen Minor Works),
  - The three great epics (Silappadikaram, Manimekalai, and Civaka Cintamani).

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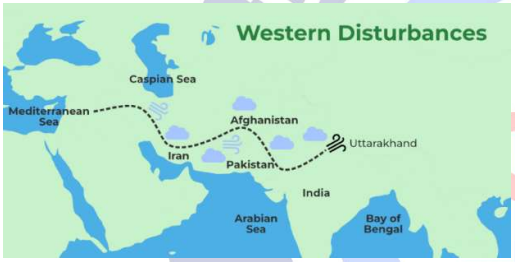
Environment

Western Disturbances

- Western Disturbances are eastward-moving, extra-tropical weather systems that bring sudden winter rainfall to the northwestern parts of the Indian subcontinent.
- These disturbances originate beyond Iran and Afghanistan and travel across these countries, as well as Pakistan, before reaching India.



Origin and Characteristics:

- They are driven by low-pressure systems that form due to the interaction of polar and tropical air masses.
- These systems pick up moisture from the Mediterranean Sea, Black Sea, Caspian Sea, and occasionally the Arabian Sea.
- They are embedded in the Subtropical Westerly Jet Stream (STWJ), which flows from west to east at high altitudes over the Himalayas and Tibetan Plateau.
- **Seasonal occurrence**: Most active during the boreal winter months (December to March), but can also affect weather patterns during the pre-monsoon and post-monsoon periods.
- **Geographical impact**:
    - Affect weather in northwestern India, northern Pakistan, parts of Afghanistan, and Tajikistan.
    - In India, they bring winter rainfall to states like Punjab, Haryana, Rajasthan, Himachal Pradesh, Uttarakhand, and parts of Uttar Pradesh.
    - Often responsible for snowfall in the Himalayas and cold wave conditions in the plains.

Importance for Agriculture:

- Beneficial for Rabi crops, especially wheat, by providing much-needed winter rainfall.
- However, excessive rainfall or untimely storms can damage standing crops and disrupt normal life

Natural Hydrogen

- Hydrogen is considered the fuel of the future due to its potential to decarbonise the global economy and reduce greenhouse gas emissions significantly.
- Natural hydrogen, also known as white hydrogen, refers to naturally

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occurring molecular hydrogen in the Earth's crust, unlike industrially produced hydrogen.

- It is generated through geological processes, primarily:
    - **Serpentinization** – a reaction between water and iron-rich rocks.
    - **Radiolysis** – breakdown of water molecules by radioactive rocks.
    - Decomposition of organic matter in deep geological formations.

Importance

- Natural hydrogen is a clean energy source that, if harvested sustainably, can significantly reduce carbon emissions.
- It can provide a low-cost and low-emission alternative to conventional hydrogen sources like grey hydrogen (from natural gas) and green hydrogen (from renewable electricity).
- The cost of natural hydrogen extraction may fall to around $1/kg or less, which is lower than current green hydrogen production costs.
- Natural hydrogen is typically associated with tectonically active regions, ultramafic and basaltic rocks, ophiolite complexes, and hydrothermal systems.
- In India, potential-rich regions include:
    - Cratonic belts (e.g., Dharwar, Singhbhum)
    - Sedimentary basins (e.g., Vindhyan, Cuddapah, Gondwana, Chhattisgarh)
    - Ophiolitic zones in the Andaman Islands and Himalayas.
    - Basement rock fracture zones and hot springs.

Palamu Tiger Reserve

- It is located in the western part of the Chotanagpur plateau and is spread over two districts, viz, Latehar and Garhwa in Jharkhand.
- The reserve forms a part of the Betla National Park.
- This tiger reserve has a total area of 1,014 sq.km. with a core area of 414 sq.km. and a buffer area of 600 sq.km.
- It is one of the first 9 tiger reserves created in the country at the inception of 'Project Tiger'.
- It is the first reserve in the world in which a tiger census was carried out as a pugmark count, as early as 1932 under the supervision of J.W. Nicholson.
- The terrain is undulating with valleys, hills and plains.
- Three rivers namely North Koyal, Auranga and Burha flow through the valleys.
- The area is drought prone with Burha being the only perennial river.

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- The geological formation consists of gneiss and includes granite and limestone.
- The area is very rich in minerals like Bauxite and Coal.

Flora:

- The vegetation in Palamau region comprises **moist deciduous and dry deciduous** forests to include **Sal and bamboo as the major components.**
    - The western part of the Reserve is composed of dry deciduous forests and the other part shows characters of moist mixed deciduous nature.
    - The entire area has a **good distribution of bamboo thatches.**
    - The herbarium recently prepared by the Tiger Reserve authorities records a good number of **medicinal plants.**
- **Fauna**: Some keystone and principal species found in the reserve include **Tiger, Asiatic Elephant, Leopard, Grey wolf, Wild dog,** Gaur, Sloth bear and four horned antelope.

Anamalai Tiger Reserve

- It is a protected area located at an altitude of 1400 m in the **Anamalai Hills** of Pollachi and Coimbatore District of Tamil Nadu.
- It lies south of the Palakkad gap in the Southern Western Ghats.
- It is surrounded by the **Parambikulum Tiger Reserve on the east, Chinnar Wildlife Sanctuary, and Eravikulum National Park** on the southwestern side.
- The reserve is also surrounded by the Nenmara, Vazhachal, Malayattur, and Marayur reserved forests of Kerala.
- It was declared a tiger reserve in the year 2007.

Habitat:

- It supports diverse habitat types, viz. Wet evergreen forests, semi-evergreen forests, moist deciduous, dry deciduous, dry thorn, and shola forests.
- Other unique habitats like **montane grasslands, savannah and marshy grasslands** are also present.

Flora:

- Around 2500 species of angiosperms are found in the Anamalai Tiger Reserve, with several species of Balsam, Crotalaria, Orchids, and Kurinchi.

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- The reserve is rich in wild relatives of cultivated species like mango, jackfruit, wild plantain, ginger (Zingiber officinale), turmeric, pepper (Piper longum), cardamom, etc.

Fauna:

- The important wild animals of the reserve include: **Tiger, Asiatic elephant, Sambar, Spotted deer, Barking deer, Jackal, Leopard, Jungle cat**, etc.

Leopard

- **Poachers are now targeting leopards more often because strict protection laws make tigers harder to hunt**, while leopards are easier to find and less protected, making them a common substitute for tiger body parts in the international market.
- In March 2024, the **5th cycle leopard population estimation** was done by **National Tiger Conservation Authority & Wildlife Institute of India**, in collaboration with states.
- India's leopard population is roughly around **13,874 individuals.** This is a **1.08% per annum growth since 2018.**
- **Highest concentration of leopards:** Nagarjunasagar Srisailam Tiger Reserve (AP); Panna National Park (MP); Satpura National Park (MP)
- **State-wise Distribution:** Madhya Pradesh (3907); Maharashtra (1985); Karnataka (1,879).
- **Leopards are nocturnal** animals which means they hunt by night. It **feeds on smaller species of herbivores** found in its range, such as the chital, hog deer, and wild boar.

Conservation Status:

- IUCN Red List: Vulnerable
- CITES: Appendix I
- Wildlife (Protection) Act, 1972: Schedule I

Operation Olivia

- Operation Olivia is an annual conservation mission by the **Indian Coast Guard**, started in the 1980s.
- It aims to **protect Olive Ridley turtles during their nesting season and birth (arribada),**

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from November to May of each year.

- The operation **focuses on Odisha's coast**, especially Gahirmatha Beach, Devi River mouth, and Rushikulya River mouth. Over 8 lakh turtles arrive annually at these sites to nest.
- The Coast Guard has conducted more than 5,387 surface patrols and 1,768 aerial missions since the 1980s.
- Fishermen are encouraged to use **Turtle Excluder Devices (TEDs)** that allow turtles to escape fishing nets.

Olive Ridley Turtles:

- ✓ Appearance: Named for their **olive-green shell, or carapace.**
- ✓ Diet: They are **omnivores**, though feeding mainly on jellyfish, crustaceans, and molluscs.
- ✓ Nesting Behaviour: Known for **Arribada**, a phenomenon where thousands of females come ashore simultaneously to lay eggs.
- ✓ Habitat Range: Found in warm waters of the **Pacific, Atlantic, and Indian Oceans.**
- ✓ **Protection Status:**
  - IUCN Red List: **Vulnerable**.
  - CITES: **Appendix I**, banning its international trade.
  - Wildlife Protection Act, 1972: Listed under **Schedule I**

KUNMING MONTREAL GLOBAL BIODIVERSITY FRAMEWORK

Context: An editorial in today's edition of The Hindu.

About the Kunming-Montreal Global Biodiversity Framework (KMGBF):

- The KMGBF was adopted at the 15th Conference of Parties (COP) to the **United Nations Convention on Biological Diversity** (UNCBD).
- GBF includes **4 goals and 23 targets** for achievement by 2030. It is **not legally binding.**

Key Targets under KMGBF:

- **30x30 Deal:** Restore 30% degraded ecosystems globally (on land and sea) by 2030 and conserve and manage 30% areas (terrestrial, inland water, and coastal and marine) by 2030
- Stop the extinction of known species, and **by 2050 reduce**

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tenfold the extinction risk and rate of all species (including unknown).

- **Reduce risk from pesticides** by at least 50% by 2030
- **Reduce nutrients lost to the environment** by at least 50% by 2030
- **Reduce pollution risks** and negative impacts of pollution from all sources by 2030 to levels that are not harmful to biodiversity and ecosystems.
- **Reduce global footprint of consumption** by 2030, including through significantly reducing overconsumption and waste generation and halving food waste.
- Sustainably manage areas under agriculture, aquaculture, fisheries, and forestry and substantially **increase agroecology and other biodiversity-friendly practices.**
- Tackle climate change through nature-based solutions.
- Reduce the rate of introduction and establishment of **invasive alien species** by at least 50% by 2030.
- Secure the **safe, legal and sustainable use and trade of wild species** by 2030
- Green up urban spaces.

About the UNCBD

✓ It is a **legally binding treaty** to conserve biodiversity that has been in force since **1993** and has been ratified by 196 nations.

✓ It sets out guidelines for countries to **protect biodiversity**, ensure **sustainable use**, and promote fair and equitable **benefit sharing.**

✓ The CBD Secretariat is based in Montreal, Canada.

✓ In 2000, a supplementary agreement to the UNCBD, the **Cartagena Protocol on Biosafety** was adopted. It seeks to protect biological diversity from the potential **risks posed by living modified organisms** resulting from modern biotechnology.

✓ The **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits** from their Utilization (ABS) was adopted in 2010 in Nagoya, Japan. It applies to genetic resources, the benefits arising from their utilization & traditional knowledge.

✓ In **2010**, parties to the UNCBD also adopted a **ten-year framework** for action by all countries to save biodiversity collectively known as the **Aichi Targets for biodiversity.**

✓ India enacted the **Biological Diversity Act in 2002** for giving effect to the provisions of the CBD.

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Science & Technology

Effects of Human Spaceflight on the Body

Context: A recent study by IIST, Thiruvananthapuram has examined the effects of microgravity on thermoregulation of the human body.

About the effects of spaceflight on the human body:

- Space begins at the **Karman line, 100 km above sea level**, where gravity significantly weakens but does not disappear.
- This microgravity environment affects various bodily functions, leading to several health issues for astronauts.

Major effects:

- **Bones:** In microgravity, **bones weaken** due to the **lack of weight-bearing activities**, which may cause the body to deposit excess minerals in the kidneys, leading to **kidney stones**.
- **Digestion:** The digestive system slows down, potentially leading to weight gain.
- **Eyes:** Spaceflight-associated neuro-ocular syndrome (SANS) is a condition affecting eyesight, caused by fluid accumulation in the head.
- **Heart and Muscles:** The heart **may shrink** due to reduced workload, and **muscle mass can decrease**, leading to overall weakness.
- **Blood and Brain:** The body loses more red blood cells, requiring dietary adjustments. The brain works harder to maintain balance and orientation due to altered signals from the body in microgravity.

How can these effects be countered?

- **Countermeasures and Research:**
  - Space agencies have implemented strict exercise regimes and predictable routines to help mitigate these effects.
  - Researchers are also exploring the impact of different nutrients and drugs in space, as well as developing new technologies and protocols to monitor and manage health issues.
- **Japan's KAKENHI programme** is studying biological responses to various parts of the space environment.
- **Europe's Space Omics Topical Team** is developing space omics tools and methods.

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- In the U.S., the **'Complement of Integrated Protocols for Human Exploration Research'** project allows astronauts to sign up for experiments in space that will study their health in standardized ways.
- Scientists from around the world, including India, are part of the **International Standards for Space Omics Processing** to develop research and ethics guidelines.

GENOME EDITED RICE VARIETIES

Context: Union Agriculture and Farmers Welfare Minister has announced the development of two genome-edited rice varieties, marking a new beginning in the field of scientific research and innovation.

About Genome-Edited Rice Varieties

- **Developed by: ICAR** – Indian Agricultural Research Institute (**IARI**), New Delhi and the **Indian Rice Research Institute** (**IRRI**), Hyderabad
- They are **world's first genome-edited rice varieties**, named as – **DRR Rice 100 (Kamla)** and **Pusa DST Rice 1.**

About DRR Dhan 100 Kamala

- It was developed by **ICAR-IIRR, Hyderabad**, based on **Samba Mahsuri (BPT 5204).**
- **Objective:** Its objective is to **increase the number of grains per panicle** (450 to 500 more grains) and it matures **20 days earlier (~130 days).**
    - The yield is **almost 25% more**, which is about **eight tonnes more per hectare**.
- Due to its **shorter duration**, it helps **save water and fertilizers** and **reduces methane** gas emissions.
- Its **stalk is strong** and does **not fall**.
- The rice **quality is similar** to the original variety, **Samba Mahsuri**.

About Pusa DST Rice 1

- It was developed from **MTU1010** and is a '**salinity tension tolerant**'
- When cultivated under areas that have **national average of salinity**, the new variety produced **66% additional yield than MTU1010**.
- Similarly, in **alkaline conditions**, the new variety gave **66% more yield** than its original and under '**salinity tension'** conditions; the yield of the new variety **was 30.36%.**

Technique involved

- These new varieties were developed using **genome-**

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editing technology based on **CRISPR-Cas**, which makes **precise changes** in the organism's genetic material **without adding foreign DNA**.

Not a GM Crop

- Current genome technology involves **using living organisms from native crop species** (known as SDN 1 and SDN2 types of genome editing) to enhance productivity and achieve desired results, **rather than incorporating alien organisms** or **bacteria**.
- The two new varieties **incorporate no foreign DNA**, so they are **not** genetically modified (GM).
- Hence, these varieties are **exempt from the biosafety regulations** outlined in Rules 7-11 of the **1986 Environment (Protection) Act.**

Background

- **National Agricultural Science Fund:** In 2018, ICAR initiated **genome-editing research** to improve **two** major rice varieties – Samba Mahsuri and MTU 1010 – under the **National Agricultural Science Fund.**
- In the **2023-24 budget**, the Government of India allocated **₹500 crores** for genome editing in agricultural crops.
- ICAR has initiated **mega genome editing projects** for **horticulture crops, animals, fish, and microbes.**

THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

Context: The IAEA has made a report on the condition of Pakistan's Nuclear facilities are the recent air battle between India and Pakistan

- The International Atomic Energy Agency (IAEA) is the world's leading intergovernmental organization for scientific and technical cooperation in the nuclear field.
- It promotes the **safe**, **secure**, and **peaceful use** of nuclear science and technology, especially in compliance with **global non-proliferation norms**.
- The **IAEA Statute** was approved on **23 October 1956** and came into force on **29 July 1957**.
- The **IAEA headquarters is located in Vienna, Austria**.
- The agency currently has **178 member states**, reflecting its wide international mandate and credibility.

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IAEA's Legal Status and Global Role

- The **IAEA is an autonomous organization within the United Nations system**.
- It reports to both the **United Nations General Assembly** and the **UN Security Council**.
- It is popularly referred to as the **"Atoms for Peace and Development"** organization within the UN framework.
- Its primary goal is to ensure that **nuclear energy is not diverted for weapons purposes**.

Key Functions of the IAEA

- The IAEA works to **ensure that nuclear technology is used solely for peaceful purposes**.
- It applies **comprehensive nuclear safeguards**, including:
  - **Monitoring**,
  - **On-site inspections**,
  - **Information analysis**, and
  - Other techniques to **verify peaceful use**.
- These safeguards serve as a **first line of defense** under the **Nuclear Non-Proliferation Treaty (NPT)**.
- The IAEA helps enhance capacity at the national, regional, and international levels to respond to nuclear or radiological emergencies.
- It facilitates scientific cooperation and technical exchange among its member states.

CHANDRAYAAN-5 / LUPEX MISSION

Context: The Chandrayaan-5 mission, jointly undertaken by ISRO and JAXA, was approved by the Indian Cabinet in March 2025.

About the Mission

- Chandrayaan-5, also called LUPEX (Lunar Polar Exploration), this mission is a collaboration between **ISRO and JAXA.**
- It will carry a 6.5-tonne payload aboard **Japan's H3 rocket**, scheduled for launch in 2027–28.

Mission Details of Chandrayaan-5 / LUPEX

- The mission will focus on studying **lunar volatile materials**, especially **lunar water ice** in the **Permanently Shadowed Regions (PSRs)** near the **lunar south pole**.

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- It will be launched by **JAXA's H3-24L launch vehicle**.
- The **lunar lander** will be developed by **ISRO**, while the **rover** will be developed by **MHI, Japan**.
- Scientific payloads will be contributed by **ISRO**, **JAXA**, **European Space Agency (ESA)**, and **NASA**.
- The instruments will focus on **in-situ analysis of volatiles**, enhancing our understanding of **lunar resource potential** and **future human habitation feasibility**.

Background of Chandrayaan Missions

- **Chandrayaan-1 (2008):** Mineral and chemical mapping.
- **Chandrayaan-2 (2019):** 98% success.
- **Chandrayaan-3 (2023):** Soft-landing on Moon's south pole.
- **Chandrayaan-4 (Upcoming):** Sample return mission.
- **Chandrayaan-5:** Focused on deeper lunar exploration through internation

NATIONAL GREEN HYDROGEN MISSION (NGHM)

Context: The Minister for New and Renewable Energy took part in the World Hydrogen Summit 2025 in Rotterdam, Netherlands and shone light on the govt's vision for NGHM.

About NGHM:

- It was launched in January 2023 by the **Ministry of New & Renewable Energy.** It commits an outlay of ₹ 19,744 crore from 2023 to 2030.
- Union govt. to set up manufacturing zones, connectivity to grid, and **free transmission for 25 years if facility commissioned before Jun 2025.**
- Producers allowed to set up **bunkers near ports** for storage for later export.
- Production target raised from 1 million metric tonnes (MMT) per year in 2021 to **5 MMT per year by 2030.** This target would create a **demand for 100-125 GW of renewable energy & 60-100 GW of electrolysers.**
- Aims for an investment opportunity of ₹8 lakh crore, while **reducing annual emissions by 50 MMT.**
- Manufacturers allowed to **purchase renewable energy from power exchange or set it up themselves** or through any other developer.
- Facility for producers to **bank any surplus renewable energy generated** with discoms up to 30 days.
- Discoms procuring renewable energy to supply green hydrogen producers will do so at concessional rates. Such procurement by discoms will

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count towards the state's Renewable Purchase Obligations (RPO).

- Aims for cumulative **reduction in fossil fuel imports by Rs 1 lakh crore**.

Sub Schemes:

- **Strategic Interventions for Green Hydrogen Transition Programme (SIGHT):** It will fund the domestic manufacturing of electrolysers and produce green hydrogen.
- **Green Hydrogen Hubs:** States and regions capable of supporting large scale production and/or utilization of hydrogen will be identified and developed as Green Hydrogen Hubs.

About SIGHT Programme:

- It is an integral component of NGHM to foster domestic electrolyser manufacturing and production.
- An investment of Rs 17,490 crore was allocated to SIGHT **until 2029-30.**
- **Dual Incentive Mechanisms:** SIGHT introduces two distinct financial incentive mechanisms:
    - Incentive for Electrolyser Manufacturing: To boost the production of essential electrolysis equipment.
    - Incentive for Green Hydrogen Production: Encouraging the generation of clean and sustainable green hydrogen.
- Incentive programs will evolve in **response to market dynamics and technological advancements**, ensuring the Mission's adaptability.
- Solar Energy Corporation of India (SECI) is entrusted with executing the scheme, driving its effective implementation.

Current status of Hydrogen Production in India:

- India produces **6.5 MMT per annum** of hydrogen, predominantly for use in **oil refineries & fertilizer production.**
- Most of India's current hydrogen supply is **Grey Hydrogen**, which is produced using **natural gas.**
- Green Hydrogen production requires ample supply of renewable energy for the electrolysis process.

When electricity is passed through water, it splits it into oxygen and hydrogen via electrolysis. And if the electricity used for this comes from a renewable source, then the hydrogen thus produced is called green hydrogen.

TIANWEN 2 MISSION

Context: China launched the Tianwen-2 spacecraft to collect

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samples from near Earth asteroid 2016HO3 and explore main belt comet 311P.

About Tianwen 2 Mission:

- The **Tianwen series** (meaning 'Heavenly Questions', inspired by the classical Chinese poem by Qu Yuan) represents China's growing ambitions in deep space exploration.
- **Tianwen-1**, launched in 2020, became **China's first successful Mars mission**, delivering an **orbiter, lander, and rover** to the Martian surface. The rover ceased operation in 2022.
- **Tianwen-3**, expected by 2028, aims to **retrieve samples from Mars**, placing China among the few nations planning interplanetary sample return missions.
- **Tianwen 2** is aimed at collecting samples from **near Earth asteroid 2016HO3 (Kamoʻoalewa) and explore main belt comet 311P**.
- The mission aims to return asteroid samples by 2027, offering insights into the solar system's formation and expanding human knowledge of the cosmos.
- Launch Vehicle: **Long March 3B rocket**
  - Tianwen-2 will use the **'touch-and-go' technique** to collect samples — a method also used by **NASA's OSIRIS-Rex and Japan's Hayabusa 2 missions**.
  - In this method, the spacecraft briefly hovers over the asteroid's surface, where a robotic arm releases a projectile or gas burst to dislodge particles, which are captured in a chamber.
  - A backup **'anchor-and-attach' method** may be used, where four robotic arms drill into the surface to retrieve subsurface material.

Asteroid Kamoʻoalewa

- Kamoʻoalewa is a near-Earth asteroid discovered in 2016 by the **Pan-STARRS 1 telescope** on Haleakalā, Hawaii.
- It belongs to a rare class called **quasi-satellites of Earth**, which **orbit the Sun, but remain gravitationally influenced by Earth** due to their close proximity.
- It follows a **highly elliptical solar orbit** and appears to alternate between leading and trailing Earth, giving the illusion of orbiting Earth.
- Kamoʻoalewa has been in its current orbit for ~100 years, and is expected to stay for another 300 years, though quasi-satellite orbits are inherently unstable over long timescales.

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Places in News and Geography

VIZHINJAM INTERNATIONAL SEAPORT

Context: The Vizhinjam International Seaport will be dedicated to the nation by Prime Minister Narendra Modi on May 2nd.

