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# Current Affairs (CONSOLIDATION)

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**(PART – II)**

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# Polity and Governance

## Highlights

- India Smart Cities Award Contest 2022
- Decennial population census
- OBC Reservation in Local Bodies
- India's 6th Minor Irrigation Census
- Missing Public Information on RTI Online Portal
- Stalled Real Estate Projects in India
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- Need for Effective Self-Regulation of Media
- Demolition Drive and Rule of Law
- BOCW SCHEME
- Surge in Bail Appeals in Indian High Courts

## India Smart Cities Award Contest 2022

### Why in News?

Recently, the Ministry of Housing and Urban Affairs (MoHUA) has announced the **India Smart Cities Award Contest (ISAC) 2022** under the **Smart Cities Mission (SCM)**, that felicitated 66 winners in various categories.

- Indore, Madhya Pradesh, and Chandigarh emerged as **top performers in the ISAC 2022 awards**, securing recognition for their excellence in different areas of urban development.

### What are the Key Highlights of ISAC 2022?

- **National Smart City Award:**
  - Indore secured the prestigious National Smart City Award, reflecting its exceptional progress in urban development strategies, followed by **Surat and Agra**.
    - Indore's commitment to sanitation, water supply, and urban environment earned it recognition as a leader in these vital areas.

### ➤ State Award:

- Madhya Pradesh received the **state award for its comprehensive approach** to fostering smart city initiatives within its borders.
- Madhya Pradesh is followed by **Tamil Nadu and Rajasthan**.

### ➤ Union Territory (UT) Award:

- Chandigarh was honored with the UT award, acknowledging its efforts to transform itself into a model smart city.

### ➤ Other Categories:

- Coimbatore took the top spot for built environment,
- Ahmedabad for the culture and **Integrated Command and Control Centre (ICCC)** category,
- Jabalpur for economy,
- Chandigarh for governance and mobility,
- Indore for sanitation, water and urban environment,
- Vadodara for social aspects,
- Hubballi Dharwad for the innovative idea category and Surat for Covid innovation category.

Note:



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### What is ISAC?

- The ISAC recognizes and rewards the cities, projects and innovative ideas that are **promoting sustainable development across the 100 smart cities**, as well as stimulating **inclusive, equitable, safe, healthy and collaborative cities**, thus enhancing quality of life for all.
- The ISAC has witnessed three editions in **2018, 2019 and 2020**.
- The fourth edition of the ISAC was launched in April 2022 during the **'Smart Cities-Smart Urbanization' event in Surat, Gujarat**.
  - The ISAC 2022 award had a **two-stage submission process consisting of 'Qualifying Stage'**, which involved overall assessment of the city's performance, and the 'Proposal Stage' which required the smart cities to submit their nominations for six award categories.
    - **Project Awards:** 10 different themes,
    - **Innovation Awards:** 2 different themes,
    - National/Zonal City Awards,
    - State Awards,
    - UT Award, and
    - Partners Awards, 3 different themes.

### What is a Smart Cities Mission?

- **About:**
  - It is a **Centrally Sponsored Scheme**, launched in June 2015 to transform 100 cities to provide the necessary **core infrastructure and clean and sustainable environment** to enable a decent quality of life to their citizens through the application of "Smart Solutions".
  - The mission aims to meet the aspirations of India's population living in cities through various urban development projects.
- **Features:**
  - Among its strategic **components is 'area-based development'**, which includes city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development), plus a pan-city initiative in which 'smart solutions' are applied covering larger parts of the city.
  - **Key focus areas** of the scheme include construction of walkways, pedestrian crossings, cycling tracks, efficient waste-management systems, integrated traffic management and assessment.

- The scheme also assesses various indices to track urban development such as the **Ease of Living Index, Municipal Performance Index**, City GDP framework, **Climate Smart Cities assessment framework**, etc.

### ➤ Achievements:

- **Integrated Command and Control Centers (ICCC):** One of the pivotal achievements of the Smart Cities Mission is the establishment of ICCC in all 100 smart cities.
  - These centers serve as the operational hubs for **urban management, utilizing technology** to enhance various aspects of city operations. Notably, ICCCs have contributed to improvements in crime tracking, citizen safety, transport management, waste management, water supply, and disaster preparedness.
- **Sectoral Progress:** The Smart Cities Mission encompasses a wide array of projects across sectors, including mobility, energy, water, sanitation, public spaces, social infrastructure, and governance.
  - **Smart Mobility:** Completion of 1,174 projects.
  - **Smart Energy:** Successful completion of 573 projects.
  - **Water Supply, Sanitation, and Hygiene (WASH):** Over 1,162 projects completed.
  - **Public Spaces:** Development of more than 1,063 public spaces.