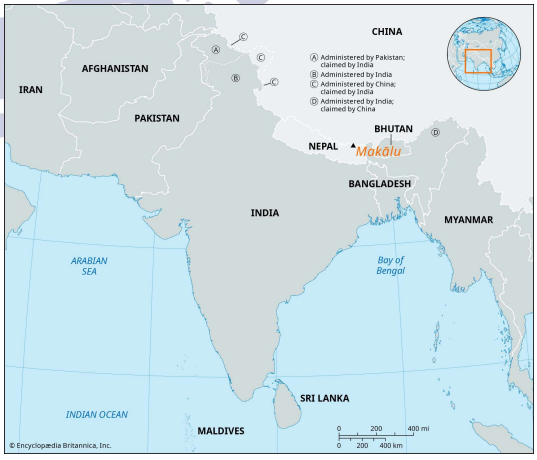
About Vizhinjam International Seaport:

- Located in **Vizhinjam**, near Thiruvananthapuram in Kerala.
- It is India's **first Deepwater Container Transshipment Port**.
- The port is currently being developed in **landlord model** with a **Public Private Partnership** component on a Design, Build, Finance, Operate and Transfer (DBFOT) basis.
    - Under **landlord model**, port authority acts as regulatory body and as landlord, while port operations (especially cargo handling) are carried out by private companies (Adani Vizhinjam Port Pvt Ltd in this case).
- The port boasts a natural depth of more than 18 meters, which can be further scaled up to 20 meters.
    - This depth is crucial as it enables the port to accommodate large vessels and mother ships with substantial cargo capacities.
- Initial capacity in the first phase is set at **one million** (twenty-foot equivalent units) TEUs, with potential for expansion to **6.2 million TEUs**.
- **Progress:** The first phase of Vizhinjam International Seaport will be commissioned by December 2024. Phases 2 and 3 are expected to be completed by 2028.

India has **12 major ports**. However, the country lacks a landside mega-port and terminal infrastructure to deal with ultra-large container ships.

Hence, nearly 75% of India's transshipment cargo is handled at ports outside India, mainly Colombo, Singapore, and Klang

Mt. Makalu



- It is the **fifth highest mountain in the world**, standing at 8,485 meters (27,838 ft) above sea level.

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- It is located in **the Mahalangur range of the Nepal Himalayas** on the border between Nepal and Tibet.
- It lies 14 miles (23 km) southeast of Mount Everest.
- The mountain lies in the **Makalu Barun National Park** and is known for its perfect pyramid shape with four sharp ridges.
- Makalu I and Makalu II are the two notable subsidiary peaks of Makalu lying 3 km north-northwest of the main summit.
- At the base of Mt. Makalu, there lies a natural wonder: the **Barun Valley**.
- This valley facilitates stunning elevated waterfalls falling inside the deep gorges, diverse species of flora and fauna with rich cultures of ethnic communities like Sherpa and Kirat.
- Makalu is one of the harder eight-thousanders and is considered **one of the most difficult mountains in the world to climb**.
- Makalu expeditions are difficult because the mountain is notorious for its **steep pitches and knife-edged ridges** that make the climbing very open to the elements.
- The final ascent of the summit pyramid involves technical rock climbing.
- Mt. Makalu was **first summited on 15 May 1955 by a French team including Lionel Terray and Jean Couzy**, led by **Jean Franco**, two years after the first ascent of Everest (the highest mountain in the world).

Angola

- **Angola is located on the southwestern coast of Africa**, with a strategic **Atlantic Ocean coastline** to the west.
- **Capital**: **Luanda,** a key maritime and oil-exporting hub.
- **Neighbouring countries**:
  - **Northwest**: Republic of the Congo
  - **North & Northeast**: Democratic Republic of the Congo
  - **Southeast**: Zambia
  - **South**: Namibia
- **Major rivers**: **Cuango River** and **Cuanza River**, vital for hydropower and inland water transport.
- **Highest peak**: **Mount Moco**, the tallest mountain in Angola, located in the Huambo province.

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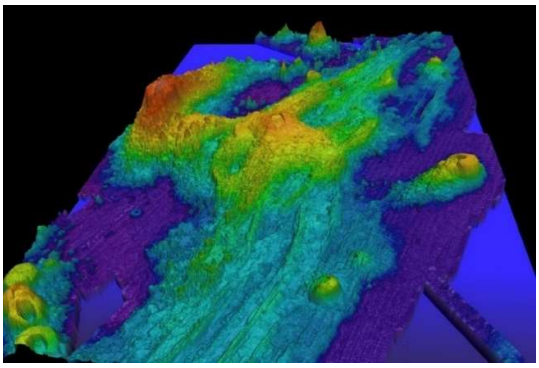
Axial Seamount



- It is an **underwater volcano** located about **300 miles off the coast of Oregon, United States in the Pacific Ocean.**
- It is a **shield volcano** with a summit marked by a l**arge caldera.**
- It rises to a depth of 1400 m below sea level.
- It is formed by a hot spot, an area in the Earth's mantle where hot plumes of molten material rise into the crust.
- It is located **on the Juan de Fuca Ridge,** the **boundary between the Pacific and Juan de Fuca tectonic plates.**
- The volcano is **home to hydrothermal vents, underwater hot springs** where seawater is heated by magma and ejected in mineral-rich plumes.
- These vents support **diverse marine life,** including **microbes that use volcanic gases for energy**, forming the basis of an ecosystem that includes giant tubeworms, spider crabs, clams, fish and octopuses.
- It is the **most active submarine volcano in the northeast Pacific,** with **known eruptions in 1998, 2011, and 2015.**
- While Axial Seamount's **eruptions are not dangerous to people on land**, they offer valuable opportunities for scientific observation.
- It is **part of the Ocean Observatories Initiative (OOI)** and **hosts the world's first underwater volcanic observatory called NeMO.**

Bagram Airfield

- The **USA has claimed that China now occupies the Bagram Airfield**, which American forces had vacated before pulling out from Afghanistan in 2021.
- Bagram Airfield is the **largest air base in Afghanistan**. It lies 60 kms to the north of Kabul, in the **strategic Parwan province.**
- **Parwan is key to controlling much of Afghanistan** because the 2.6 km-long Salang tunnel in the Parwan province connects Kabul

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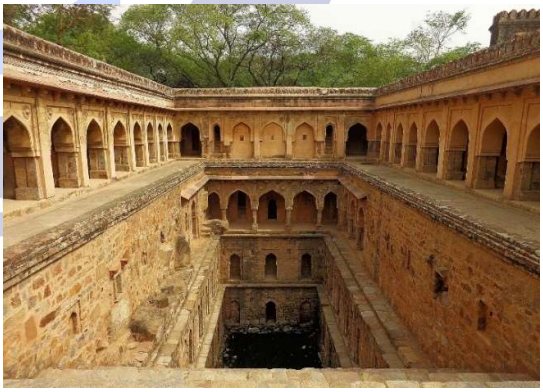
to Mazar-e-Sharif and other cities in the north, while highways provide linkages to Ghazni and Kandahar in the south.

- **Built by the Soviets** in the 1950s, the Bagram Airfield became vital during the Cold War and the Soviet-Afghan War (1979–89). After 2001, it became the operational **hub of US forces during the War on Terror.**
- Bagram's strategic location makes it vital, and **China's growing Taliban ties** signal a careful push to gain a strategic foothold in the region.

Lebanon

- Lebanon is a country in the **Levant region of West Asia**. It is bordered by **Syria** to the north and east, by **Israel** to the south, and by **Mediterranean** Sea to the west; **Cyprus** lies a short distance away from its coastline.
- Lebanon is **one of the smallest countries in Asia** and covers an area of 10,452 km^2, with a population of more than five million people.
- After the **dissolution of the Ottoman Empire after World War I**, Lebanon came under the Mandate System, to be **administered by France**. It gained **independence after World War II.**
- Lebanon has had a **rocky relationship with Syria and Israel** ever since, with frequent conflicts and wars, mostly led by the Hezbollah.
- **Hezbollah is a Shia Islamist militant group** in Lebanon. It emerged in the 1980s as a response to the Israeli occupation of Lebanon. It is notified as a terrorist organisation by several countries, including USA and Israel.

Rajon ki Baoli



- The Archaeological Survey of India has completed the **restoration of Rajon ki Baoli, a 16th-century Lodi-era stepwell located in New Delhi.**

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- Rajon ki Baoli is situated in **Mehrauli Archaeological Park, Delhi**. It was built in **1506** by Daulat Khan Lodi, an official under **Sikandar Lodi**.
- "Rajon ki Baoli" means "**Stepwell of the Masons**", referring to raj mistris, and not royalty.
- The stepwell is rectangular, covering 1,610 sq m, and is 13.4 meters deep. It is a **4-level structure,** with only the topmost tier visible from ground level.

The Lodi Dynasty ruled the Delhi Sultanate from 1451 to 1526. It was established by Bahlul Lodi, the first Afghan ruler of Delhi. Their fall marked the shift from the Delhi Sultanate to the Mughal Empire.

Baglihar dam

- The **Baglihar dam** is a significant hydroelectric power project located on the **Chenab River** in the **Ramban district** of **Jammu and Kashmir, India**.
- It stands as one of the largest hydroelectric power stations in the region, with a total installed capacity of **900 MW**.
- The Baglihar Dam is a **run-of-the-river** project, meaning it harnesses the natural flow of the Chenab River without significant water storage.
- Recently, following the suspension of the Indus Water Treaty in the wake of the Pahalgam attack, India has halted the water flow through the Baglihar dam.

Chenab River

- The **Chenab River**, a major **tributary of the Indus River**, originates in the Lahaul and Spiti district of Himachal Pradesh, India, from the **confluence of the Chandra and Bhaga rivers**.
- It flows through the Jammu region of Jammu and Kashmir, India, and into the Punjab plains of Pakistan, eventually joining the Indus River.
- According to the Indus Waters Treaty, **Pakistan has the right to utilize the waters of the Chenab**.

Jhelum River

- It is a **tributary of the Indus River**.
- The Jhelum (Vyeth in Kashmiri, Vetesta in Sanskrit, and Hydaspes in Greek) is the main waterway of the Kashmir valley.
- It is the **largest and most western of the five rivers of Punjab** and passes through the Jhelum District in the North of Punjab province, Pakistan.

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Course:

- **Origin:** It originates at the **Verinag Spring at Anantnag**, at the foot of the Pir Panjal range in the Kashmir Valley.
- The river meanders northwestward from the northern slope of the Pir Panjal Range through the Vale of Kashmir to **Wular Lake at Srinagar**, which controls its flow.
- The river makes a deep, narrow gorge on its way to Pakistan.
- It **joins the Chenab River** near Trimmu, Pakistan.
- Length: It has a total length of about 725 km (450 mi).

Major Tributaries:

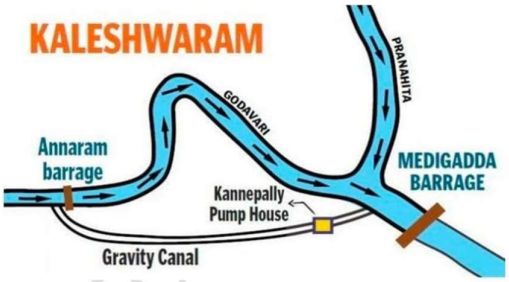
- The **largest tributary of the Jhelum is the Kishenganga (Neelum) River**, which joins near Muzaffarabad and enters the Punjab province, Pakistan.
- The **Kunhar River** is the second largest tributary of the river, which connects Pakistan-occupied Kashmir (PoK) and Pakistan on the Kohala Bridge of the Kanghan valley.

Kishanganga Dam

- The **Kishanganga Dam**, officially known as the **Kishanganga Hydroelectric Project (KHEP)**, is a significant hydroelectric project located in the Gurez Valley of Jammu and Kashmir, India.
- It is located on the **Kishanganga river, a tributary of the Jhelum**.

Kaleshwaram Lift Irrigation Project

- The National Dam Safety Authority (NDSA) has reported major **structural and operational defects** in the Kaleshwaram Lift Irrigation Project (KLIP), citing "irreparable damage" to three key barrages.



- KLIP, located on the **Godavari River in Telangana**, is the **world's largest multi-stage lift irrigation project**, inaugurated on June 21, 2019.
- It is designed to provide water for **irrigation and drinking purposes to about 45 lakh acres in 20 of the 31 districts in Telangana**, apart from Hyderabad and Secunderabad.
- The infrastructure includes 7 links, 28 packages, a 500 km span, 1,800+ km canal network, 20 reservoirs, and Asia's largest pump house at Ramadugu in Telangana.
- Currently the world's largest multi-stage lift irrigation project, its farthest upstream influence is at the **confluence of the Pranhita and Godavari** rivers. The Pranahita River is itself a confluence of various smaller tributaries, such as the **Wardha, Painganga, and Wainganga.**

Ashtamudi Lake

- Dead fish are floating on the banks of Ashtamudi Lake due to illegal use of explosives and poisons for fishing.
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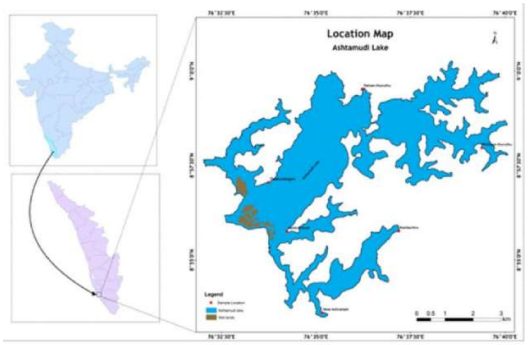

- It is a **brackish-water estuarine lake located in Kerala**, which covers an area of 5,700 hectares.
- It was designated as a **Wetland of International Importance under the Ramsar Convention** in 2002.
- It encompasses 8 channels (arms) connecting to the lake, giving it the name "Ashtamudi."
- It is the **second largest lake in Kerala** (first being the Vembanad Lake), and it drains into the sea via N**eendakara estuary**.
- The **Kallada River** is the main water source for the lake.
- The area surrounding Ashtamudi Lake was as a major port city in medieval times, as **recorded by Ibn Battuta in his book, 'Rihla'.**

Persian Gulf

- There are reports that the **US will officially refer to the Persian Gulf as the "Arabian Gulf" or "Gulf of Arabia"** from now onwards, aligning with the preferences of Arab nations.
- The Persian Gulf is a **marginal sea of the Indian Ocean,** in Western Asia.
- It is connected to the Arabian Sea through the **Strait of Hormuz**, a critical maritime chokepoint for global oil shipments. Its **average depth is around 50 meters**, with a max depth of 90 meters.
- The total coastline is roughly 5,117 km, with **Iran possessing the longest share (~1,536 km).**
- It is bordered to the north by **Iran**; to the southwest by **Saudi Arabia, UAE** and **Qatar;** to the east by **Oman;** and to the northwest by **Iraq, Kuwait,** and **Bahrain.**

Key Islands:

- **Qeshm Island (Iran)** - the largest island in the Persian Gulf.
- **Bahrain** - a sovereign archipelago state with over 50 islands, and home to a major US naval base.
- **Abu Musa, Greater Tunb, and Lesser Tunb Islands –** They are located at the entrance of the Strait of Hormuz and are disputed between Iran and UAE.

Balochistan

- There have been **calls for Balochistan's independence from Pakistan**, urging India to recognize it and host an embassy in New Delhi, the UN to deploy peacekeepers, and the Pakistani Army to withdraw.
- Balochistan is situated in **Western Pakistan** and is its **largest and most sparsely populated province.**
- It borders **Iran** (west), **Afghanistan** (northwest) and the **Arabian Sea**.
-

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- It was a **part of many ancient Greek and Indian empires**, from the time of Alexander the Great. The **Balochi people** (an ethnic group) arrived in the 14th century CE, integrating with existing populations.
- It became **part of British India after the third Anglo-Afghan war** led to the creation of the **Durand Line**. It became part of Pakistan in 1947. Balochistan was formally declared a separate province in 1970.

Geographical Features:

- **Sulaiman Mountain Range:** Forms its eastern boundary along Afghanistan.
- **Makran, Kharan, Chagai Mountain Ranges:** Forms its western boundary along Iran.
- **Chagai & Kharan Deserts:** Arid, barren regions in the north-west.
- **Makran Coastal Belt:** Extends along the Arabian Sea and is known for the Gwadar Port.
- **Bolan Pass:** A historical route between Balochistan & Afghanistan.

HEAT WAVES IN INDIA

Context: An editorial in today's edition of The Hindu highlights the disproportionate impact of heat waves faced by workers in India's informal sector.

About Heat Waves:

- Heatwaves naturally occur over India **between March and June.**
- Indian Meteorological Dept. (IMD) under the Ministry of Earth Sciences declares a heatwave event when the **maximum (day) temperature for a location in the plains crosses 40° Celsius (C). Over the hills, the threshold temperature is 30° C.**
- A heatwave generally lasts for a **minimum of 5 days.** On occasion, it **can extend up to 7-10 days**

Following criteria are used to declare heatwave:

- Below criteria should be met at least in 2 weather stations for at least two consecutive days:
    - Based on **Departure from Normal**
        - Heat Wave: Departure from normal is 4.5°C to 6.4°C

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        - Severe Heat Wave: Departure from normal is >6.4°C
    - Based on **Actual Maximum Temperature (for plains only)**
        - Heat Wave: Actual max. temperature is ≥ 45°C
        - Severe Heat Wave: Actual max. temperature is ≥ 47°C.

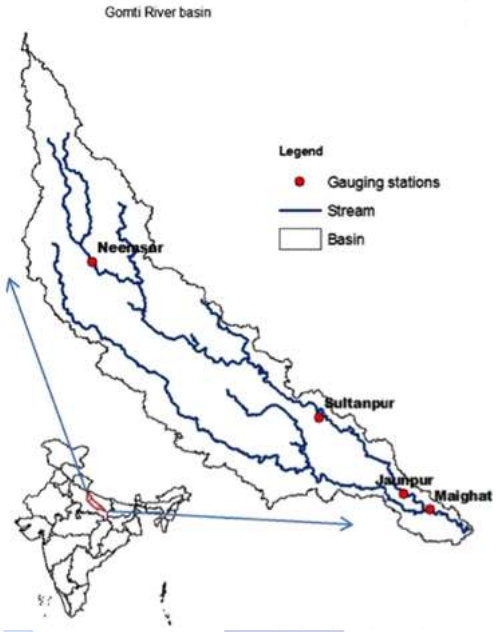
India's Vulnerability to Heat Waves

- **Only 8% of Indian households own AC units**, according to an analysis of the India Cooling Action Plan (ICAP).
- By 2030, India may account for **34 out of 80 million global job losses** from heat associated productivity decline.
- As per a World Bank Report, lost labour from rising heat and humidity could **reduce up to 4.5% of GDP.**
- According to IMD - **24% increase in heat waves during 2010-19 when compared to 2000-09.**
- From **2000 to 2019**, **mortality rate** for tropical cyclones decreased by 94% & it **increased by 62% for heat waves.**
- Heat waves are **not notified as a natural disaster at national level.**

IMD Colour Codes for Heat Index

- It is represented with **different colour codes to signify varying levels of heat impact and discomfort:**
    - Green: Below 35°C
    - Yellow: Range of 36-45°C
    - Orange: Range of 46-55°C
    - Red: Above 55°C
- The index is based on four factors: **Relative humidity, Wind speed, Max temperature, Cloud cover.**
- It warns against heat waves and lists the precautions people must take.

Gomti River



- The **Gomti River in Lucknow is at risk of becoming ecologically dead** due to untreated sewage, declining oxygen levels, and increasing faecal coliform levels.
- It is a **tributary of the Ganga**, flowing entirely through **Uttar Pradesh.**
- The Gomti River originates from the **Gomat Taal (also called Fulhaar Jheel)** in the Pilibhit district in UP.
- It drains the area **between the rivers Ramganga and Sharda**.
- It has a length of about 960 km.
- The popular **Markandey Mahadev Temple** is located at the confluence (Sangam) of the Ganga and Gomti.
- Cities located on the bank of the Gomti river include **Lucknow,** Sultanpur, Lakhimpur Kheri, Jaunpur.

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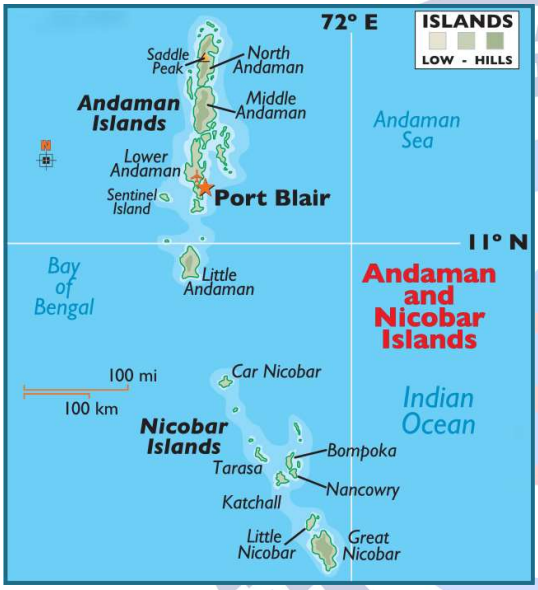
- The river is **polluted at several points** due to discharge of industrial waste, sewage, and residential wastewater into the river.
- It is a **perennial river** characterized by sluggish flow throughout the year, except during the monsoon season, when heavy rainfall causes a manifold increase in the runoff.

Great Nicobar Island



- It is the **southernmost island of the Nicobar Islands** archipelago.
- It is **separated from the Andaman Islands by the Ten Degree Channel**.
- It covers an area of 1044 sq.km.
- It remains sparsely populated, with dense tropical rainforests covering more than 85% of its area.
- Its coastline features over 100 kilometers of untouched beaches, renowned for their stunning coral reefs and crystal-clear waters.
- It is also home to **Indira Point**, India's southernmost point, located less than 150 km from Indonesia.
- Mount **Thullier**, which is about 2,105 ft high, is the highest peak.
- **Galathea, Alexandra, and Dagmar** are the major rivers.
- The major tribes in Great Nicobar Island are the **Shompens and the Nicobarese**.
- It is home to the **Great Nicobar Biosphere Reserve**, a UNESCO-designated site.
    - It includes Campbell Bay National Park and Galathea Bay National Park.

Biodiversity:

- The tract is rich in plant diversity and fosters a number of rare and endemic species, including Cyathea albosetacea (tree fern) and Phalaenopsis speciosa (orchid).
- The region also harbours a large number of endemic and endangered species of fauna.
- To date, 11 species of mammals, 32 species of birds, 7 species of reptiles and 4 species of amphibians have been found to be endemic.
- Of these, the well-known **Crab-eating Macaque, Nicobar Tree Shrew, Dugong, Nicobar Megapode, Serpent Eagle, saltwater crocodile, marine turtles and Reticulated Python** are endemic and/or endangered.

TAPTI BASIN MEGA RECHARGE PROJECT

Context: In a significant move towards regional water security, the governments of Madhya Pradesh and Maharashtra on Saturday signed a Memorandum of Understanding (MoU) to jointly

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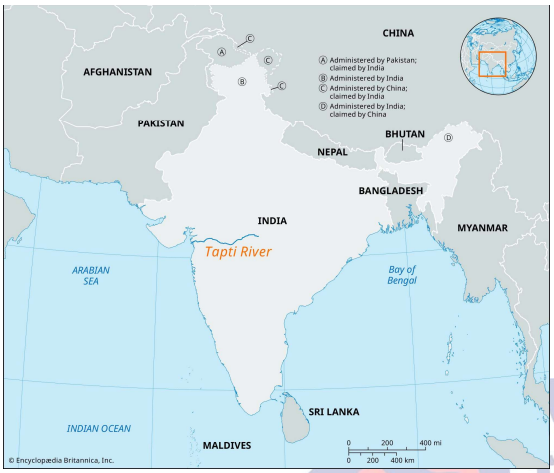
implement the Tapti Basin Mega Recharge Project.



About Tapti Basin Mega Recharge Project:

- It is a **joint inter-state groundwater recharge initiative** under which Madhya Pradesh and Maharashtra will jointly develop three Tapti River streams originating from Multai, MP.
- It is the **third major inter-state river project involving MP**, following the **Ken-Betwa Link Project (MP & UP)** and the **Parbati-Kalisindh-Chambal Link Project (MP & Rajasthan)**.

Key Features:

- **Water Allocation:** The project plans to divert water from the Tapti River to northeastern Maharashtra **for drinking water and to support irrigation** in southern and southeastern Madhya Pradesh.
- Total usage is 31.13 thousand million cubic feet (TMC), with 11.76 TMC allocated to MP and 19.36 TMC for Maharashtra.
- The project includes construction of a diversion weir at the MP-Maharashtra border and development of right and left bank canals in both states.
- The project entails the use of 3,362 hectares of land in Madhya Pradesh, with **no displacement or rehabilitation needed**.
- **Beneficiary Districts:** The project covers the **Burhanpur and Khandwa districts of MP** and **Akola, Amravati, and Buldhana in MH**, which have historically faced groundwater stress and erratic rainfall.

Tapti or Tapi River

- The Tapti River, India's **second-longest west-flowing river after the Narmada**, flows through **Madhya Pradesh, Maharashtra, and Gujarat**.
- It is one of the 3 major rivers in India that flow westward, along with the Narmada and Mahi.
- It drains into the Arabian Sea at the **Gulf of Khambhat in Gujarat**.
- **Basin Area & Terrain:** The Tapi basin is bounded by the Satpura range (north), Mahadeo hills (east), Ajanta and Satmala hills (south), and the Arabian Sea (west).
- It **flows between the Satpura Range and Mahadeo Hills**, running parallel to the Narmada River to the north, separated by the main part of the Satpura Range.
- **Tributaries:** The Tapti has 14 major tributaries:
  - 4 right-bank (Vaki, Aner, Arunawati, Gomai) and
  - 10 left-bank (Nesu, Amravati, Buray, Panjhara, Bori, Girna, Waghur, Purna, Mona, Sipna).
- **Purna River** is the main left-bank tributary, providing perennial flow.

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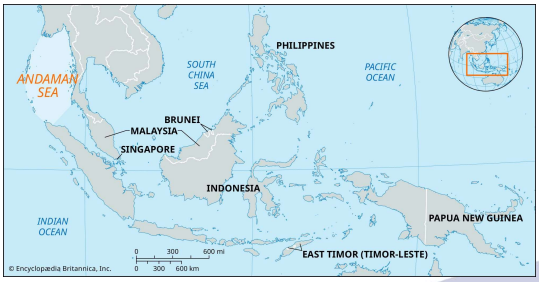
- **Dams and Projects:** Ukai Dam (Gujarat), Hathnur Dam (Maharashtra)

Andaman Sea



- It is a **semi-enclosed marginal sea** in the northeastern Indian Ocean.
- It lies between the eastern coast of India and the Malay Peninsula, with **Myanmar to the north and the Indonesian island of Sumatra to the south**.
- The **Bay of Bengal bounds the Andaman Sea to the west and the Strait of Malacca to the east**.
- The sea, covering an area of approximately 307,994 square miles, extends about 750 miles in length and 400 miles in width.
- It is a complex geological region with a tectonically active plate boundary.
- It is part of the larger **Sunda Plate**, which the Indian Plate borders to the northwest and the Australian Plate to the southeast.
- The ongoing tectonic convergence between these plates has resulted in the formation of the Andaman Basin, characterized by undersea ridges, trenches, and faults.
- The most prominent geological feature in the region is the **Andaman Trench, which is formed by the subduction of the Indian Plate beneath the Eurasian Plate**.
- This tectonic activity has given rise to numerous earthquakes and volcanic eruptions in the region, making the Andaman Sea seismically active.
- It is home to extensive coral reef systems, seagrass meadows, and mangrove forests, which provide critical habitats for a multitude of marine organisms.
- The Andaman Sea is also an **important site for migratory birds**, with several key stopover locations along the **East Asian-Australasian Flyway**.

Buddhavanam

- It is a **Buddhist theme park located on the northern bank of Krishna River** in Telangana.
- The Government of India has sanctioned the project as part of developing an **integrated Buddhist Circuit** with a vision to attract a large number of domestic and international tourists, particularly from southeast Asia.
- It has an extent of 279 acres.
- It is developed to **showcase the life and teachings of Gautama Buddha**.
- It features the Entrance Plaza, **Buddhacharitha Vanam** (Life of Buddha), **Jataka Park** (which highlights stories from Buddha's previous lives), Dhyana Vanam for meditation, the Stupa Vanam (home to the imposing Maha Stupa), and an in-house Buddhist Heritage Museum.
- There are intricate carvings on the drum and dome portions of the Mahastupa and a virtual hanging sky with lotus petals under the sky inside the Mahastupa.

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- Located just beside **Nagarjuna Sagar**, a reservoir formed due to the construction of the dam across the river Krishna, **Nagarjunakonda or Sriparvata - Vijayapur**i, served as **capital city of the Ikshvaku dynasty**, which ruled Andhradesa during the 3rd and 4th centuries A.D.
- **Nagarjunakonda** was named after the famous **Buddhist scholar and Madhyamika philosopher Acharya Nagarjuna**.
- Nagarjunakonda was a **centre of Mahayana Buddhism**, where many Buddhist sects had their monasteries, shrines, and stupas built to propagate the Dhamma.
- Excavations conducted at Nagarjunakonda between 1954 and 1960 have revealed the existence of a **Maha Stupa, Votive Stupas, Chaityas, Silamandapas** and a good number of Buddhist sculptural panels and antiquities.
- The structures exposed also included a palace complex and a few Brahmanical temples built of bricks.
- The sculptural panels were depicted with the major events of the life of the Buddha and Jataka stories.
- Most of the structures were reconstructed on the Nagarjunakonda Island and at Anupu, a ferry point on the right bank of the river Krishna.

Colombia

- Colombia is officially known as the Republic of Colombia.
- It is a country located **in South America.**
- Colombia is **bordered by;**
  - The Caribbean Sea in the North.
  - Venezuela in the East.
  - Brazil in the South-East.
  - Ecuador and Peru in the South.
  - The Pacific Ocean in the West.
  - Panama in the North-West.
- It is the **only country in South America whose coastlines touch both the Atlantic and Pacific oceans**.
- Colombia is one of the world's 17 megadiverse countries.
- It has the **world's 2nd-highest biodiversity level**.
- The territory encloses the Amazon rainforest, highlands, grasslands and deserts.
- The Country is **part of the Ring of Fire**, a region of the world known for frequent earthquakes and volcanic eruptions.

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- The **Andes Mountains cover about 25%** of Colombia's total territory.
- The Capital District of 'Bogotá' is the country's largest city.
- Spanish is the official language.

Türkiye

- Turkey, also called Türkiye, **lies partly in Asia and partly in Europe.**
- It is **surrounded on three sides by the Black Sea, the Mediterranean Sea, and the Aegean Sea.**
- The **main portion of the Turkish state is located on the Anatolia peninsula**, also known **as Asia Minor**, the **westernmost** part of **Asia**.
- Turkey covers an area of **783,562 km²** and has a **population of 83.2 million people**.
- There are **two narrow straits** in northwestern Turkey, the **Bosporus**, which **connects the Black Sea with the Sea of Marmara**, and the **Dardanelles**, which **connect the Aegean arm of the Mediterranean Sea with the Sea of Marmara.**
- **Capital: Ankara**
- **Largest city: Istanbul**
- **Bordering countries:** It is bordered by **Bulgaria** and **Greece** to the west; **Armenia**, **Azerbaijan,** and **Iran** to the east; **Georgia** to the northeast; **Syria** to the south; and **Iraq** to the southeast.
- **Religion:** More than 99 percent of the population is **Muslim, mostly Sunni**.
- **Spoken Languages: Turkish (official), Kurdish, and Arabic.**

Azerbaijan

- **Azerbaijan** is a country located at the crossroads of Eastern Europe and Western Asia, in the South Caucasus region.
- It is bordered by the **Caspian Sea** to the east, which is the world's largest inland body of water.
- The country lies mainly on the **Caucasus Mountains'** southern slopes and includes a region of semi-desert lowlands.

- Azerbaijan covers an area of **86,600 km²** and has a population of approximately **10.1 million people**.
- The country is divided into two main parts: the **mainland** and the **Nakhchivan exclave**, which is separated by Armenian territory.
- **Capital and largest city**: **Baku**, located on the western coast of the Caspian Sea.
- **Bordering countries**: It shares borders with **Russia** to the north, **Georgia** to the northwest, **Armenia**

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to the west, **Iran** to the south, and has a short border with **Türkiye** through the Nakhchivan exclave.

- **Religion**: The majority of the population is **Muslim**, primarily **Shia**, with a minority of **Sunni Muslims**.
- **Spoken languages**: **Azerbaijani** (official), with minorities speaking **Russian**, **Armenian**, **Lezgian**, **Talysh**, and **Kurdish**.
- The Nagorno-Karabakh conflict, a long-standing dispute between Armenia and Azerbaijan, centers on the region's status and control. It has roots in ethnic tensions and territorial claims, leading to several armed conflicts, including the First and Second Karabakh Wars

Tsarap Chu Conservation Reserve

- The Tsarap Chu Conservation Reserve was recently notified by the Himachal Pradesh government.
- It is located in **the Lahaul-Spiti region** of **Himachal Pradesh**.
- The total area of this conservation reserve is 1585 sq.km.
- It is **India's largest conservation reserve**.
- It is bounded by the Union Territory of Ladakh to the north, the **Kibber Wildlife Sanctuary** extending up to Malang Nala and Lungar Lungpa to the east, Kabjima Nala to the south, and **Chandratal Wildlife Sanctuary** to the west.
- It is also the location for the **confluence of the Unam River and Charap Nala**.
- It is the catchment area of the Charap Nallah and serves as a **critical wildlife corridor**, linking the Kibber and Chandra Taal wildlife sanctuaries.
- It will be managed through a **Conservation Reserve Management Committee**, which will also include representatives from local Panchayats.
- The committee will manage the area while balancing the needs of local communities and wildlife conservation priorities.

Biodiversity:

- It falls among the **high-density habitats of snow leopards** within Himachal Pradesh.
- **Tibetan wolf, bharal (blue sheep), Himalayan ibex, kiang** (wild ass), and the Tibetan argali are also found in the region.
- Rare bird species such as **Rose Finch, Tibetan Raven, and Yellow-billed Chough** enrich the ecology of the region.

New Caledonia

- New Caledonia is a **French** overseas territory located in the **southwestern Pacific Ocean,** approximately 1,500 km **east of Australia.**

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- New Caledonia, originally inhabited by the **Kanaks**, came under French control in 1853.
  - Post-WWII, Kanaks gained French citizenship, but 1960s French migration made them a minority, sparking an independence movement.
  - Tensions led to the **Matignon Agreements** (1988) and **Nouméa Accord** (1998), promising three independence referendums.
  - The 2018 and 2020 referendums favoured France. Despite COVID-19 concerns, the 2021 referendum also favoured France, angering the Kanaks.

Significance of New Caledonia for France:

- **Strategic location:** Situated in the South Pacific, New Caledonia provides France with a military and geopolitical presence in a region with growing global interest, particularly with increasing influence from China.
- **Economic resources:** The island is rich in natural resources, notably nickel, which is vital for various industries, including manufacturing and technology.

Mullaperiyar Dam

- It is a **masonry gravity dam** situated on the **Periyar River** in Thekkady, Idukki district, in Kerala.
- It is located 881 m above sea level, in the Western Ghats mountains.
- The dam is built at the **confluence of the Mullayar and Periyar rivers**.
- It is **one of the oldest dams** in India. Its construction began in 1887 and was completed in 1895.
- The construction was carried out by the British Corps of Royal Engineers under the leadership of Pennycuick.
- The dam was constructed with **limestone and "Surkhi"** (burnt brick powder and a mixture of sugar and calcium oxide).
- The dam has a height of 53.6 meters (176 feet), a length of 365.7 meters (1,200 feet), and a storage capacity of 443 million cubic meters (11.5 billion cubic feet).
- It created an artificial lake and reservoir that covers an area of 8.5 sq.km
- The dam is **surrounded by the Periyar National Park**, a renowned biodiversity hotspot that is home to numerous endangered species of animals and birds.
- The dam's primary function is to **transfer water from the Periyar River to the Vaigai River basin** in Tamil Nadu for irrigation and power generation purposes.
- Although the dam is located in Kerala, it is **operated and maintained by the neighbouring state of Tamil Nadu**.
- It was according to a 999-year lease agreement made during British rule, that the operational rights were handed over to Tamil Nadu.
- In recent years, there has been a long-standing dispute between Kerala and

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Tamil Nadu over the safety of the dam. Kerala has been demanding that the dam be strengthened or decommissioned, while Tamil Nadu has opposed any such move.

Parasnath Hill

- The Jharkhand High Court directed the state government to **enforce a pre-existing ban on meat, alcohol, and intoxicants on Parasnath Hill**, a site sacred to both Jains and the Santal Adivasi community.
- Parasnath Hill is known as **Parasnath to Jains** and **Marang Buru (literally "the Great Mountain") to Santals**.
- It is part of the **Rajmahal Hills region** (in the Chota Nagpur Plateau). It is the highest point in the Rajmahal Hills.
- For Jains, it is the site where 20 of 24 tirthankaras, including Parasnath (Parshvanatha), attained nirvana. For Santals, the sacred grove on the hill is their most sacred dhorom garh (religious site).
- **Lo Bir Baisi, the traditional Santal tribal council**, convenes at the base of the hill to resolve village disputes.
- The **Santal Hul of 1855, led by Sidhu and Kanhu Murmu**, was a major tribal uprising launched from Marang Buru.
- A major flashpoint between the Jains and Santals is the **Sendra festival, a traditional ritual hunt** held by the Santals on the hill. This practice, a rite of passage for Santal men, starkly contrasts with Jain values of non-violence and vegetarianism, leading to a legal battle.
- The **Santals** are one of India's largest tribes. They primarily reside in West Bengal, Jharkhand, Bihar, Odisha, and Assam. They speak Santali (it is included in the Eighth Schedule) with its own script Olchiki, created by Pandit Raghunath Murmu.

Sudan

- Sudanese Army has stated that the nation's capital of Khartoum is now free from all armed separatist groups.
- The **Sudanese Civil War**, which has been going on since April 2023, involves a dispute between the **Sudanese Army and the Rapid Support Forces**, a paramilitary force.
- Sudan is a country located in North Africa, bordered by **Egypt (north), Libya (northwest), Chad (west), the Central African Republic (south west),**

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South Sudan (south), Ethiopia (south east) & Eritrea (east). It shares a **maritime border with the Red Sea.**

- Sudan is the **3rd largest country in Africa** and has an ethnically diverse population of 43 million people. Its **capital and biggest city is Khartoum.**
- The **Darfur region of Sudan** has been facing insurgency and violent attacks by terrorists for over two decades.
- Sudan is a **least developed country** and **among the poorest** countries in the world, ranking 170th on the Human Development Index as of 2024 and **185th by nominal GDP** per capita. Its economy **largely relies on agriculture** due to international sanctions and isolation, as well as a history of internal instability and factional violence. The large majority of Sudan is dry and **over 60% of Sudan's population lives in poverty.**
- In April 2023, India launched "Operation Kaveri" to evacuate its citizens after the civil war had begun in Sudan.

Chenab Valley

- The Chenab Valley, otherwise called the Chenab Region, is the river valley of the Chenab River moving through the Kishtwar, Doda, and Ramban locale of Jammu Division in **Jammu and Kashmir.**
- It is the eastern region of Jammu and Kashmir.
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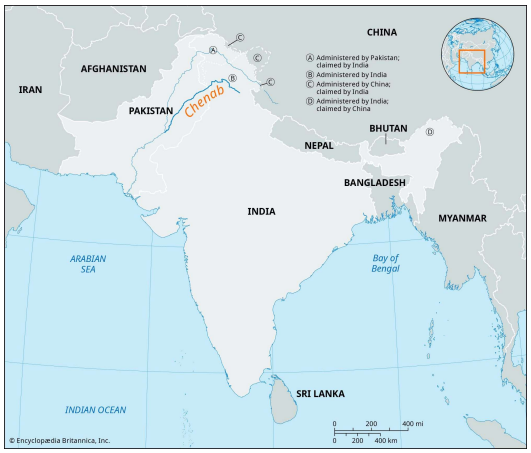

- To the north lies the majestic **Pir Panjal range** and to the south, the **Zanskar range**.
- Deep gorges, lush meadows, and cascading rivers form a beautiful landscape that defines the Chenab Valley.
- It covers an area of 11,885 sq.km.
- The people of Chenab Valley are referred to as "Chenabis" or simply "Chenabi".
- The region is a mosaic of ethnic groups, with multiple languages spoken, including **Kashmiri, Gojri, Bhaderwahi, Sarazi, Kishtwari, and Padari**.
- It is home to several tourist attractions, such as **Bhaderwah, Jai Valley, Padri Pass, Sinthan Top, Lal Draman, and Jantroon Dhar**.
- Its hydroelectric potential is harnessed by significant dams like **Baglihar Dam, Dulhasti Dam, and Salal Dam**.
- The region is traversed by National Highway 244.

Keoladeo National Park

- Keoladeo National Park, popularly known as **Bharatpur Bird Sanctuary, is located in Bharatpur in Rajasthan.**

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- It was founded in the late 19th century as a hunting preserve by Suraj Mal, the maharaja of the Bharatpur princely state, and became a bird sanctuary in 1956.
- Declared a national park in 1981, it was renamed Keoladeo for the ancient temple in the park dedicated to the Hindu god Shiva.
- Woodlands, swamps, and wet grasslands cover a large part of the park.
- **It is a Ramsar site and also a UNESCO World Heritage Site as well as the Montreux Record**
- It is strategically located in the middle of the **Central Asian migratory flyway.**
- It is home to more than 360 species of permanent and migratory birds.
- During the annual period of migratory visitors (about October to March), birds from throughout the world can be found in the park.
- Among those wintering in the park are waterfowl from Afghanistan, Turkmenistan, China, and Siberia, including species such as gadwalls, shovellers, common teals, tufted ducks, pintails, white spoonbills, Asian open-billed storks, Oriental ibises, and the rare Siberian crane.
- **Vegetation:** The vegetation here is of a dry deciduous type, with medium-sized trees and shrubs found inside its forest.
- **Flora:** Some of the trees which can be commonly spotted inside the park are kadam, jamun, babul, kandi, ber, kair, and piloo.
- **Fauna:** The park is also home to a range of mammals and reptiles—including pythons and other snakes, deer, sambars, blackbucks, jackals, monitor lizards, and fishing cat.

Chagos Archipelago

- Location: It is an island group located in the central Indian Ocean, about 1,600 km south of India's southern tip.
- **Key Islands:** Includes atolls like Diego Garcia, Peros Banhos, Solomon Islands and Danger Island.
- **Climate:** Tropical marine climate, with weather moderated by trade winds.
- **Disputed Nations:** The primary parties involved in the dispute are the U.K. (current administrator) and Mauritius (claimant), with the U.S. involved due to the military base on Diego Garcia.
- **Colonial Background:** The Chagos Archipelago was claimed by Britain along with Mauritius in 1814. Before Mauritius' independence in 1968, the U.K. separated the islands in 1965 to

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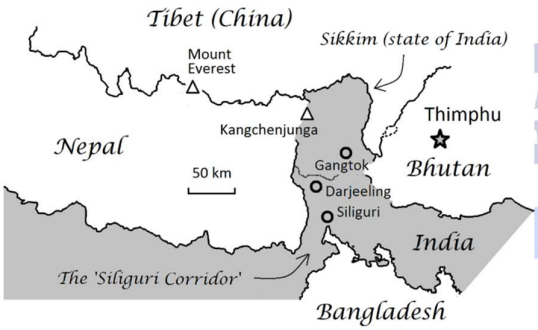
create the British Indian Ocean Territory (BIOT).

- In 2019, the International Court of Justice (ICJ) dismissed the UK's right to govern the Chagos Islands and called on its government to withdraw from the archipelago.

Mt. Khangchendzonga



- Sikkim has urged the Centre to ensure that Mt. Khangchendzonga, the world's third-highest peak, **regarded as sacred by the people of the State, is made out of bounds for mountaineers.**
- It lies in the eastern Himalayas, straddling the **India–Nepal border**).
- Unlike most other Himalayan peaks, this mountain runs from north to south, where the **Kanchenjunga Glacier joins the Tamur River**, a tributary of Koshi.
- Numerous lakes and glaciers, including the **Zemu Glacier** (origin of Teesta River), are located here.
- The **Khangchendzonga National Park** (KNP), Sikkim has been inscribed as India's first "**Mixed World Heritage Site**" on UNESCO World Heritage List.
- The mountain is revered as the abode of the guardian and **protector-deity of Sikkim, known as Dzoe-Nga.**
- These deities are believed to have been **anointed by Ugyen Guru Rinpoche, also known as Guru Padmasambhava**, the Patron Saint of Sikkim.
- Sikkim **banned all climbing activities on the mountain through notifications in 1998 and 2001** under the Sacred Places of Worship (Special Provisions) Act, 1991.
- Sikkim's ban on Mount Kangchenjunga's summits **aligns with Article 371F** of the Indian Constitution, which safeguards Sikkim's cultural and religious laws after it merged with India in 1975.
- **In 1955, mountaineers Charles Band and Joe Brown** became the first people to scale the peak but they stopped a few feet short of the Summit in honour of the Sikkimese belief.

Zangezur Corridor

- The Zangezur Corridor is in news after Armenia's Security Council Secretary visited New Delhi and held talks with India's National Security Advisor.
- It is a **planned transport route that connects Azerbaijan to its Nakhchivan exclave region** by passing through southern Armenia.
- It will link **Azerbaijan's capital Baku to Kars in Türkiye**, going

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through Armenia near the Iranian border.

- This includes **railways and highways** that were originally built by the Soviet Union but were later destroyed.
- This corridor will **help Azerbaijan reach its Nakhchivan exclave without needing to go through Iran or checkpoints controlled by Armenia.**

India's Strategic Concerns:

- India has invested heavily in the **Chabahar Port** in Iran and in Armenia. This gives India a multi-modal route (sea + land) to reach the Black Sea and Europe, bypassing Pakistan and the Suez Canal.

If the Zangezur Corridor opens without Armenian control, it **may cut off Iran's access to Armenia, and in turn, India's land route to Europe through Armenia and Georgia**

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Government Schemes

PLI Scheme

- The $23 billion Production-Linked Incentive (PLI) scheme, was launched in 2020 **to boost domestic manufacturing and reduce dependence on China**
- The scheme initially targeted three industries: Mobile and Allied Component Manufacturing, Electrical Component Manufacturing and Medical devices.
- Later, it was expanded to 14 key sectors.
- Under this scheme, Domestic and Foreign companies receive financial incentives based **on a percentage of their incremental revenue** for up to five years,
- The scheme was aimed at **increasing manufacturing's share in India's GDP to 25% by 2025**, but it has **declined from 15.4% to 14.3%** instead.
- **Only 37% of the expected production target was achieved**, with **$151.93 billion worth of goods** manufactured by October 2024.
- The Production Linked Incentive (PLI) scheme is managed by various Indian ministries, with no single overarching ministry overseeing all PLI schemes.
- Each scheme is specific to a particular industry, and the responsible ministry varies accordingly

SVAMITVA Scheme

- The **Survey of Villages and Mapping with Improvised Technology in Village Areas** (SVAMITVA) is a **central sector scheme** launched in 2020.
- It aims to **provide rural people with the right to document their residential properties** so that they can use their property for economic purposes.
- The scheme is for surveying the land parcels in rural inhabited areas **using drone technology.**
- The **survey shall be done across the country in a phased manner.**
- The scheme seeks to achieve the following **objectives:**
    - To bring **financial stability to the citizens in rural India** by enabling them to use their property as a financial asset for taking loans and other financial benefits.
    - **Creation of accurate land records for rural planning.**
    - **Determination of property tax,** which would accrue to the Gram Panchayats (GPs) directly

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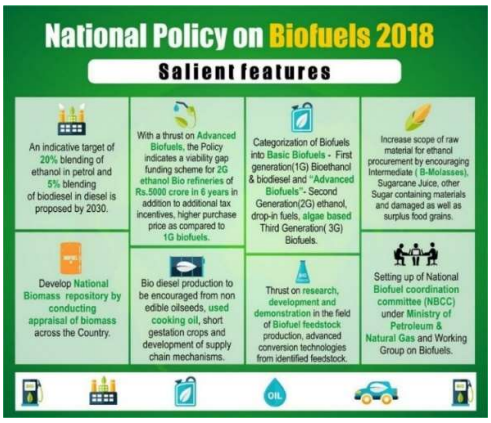
in States where it is devolved or else, add to the State exchequer.

- **Creation of survey infrastructure and GIS maps** that can be leveraged by any department for their use.
- To support the preparation of a better-quality Gram Panchayat Development Plan (GPDP) by making use of GIS maps.
- To reduce property-related disputes and legal cases.

- **Nodal Ministry:** The **Ministry of Panchayati Raj (MoPR)** is the Nodal Ministry for implementation of the scheme.
- **In the States, the Revenue Department / Land Records Department** will be the **Nodal Department** and shall carry out the scheme with the support of the State Panchayati Raj Department.
- **Survey of India** is the **technology partner** for implementation.

NATIONAL POLICY ON BIOFUELS

Context: The diversion of maize for ethanol production under National Policy on Biofuels has turned India from a surplus producer and exporter to an importer of the crop.



National Policy on Biofuels (2018):

- It **expands the scope of raw material for ethanol production** by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production.
- Instead of initial deadline of 2030, in 2022, the govt. has announced **ethanol-petrol blending target of 20% (E20) by 2025.**
- The policy **promotes production of biofuels under Make in India** by units located in SEZs.
- The policy grants **permission for export of biofuels** in specific cases.
- The **National Biofuel Coordination Committee (NBCC) headed by the Prime Minister** has been constituted

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for providing high-level co-ordination, policy guidance and review on different aspects of biofuel research and development.

- The policy categorizes biofuels into:
  - **Basic biofuels – 1st Gen** (1G) ethanol produced from food crops.
  - **Advanced biofuels – 2nd Gen** (2G) ethanol – from food waste and Municipal Solid Waste (MSW).
  - **3rd Gen Biofuels –** produced from microbes and algae.
  - **4th Gen Biofuels –** produced from genetically modified algae.
- The policy only **promotes the use of 2nd, 3rd and 4th Gen biofuels.**

Related Initiatives

✓ ***Pradhan Mantri JI-VAN Yojana:***
  - To create an ecosystem for setting up commercial projects and to boost R&D in 2G Ethanol sector.

✓ ***GOBAR (Galvanizing Organic Bio-Agro Resources) DHAN scheme:***
  - Managing and converting cattle dung and solid waste in farms to useful compost, biogas and bio-CNG.
  - Unified Portal for GOBARdhan was launched in June 2023 to ease setting up of biogas plants.

✓ ***Sustainable Aviation Fuel (SAF):***
  - Aims to achieve 1% SAF blend by 2025, requiring 140 million litres of SAF per year.

✓ ***Global Biofuel Alliance:***
  - Launched by USA, Brazil and India during the G20 Summit in September 2023.
  - Aims to ease cooperation and intensifying use of sustainable biofuels, with a specific focus on the transport sector.

✓ ***Tax Benefits:***
  - Lower taxes are levied on E10 and E20 blends compared to unblended petrol.
  - Lower excise duty and GST rates for ethanol compared to petrol.

PM FASAL BIMA YOJANA (PMFBY) SCHEME

Context: Nearly a decade after the launch of the PMFBY and the Restructured Weather-Based Crop Insurance Scheme (RWBCIS), data

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shows that 97% of all reported claims have been settled.

About PM Fasal Bima Yojana (PMFBY):

- It was launched in 2016 and **replaced all the prevailing yield insurance schemes in India.**
- It aims to support agricultural production by providing affordable crop insurance to ensure comprehensive risk cover for crops **against all non-preventable natural risks**. It covers the **entire cropping cycle,** from pre-sowing to post-harvest and midseason adversities.
- Under this scheme, the insurance cover **is limited to specific crops** and agricultural risks related to crop yield.
- The list of notified crops includes **food crops** (i.e., cereals, millets, and pulses), **oilseeds**, annual **commercial crops**, & annual **horticultural crops.**
- It encourages the use of technology, such as smartphones to capture and upload data of crop cutting to reduce delays in payment to farmers and use of remote sensing to reduce number of crop cutting experiments.
- **All farmers, including tenant farmers & sharecroppers growing the notified crops in the notified areas are eligible** for coverage. Participation in PMFBY is voluntary, with non-loanee farmers comprising 55% of total beneficiaries.

Risk Coverage under PMFBY:

- **Natural Disasters:** Includes floods, droughts, cyclones, hailstorms, landslides, and unseasonal rainfall.
- **Pest & Disease Coverage:** Protects against pest attacks and crop diseases.
- **Post-Harvest Loss (Individual Farm):** Compensation for damage within 14 days of harvest, especially for crops kept in "cut and spread" condition.
- **Localized Calamities:** Provides compensation for localized calamities on an individual farm basis.
- **Prevented Sowing (on Notified Area Basis):** If most insured farmers in a notified area are unable to sow due to adverse weather despite intent and incurred costs, they can claim up to 25% of the sum insured as indemnity.

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Premiums under PMFBY:

- There will be a uniform premium of only **2% for all Kharif crops and 1.5% for all Rabi crops.**
- In the case of **annual commercial and horticultural crops**, the premium to be paid by farmers will be **5%.**

Restructured Weather-Based Crop Insurance Scheme (RWBCIS):

- It was launched in 2016 to safeguard farmers against financial losses due to unfavorable weather conditions.
- RWBCIS offers **compensation based on deviations from predefined weather indicators** - like rainfall, temperature, humidity, and wind speed - serving as proxies for crop loss without field-level evaluations.
- This is different from PMFBY, which gives compensation based on actual crop loss assessments.

AMRUT Scheme

Context: Despite allocating around 10,000 crore to AMRUT 2.0 for civic work across the country, the Union Govt is yet to issue guidelines to states on how to frame projects.

About Atal Mission for Rejuvenation and Urban Transformation (AMRUT):

- AMRUT is a **centrally sponsored scheme launched in 2015 to provide basic civic amenities** like water supply, sewerage, urban transport, parks as to improve the quality of life for all especially the poor and the disadvantaged.
- Its focus is on **creation of infra that has a direct link to provision of better services** to the citizens.
- It covers **500 cities that includes all cities and towns with a population more than 1 lakh and having notified Municipalities.**
- Concerned Ministry: **Housing and Urban Affairs** (MoHUA)
- **State Annual Action Plan (SAAP):** States are equal partners in planning and implementation. **Approval of SAAP is done once a year by MoHUA** and **states must give project sanctions and approval at their end.**
- **Supervision will be done by an Apex Committee chaired by Secretary, MoHUA** and with representatives of related Ministries.

Aims of the Mission:

- Ensure that every household has access to a tap with assured water and a sewage connection.
- Increase amenity value of cities by developing greenery and well-maintained open spaces.

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- Reduce pollution by switching to public transport or constructing facilities for non-motorized transport.

About Jal Hi AMRIT Scheme:

- It was **launched under AMRUT 2.0** in October 2024. It incentivises states and UTs to **manage sewage treatment plants (STPs) efficiently**, ensuring production of good-quality, recyclable treated water.
- **Clean Water Credits will be awarded** in terms of Star-rating between 3 stars to 5 stars certificate valid for six months. STPs with Clean Water Credits of 3-star and above in different groups as below will be **given financial incentives.**
- As per Central Pollution Control Board (2021), India's **water treatment capacity is 27.3% & sewage treatment capacity is 18.6 %** (with another 5.2 % in development).

AMRUT 2.0:

✓ Union Govt. launched the AMRUT 2.0 scheme on **1 October 2021**. It aims to:

- Improve sewage management,
- Make cities water secure
- Ensure that no sewage drains anywhere into rivers

✓ AMRUT 2.0 aims to **improve sewage management to make all Indian cities water secure.**

Goals of AMRUT 2.0:

- Provide **100% coverage of water supply** to all households via **2.68 crore tap connections.**
- **100% coverage of sewerage and septage in 500 AMRUT cities** by providing around 2.64 crore sewer or septage connections
- Amrut 2.0 extends coverage from 500 cities under the first phase to **4,700 cities and towns.**

AMRUT has created 1.1 crore household water tap connections and 85 lakh sewer connections, thus benefiting more than 4 crore people.

NATIONAL MISSION FOR MANUSCRIPTS (NMM)

Context: On 9th June, PM Modi will launch the revamped National Mission for Manuscripts (NMM), announced in the 2025 Budget.

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About National Mission for Manuscripts (NMM):

- It is an initiative of the **Ministry of Culture** to preserve and document India's vast collection of manuscripts.
- It was **launched in 2003** to document, conserve, and make accessible India's manuscript heritage.
- The **Indira Gandhi National Centre for the Arts (IGNCA)** serves as nodal agency for implementation of NMM.
- It is dedicated to conserving manuscripts and disseminating the knowledge contained in them, working toward its motto "conserving the past for the future."
- **Scope and Collection:** India possesses an estimate of **5 million manuscripts**, the largest collection in the world. **70% of these are in Sanskrit.**
- **Achievements of NMM:** Between 2003-24, metadata of 52 lakh manuscripts have been prepared, over 3 lakh titles have been digitized and 1/3 of them have been uploaded.
- **Concerns:** Only about 70,000 of the 1.3 lakh uploaded manuscripts are accessible. A significant portion of manuscripts is privately owned, with limited incentive for owners to make them publicly accessible.

Revived NMM (2025 Budget):

- **National Manuscripts Authority:** The Union Ministry of Culture plans to form an autonomous body named National Manuscripts Authority. This will take NMM away from the IGNCA.
- Future Roadmap:
    - Establish **university chairs abroad in departments** that focus on ancient Indian studies.
    - **Involving IPR (intellectual property rights) and legal experts to address issues** related to sale of manuscripts abroad and private ownership.
    - Preserving **non-Brahmi and lesser-known scripts.**

Gyan Bharatam Mission (2025 Budget):

- It was **launched under NMM** to survey, document, and conserve India's vast manuscript heritage.
- It seeks to **conserve over one crore manuscripts** housed in academic institutions, museums, libraries, and private collections.
- To accommodate this initiative, the **budgetary allocation** for NMM has increased from **3.5 crore to 60 crore.**

The NMM defines a manuscript as a handwritten work created on materials

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such as paper, bark, cloth, metal, or palm leaf, and it must be at least 75 years old. Lithographs (rocks) and printed volumes are not manuscripts.

Electronics Components Manufacturing Scheme

- It is the **first dedicated production-linked incentive (PLI) scheme** to promote the **manufacturing of select passive electronic components**, including resistors, capacitors, speakers, microphones, special ceramics, relays, switches, and connectors.

- The scheme will offer **three incentive structures:**
    - **Turnover-linked** incentive (based on revenue)
    - **Capex-linked** incentive (for investments in plants & machinery)
    - **Hybrid** incentive model (a combination of both)
- Incentives for incremental investments and turnover range from 1–10% depending on the year and the component.
- **Employment generation** will be a **mandatory requirement for all applicants**, including both component manufacturers and capital equipment producers. Thus, the scheme not only boosts manufacturing but also creates skilled jobs.
- This scheme has a **tenure of six years**, with a **one-year gestation period.**
- The scheme **focuses particularly on passive electronic components**. In contrast, **active components fall under** the purview of the **India Semiconductor Mission (ISM).**
- This scheme is set to benefit a number of industries, such as automobiles, consumer electronics, and electronics.
- **Notified by:** The Ministry of Electronics and Information Technology

SAMAGRA SHIKSHA ABHIYAN

Context: Tamil Nadu has filed an original suit in the Supreme Court accusing the Centre of stopping its annual share of education funds over ₹2000-crore under the Samagra Shiksha Abhiyan.

About Samagra Shiksha Abhiyan:

- Introduced in the Union Budget 2018-19, it is a comprehensive program covering **education from pre-nursery to Class 12** to

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ensure equitable learning outcomes.

- It subsumes three earlier schemes:
    - **Sarva Shiksha Abhiyan (SSA):** Aims for universal primary education.
    - **Rashtriya Madhyamik Shiksha Abhiyan (RMSA):** Aimed at secondary education.
    - **Teacher Education (TE):** Focused on training teachers.
- It **streamlines implementation across all levels** (state, district, and sub-district), in place of fragmented project-based objectives.
- It aims to ensure free, equitable, and quality education (**SDG 4.1)** while eliminating gender disparities and ensuring access for vulnerable groups (**SDG 4.5**).
- It is a **centrally sponsored scheme (CSS)** implemented by the Union Ministry of Education through a single **State Implementation Society (SIS)** at the State/UT level.
- The scheme covers 1.16 million schools, over 156 million students and 5.7 million Teachers of Govt. and Aided schools (from pre-primary to senior secondary level).

Other Features:

- **Financial support for State Commission for Protection of Child Rights** @ Rs 50 per elementary school in the state, for protection of child rights and safety.
- Holistic, multi-dimensional reports showing progress/uniqueness of each learner in the cognitive, affective, and psychomotor domains will be introduced in the form of **Holistic Progress Card (HPC).**
- **Support for activities of PARAKH**, a national assessment centre (Performance, Assessments, Review and Analysis of Knowledge for Holistic Development),
- Additional **sports grant** of upto Rs. 25000 to schools in case at least 2 students of that school win a medal in Khelo India National School Games.
- Provision for **bagless days**, school complexes, **internships** with local artisans, curriculum and **pedagogical reforms** etc included.
- Support for **Social Audit in 20% of schools per year** so that all schools are covered in a period of 5 years.

Objectives of the Scheme:

- Provision of quality education and **enhancing learning outcomes** of students;

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- **Bridging Social and Gender Gaps** in School Education;
- Ensuring **equity and inclusion** at all levels of school education;
- Ensuring **minimum standards** in schooling provisions;
- Promoting **vocational education;**
- Support States in implementation of **Right of Children to Free and Compulsory Education Act, 2009.**
- **Strengthening and up-gradation of SCERTs/State Institutes** of Education as nodal agencies for teacher training.

AMRIT BHARAT STATION SCHEME

Context: PM Narendra Modi is set to inaugurate 103 Amrit railway stations via video conferencing.

About Amrit Bharat Station Scheme:

- It is an ongoing mission launched in 2023 by the **Ministry of Railways**.
- It aims to **enhance and modernize railway stations** throughout the Indian Railways network.
- The scheme currently intends to upgrade and modernize a total of **1,300 stations** across the Indian Railway system.
- It envisages the development of stations on a continuous basis with a long-term approach.
- It involves the **preparation of Master Plans** and their implementation in phases to improve the amenities at the stations, like improvement of station access, circulating areas, waiting halls, toilets, lift/escalators as necessary, cleanliness, free Wi-Fi, kiosks for local products through schemes like **'One Station One Product'**, better passenger information systems, Executive Lounges, nominated spaces for business meetings, landscaping etc.
- The scheme will cater to each station according to its unique requirements, and also draw **inspiration from the local culture, heritage, and architecture** of the region in the redesign of every station.
- The scheme emphasizes upgrading station structures, integrating stations with the surrounding city areas on both sides, promoting multimodal connectivity, providing facilities for individuals with disabilities (Divyangjans), implementing sustainable and eco-friendly solutions, introducing ballastless tracks, incorporating 'Roof Plazas' when required, and considering the feasibility and phasing of improvements.
- The ultimate goal is to **transform these stations into vibrant city centres** over the long term.

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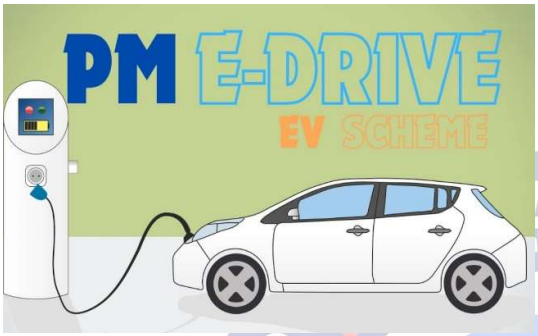
PM E-DRIVE SCHEME

Context: The Ministry of Heavy Industries (MHI) will deploy electric buses under PM E-DRIVE) Scheme, with a focus on cities like Delhi Bengaluru, Hyderabad, Mumbai, etc.



About PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE Scheme):

- The PM E-DRIVE is a flagship scheme approved with a Rs. 10,900 crore outlay; **effective from October 2024, to March 2026.**
- The primary objective of this initiative is to **accelerate the adoption of electric vehicles** (EVs) across various categories, build robust EV **charging infrastructure**, and develop a strong **domestic EV manufacturing ecosystem** aligned with the vision of Aatmanirbhar Bharat.
- PM E-DRIVE **Scheme builds on earlier programs like Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME-I)** (2015) and FAME-II (2019) to accelerate adoption of **electric two-wheelers (e-2W) and three-wheelers (e-3W).**
- Vehicles must be **registered under Central Motor Vehicles Rules**, 1989.
- **Only EVs priced below a specified threshold** are eligible for the scheme.

Key Components of the Scheme:

- **Target beneficiaries:** Commercial and private electric two-wheelers and three-wheelers with advanced batteries, e-ambulances, e-trucks with scrapping certificates, and electric buses for public transport.
- **Demand incentives:** The PM E-DRIVE Scheme offers demand incentives on EVs capped at 15% of the ex-factory price or a fixed per-vehicle limit, whichever is lower.
- **Charging Infrastructure Development:** The scheme aims to set up 72,300 public fast chargers in key cities and select highways to boost EV adoption.
- **EV Super App:** Bharat Heavy Electricals Ltd (BHEL), a public sector unit under the MHI, will develop a digital "Super App" for EV users to book slots, make payments, and check charger availability.
- **Testing Agencies Upgradation:** The scheme allocates Rs 780 crore to upgrade testing agencies under MHI with advanced technologies to support green mobility.

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- **Eligibility:** Only EVs with advanced batteries qualify for incentives. Government-purchased EVs are excluded to prevent internal fund transfers.
- e-2Ws and e-3Ws must be **manufactured and registered within scheme validity** (Oct 2024 – Mar 2026).
- The schemes aims to support India's net-zero 2070 goal. Under schemes like **Electric Mobility Promotion Scheme** (EMPS) and PM E-DRIVE, e-2W sales surged to around 5.7 lakh units in 2024-25.

SWACHH BHARAT MISSION

Context: Union Jal Shakti Minister launched the Swachh Survekshan Grameen (SSG) 2025, India's largest rural sanitation survey.

SWACHH BHARAT ABHIYAN

About Swachh Bharat Mission (SBM):

- It was **launched on Oct 2, 2014**, to fulfil the vision of a clean India. Its objectives were to **eliminate open defecation, eradicate manual scavenging, and promote scientific solid waste management.**
- It consists of two separate sub-missions:
  - **SBM-Grameen (under Ministry of Jal Shakti)**
  - **SBM-Urban (under Ministry of Housing and Urban Affairs)**
- Since its launch, it has helped **construct over 6 lakh community and public toilets** across India.
- It emphasized **behavioural change through mass awareness campaigns,** encouraging citizens to adopt cleaner practices.
- It uses **Swachhta leagues & rankings to create a healthy competition** between states, towns, and cities.

SBM – Grameen (SBM-G):

- It aims to accelerate the efforts to achieve **universal sanitation coverage** and to put **focus on sanitation in policy making.**
- It is being implemented as nation-wide campaign to **eliminate open defecation in rural areas.**
- The rural sanitation coverage at the time its launch was reported as **38.7%. This reached 100% by 2019 (ODF Status).**
  - Now the subsequent goal is to transition **all villages to ODF Plus by 2024-25.**
  - Currently, **85% of villages have attained ODF Plus** status.

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- According to the National Annual Rural Sanitation Survey (NARSS) Round 3 - **95% of India's rural population had toilet access, with 79% owning their facilities**
- **SBM(G) Phase-II:** It emphasizes the **sustainability of achievements under Phase** I and aims to provide adequate facilities for **Solid/Liquid & plastic Waste Management (SLWM)**.
    - It will be implemented from **2020-21 to 2024-25** in with an outlay of Rs. 1,40,881 crores.
- The SLWM component of ODF Plus will be monitored based on **output-outcome indicators for 4 key areas:**
    - Plastic waste management
    - Biodegradable solid waste management
    - Greywater (Household Waste-water) management
    - Faecal sludge management.
- Top 5 performing states: **Tamil Nadu, Telangana, Odisha, Uttar Pradesh and Himachal Pradesh** (maximum number of ODF Plus villages).

SBM – Urban (SBM-U):

- It aims to make cities and towns across India free from open defecation. It focuses on **door-to-door waste collection, waste segregation, and scientific waste processing via bio-methanation plants & material recovery facilities.**
- It has mobilized over Rs **20,000 crores for investment in solid and liquid waste management systems** to strengthen urban infra across India.
- **Phase 1 focused on making urban India ODF** by providing access to toilets and promoting behavioural change.
    - SBM-U 1.0 was successful in achieving its targets and **100% of urban India was declared ODF in 2019** - covering **4.715 urban local bodies (ULBs).**
    - **3,547 ULBs are ODF+** with functional and hygienic community and public toilets.
    - **1,191 ULBs are ODF++**, having complete faecal sludge management.
    - **14 cities are certified Water+,** which entails treatment of wastewater & optimum reuse.
- **SBM-U 2.0 was announced in Budget 2021-22**, and is the continuation of SBM-U first phase. It will be implemented from 2021 to 2026.
    - **SBM-U 2.0 will go beyond ODF++ and will focus on making urban India garbage-free.** It focuses on sustainable

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sanitation practices, waste management, and promotion of a circular economy.

- **Waste Processing in India has gone up by over 4 times from 17% in 2014 to 75% in 2023**, aided through **100% door-to-door waste collection in 97% wards.**
- **Source segregation of waste** is being practised by citizens across **almost 90% wards in all ULBs**.
- **Garbage Free Cities (GFC) Star Rating** protocol was launched in Jan 2018. The number of GFC cities has increased from **only 56 cities in 2018 to 445 cities in 2023, with a target of at least 1,000 GFC cities by 2026.**
- **2023 Budget has further reinforced India's commitment to building a circular economy** through an enhanced focus on scientific management of dry and wet waste.

Open Defecation Free (ODF) Status:

- ✓ **ODF:** An area can be declared as ODF if at any point of the day, not even a single person is found defecating in the open.
- ✓ **ODF+:** At any point of the day, not a single person is found defecating in the open, and all public toilets are functional and well maintained.
- ✓ **ODF++:** Area is already ODF+ and faecal sludge/septage and sewage are safely managed & treated, with no dumping of untreated faecal sludge and sewage into open drains or water bodies.

GALLANTRY AWARDS

Context: The President of India conferred Gallantry Awards to personnel from the Armed Forces Paramilitary Forces, and State/UT Police that were announced on the eve of the 76th Republic day (2025).

What are gallantry awards?

- Gallantry Awards are prestigious **honours bestowed upon personnel of the Indian armed forces and occasionally civilians,** recognizing their bravery, valour, and sacrifice.
- These awards are given for displaying conspicuous gallantry, indomitable courage, and extreme devotion to duty.
- **President of India confers these awards** in the name of the Republic of India.
- The first three gallantry awards:
  - **Param Vir Chakra**
  - **Maha Vir Chakra**
  - **Vir Chakra**

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were instituted by the Government of India on 26th January 1950 and were deemed to have effect from the 15th August 1947.

- Later, 3 more gallantry awards: **Ashoka Chakra Class I, Class II and Class III** were instituted in 1952, deemed to have effect from 15th August 1947.
    - These were created to honour those who perform acts of **bravery during peacetime** (not during an officially declared war).
    - These three awards were **renamed Ashoka Chakra, Kirti Chakra, and Shaurya Chakra** respectively in January 1967.
- **Order of precedence:** Param Vir Chakra > Ashoka Chakra > Mahavir Chakra > Kirti Chakra > Vir Chakra > Shaurya Chakra.

Param Vir Chakra (PVC)

- **Highest military decoration** in India.
- Awarded for the most conspicuous bravery or some daring or pre-eminent act of courage or self-sacrifice, in the presence of the enemy, whether on land, at sea, or in the air.

Mahavir Chakra

- **Second highest military decoration** in India.
- Awarded for acts of conspicuous gallantry in the presence of the enemy, whether on land, at sea, or in the air.

Vir Chakra

- **Third in precedence among wartime gallantry awards.**
- Awarded for acts of gallantry in the presence of the enemy, whether on land, at sea, or in the air.

Ashoka Chakra

- It is the highest peacetime gallantry award and is **equivalent to the Param Vir Chakr**a. It is awarded for valour, courageous action, or self-sacrifice away from the battlefield.
- It can be awarded to both military and civilians, including posthumous awards.

Kirti Chakra

- Second highest peacetime gallantry award. It is the **peacetime equivalent of the Maha Vir Chakra.**
- Awarded for displaying conspicuous gallantry, indomitable courage, and extreme devotion to duty. or self-sacrifice away from the field of battle.

Shaurya Chakra

- Third highest peacetime gallantry award. It is **the peacetime equivalent of the Vir Chakra.**
- Awarded for gallantry, courageous action, or self-sacrifice while not engaged in direct action with the enemy.

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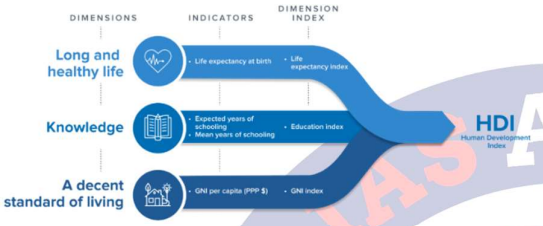
Reports and Indices

HUMAN DEVELOPMENT REPORT 2025

Context: The United Nations Development Programme (UNDP) released the Human Development Report 2025.



About the Human Development Report:

- Released by: United Nations Development Programme **(UNDP) annually since 1990.**
- Objective: Examines major global challenges that affect human development and makes appropriate recommendations.
- **Human Development Index (HDI)**: HDI published since 1990, is the core of the HDR.
    - HDI is a statistical measure used to quantify a country's achievements in 4 criteria - **Life expectancy at birth, Expected years of schooling, Mean years of schooling, and Gross National income per capita.**
    - HDI value is determined by aggregating the country's scores in 4 indicators and these indicators are compiled into a single number between 0 and 1.0 based on dimension indices.
    - Developed by: Pakistani economist **Mahbub ul-Haq.**
    - Limitations: The HDI captures only part of what human development entails. It **does not reflect on inequalities, poverty, empowerment, etc.**

Key Findings about India

- **HDI Rank improved to 130** in 2022 from 135 in 2021 (and 130 in 2018) out of 193 nations.
- HDI Value increased to **0.685** from 0.633 in 2021.
- **Life expectancy at birth**: 72.1 years (in 2024) from 58.6 (in 1990).
- **Expected years of schooling**: 13.2 years from 8.2 years in 1990.
- **Mean years of schooling**: Increased to 6.57 years.
- **Gross National Income per capita**: Rose over four times, from $2167.22 (1990) to $9046.76 (2023), and 135 million Indians escaped multidimensional poverty between 2015-16 and 2019-21.

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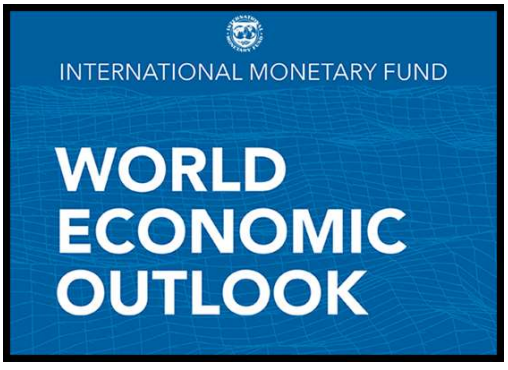
- Category: **Medium human development category.**
- **Comparison with neighbourhood**: India ranks below China (75), Sri Lanka (78), Maldives (87), Bhutan (125), and Bangladesh (129). Myanmar (144), Nepal (146), Pakistan (164) and Afghanistan (182) have been ranked lower than India.

Other Highlights of the Report

- **Top Three:** Switzerland (0.967), Norway (0.966) and Iceland (0.959).
- **Bottom Three:** Somalia (0.380), South Sudan (0.381), Central African Republic (0.387).
- **Major Economies:** USA (0.927), UK (0.889), Japan (0.878), Russia (0.821), China (0.788)
- **Countries Not Ranked** in Index: North Korea and Monaco.

2025 World Economic Outlook Report

Context: The IMF's (International Monetary Fund) World Economic Outlook projects that India will surpass Japan to become the fourth-largest economy in 2025.



About World Economic Outlook (WEO):

- The WEO, **published biannually in April and October by the IMF,** provides analysis and projections for the global economy and individual countries. It aims to **assess economic developments, identify trends, and offer policy recommendations.**
- Key components include forecasts for global and regional economic performance, insights into inflation, and an evaluation of financial stability risks.
- The WEO serves as an **essential tool for policymakers, researchers, and investors** to understand and navigate the economic landscape.

WEO April 2025 – Global Findings:

- **Global Growth Forecast:** IMF revised global growth down to **2.8% for 2025,** and projected **3.0% growth for 2026.**
    - The world's largest economy, **the US, is projected to grow by just 1.8%,** due to policy uncertainty and trade tensions.
- **Emerging Markets:** Growth in emerging markets and developing economies is projected to slow, with a 3.7% growth rate forecast for 2025, though still above the global average.
- **Global Inflation:** Inflation rates will decline, but at a slower pace

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than anticipated, and risks remain, particularly from trade tensions and volatile financial markets.

- **Aging Economies:** Global economies are experiencing rapid aging, due to declining fertility rates and rising life expectancy. This shift from a demographic dividend to a demographic drag presents challenges for economic growth. The **average age of the world's population is projected to increase by 11 years** between 2020 and 2100.
    - However, improvements in health and longevity have significantly enhanced the quality of life in older age. A 70-year-old in 2022 had cognitive abilities similar to those of a 53-year-old in 2000.
    - Healthy aging is projected to add 0.4% to global GDP growth between 2025 and 2050.

WEO April 2025 – India Findings:

- **Growth forecast:** While India's growth forecast has been slightly **revised down from 6.5% to 6.2%** for 2025, it remains the fastest-growing major economy among its global counterparts.
- The IMF projects India's **nominal gross domestic product (GDP) to reach USD 4.187 trillion in 2025**, surpassing Japan's USD 4.186 trillion.
- Comparisons to competitors: Despite the downtrend, India continues to outperform most global and regional competitors, including China, which is projected to grow at a slower rate.
    - **China's GDP growth forecast for 2025 has been downgraded to 4.0% from 4.6%,** making India's growth stand out.
- **Private consumption:** A key driver of India's growth is private consumption, particularly in rural areas, which is expected to remain strong, even amid global economic uncertainty.

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Terms in News

WHITE HYDROGEN

Context: If harvested in a sustainable manner, natural hydrogen or white hydrogen may provide a clean and potentially low-cost fuel to satisfy the world's increasing energy needs.

About White Hydrogen:

- White hydrogen is also referred to as **'natural', 'gold' or 'geologic' hydrogen**.
- It is **naturally produced in the Earth's crust** and is considered a potential clean energy source.
- It generally exists combined with other molecules.
- White hydrogen has **several advantages** over other types of hydrogen:
    - It causes **no CO2 emissions** when used as a fuel.
    - It is **compatible with existing infrastructure** and technologies for hydrogen production and utilization.
    - It is **cheaper and more efficient** than **steam reforming or electrolysis**.
    - It is **abundant and renewable** in nature.
- Its **deposits** have been found across the world, including in the **US, eastern Europe, Russia, Australia, France** and other countries.
- It is estimated that globally there could be tens of billions of tons of white hydrogen.

Types of hydrogen

- ✓ **Grey Hydrogen:** It is produced via **coal or lignite gasification** (black or brown), or via a process called **steam methane reformation (SMR)** of natural gas or methane (grey). These tend to be mostly carbon-intensive processes.
- ✓ **Blue Hydrogen:** It is produced via **natural gas or coal gasification combined with carbon capture storage (CCS) or carbon capture use (CCU)** technologies to reduce carbon emissions.
- ✓ **Green Hydrogen:** It is produced using **electrolysis of water with electricity generated by renewable energy**.
- ✓ **Turquoise Hydrogen:** It is produced through a process called **pyrolysis**, where natural gas is heated in the absence of oxygen to

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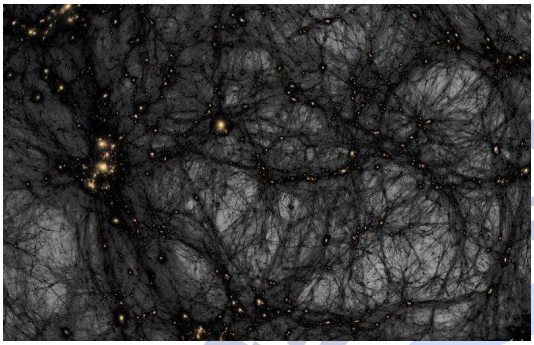
produce ydrogen and solid carbon (also known as **carbon black**).

Pink Hydrogen: Similar to green hydrogen, but instead of renewable energy, **nuclear energy** is used to power the electrolysis process

Dark matter



- Dark matter is a **hypothetical form of matter that is believed to exist in the universe** but is invisible and does not interact with light.

Importance of Dark Matter:

- Dark matter is essential to **explaining the observed structure of the universe**.
- It helps to account for the distribution of matter in galaxies and the cosmic web.
- Understanding dark matter is important for developing a complete understanding of the universe and its evolution.

Dark Energy:

- It is a type of energy that is thought to be **responsible for the accelerating expansion of the universe**.
- It is a form of energy that fills the entire universe and exerts a **negative pressure**, pushing galaxies and other matter away from each other.
- Dark energy is estimated to make up about **68%** of the total energy content of the universe.

Evidence Related to Dark Matter:

- There is strong **indirect evidence**, as reflected in various levels like distance scales:
    - For example, as we move from the centre of the galaxy to its periphery, there is a significant disparity between the observed plot of star speeds and their estimated figure.
    - This implies that the galaxy has a significant amount of dark matter.

Other Distance Scale Evidence:

- There are **Bullet clusters of galaxies** that are formed through the merging of two galaxies, as per scientists their merger could only be explained through the presence of some dark matter.

AIM4NatuRe Initiative

- **Accelerating Innovative Monitoring for Nature Restoration** (AIM4NatuRe) is a global initiative **launched by the Food and Agriculture Organization (FAO)** to enhance countries' ability to **monitor and report ecosystem restoration.**

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- With £7 million (USD 9.38 million) from the **United Kingdom**, the initiative will run from 2025 to 2028, focusing on restoring 30% of degraded ecosystems globally by 2030, in alignment with the **Kunming-Montreal Global Biodiversity Framework (GBF).**

Key Features:

- Utilizes advanced **technology and data frameworks** for ecosystem restoration monitoring.
- Targets restoration across forests, wetlands, grasslands, marine ecosystems, and agricultural lands.
- Integrates **indigenous knowledge** in restoration efforts.
- Develops tools like the **Framework for Ecosystem Restoration Monitoring (FERM)** and builds a unified global dataset for transparency.
- The **World Bank** will provide funding and technical expertise for financing and implementing ecosystem restoration.

Special 301 Report

- India has been placed on the 'priority watch' list of the **US Trade Representative (USTR) office's Special 301 Report** on intellectual property rights (IPRs).
- It is an annual publication by the USTR, mandated under the Trade Act of 1974. It identifies countries that **do not provide adequate protection of IPRs** or fail to ensure fair market access for US IPR holders.
- Countries are classified into three categories: Priority Foreign Country, Priority Watch List, and Watch List.
    - Designation as a **Priority Foreign Country** can cause investigations and imposition of trade sanctions.
    - Countries on the **Priority Watch List** are considered to have serious IPR-related deficiencies that warrant heightened US scrutiny.
    - Nations with IPR concerns, but not deemed urgent, are placed on the **Watch List**.
- **India, along with China, Indonesia, Russia, and Argentina,** has been placed on the Priority Watch List.

Orange Economy

- The **creative industries** are a group of economic activities that are based on original ideas. They include **businesses centered around creativity**, such as:

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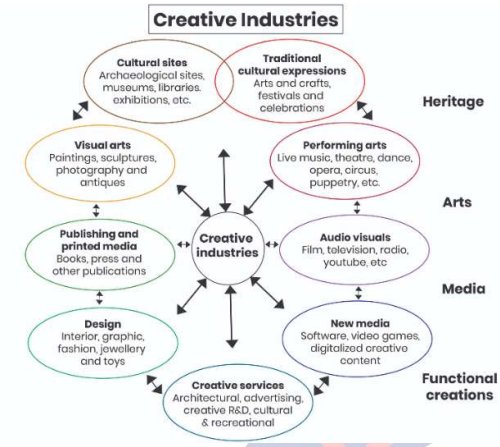
Design, Music, Architecture, Film, Video, Crafts, Visual arts, Fashion, TV, Radio, Literature, Computer games, etc.



- The creative industries are **also known as cultural industries or the Orange Economy.**
- It is the contribution made to the **economic and cultural value chain** by activities that involve formally or informally acquired skills and embody a huge amount of original ideas, skills, imagination, or social behaviours that are non-repetitive and are **adaptive to technological change and mechanization.**
- According to the United Nations Conference on Trade and Development (UNCTAD), the creative economy is seen as an evolving concept that builds on the '**interplay between human creativity and ideas and intellectual property, knowledge and technology'.**
- Creative industries are a significant source of commercial and cultural value in India. They contribute to **3.1% of global GDP** and are contribute about **8% of India's employment.**
- Estimates suggest that India's creative economy accounts for an overall market size of about $36.2 billion.

Green Municipal Bond

- **Ghaziabad Municipal Corporation** (in National Capital Region) has issued India's first certified Green Municipal Bond, raising ₹150 crore to develop a Sewage Treatment Plant.
- A Green Municipal Bond is a **debt instrument issued by urban local bodies (ULBs) to fund environment-friendly infrastructure projects** such as water treatment, clean energy, or waste management.
- A **green bond** is a debt instrument with which capital is being raised to fund 'green' projects, which typically include those relating to renewable energy, clean transportation, sustainable water management etc.
- **In 2007, green bonds were launched by few development banks** such as the European

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Investment Bank and the World Bank. Later, in 2013, corporates too started participating, which led to its overall growth.

- The Securities and Exchange Board of India (**SEBI) mandates disclosure norms for issuance and listing of green bonds,** including green municipal bonds.
- Greenium refers to the lower yield that issuers of green bonds pay to investors in the financial market compared to conventional bonds. This happens because many investors are willing to accept slightly lower returns in exchange for environmentally friendly projects. As a result, the high demand for green bonds allows issuers to raise funds more cheaply, creating a "green premium" (or greenium) in the market.

PRAGATI Platform

- Prime Minister Narendra Modi recently chaired the meeting of the 46th edition of PRAGATI.
- **PRAGATI (Pro-Active Governance & Timely Implementation) Platform was launched in 2015** to introduce e-transparency and e-accountability in welfare schemes. The platform addresses public grievances and monitors essential govt programs.
- It operates on three technologies: **Digital Data Management, Video-Conferencing & Geospatial Tech.**
- It is a **3-tier system** involving the Prime Minister's Office (**PMO), Union Government Secretaries, and Chief Secretaries** of the States.
- It enables the **PM to discuss the issues with the concerned central and state officials** with full information and visuals of the ground-level situation.
- The PM holds a **monthly program** generally on the Fourth Wednesday (PRAGATI Day).
- Union Government and Chief Secretaries provide comments and updates on the flagged issues

National Medical Register (NMR) Portal

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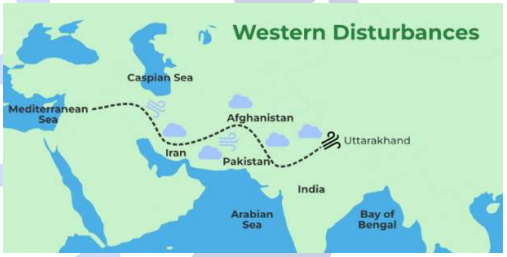
- Less than 1% of India's doctors have applied for enrolment in the NMR eight months after its launch.
- The NMR Portal is an **initiative by the National Medical Commission (NMC)** to create a complete and dynamic digital **database of all registered allopathic (MBBS) doctors** in India.
- This portal is mandated by **Section 31 of the NMC Act, 2019** and is managed by the Ethics & Medical Registration Board (EMRB) of the NMC.
- It aims to provide a secure and **accurate record of all doctors practicing in India.**
- NMR provides a single, continuously updated digital record of all MBBS doctors in India, including their **names, addresses, and qualifications.** The portal is **linked to the Aadhaar IDs** of doctors, ensuring authenticity and accuracy of the information.
- **Doctors can easily register online** by uploading their degree and registration certificates, along with their Aadhaar numbers.
- The NMR is integrated with the Healthcare Professional Registry under the Ayushman Bharat Digital Mission, enhancing the management and transparency of healthcare data.
- It provides a centralized, verified record of all doctors, **ensuring only qualified professionals practice medicine.** It also fosters trust in the healthcare system by making verified information about medical professionals easily accessible.

Western Disturbances

- Western Disturbances are eastward-moving, extra-tropical weather systems that bring sudden winter rainfall to the northwestern parts of the Indian subcontinent.
- These disturbances originate beyond Iran and Afghanistan and travel across these countries, as well as Pakistan, before reaching India.



Origin and Characteristics:

- They are driven by low-pressure systems that form due to the interaction of polar and tropical air masses.
- These systems pick up moisture from the Mediterranean Sea, Black Sea, Caspian Sea, and occasionally the Arabian Sea.
- They are embedded in the Subtropical Westerly Jet Stream (STWJ), which flows from west to east at high altitudes over the Himalayas and Tibetan Plateau.

- **Seasonal occurrence**: Most active during the boreal winter months (December to March), but can also affect weather patterns during the pre-monsoon and post-monsoon periods.
- **Geographical impact**:
    - Affect weather in northwestern India, northern Pakistan, parts of Afghanistan, and Tajikistan.
    - In India, they bring winter rainfall to states like Punjab, Haryana, Rajasthan, Himachal Pradesh, Uttarakhand, and parts of Uttar Pradesh.
    - Often responsible for snowfall in the Himalayas and cold wave conditions in the plains.

Importance for Agriculture:

- Beneficial for Rabi crops, especially wheat, by providing much-needed winter rainfall.
- However, excessive rainfall or untimely storms can damage standing crops and disrupt normal life

Natural Hydrogen

- Hydrogen is considered the fuel of the future due to its potential to decarbonise the global economy and reduce greenhouse gas emissions significantly.
- Natural hydrogen, also known as white hydrogen, refers to naturally occurring molecular hydrogen in the Earth's crust, unlike industrially produced hydrogen.
- It is generated through geological processes, primarily:
    - **Serpentinization** – a reaction between water and iron-rich rocks.
    - **Radiolysis** – breakdown of water molecules by radioactive rocks.
    - Decomposition of organic matter in deep geological formations.

Importance

- Natural hydrogen is a clean energy source that, if harvested sustainably, can significantly reduce carbon emissions.
- It can provide a low-cost and low-emission alternative to conventional hydrogen sources like grey hydrogen (from natural gas) and green hydrogen (from renewable electricity).
- The cost of natural hydrogen extraction may fall to around $1/kg or less, which is lower than current green hydrogen production costs.
- Natural hydrogen is typically associated with tectonically active regions, ultramafic and basaltic rocks, ophiolite complexes, and hydrothermal systems.
- In India, potential-rich regions include:

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- Cratonic belts (e.g., Dharwar, Singhbhum)
- Sedimentary basins (e.g., Vindhyan, Cuddapah, Gondwana, Chhattisgarh)
- Ophiolitic zones in the Andaman Islands and Himalayas.
- Basement rock fracture zones and hot springs.

Druze Community

- The Druze are an **ethnoreligious minority** that largely identifies as **Arab and is Arabic-speaking**.
- The Druze religion grew out of Ismaili **Shia Islam in the 11th century** but has evolved to **include aspects of other religions, including Hinduism**, as well as ancient philosophies.
- The faith believes in reincarnation while recognizing traditional figures in Islam, Christianity and Judaism.
- The minority has remained largely separate from surrounding communities with no proselytising and marriage outside the faith discouraged.
- The community is found in **Syria, Lebanon, Jordan, Israel and the Golan Heights** – Syrian territory occupied by Israel.
- Israel took the majority of the **Golan Heights in the 1967 Arab-Israeli War** and then **annexed that area in 1981** despite condemnation by the United Nations and the international community.
- Only the United States recognizes Israel's sovereignty over the Golan, which is strategically important because it overlooks the plains of northern Israel and southwestern Syria.
- Recently the community has come into the limelight over an alleged Hezbollah attack in Israeli occupied Golan heights and retaliation in Lebanon by Israel.

Rabies

- Rabies is a **vaccine-preventable, zoonotic, viral disease**.
- It is caused by a **Ribonucleic Acid (RNA) virus** that is present in the

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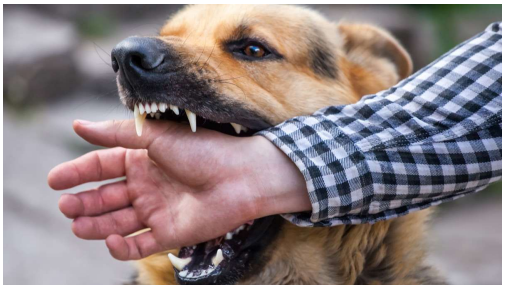
saliva of a rabid animal (dog, cat, monkey, etc).



- It is invariably transmitted following a **bite of an infected animal** that leads to deposition of the saliva and the virus in the wound.
- Once clinical symptoms appear, rabies is virtually **100% fatal**.
- The death invariably occurs in four days to two weeks due to cardio-respiratory failure.
- In up to 99% of cases, domestic dogs are responsible for rabies virus transmission to humans.
- The incubation period varies from 2–3 months but may vary from 1 week to 1 year, or rarely even more.

Treatment:

- Rabies can be prevented by **vaccinating pets**, staying away from wildlife, and seeking medical care after potential exposures before symptoms start.

Symptoms:

- The first symptoms of rabies may be **similar to flu** and may last for a few days, which includes:
  - Fever, Headache, Nausea, Vomiting, Anxiety, Confusion, Hyperactivity, Difficulty swallowing, Excessive salivation, Hallucinations, Insomnia.

Operation Parakram

- Operation Parakram was a **major military deployment by India** in **response to the 2001 Indian Parliament attack**.
- It involved a large-scale mobilization of troops along the Indo-Pak border.
- It was the first such large-scale mobilization since the 1971 Indo-Pak war.
- While it did not escalate into a full-fledged war, it was a significant demonstration of India's military readiness and a form of **deterrence signaling**.

Safe Harbour

- "Safe Harbour" in the **Information Technology (IT) Act, 2000** refers to legal immunity accorded to Internet Service Providers (ISPs) and other intermediaries that host or

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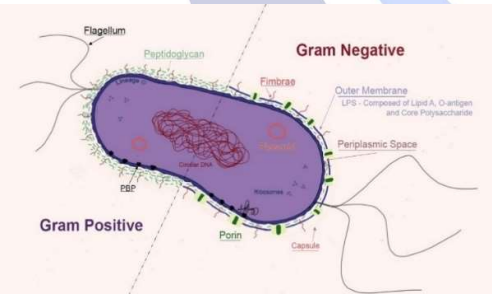
transmit third-party content on the internet.

- As per **Section 79 of the IT Act**, ISPs and other intermediaries are **absolved from liability for 3rd-party content they host or transmit, if they adhere to certain conditions.**
- The conditions include not initiating transmission of the content, not altering the content, and promptly removing or disabling access to the content upon receiving knowledge or notification of its illegality.
- It **aims to foster internet and e-commerce growth** by giving legal certainty to intermediaries, while **holding them accountable for illegal content if they have knowledge of it.**

Gram Negative Bacteria



- Gram-negative bacteria have a **thin peptidoglycan layer in their cell wall**, between the outer & inner membrane. This acts as a **barrier against antibiotics** & thus, they are generally **more resistant to antibiotics.**
- This layer acts as a **protective capsule** and helps prevent white blood cells (which fight infection) from ingesting the bacteria. When disrupted, this **layer releases toxic substances called endotoxins**. Endotoxins contribute to severe symptoms during infections with bacteria. Egs: E. coli, Salmonella, Pseudomonas, Gonorrhoeae
- They are known to cause infections like pneumonia, bloodstream and wound infections, and meningitis.
- To the contrary, **gram-positive bacteria are more susceptible to antibiotics** because their thick peptidoglycan layer allows antibiotics to penetrate easily. Egs: Anthrax Streptococcus, Clostridium, etc.
- **Gram-negative bacteria stain pink or red** when subjected to the Gram staining technique. **Gram-positive bacteria appear purple or blue** under a microscope after staining.

Total Allowable Catch (TAC)

- TAC refers to the **maximum quantity of a specific fish species that can be legally harvested in a defined period.**

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- It is established to prevent overfishing and ensure sustainable fish populations.
- These limits are **essential for maintaining ecological balance** and supporting long-term fishing industries.
- TACs are set by international fisheries management organizations like the **FAO (Food and Agriculture Organization) and RFMOs (Regional Fisheries Management Organizations)** for shared or migratory fish stocks.
- **European Union (EU):** TACs are managed under the Common Fisheries Policy (CFP), which sets quotas for member states based on scientific advice. All catches are counted against allotted quotas, preventing waste.
- **India:** India enforces a seasonal fishing ban in its Exclusive Economic Zone (EEZ) for 61 days to protect breeding fish. This ban serves as a TAC equivalent of zero for specific periods, supporting fish stock regeneration.

Stratospheric Airship Platform

- The Defence Research and Development Organisation (DRDO) successfully conducted the **maiden flight trials of its Stratospheric Airship Platform** at an altitude of around 17 km.
- It is an **unmanned airship** designed for **high-altitude operations** in the **stratosphere**, typically between 17 to 22 kilometres above Earth.
- It operates as a **High-Altitude Pseudo-Satellite (HAPS)**, which can remain airborne for extended periods and utilizes helium for buoyancy.
- Unlike satellites or aircraft, it **can stay over a specific area for extended periods,** offering persistent surveillance and communication.
- During the flight, data from onboard sensors was collected for the development of high-fidelity simulation models for future high-altitude flights. This **strengthens India's earth observation and Intelligence, Surveillance & Reconnaissance (ISR) capabilities.**
- High-Altitude Pseudo-Satellite (HAPS) is a solar-powered unmanned aerial vehicle (UAV). They operate in the stratosphere (6-50 km above the earth's surface), flying at altitudes of 18-20 km, nearly double the heights of commercial aeroplanes. This allows them to provide surveillance akin to those by satellites.

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Operation Sindoor

- India launched **Operation Sindoor in retaliation for the April 2025 Pahalgam terrorist attack**, targeting 9 terrorist sites in Pakistan and Pakistan-occupied Jammu & Kashmir.
- It was executed through the coordinated efforts of the Army, Navy, and Air Force. Unlike past operations with aggressive names, this operation's **name was chosen as a personal tribute to the victims, particularly widows.**
- India targeted terror facilities linked to Jaish-e-Mohammed, Lashkar-e-Taiba, and Hizbul Mujahideen. This aimed to dismantle terrorist infra used for attacks against India.
- Indian Air Force (IAF) used advanced systems like **SCALP Cruise Missiles, HAMMER Precision-Guided Bombs, and Loitering Munitions** to carry out these operations with high accuracy and minimal collateral damage.
- **SCALP Cruise Missile**: SCALP stands for "Storm Shadow", a long-range, air-launched cruise missile. It was used for strikes against high-value, fixed targets. It was developed by MBDA, a European defense firm.
- **HAMMER Precision-Guided Bomb:** The HAMMER (Highly Agile Modular Munition Extended Range) missile was used to engage targets requiring medium-range precision, such as dynamic or mobile terrorist sites. It was developed by Safran Electronics & Defense, a French company.
- **Loitering Munitions:** Also known as "kamikaze drones", they are used for surveillance and target engagement, loitering over enemy territory before executing precision strikes.

Barak 8 Missiles

- Barak 8 is an **Indian-Israeli jointly developed surface-to-air missile (SAM) system**, designed to defend against any type of airborne threat including aircraft, helicopters, anti-ship missiles, and UAVs as well as ballistic missiles, cruise missiles and combat jets.
- Both maritime and land-based variants of the system exist.

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- Barak 8 was jointly developed by India's **Defence Research & Development Organisation (DRDO) and Israel Aerospace Industries (IAI).**
- The missile has maximum speed of **Mach 2 with a maximum operational range of 100 km**.
- Barak 8 features a dual pulse rocket motor as well as thrust vector control, and possesses high degrees of maneuverability at target interception range.
- A second motor is fired during the terminal phase, at which stage the active radar seeker is activated to home in on to the enemy track.
- Barak 8 has been designed to counter a wide variety of airborne threats, such as anti-ship missiles, aircraft, UAVs drones and supersonic missiles.
- When coupled with a modern air-defense system and multi-function surveillance track and guidance radars, Barak 8 enables the capability to **simultaneously engage multiple targets during saturation attacks.**

Scalp Missiles

- The SCALP missile, also known by its British name, **'Storm Shadow',** is a l**ong-range, air-launched cruise missile**.
- It is conventionally armed and used for deep strike missions against high-value, fixed or stationary targets.
- Its full name, Systeme de Croisiere Autonome a Longue Portee, underscores its role as an autonomous, extended-range strike weapon.
- It is **jointly developed by the United Kingdom and France.**
- It is **also in service with** the air forces of **Egypt, India, Italy, Greece, Saudi Arabia, Qatar,** and the United Arab Emirates (**UAE**).

SCALP Missile Features

- It has a **range** of around **500 km.**
- Weighing 1,300 kg, it carries a 450 kg conventional warhead capable of penetrating hardened bunkers.
- It is around five metres long and has a wingspan of three metres.
- **Flying at subsonic speeds** (around Mach 0.8) and **low altitudes,** it **uses terrain-following navigation, GPS/INS guidance**, and **infrared terminal homing** for high accuracy.
- These features allow it to **fly at low altitudes to evade enemy radar** detection.
- **As it approaches its target**, the missile's **infrared guidance system compares the target**

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with preloaded images to ensure high accuracy and minimise collateral damage.

- Designed for stealth and precision, the SCALP is capable of operating in any weather conditions.
- **Launch platform:** India integrates SCALP with the **Rafale fighter jets**, which are currently operated by the Indian Air Force.

Akash Air Defence System

- It is a **Short-Range Surface to Air Missile System** to protect vulnerable areas and points from air attacks.
- It was indigenously designed and **developed by** India's Defence Research and Development Organisation (**DRDO) and is produced by Hyderabad-based Bharat Dynamics Ltd (BDL).**
- The missile was inducted into the Indian Air Force in 2014 and in the Indian Army in 2015.
- In 2022, **Armenia** became the **first foreign country to buy** this missile system.

Akash Air Defence Missile System Features

- It is 5.8 m long, has a diameter of 350 mm and a wingspan of 1,105mm.
- **Range of Operation: 4.5 km to 25 km**
- Altitude of Operation: 100 m up to 20 km
- Guidance System: Command Guidance
- Target types: Helicopters, Fighter aircrafts, UAVs etc.
- It can **simultaneously engage Multiple Targets** in Group Mode or Autonomous Mode.
- It has built-in Electronic Counter-Counter Measures (ECCM) features.
- It has high immunity against active and passive jamming.
- The entire weapon system has been configured on **mobile platforms.**
- **Open system architecture** ensures adaptability to existing and futuristic Air Defence environments.
- The most important element of the Akash SAM system battery is its **high-power, multi-function Rajendra phased array radar.**
    - The 3D passive electronically scanned array Rajendra radar (PESA) can **electronically scan and guide the**

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missile towards targets.

- It **provides information** on the range, azimuth, and height **of a flying target.**

S-400 Missile system

- The S-400 Missile system is a **surface-to-air missile system** (SAM) and one of the **most advanced anti-aircraft systems** developed by **Russia.**
- It is designed to **defend against a wide range of air threats** which include- aircrafts, ballistic, cruise missiles and unmanned aerial vehicles (UAVs).
- The missile defence system includes- multifunctional radars, automated command centres, four types of missiles, and mobile launchers.
- **Capability:**
  - S-400 has a **maximum range of up to 400 km.**
  - It can **destroy targets at a height of 10 m to 30 km.**
  - It **can track up to 80 targets simultaneously**, engaging up to 36 of them at once.
- **Missiles**:
  - **40N6:** Long-range missile (400 kms)
  - **48N6:** Medium-range missile (250 kms)
  - **9M96E2:** Short to Medium-range missile (120 kms)
  - **9M96E:** Short-range missile (40 kms)
- The **S-400's radar system includes several different sensors** for detection of short-range, medium-range and long-range targets.
  - The main one is the **91N6E Big Bird**, a **three-dimensional phased-array radar** capable of detecting targets at **long ranges.**
  - The **92N6E Grave Stone radars** are used to guide the missiles and **more accurately detect medium and short-range targets.**
  - The system relies on **integrated command control** with a 55K6E module that coordinates actions between launchers and radars, ensuring a quick response when a threat is detected.

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- **Mobility:** The S-400 system is mobile, can be mounted on trucks, and thus, allows for easy repositioning and deployment in different terrains.
- **Superiority:**
    - **S-400 can be deployed in 5 minutes** as opposed to Patriot's 25 minutes (Patriot is one the United States's most advanced missile defence systems).
    - Patriot's top speed of 1.38 km/sec is surpassed by the **S-400's top speed of 4.8 km/sec,** making it one of the **fastest surface-to-air missiles** in the world. This high speed allows the system to intercept ballistic missiles and other fast-moving targets.
    - The S-400 system contains **four different types of missiles** with maximum ranges of 40 km, 120 km, 250 km, and 400 km, as well as a maximum height of 30 km. By using different ranges and heights, an **air defence net with numerous levels is produced.**
    - The American THAAD is a one-dimensional missile system that can only fire one type of missile up to a range of 150–200 km.
    - Patriot has a maximum range of 180 km.
- **Utility:**
    - India plans to use the S-400 systems as a key element of its **air defence strategy focused on defending against air and missile threats**, particularly from China and Pakistan.
    - The systems are **set to be deployed at strategic locations**, including on the northeastern border.
    - The systems will provide a significant advantage by **enabling early warning and precision targeting of enemy targets**, which is critical to India's defence strategy in the context of rising tensions in the region.

Su-30 MKI Fighter Jet

- It is a **multirole combat fighter aircraft** jointly developed by the Sukhoi Design Bureau and Hindustan Aeronautics Limited (HAL) for the Indian Air Force (IAF).
- Based on the Su-30 fighter aircraft of Russia, Su-30MKI is equipped with thrust vectoring control and canards.

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- **Features**
    - It is the **fourth-generation fighter jet** powered by two AL-31 FP aero engines. AL-31FP is a high-temperature turbojet by-pass engine of modular design.
    - The Su-30MKI fleet of IAF was fitted with air-launched version of BrahMos supersonic cruise missiles and was successfully tested in November 2017.
    - It is fitted with a **tarang radar warning receiver** (RWR) indigenously developed by the **Defence Research and Development Organisation (DRDO)**.
    - The aircraft has a maximum unrefuelled flight range of 3,000km. The in-flight refuelling system of Su-30MKI provides a maximum range of 8,000km with two refuellings.
- **Manufacturer:** Hindustan Aeronautics Limited (HAL)

Dassault Rafale

- Dassault Rafale is a **4.5 generation, twin-engine, delta-wing, multirole fighter aircraft manufactured by Dassault Aviation.**
- Capable of Speeds up to Mach 1.8 and a combat radius exceeding 1000 km.
- Designed for **air superiority, ground support, reconnaissance, and anti-ship missions.**
- Equipped with RBE2 AESA radar, SPECTRA electronic warfare suite, front sector optronics, and omnidirectional warning systems.
- Powered by 2 SNECMA M88 turbofan engines, providing super cruise capability **(supersonic flight without afterburners).**
- 14 hardpoints can carry external payloads up to 9,500 kg.
- Rafale Variants
    - **Rafale C**: Single-seat Air Force version.
    - **Rafale B**: Twin-seat version for training with full combat capability.
    - **Rafale M**: **Naval variant**, designed for **carrier-based operations**, with **reinforced landing gear** and **tailhook** for short-deck landings.

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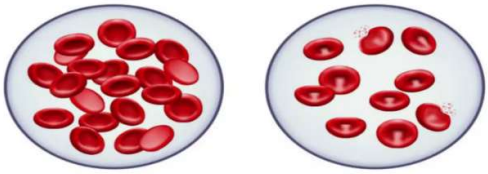
- Other variants include **Rafale N** (nuclear strike) and **Rafale R** (research and development).

Thalassemia



- It is a **group of inherited conditions that affect the haemoglobin**. People with thalassemia **produce either no or too little haemoglobin**, which is used by red blood cells to carry oxygen around the body.
- **Thalassemia can cause anaemia**, leaving one fatigued. It mainly affects people of Mediterranean, South Asian, East Asian and Middle Eastern origin. It is caused by **faulty genes that affect production of haemoglobin.**
- A child can be born with thalassaemia only if they **inherit these faulty genes from both parents.** It is of two types:
    - **Alpha Thalassemia:** Four genes are inherited, two from each parent, that make alpha globin protein chains. When one or more genes are defective, alpha thalassemia is developed.
    - **Beta Thalassemia:** Two beta-globin genes, one from each parent are inherited. The symptoms and the severity depend on how many genes are defective and which part of the beta globin protein chain contains the defect.

Mission Sankalp

- Mission Sankalp, **a massive anti-Naxal operation along the Chhattisgarh–Telangana border**, entered its 3rd week, with confirmed Maoist casualties and strategic gains.
- It was launched by security forces under the joint command of **Chhattisgarh Police, Telangana Police and CRPF.**
- Area of Operation: Karregutta hills, Bijapur district (Chhattisgarh) – Mulugu district (Telangana) border.

Objective of the Mission:

- **Flush out top Maoist leaders**, especially Battalion 1 of the People's Liberation Guerrilla Army (armed wing of CPI-Maoist).

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- **Dismantle fortified Maoist hideouts** and destroy logistics bases and bunkers.

Key Features:

- **Troop Mobilization:** More than 24,000 personnel from state police CRPF, and Indian Air Force.
- **Precision Strikes:** Use of air surveillance and intelligence-led operations in tough terrains.
- **Recoveries:** >1,000 kg of explosives, ration stockpiles, detonators, medical kits, and electronic equipment.

Total Fertility Rate (TFR)

- The TFR is the **average number of children a group of women** would have by the end of their **reproductive years (ages 15 to 49)** if they followed the current fertility rates throughout their lives, **assuming no mortality. It is expressed as children per woman.**
- As per the **National Family Health Survey (NFHS-5) (2019-21),** the TFR has declined to **1.9 children per woman from 2.2 children per woman (NFHS- 4 (2015-16)**.
- **Replacement Level:** A TFR of **2.1 is considered the replacement level,** where each generation replaces itself without significant **population growth or decline.**
- A TFR lower than **2.1, however, can lead to negative population growth**, potentially causing long-term demographic challenges, including an ageing population
- India's TFR dropped from **6.18 in the 1950s to 1.9 in 2021, below the replacement level of 2.1.**
- By 2100, the TFR in India is projected to fall further to **1.04 (barely one child per woman).**
- Southern states like Kerala, Tamil Nadu, and Karnataka achieved replacement-level fertility earlier than northern states.
- By 2036, Kerala's aged population is expected to surpass children (23%). High labour wages, quality of life, and internal migration are expected to bring migrant labor to 60 lakhs by 2030 (about one-sixth of the State's population).
- The demographic shift was driven by high literacy, **women's empowerment**, and advances in social and health sectors.

Asteroid YR4

- YR4 is a **Near-Earth Asteroid (NEA)** discovered in December 2024 using the **ATLAS telescope in Chile.**

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- Its orbit brings it **within 1.3 times the Earth-Sun distance**, making it a **Near-Earth Object (NEO)**.
- Initially, YR4 triggered the **highest-ever NASA asteroid impact alert** in February 2025.
- New **infrared data from the James Webb Space Telescope** estimates its **size at ~65 metres**, comparable to a **10-storey building,** which is **below the 140-meter threshold** for classification as a **"Potentially Hazardous Asteroid"**.
- Earlier, YR4 had a **3.1% chance of hitting Earth**, but the **latest trajectory analysis** shows a **negligible risk** to Earth.

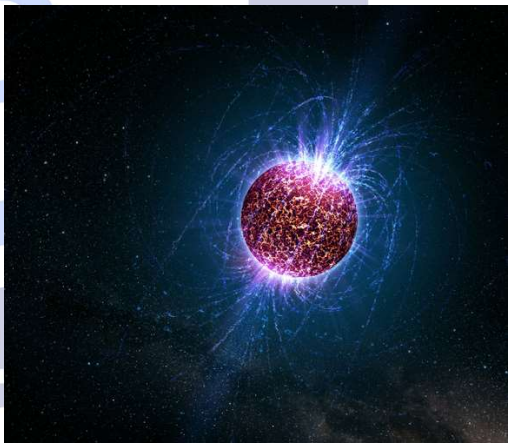
What are Asteroids?

- **Asteroids**, also known as **minor planets**, are **rocky remnants from the early solar system**, dating back **4.6 billion years**.
- They exhibit **irregular shapes**, though a few are nearly **spherical**, and some host **small companion moons** or even exist as **binary or triple systems**.

Classification of Asteroids

- **Main Asteroid Belt**: Located between **Mars and Jupiter**, this is where the majority of known asteroids are found.
- **Trojans**: These share an orbit with a planet and remain stable due to the **Lagrange Points (L4 and L5)**, where **gravitational forces from the Sun and the planet balance**.
- **Near-Earth Asteroids (NEAs)**: These are asteroids whose **orbits pass close to Earth's orbit**. Those that cross Earth's orbital path are known as **Earth-crossers**.

Magnetars



- **Magnetars** are a type of **neutron star** characterised by **exceptionally strong magnetic fields**, estimated to be a **thousand times stronger than typical neutron stars**.
- These intense fields can cause magnetars to emit bursts of high-energy electromagnetic radiation,

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particularly **X-rays and gamma rays.**

- They are known for their **giant flares** and other bursts of activity, often linked to the decay of their magnetic fields

Pangenome Map

- A pangenome map is **a way of looking at the collective genetic information of a group of related organisms** or species.
- It goes beyond just one individual's genetic makeup and **considers the genetic diversity within that group.**
- The **human genome** refers to the entire set of DNA in the nucleus of every cell in the human body. It is like an identity card (e.g., Aadhar) unique to each individual.
- **Genome sequencing** is a method used to determine the precise order and arrangement of the four letters (A, T, G, and C) in the genome.
- It helps us understand human diversity at the genetic level and our susceptibility to certain diseases.
- A **reference genome** is a complete set of genetic information for a specific individual. When newly sequenced genomes are compared, they are matched against a reference map called a reference genome.
- While a reference genome represents a single individual, a pangenome map captures the genetic diversity and variation across multiple individuals or populations.
- The concept of a **pangenome** acknowledges that a species' genome is not a fixed entity and is different for different individuals. This genetic variation contributes to differences in traits, disease susceptibility, and other biological characteristics.
- **A pangenome map** provides a comprehensive understanding of a species' genetic content. This helps explain genetic differences, and human diversity, study gene evolution, identify disease-associated genes, and understand the overall genomic architecture of a species.
- This can shed light on disease prevalence, aid in discovering new genes for rare diseases, design better diagnostic methods, and facilitate the discovery of novel drugs for those diseases.

Indian Grey Wolf

- The **Indian Grey Wolf** is a **subspecies of the Grey**

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Wolf found in the **Indian subcontinent and Southwest Asia**.

- **Habitat**: Prefers scrublands, **semi-arid grasslands**, and **pastoral agro-ecosystems**.
- **Behaviour**:Generally **nocturnal**, **hunts in small packs**, and is **less vocal** than other wolf subspecies.
- **Appearance**: **Intermediate in size** between the Tibetan and Arabian wolves, but lacks a thick winter coat due to adaptation to **warmer climates**.
- **Distribution**: From **Israel** in the west to the **Indian subcontinent** in the east.
- The Indian grey wolf is protected under:
    - **IUCN Red List**: **Least Concern**, but considered **locally endangered in India** due to sharp population decline.
    - **CITES**: **Appendix I**, indicating species threatened with extinction.
    - **Wildlife (Protection) Act, 1972**: Listed in **Schedule I**, providing the **highest degree of protection** in India.

Rare Earth Elements

- The rare earth elements (REEs) are **17 metals in Group 3 of the Periodic Table** comprising **Lanthanide series** elements and **Scandium and Yttrium** (due to similar physical properties and found in the same ores and deposits).
- Contrary to their name, they are **moderately abundant in nature but not concentrated enough** to make them economically exploitable.
- **India** has the **fifth-largest rare earth resource globally**, mainly concentrated in its monazite minerals.
- Scandium, Yttrium and the 15 Lanthanides:
    1. lanthanum (La),
    2. cerium (Ce),
    3. praseodymium (Pr),
    4. neodymium (Nd),
    5. promethium (Pm),
    6. samarium (Sm),
    7. europium (Eu),
    8. gadolinium (Gd),
    9. terbium (Tb),

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10. dysprosium (Dy),
11. holmium (Ho),
12. erbium (Er),
13. thulium (Tm),
14. ytterbium (Yb) and
15. lutetium (Lu) are considered as the Rare Earth Elements.

- **Characteristics:** REEs are characterised by **high density, high melting point, high conductivity and high thermal conductance**.
- **Sources:** The principal sources of REE are **bastnaesite** (a fluorocarbonate which occurs in carbonatites and related igneous rocks), **xenotime** (yttrium phosphate) commonly found in mineral sand deposits, **loparite** which occurs in alkaline igneous rocks and **monazite** (a phosphate).
- Several rare-earth minerals contain **thorium and uranium** in variable amounts, but they do not constitute essential components in the composition of the minerals.
- **Cerium** is the **most abundant rare earth**.
- **Significance:** Rare Earth Elements are very important for futuristic technology. They have wide applications in clean energy, high-end electronics, defence, etc with no equal substitutes.

Gallium

- It is a **soft, silvery-white metal** that is **liquid near room temperature**.
- It is not found as a free element and is only **present in small quantities** in certain minerals, such as **zinc ores and bauxite**.
- Gallium is used to make **gallium arsenide**, which is a **core substrate for semiconductors**.
- It is utilized in the production of semiconductor wafers, integrated circuits, mobile and satellite communications (in chipsets), and LEDs (in displays).
- Gallium also finds applications in **automotive and lighting industries**, as well as in sensors for avionic, space, and defense systems.

Germanium

- It is a **lustrous, hard, silvery-white semi-metal** with a crystal structure similar to a diamond.
- Germanium is used in various electronic and optical applications.

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- It is commonly used in **fiber-optic cables and infrared imaging devices**.
- Germanium **enhances the ability to operate weapon systems** in harsh conditions.
- It is **also used in solar cells** due to its heat resistance and higher energy conversion efficiency.

Gallium and germanium, both listed on India's recently released **critical mineral list** by the Ministry of Mines, are also included in the European Union's list of critical raw materials, which are recognized as crucial to Europe's economy.

China is the world's **largest producer and exporter** of gallium and germanium.

According to the European industry body, Critical Raw Materials Alliance (CRMA), China accounted for 80% of global gallium production and 60% of global germanium production.

Right to repair

- The Right to Repair refers to government legislation that is **intended to allow consumers the ability to repair and modify their own consumer electronic devices**, where otherwise the manufacturer of such devices require the consumer to use only their offered services.
- When customers buy a product, it is inherent that they must own it completely, for which the consumers should be able to **repair and modify the product with ease and at reasonable cost**, without being captive to the whims of manufacturers for repairs.
- The idea **originally originated from the USA** where the **Motor Vehicle Owners' Right to Repair Act 2012**, required the manufacturers to provide the necessary documents and information to allow anyone to repair their vehicles.

Global Status:

- The right to repair has been recognized in many countries across the globe, including the **US, UK and European Union**.
- In the US, the Federal Trade Commission has directed manufacturers to remedy unfair anti-competitive practices and asked them to make sure that consumers can make repairs, either themselves or by a third-party agency.

Benefits:

- This will help boost business for small repair shops, which are an important part of local economies.
- It will help reduce the vast mountain of electrical waste (e-waste) that piles up each year on the continent.
- It will save consumers' money.
- It will contribute to circular economy objectives by improving

the life span, maintenance, re-use, upgrade, recyclability and waste handling of appliances.

Proposed Sectors for Implementation in India:

- Farming equipment
- Mobile phones/ tablets
- Consumer durables
- Automobiles/automobile equipment

Tidal bores

- Tides are the regular, predictable rise and fall of ocean water levels along coastlines, caused by the gravitational forces exerted by the moon and the sun on Earth's oceans, combined with Earth's rotation.
- A **tidal bore** is a rare phenomenon where **incoming tidal waters create a strong, fast-moving wave that travels up narrow rivers or estuaries**, reversing the river's flow.
- A tidal bore occurs along a coast where a river empties into an ocean or sea.
- It occurs in some **locations with high tidal ranges** and can be a powerful force, often seen in the **Bay of Fundy and the Qiantang River** in China.
- There are exceptions. The **Amazon River** is the largest river in the world. It empties into the Atlantic Ocean. The mouth of the Amazon is not narrow, but the river still has a strong tidal bore.
- A tidal bore develops here because the mouth of the river is shallow and dotted by many low-lying islands and sandbars.
- The tidal bore, called the pororoca, is so strong that the Amazon does not have a delta.
- Its sediment is emptied directly into the Atlantic and carried away by fast-moving currents.
- Unlike tides which are predictable, tidal bores can be unpredictable.
- The development of tidal bores depends on a number of factors, including wind and the depth of the river.
- A change in a river's depth can be affected by rainfall or shipping traffic.
- Tidal bores **can occur every day**, like the tidal bore of the Batang River in Malaysia, called the benak.
- Other tidal bores, like the pororoca, occur during spring tides.
    - **Spring tides** happen during new moons and full moons, when tides are strongest.

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- Tidal bores **almost never occur during neap tides**.
    - **Neap tides** happen during quarter moons, when tides are weakest.

Ferroelectricity

- Ferroelectricity is a **property of certain non-conducting crystals or dielectrics** that exhibit **spontaneous electric polarisation**, where the centres of positive and negative charges separate, making one side of the crystal positive and the other negative.
- This electric polarisation can be reversed by applying an appropriate external electric field.
- The term ferroelectric is derived from **ferromagnetism**, where magnetic domains align spontaneously; similarly, in ferroelectrics, electric dipoles align spontaneously in domains.
- Examples of ferroelectric materials include **barium titanate ($BaTiO_3$) and Rochelle salt**.
- **Ferroelectric domains** are **clusters where dipoles are aligned**. These domains can be reoriented by strong electric fields.
- The delay in response when domains reorient is termed ferroelectric hysteresis, analogous to ferromagnetic hysteresis.
- Ferroelectricity vanishes above a critical temperature called the **Curie Temperature**, where thermal agitation disrupts dipole alignment.

Domain walls:

- Domain walls are the boundaries between differently polarised regions in a ferroelectric material.
- These walls often exhibit electrical or magnetic properties different from the surrounding domains.
- Some domain walls may become electrically conductive even when the bulk of the material is non-conductive, or magnetically active even if the domain itself is nonmagnetic.
- These unique properties make domain walls potential candidates for nano electronic components for memory, sensing, and signal processing in low-power devices.

Topological Materials

- **Topological materials** are substances that **exhibit different physical properties on their surface and in their interior**.
- These materials may behave like a **metal on the outside** (conducting electricity) but like an **insulator on the**

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inside (not conducting electricity).

- The term **"topological"** refers to the **unique geometric and quantum properties** of the material, which remain unchanged even if the shape of the material is distorted.
- **Discovered in the latter half of the 20th century**, these materials represent a new class of quantum matter.
- **Nobel Prize in Physics (2016)** was awarded to scientists (David Thouless, Duncan Haldane, and Michael Kosterlitz) for their theoretical discoveries in this field.

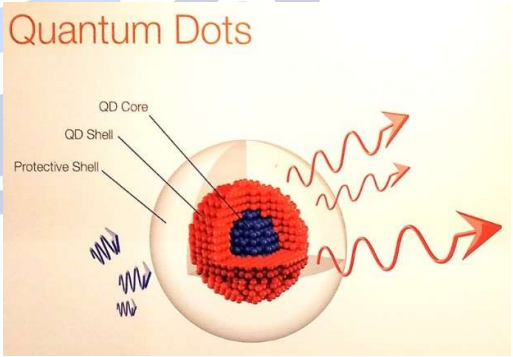
How do They Work?

- These materials exhibit a **metallic surface** (conducting electrons freely) while maintaining **an insulating core** (electrons remain localized).
- This strange duality arises from **quantum mechanical effects,** especially the topology of electronic band structures.
- The behaviour is deeply rooted in the principles of quantum mechanics, where electron spin and momentum interplay due to a phenomenon called **spin-orbit coupling.**
- The interaction of light and matter, the collective behaviour of electrons, and phase transitions are governed by **quantum principles.**
- The UN declared **2025** as the International Year of **Quantum Science and Technology,** marking 100 years since the foundation of quantum mechanics.

Mirror Analogy

- A **mirror** appears to be a single object, but it has **two materials**:
  - A **glass front** (an insulator that lets light through)
  - A **thin metallic back** (a conductor that reflects light)
- This setup makes it possible to **see your reflection clearly**, as the **metal reflects light** that passed through the glass.

Quantum Dots



- Quantum dots, often **referred to as "artificial atoms," are semiconductor nanoparticles** that have **unique optical and electronic properties due to their small size**.

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- They were first theorized in the 1970s and then **successfully synthesized in the early 1980s.**
- **Many semiconductor substances can be used as QDs**, such as cadmium selenide, cadmium sulfide, or indium arsenide.
- **Nanoparticles of these,** or any other semiconductor substance, **have the properties of a QD.**
- **The size and composition of the QDs can be controlled** during synthesis, allowing scientists **to tailor their properties for various applications.**
- **Optical Properties:** One of the most notable features of QDs is their tunable emission properties.
    - **By controlling the size of the QD**, researchers can precisely **tune the wavelength of light emitted or absorbed.**
    - They can be **engineered to emit light across the entire visible spectrum** and into the infrared and ultraviolet ranges, **offering a wide palette of colors** for various applications.
    - **The smallest quantum dots emit higher energy waves and produce blue light**, and the **biggest dots release lower energy waves, creating red light**, with the middle sizes creating the colours in between.
- **Applications:**
    - **Displays:** They are used in display technology **to enhance the color and efficiency of displays** for TVs, monitors, and other electronic devices.
        - Compared to organic luminescent materials used in organic light emitting diodes (OLEDs), **QD-based materials have purer colors, a longer lifetime, lower manufacturing costs, and lower power consumption**.
    - **Photovoltaics:** QDs can be **used in solar cells to enhance light absorption and energy conversion efficiency.**
    - **Bio-medical applications:** The **small size of QDs allows them to go anywhere in the body,** making them suitable for different **bio-medical applications like medical imaging, biosensors, targeted drug delivery, etc.**

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- **Quantum Computing**: QDs are being investigated for their potential role in quantum computing, as **they can serve as qubits, the fundamental units of quantum information.**

6G Technology

What is 6G?

- 6G, or the sixth-generation telecom network, is the **cell phone technology that will provide internet speed of up to 1 terabyte (TB) per second with "ultra-low latency".**
    - Latency is the time it takes for data to pass from one point on a network to another.
- It will ensure smooth **machine-to-machine and machine-to-human interactions** and boost the development of virtual and augmented reality (VR/AR) and Artificial Intelligence (AI).

How is 6G different from 5G?

- Under the 5G technology, the **average speed range lies between 40 to 1,100 Mbps**, potentially hitting maximum speeds of 10,000 Mbps through technologies such as millimetre-wave spectrum and beamforming.
- According to the document, **6G will offer ultra-low latency with speeds up to 1 Tbps.**

Why is 6G necessary?

- The primary focus of 6G is to support the **4th Industrial Revolution** by building a **bridge between human, machine, and environmental nodes.**
- In addition to surpassing 5G, 6G will have a range of unique features to establish next-generation wireless communication networks for linked devices by using **machine learning (ML) and artificial intelligence (AI).**
- This will also benefit emerging technologies like **smart cities, driverless cars, virtual reality, and augmented reality, in addition to smartphone and mobile network users.**
- It will combine and correlate different technologies, like **deep learning with big data analytics**.

What will change with 6G?

- 6G mobile communication technology is expected to **improve and enable access to required information, resources, and services**.
- Its deployment is expected to **reduce differences in regional and social infrastructure and economic opportunities.**
- Thus, it promises a way to **slow down rural migration to cities and metro-led urbanisation.**
- 6G will play an important role in **filling the gap in the availability of e-services between urban and rural communities**. This will subsequently **fulfill the UN's SDGs and tremendously contribute to improving the quality and opportunities of human life.**
- The main use cases of the 6G network will include **remote-controlled factories, constantly communicating self-driven cars and smart wearables.**

Active Galactic Nucleus (AGN)

- An Active Galactic Nucleus (AGN) is a **compact region at the centre of a galaxy that has a much-higher-than-normal luminosity over at least some portion of the electromagnetic spectrum.**

- Such excess non-stellar (not from star) emission has been observed in the radio, microwave, infrared, optical, ultra-violet, X-ray and gamma ray wavebands.
- A galaxy hosting an AGN is called an **"active galaxy".**
- The observed characteristics of an AGN depend on several properties such as the mass of the central black hole, the rate of gas accretion onto the black hole, the orientation of the accretion disk, the degree of obscuration of the nucleus by dust, and presence or absence of jets.
- Numerous subclasses of AGN have been defined based on their observed characteristics; **the most powerful AGN are classified as quasars.**
- A blazar is an AGN with a jet pointed toward the Earth, in which radiation from the jet is enhanced by relativistic beaming.

ISRO's EOS-09 Mission

- EOS-09 is an **Earth Observation Satellite** (EOS), designed to **enhance India's surveillance and imaging capabilities**, especially under **all-weather and day-night conditions.**

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Technical Features of EOS-09

- EOS-09 is equipped with a **C-band Synthetic Aperture Radar (SAR).**
- The SAR technology enables the satellite to capture high-resolution **images** of Earth's surface, **regardless of weather conditions or time of day.**
- This makes the satellite crucial for disaster monitoring, flood mapping, agriculture assessment, border surveillance, and urban planning.
- The satellite adds to India's remote sensing infrastructure, critical for environmental monitoring, national security, and climate resilience.

Gig Economy

- The gig economy refers to a labour market characterized by **short-term, and flexible jobs** often facilitated through digital platforms.
- It involves individuals or companies offering **services on a temporary** or task-by-task basis, rather than through traditional full-time employment contracts.
- In the gig economy, **gig Workers** (also known as independent contractors or freelancers) are paid for each task or gig they complete.
- Popular gig economy activities include **freelance work**, food delivery services, and freelance digital work.

Key Features:

- The gig economy offers flexibility, allowing workers to choose their schedules and work location.
- Digital platforms connect service providers with consumers for short-term, task-based jobs.

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Perspectives on Gig Economy:

- **For Gig Workers**: Gig work offers diverse opportunities, and the ability to balance personal and professional lives, **especially benefiting women in the labour market.**
    - It allows for skill enhancement, with workers able to take on various tasks that broaden their expertise and increase income potential.
- **For Businesses**: Companies benefit from cost-effective labour, with the ability to scale the workforce as needed based on demand.
    - Gig work enables businesses to select workers with specific skill sets for short-term projects, optimizing productivity without long-term commitments.

Geo Tubing Technology

- Geotubes are large, **permeable fabric tubes filled with dredged materials** or other hydraulically filled materials.
- The geotextile fabric **allows water to escape while retaining the solid particles,** making them effective for dewatering purposes and retaining **soil from erosions.**
- These tubes are constructed from **high-strength, permeable materials, typically polypropylene woven geotextile**, ensuring durability and resistance to environmental factors.
- Geotubes for **seawalls and coastal protection** create a synthetic barrier to use along shorelines and beaches to help control erosion.
- Often referred to as **breakwater tubes, these barriers act as the first line of defense against waves and tidal action.**
- As waves crash onto the beaches and shorelines, they hit the seawall, limiting the exposure to beaches and dunes.
- Geo-tube seawalls provide **coastal defense for canals, bays, and other areas**, minimizing the eroding impact of waves and helping retain sand/shorelines.
- Geotubes can be installed in various sizes and shapes to fit specific project requirements.
- They are also adaptable to different site conditions, including contaminated sites, waterfronts, and inland waterways.

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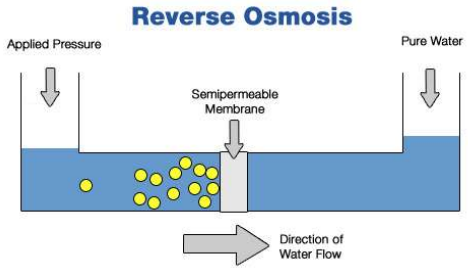
Desalination Technology

- Desalination is the removal of dissolved salts and minerals from saline or brackish water to make it fit for human use.
- Two primary technologies used globally:
    - Reverse Osmosis (RO) – pressure-driven membrane-based filtration.
    - Thermal Desalination – evaporation-condensation method using heat.
- A desalination plant converts seawater into freshwater by removing salts to meet drinking or industrial quality standards.



Working of Reverse Osmosis (RO) Desalination

- Osmosis refers to the natural movement of water from an area of low solute concentration to high solute concentration through a semi-permeable membrane.
- In reverse osmosis, external pressure is applied to push water from a high-solute (saline) side to a low-solute (freshwater) side, against the natural osmotic gradient.
- Microscopic pores in the RO membrane allow water molecules to pass while blocking salts and other impurities.
- Seawater typically has a TDS (Total Dissolved Solids) of ~35,000 ppm, while RO brings it down to 200–500 ppm, making it potable.

Anticipatory Bail

- Bail is a **judicial release of an accused person from custody** on the condition that the accused person will appear in court at a later date.
- Under the CrPC (and now, Bharatiya Nagarik Suraksha Sanhita), bail can be granted to an accused person either by a police officer or by a judicial magistrate.
- **Anticipatory bail** is the bail granted to a person **in anticipation and apprehending arrest**.
- Under **Section 438 of CrPC (Section 482 of BNSS)**, any individual who discerns that he may be tried for a non-bailable offense can apply for anticipatory bail.
- The **application shall be made to the High Court or Sessions Court**, where the crime is alleged to be committed.
- Anticipatory Bail is bail before the arrest, and the police can't arrest an individual if the Court has granted anticipatory Bail.

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- It is meant to be a **safeguard for a person who has false accusation or charges made against him/her**, most commonly due to professional or personal enmity, as it ensures the release of the falsely accused person even before he/she is arrested.

Default bail:

- Also known as **statutory bail**, this is a right to bail that accrues **when the police fail to complete investigation within a specified period in respect of a person in judicial custody**.

Chenchu Tribe

- The Chenchus are a food-gathering tribe primarily residing in the **Nallamalai forests of Andhra Pradesh**.
- They are one of the **Particularly Vulnerable Tribal Groups (PVTGs)** in Andhra Pradesh.
- They are also found in **Telangana, Karnataka, and Odisha**.
- Language: Their native language (also called Chenchu) belongs to the Dravidian language family. Many also speak Telugu.
- A Chenchu village is known as **'Penta'**.
- Each penta consists of a few huts that are spaced apart and are grouped together based on kinship patterns.
- The close relatives live nearby and the distant ones farther away.
- Their homes consist of few belongings and are generally sparse and spartan in appearance.
- **Small conjugal families** predominate, **women taking equal rank with men** and marrying only upon maturity.
- **'Peddamanishi'** or the village elder, is generally the authority to maintain social harmony in a family or a village.
- Their rituals are few and simple; religious and political specializations are slight.

Livelihood:

- The Chenchu live life with exemplary simplicity. Most of them still gather food from the forest and roam in it to find things to meet their needs.
- The bow and arrow and a small knife are all the Chenchus possess to hunt and live.
- The Chenchus collect forest products like roots, fruits, tubers, beedi leaf, mohua flower, honey, gum, tamarind and green leaves and make a meagre income from it by selling these to traders and government cooperatives.

- Though at times they work as **forest labourers**, they mostly prefer to fall back on their native skills to hunt and gather food.

Religion:

- Chenchus worship a number of deities. Chenchus have also adopted certain religious practices from Hindus.
- For ages, the Chenchus have been associated with the **famous Srisailam temple** (dedicated to Lord Shiva and Devi Brahmaramba) in Andhra Pradesh, situated at the heart of Chenchu land.
- The Chenchus enjoy special privileges at Srisailam temple.

Particularly Vulnerable Tribal Groups (PVTG)

✓ PVTGs are more vulnerable among the tribal groups.

✓ Due to this factor, more developed and assertive tribal groups take a major chunk of the tribal development funds, because of which PVTGs need more funds directed for their development.

✓ In this context, in 1975, the Government of India declared **52 tribal groups as PVTGs** on the recommendation of the **Dhebar Commission**.

✓ Currently, there are **75 PVTGs** out of 705 Scheduled Tribes.

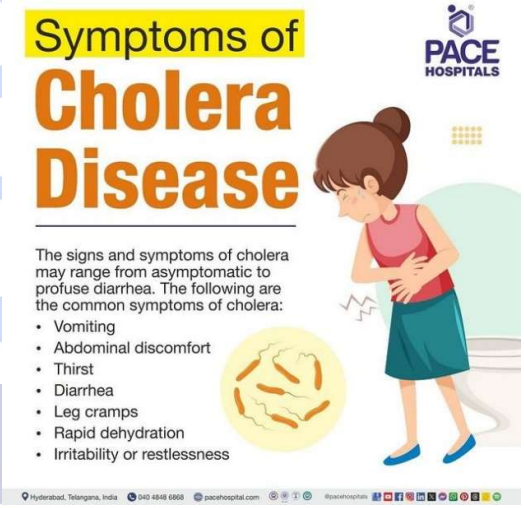
✓ The PVTGs are spread over **18 states and one Union Territory** (UT), in the country (2011 census).

✓ **Odisha** has the highest number (more than 2.5 lakh) of PVTGs.

✓ Characteristics of PVTGs:

- Population – stagnant/declining
- Technology – pre-agricultural
- Literacy Level – extremely low
- Economy – Subsistence level

Cholera



- It is an **acute diarrhoeal infection** caused by eating or drinking food or water that is contaminated with the **bacterium Vibrio cholerae**.
- Cholera causes severe diarrhea and dehydration.
- Left untreated, cholera **can be fatal** within hours, even in previously healthy people.

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- The disease is most common in places with **poor sanitation, crowding, war, and famine**.
- Cholera outbreaks are **more common in warm climates**.
- Cholera is often predictable and preventable. It can ultimately be eliminated where access to clean water and sanitation facilities, as well as good hygiene practices, are ensured and sustained for the whole population.

Symptoms:

- Symptoms of cholera can begin as soon as a few hours or as long as five days after infection.
- Often, symptoms are mild. But sometimes they are very serious.
- About **one in 20 people** infected have severe watery diarrhea accompanied by vomiting, which can quickly lead to dehydration. This can lead to death if left untreated.

Treatment:

- Currently, there are **three WHO pre-qualified oral cholera vaccines (OCV)**, **Dukoral, Shanchol, and Euvichol-Plus**.
- All three vaccines require **two doses** for full protection.
- Treatment for cholera can include:
    - Rehydration therapy
    - Antibiotics
    - Zinc supplementation for children

Permanent Lok Adalats (PLAs)

- PLAs are statutory bodies established under **Section 22-B of the Legal Services Authorities Act, 1987**.
- They were introduced in 2002 to offer speedy and affordable **dispute resolution for public utility services.**
- PLAs resolve **issues related to transport** (air, road, water), **postal, telecom, electricity, water supply, sanitation, healthcare & insurance**.
- **Each PLA has a Chairman** (current or retired District Judge or higher) **and 2 members** with experience in the relevant public utility sectors.
- They can hear cases involving **claims up to ₹1 crore** but **cannot take up non-compoundable criminal cases**.
- Similar to Lok Adalats, their decisions are **binding and cannot be appealed.**

Differences with Lok Adalat:

- Unlike regular Lok Adalats that are ad-hoc, **PLAs operate on a**

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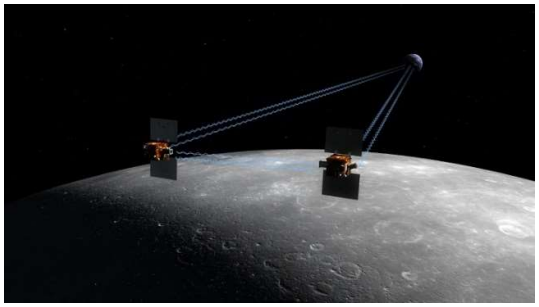
continuous basis and are always available for dispute resolution.

- Unlike the broad jurisdiction of Lok Adalats (civil & criminal), **PLAs only hear public utility service disputes.**
- Lok Adalats usually function once litigation in court has begun while **PLAs are used prior to litigation.**
- Lok Adalats, unlike PLAs, also involve **lawyers and social workers** as its members.
- Unlike Lok Adalats which require settlement between parties to reach a decision, **PLAs can adjudicate even if no settlement is reached.**

Kandha Tribes

- The **Kandha (or Khonds)** are a major **Particularly Vulnerable Tribal Group** (PVTG) primarily found in **Odisha**. They are among the largest tribal communities in the state.
- The **Kutia Kandha** are a major section of the Kandha tribe who speak **Kui, a Dravidian language.** Kui is traditionally written using the **Odia script**
- They are known for their **buffalo sacrifice ritual, called "Kedu**" to worship their Earth Goddess".
- Kutia Kandha is one of the primitive sections of Kandha tribe. The Kandhas who live in hill top and valleys are known as **Kutia Kandha.**
- Those who live in high land and near the streams are called **Dongria Kandha** and kondhas who are residing in plain area are known as **Desia Kandha.**
- They are mostly dependent on **shifting cultivation,** cultivation of minor agriculture products and collection of minor forest produce.
- Their religion is largely animistic, involving the worship of natural forces and deities like **Dharani Penu** (Earth Goddess). They also celebrate festivals like **Meria and Kedu.**
- They are known for the **Burlang Yatra,** a traditional festival known for its connection with **millet-based agriculture**. Millets play a central role in both ritual offerings and community feasting.

GRAIL Mission



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- **GRAIL (Gravity Recovery and Interior Laboratory)** was a **NASA** lunar science mission aimed at **mapping the Moon's gravitational field** in high resolution.
- It was launched in 2011 using a Delta II rocket from Cape Canaveral, USA.

Key Features of GRAIL:

- Consisted of **two spacecraft, named Ebb and Flow**, flying in tandem around the Moon.
- **Measured minute variations in gravitational pull** to reveal the Moon's internal composition.
- Ended with a **controlled landing on the lunar surface** after successful mission completion.

Key Discoveries from GRAIL:

- The Moon's **nearside flexes more than the far side** due to Earth's gravitational pull, indicating asymmetry in internal structure. The **nearside was volcanically active**, with dark basaltic plains.
- Higher concentrations of **heat-producing elements like thorium and titanium** warmed the nearside mantle more than the far-side.
- **Nearside crust is thinner, allowing magma to erupt** more easily and form flat plains. Far side remains rugged and cratered due to thicker crust and less volcanic activity.

e-Passport

- An e-passport (electronic or biometric passport) is an upgraded version of the traditional passport. It combines a conventional booklet with an embedded Radio Frequency Identification (RFID) chip and antenna in the back cover.
- This chip securely stores the holder's personal and biometric data, including:
  - Name, date of birth, passport number, and other demographic details
  - Biometric facial data and fingerprints
  - Digital signature for secure authentication

Security Features of E-Passports

- RFID Chip & Antenna: Stores encrypted personal and biometric data, making unauthorized access or tampering extremely difficult.
- Basic Access Control (BAC): Stops unauthenticated access to the chip by restricting scanning equipment to only authorized devices.

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- Passive Authentication (PA): Authenticates stored information and identifies tampering.
- Extended Access Control (EAC): Introduces an additional layer of security to biometric data such as fingerprints.
- Public Key Infrastructure (PKI): Digitally signs the data, ensuring authenticity and preventing forgery or unauthorized data changes.

Benefits of E-Passports

- **Enhanced Security:**Strong protection against forgery, duplication, and identity theft due to encrypted biometric data and digital signatures.
- **Faster Immigration:** Automated e-gates and digital verification reduce manual checks and waiting times at airports.
- **Global Acceptance:** Compliance with International Civil Aviation Organization (ICAO) standards ensure smooth travel and easier visa processing worldwide.
- **Privacy:** New e-passports no longer print the residential address on the last page; it is stored digitally and accessible only to authorized officials.

Type 2 Diabetes

- T2D, the most **common type of diabete**s, is a disease that occurs when your b**lood glucose,** also called **blood sugar, is too high.**
    -

    - Blood **glucose is** your main **source of energy** and comes mainly from the food you eat.
    - **Insulin**, a hormone made by the pancreas, **helps glucose get into your cells to be used for energy.**
    - **In T2D,** your body **doesn't make enough insulin or doesn't use insulin well.**
    - **Too much glucose** then **stays in your blood,** and not enough reaches your cells.
- Type 2 diabetes may be **caused by a combination of factors:**
    - Being **overweight** or having **obesity**
    - **Not being physically active**
    - **Genetics** and family history
- **How common is T2D?**
    - Researchers estimate that T2D affects about 6.3**% of the world's population.**
    - T2D most **commonly affects adults over 45,** but

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people younger than 45 can have it as well, including children.

Symptoms

- **Many people** with type 2 diabetes have **no symptoms** at all.
- If you do have them, the symptoms **develop slowly over several years**.
- They might be so mild that you do not notice them.
- The **symptoms can include:**
    - Increased thirst and urination
    - Increased hunger
    - **Feeling tired**
    - **Blurred vision**
    - Numbness or tingling in the feet or hands
    - **Sores that do not heal**
    - Unexplained **weight loss**

Treatment

- Treatment for T2D involves **managing your blood sugar levels.**
- Many people are able to do this by living a **healthy lifestyle.**
- Some people may also need to take **diabetes medicines**, which may include pills or medicines you inject under your skin, **such as insulin.**

Type 1 diabetes:

- It is a condition in which your **immune system destroys insulin-making cells** in your pancreas. These are **called beta cells**.
- When you have type 1 diabetes, **your body produces very little or no insulin.**
- It **requires daily administration of insulin** to maintain blood glucose levels under control.
- It is **usually diagnosed in children and young people**, so it used to be called **juvenile diabetes**.

Presidential Reference

- **Article 143** - Under this Article, the President may refer a "question of law or fact" to the Supreme Court for its opinion.
- It is part of the Supreme Court's advisory jurisdiction, exclusively dedicated to the President of India.
- **Article 145(3)** - It requires any such reference to be heard by five judges, after which the SC returns

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the reference to the President with the majority opinion.

- **Non-Adversarial Nature** - It is consultative, not a dispute between parties — focused on advice rather than judgment.
- **Discretion of Supreme Court** – Under article 143(2) of Constitution of India, the Court is under an obligation to advise the President on issues relating to matters mentioned under the proviso of article 131.
    - The Supreme Court may also decline to give opinion on the references.
    - **No binding on President**- The advises given by the supreme courts is not binding on the President.
    - **Advisory but Influential** - Though opinion is not legally binding but is treated with high moral and legal respect.
    - **Exclusion of Settled Questions** - The President cannot refer matters that have been conclusively resolved by the Supreme Court in its adjudicatory role.

Adjusted Gross Revenue

- AGR is a metric used to **determine the revenue that telecom operators must share with the government** in the form of spectrum usage charges or licensing charges.
- Under this mechanism, telecoms are required to share a percentage of AGR with the Department of Telecommunications.

Calculation of AGR and Controversy:

- As per the Dept of Telecom, the AGR calculations should **incorporate all revenues earned by a telecom company**. This also includes **revenues from non-telecom sources** such as deposit interests and sale of assets.
- The companies, however, are of the view that AGR should comprise the revenues generated from telecom services only, and non-telecom revenues should be kept out of it.
- In October 2019, the Supreme Court widened the definition of AGR to include the government's view.
- The Supreme Court ordered it to include all revenues, except for termination fees and roaming charges, as a part of the AGR.

Campus Calling Programme

- The **National Commission for Women** (NCW) recently launched the Campus Calling programme. The initiative focuses on **gender sensitivity, prevention of sexual harassment, and cyber safety in educational institutions.**
- It aims to strengthen awareness on gender-related issues and online threats through structured student engagement.
- **Each institution will select two female and two male**

ambassadors. These students will lead campus-based sensitization activities.

- A **pledge** was taken by students to uphold: Gender sensitivity, Respectful behaviour and Cyber awareness.
- It aims at enhancing awareness on Gender discrimination, Cyber-crimes affecting students and Sexual harassment – and thereby **build informed student communities to respond to these challenges.**

Shirui Lily Festival

- **The Shirui Lily Festival has commenced in Manipur after a two-year gap caused by the ongoing conflict in the state.**
- **The festival is conducted by the Government of Manipur. It was first held in 2017 and is now one of Manipur's two major tourism festivals (the other being the Sangai Festival).**
- **It is named after the Shirui Lily (Lilium mackliniae), the State Flower of Manipur. It aims to raise awareness about the Shirui Lily and promote eco-tourism in nearby hilly regions.**
- **The festival has dance performances, music concerts, a beauty pageant, a cooking competition, and a trash collection marathon.**
- **The Shirui Lily grows only in the upper reaches of the Shirui Hill range in Ukhrul district of Manipur. It is locally called 'Kashong Timrawon', after a mythical hill guardian.**
    - **Classified as Endangered by the IUCN. It is not listed by CITES or Wildlife Protection Act, 1972.**
    - **Shirui National Park is named after it.**

Project Lion

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- It was launched in 2020 and aims at securing the future of Asiatic lions through comprehensive, long-term conservation efforts.
- It focuses on creating a sustainable environment where lions can thrive, thereby contributing to the overall health of their ecosystems.
- Components include habitat improvement, monitoring through advanced technologies like radio-collaring and camera traps, and addressing human-wildlife conflict.
- The Gujarat Forest Department plays a crucial role in these efforts. Regular population censuses are conducted to monitor lion numbers and health.
- Measures such as fire management, flood preparedness, and continuous wildlife monitoring ensure that lions have safe habitats and that any emergencies are promptly addressed.

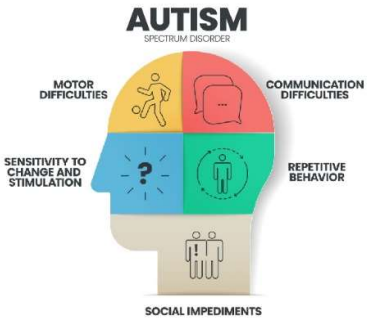
About Asiatic Lions:

- The Asiatic Lion (or Indian Lion) is a member of the Panthera Leo species that is restricted to India.
- Its previous habitats consisted of West Asia and the Middle East before it became extinct in these regions.
- Asiatic lions were once distributed from West Bengal in the east to Ir
- an and Central Asia.
- At present, the Gir National Park in Gujarat is its only habitat.
- Protection Status:
    - IUCN Red List: Endangered
    - CITES: Appendix I
    - Wildlife (Protection) Act, 1972: Schedule I

2025 Census by Gujarat Forest Dept.

- India's lion population, exclusively concentrated in Gujarat, has risen by 32% between 2020 and 2025, with 891 lions reported.
- 394 lion have been observed in the Gir National Park and Paniya Wildlife Sanctuary – this is considered the 'source' population.
- The latest data underlines the continuing trend of lions expanding to more parts of Gujarat, outside the bounds of legally protected areas.

Autism Spectrum Disorder



- Autism Spectrum Disorder (ASD) is a **neurodevelopmental condition** caused by differences in brain development, affecting communication, social interaction, behaviour, and learning patterns.

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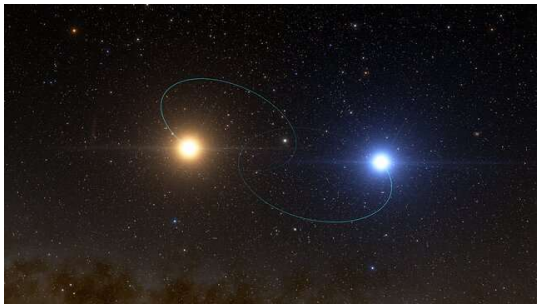
- Symptoms of ASD typically appear before the age of 3 years, though diagnosis is often delayed, particularly in low-awareness settings.
- People with ASD may display **repetitive behaviours, narrow interests, and may have unusual learning styles** or motor skills.
- ASD is **not caused by a single factor**. It results from a complex interaction of genetic and environmental influences.
- Genetics plays a strong role, with studies showing **heritability estimates of up to 91%**.
- Environmental contributors such as **advanced parental age, prenatal exposure to air pollutants, and maternal health** are being studied, but no single environmental toxin has been conclusively proven to cause autism.
- Vaccines do not cause autism. This claim stems from a discredited study, and continued misinformation can lead to dangerous vaccine hesitancy.

Financial Fraud Risk Indicator

- It is a multi- dimensional analytical tool to **empower financial institutions with advance actionable intelligence for cyber fraud prevention**.
- This initiative aims to bolster cyber protection by **identifying mobile numbers linked to potential financial fraud** before a transaction takes place.
- Developed by: **Department of Telecommunications (DoT)** under its Digital Intelligence Platform (DIP)
- **Working:** The FRI is a risk-based metric that classifies mobile numbers into **three categories Medium, High, and Very High** based on their likelihood of involvement in financial fraud.
- The classification draws from a comprehensive analysis using inputs from various platforms, including the **Indian Cybercrime Coordination Centre's National Cybercrime Reporting Portal (NCRP)**, DoT's **Chakshu platform**, and intelligence shared by banks and financial institutions.
- It empowers stakeholders- especially banks, Non-Banking Financial Companies, and UPI service providers to prioritize enforcement and take additional customer protection measures in case of a mobile number with high risk.

Binary Star System



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- A binary star is a **system of two gravitationally bound stars that orbit a common center of mass called a barycenter.**
- Stars in a binary system do not necessarily have the same mass, size, or brightness.
- The larger star of a binary couple is called the primary star, while the smaller one is known as the secondary star or the companion star.
- **Binary stars are double stars, but not all double stars are binary stars.**
    - This is because some double stars comprise two stars close enough in the sky over Earth to appear as a single point of light, but they are actually vastly separated in space and not part of a gravitationally bound binary system– these are called optical doubles.
- Unlike the sun, the vast majority of stars have a binary partner. **It is estimated that around 85% of stars exist in binary star systems or systems with three or more stars.**
- Binary star systems can also include systems containing a normal star and a stellar remnant, an object that forms when a star runs out of the fuel for nuclear fusion and collapses under its own gravity.
    - These dense and compact star "corpses" can include white dwarfs, neutron stars, and black holes.
    - Especially ancient binary systems can contain two stellar remnants orbiting each other.
- In some binary systems, the stars are so close together that they exchange material. This mass transfer occurs when the radius of one star is not much smaller than the orbital separation between the stars.

Bharat Seva Kendra

- It is a nationwide initiative launched by the **Chamber of Commerce and Industry (CCI) of India.**
- It is **aimed at providing various government services and benefits to villagers in India.**
- These centers serve as **a one-stop solution for accessing government schemes, services, and information in rural areas.**
- Designed as a grassroots movement, BSK is backed by a network of 2.5 lakh sarpanches and 6.5 lakh BSK Sarthis.
- These individuals will act as on-ground facilitators, linking rural citizens directly with welfare schemes related to financial aid, healthcare, education, employment, digital empowerment, and agriculture.

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- At the core of the initiative is the goal of cutting **down bureaucratic delays by offering a single-window platform for government programs**.
- A key feature of BSK is its emphasis on digital inclusion.
- Equipped with modern infrastructure, these centers offer digital literacy programs, enabling villagers to interact with technology and avail themselves of e-governance services seamlessly.
- By working closely with both central and state governments, BSK aims to streamline service delivery and eliminate the barriers that often prevent rural citizens from benefiting from welfare schemes.

Sagar Mein Samman Initiative

- The **Ministry of Ports, Shipping, and Waterways** (MoPSW) launched the Sagar Mein Samman (SMS) initiative during the **International Day for Women in Maritime**, to **train more women as seafarers**, and to make India a Global Maritime Powerhouse.
- It aims to build a **gender-equitable maritime workforce** by promoting women's inclusion, safety, skill development, leadership, and equal opportunities across maritime operations.
- It is aligned with the **IMO mission for gender inclusion** and broader vision of the UN SDG-5 (gender equality).
- It is aligned with **India's Diversity, Equity, and Inclusion (DEI) agenda and Maritime India Vision 2030**. It covers planning, training, research, governance, and outreach.
- India witnessed a 649% rise in women seafarers, **from 341 in 2014 to 2,557 in 2024**, and nearly 3,000 women received financial assistance.
- The initiative sets a target **of 12% female representation in technical maritime roles by 2030.**

Kalanamak Rice

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- Kalanamak is a traditional variety of paddy with black husk and strong fragrance.
- It is considered a gift from Lord Buddha to the people of Sravasti when he visited the region after enlightenment.
- It is traditional, non-basmati aromatic rice grown in eastern Uttar Pradesh, particularly in Siddharth Nagar, where it has been designated as an ODOP (one district one product) item.
- It is also grown in 11 districts of the Terai region of north-eastern Uttar Pradesh and in Nepal, the traditional variety has been prone to 'lodging', a reason for its low yield.
    - Lodging: Lodging is a condition in which the top of the plant becomes heavy because of grain formation, the stem becomes weak, and the plant falls on the ground.
- It is a nutritional powerhouse. It is rich in iron and antioxidants, has a low glycemic index, and is naturally gluten-free, making it a healthy dietary choice, especially for diabetics.
- It is protected under the Geographical Indication (GI) tag system.

MPOWER Framework

- In line with the World Health Organization (WHO) Framework Convention on Tobacco Control (WHO FCTC), WHO introduced the MPOWER measures in 2008.
- MPOWER are a set of six cost-effective and high-impact measures that help countries reduce demand for tobacco.
- These measures include:
    - Monitoring tobacco use and prevention policies.
    - Protecting people from tobacco smoke.
    - Offering help to quit tobacco use.
    - Warning about the dangers of tobacco.
    - Enforcing bans on tobacco advertising, promotion, and sponsorship.
    - Raising taxes on tobacco.
- The MPOWER measures have played a significant role in encouraging smokers to consider the most effective way to quit smoking.

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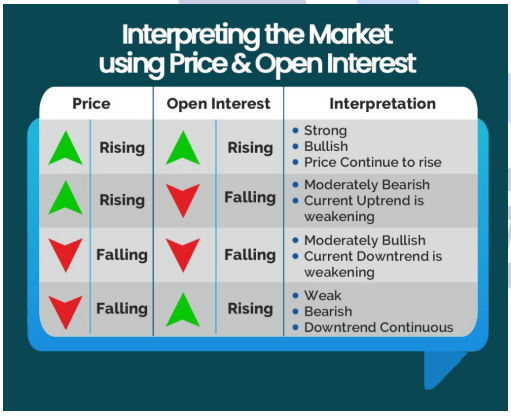
- Each letter in MPOWER stands for a measure intended to assist governments in achieving the FCTC's objectives.

WHO Framework Convention on Tobacco Control

- It is the first treaty negotiated under the auspices of the WHO.
- It is an evidence-based treaty that reaffirms the right of all people to the highest standard of health.
- It was adopted by the World Health Assembly on 21 May 2003 and entered into force on 27 February 2005.
- To date, 180 countries globally have ratified the WHO FCTC, including 50 WHO European Member States.

Open Interest



- It is a term commonly used in Futures and Options (F&O) trading, where the number of open contracts changes on a daily basis.
- In simple terms, every trade has two sides: a buyer and a seller.
- Whenever an F&O contract is traded, it is considered open until one of the parties closes their position through offsetting.
- Open Interest is the total number of active options and futures contracts that have not yet been settled against an asset at a given time in the trading arena.
- It is primarily used as an indicator to identify market positions of securities that have not yet been closed for an unknown reason.
- It is referred to as a measure of liquidity in conjunction with market activity.
- Like any other security traded in the market, it is subject to market changes.
- When new contracts are created or opened, it rises. A rise in the number of them indicates that there are more buyers and sellers for a specific security.
- It decreases when positions in existing contracts are closed out by buyers (or holders) and sellers.
- Investors might make conclusions about the day's market activity by monitoring changes in the open interest at the end of each trading day.
- Importance of Open Interest in Stock Market:
    - Open interest plays a significant role in helping options traders

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understand the liquidity of an option.

- It is a measure of market activity. It indicates if a market will trend or be range-bound, often known as choppy.
- An increase in open interest indicates that the number of new positions is increasing.
- This suggests that the market is being traded actively and is more likely to trend, while decreasing open interest indicates money flowing out of the market.
- After a sustained price gain, a levelling off of Open Interest is usually an early indicator of the end of a bull market phase.

Exercise Nomadic Elephant

- It is an annual joint military exercise conducted alternatively in India and Mongolia.
- Last edition of the same exercise was conducted at Umroi, Meghalaya in July 2024.
- Aim of the exercise is to enhance interoperability between the two forces while employing a joint task force in semi conventional operations in semi urban/mountainous terrain under United Nations mandate.
- The scope of this exercise involves Platoon level Field Training Exercise. During the exercise, Indian and Mongolian troops will engage in various training activities.
- In addition, to enhance complexity of exercise, aspects pertaining to Cyber Warfare are also being incorporated in this edition of the exercise.
- The exercise reinforces the India-Mongolia relationship as a cornerstone of regional cooperation, fostering strong military ties and promotion of cultural understanding.

Yashoda AI

- It is the initiative of the National Commission for Women (NCW) in collaboration with Future Shift Labs (FSL).
- It will empower women to contribute meaningfully to a Viksit Bharat driven by technology and inclusion.

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- The Yashoda AI Abhiyan wants to stand as India's effort to empower women, especially from rural and semi-urban communities, with essential skills in Artificial Intelligence, Cybersecurity, and Digital Safety.
- The program aims to go beyond traditional learning by hosting in-depth discussions on critical issues such as AI-driven crimes, digital privacy, and practical safety strategies.
- It will actively engage students, educators, and women from the police force.
- Yashoda AI Abhiyan wants to experiment in community-driven digital education, ensuring that women are not only participants but leaders in shaping India's tech-savvy future.

Modified Interest Subvention Scheme

- The Union Cabinet has approved the continuation of the Modified Interest Subvention Scheme (MISS) for the financial year 2025–26.
- MISS is a **central sector scheme** that helps farmers get low-interest short-term loans via **Kisan Credit Card.**
- The scheme is **monitored by RBI and NABARD** and implemented through Public Sector Banks, RRBs, Cooperative Banks, and Private Banks.
- Farmers can **borrow up to ₹3 lakh at 7% interest.**
- **Banks get 1.5% interest support**, thus helping them offer cheaper loans. Farmers who repay on time get a **3% Prompt Repayment Incentive**, reducing the **effective interest to 4%.**
- The **Kisan Rin Portal (KRP),** launched in August 2023, aids transparency and tracking of loan disbursal.

Kisan Credit Card (KCC) Scheme:

- ✓ Launched in 1998 based on the recommendations of **the R.V. Gupta Committee.** It is managed by Commercial Banks, Regional Rural Banks, Cooperative Banks, and Small Finance Banks.
- ✓ Purpose and Uses:
  - Gives quick and easy loans for **crop expenses, post-harvest needs, and household costs.**
  - Since 2018–19, also covers farmers in **poultry, animal husbandry and fisheries.**
- ✓ Collateral-free **loans up to ₹5 lakh** (raised from the earlier ₹2 lakh in the 2025 Union Budget.

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- ✓ Uses a **revolving credit system** — farmers can borrow and repay as needed. This flexible repayment is aligned with crop cycles to reduce stress on farmers.
- ✓ It **includes crop insurance** under PM Fasal Bima Yojana (PMFBY).

Viksit Krishi Sankalp Abhiyan

- Union Agriculture Minister launched the **Viksit Krishi Sankalp Abhiyan (VKSA-2025)** to empower over 1.5 crore farmers across India.
- The campaign aims to accelerate India's agricultural transformation by **linking advanced agri-tech and fisheries innovations with grassroots adoption.**

Objectives:

- Disseminate cutting-edge agricultural and fisheries technologies to rural communities.
- Promote self-reliance, sustainability, and resilience in the farming and aquaculture sectors.
- Align agricultural transformation with the vision of a Viksit Bharat.

Key Features:

- **Nationwide Reach:** Targets over 5 crore farmers across all districts.
- **Tech Transfer & Capacity Building:** Promotes lab-to-land transfer of innovations through training, scientist-farmer interaction, and demonstrations.
- **Integration of Fisheries & Agriculture:** Recognizes fisheries as a core component of livelihood security and rural development.
- **Launch of Argu VAX–I:** A novel and indigenous fish vaccine to prevent parasitic infections in aquaculture.
- **Community Engagement:** Involves Self Help Groups and rural institutions through exhibitions and stakeholder interactions.

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