### What is a Smart City?

- There is no standard definition or template of a smart city. In the context of our country, the six fundamental principles on which the concept of Smart Cities is based are:



### What are the other Initiatives Related to Urban Development?

- **Atal Mission for Urban Rejuvenation and Urban Transformation (AMRUT).**
- **Pradhan Mantri Awas Yojana-Urban (PMAY-U).**
- **Climate Smart Cities Assessment Framework 2.0.**
- **TULIP-The Urban Learning Internship Program.**

Note:

# Decennial Population Census

## DECENNIAL POPULATION CENSUS

A process of collecting, compiling, analysing and disseminating demographic, economic and social data (at a specific time) of all persons in a country.



### BRIEF HISTORY

- Earliest mentions: **Rigveda** (800-600 BC), **Arthashastra** (300 BC) & **Ain-i-Akbari** (16<sup>th</sup> century)
- 1<sup>st</sup> Non-synchronous Census (held in a few places): **1872** under Gov. Gen. Lord Mayo
- 1<sup>st</sup> Synchronous Census (held all over British India): **1881** by W.C. Plowden (Census Commissioner of India) under Lord Ripon

### RESPONSIBLE BODY

- Until 1951, Census Organisation was set up on an ad-hoc basis for each Census
- Since 1951, Office of the **Registrar General and Census Commissioner** (MHA)

### LEGAL BACKING

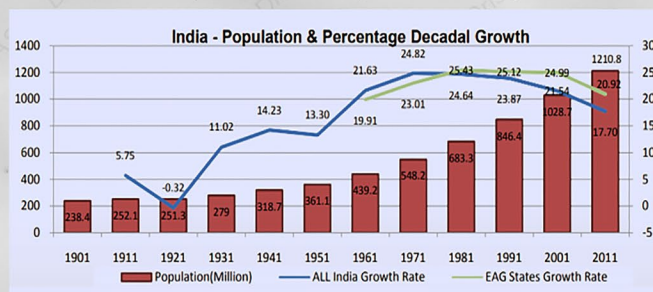
- A Union list subject under **Article 246**
- Conducted under **Census Act (CA), 1948**

### CONFIDENTIALITY OF INFORMATION COLLECTED

- Guaranteed under CA 1948
- Information not even accessible to the courts of law

### SIGNIFICANCE

- Largest single source of statistical information about people of India
- Used for good governance purposes
- Demarcation of constituencies & representation in Legislature



Census	Major Event
5 <sup>th</sup> (1921)	Only census to witness a decadal population decline (0.31%) Hence, called the year of "The Great Divide"
11 <sup>th</sup> (1971)	Added information on fertility for currently married women
13 <sup>th</sup> (1991)	Concept of literacy changed to children aged 7+ (previously 4+)
14 <sup>th</sup> (2001)	Leap in tech front; usage of <b>Intelligent Character Reading (ICR)</b>
15 <sup>th</sup> (2011)	Notable fall in case of <b>Empowered Action Group (EAG) States</b> noticed first time

## Socio-Economic and Caste Census (SECC)

### ABOUT

- Conducted in **2011** for the **first time since 1931**

### COMPONENTS

- Economic status** (to define a poor/deprived person)
- Specific caste** (to evaluate caste groups that are economically worse/better off)

### CONSTITUTIONAL BACKING

- Article 340** mandates the **appointment of a commission** to investigate the conditions of socially/educationally backward classes

### Census v/s SECC

- SECC identifies beneficiaries of state support (Census - national population data)
- SECC data open for use by govt depts (Census data - confidential)

### SIGNIFICANCE

- Better inequality mapping
- Quantifiable data to support existing reservation levels

### SOME KEY FINDINGS OF SECC 2011

- Total Households - 24.49 crore
  - Rural - 17.97 crore
  - SC/ST Households - 3.87 crore (21.56%)
- Households with no literate adult (age >25) - 23.5%

Note:



## OBC Reservation in Local Bodies

### Why in News?

Recently, the state government of Gujarat hiked **reservations for Other Backward Classes (OBCs)** from the existing 10% to **27% in the panchayats and urban local bodies**.

#### Note:

- In 2022, the **SC permitted Madhya Pradesh** to provide reservation to OBC in Local Body Elections.
- In January 2022, **following a plea by Maharashtra govt SC recalled its 2021 order** which stayed 27% reservation for OBC in local body elections.

### What are the Key Points about this Decision?

- The decision followed recommendations of the **Justice KS Jhaveri Commission** that was formed in response to a **Supreme Court (SC)** directive in 2022 to make suggestions for OBC reservation in local bodies in Gujarat.
- The expanded 27% OBC reservation **will apply to all levels of local bodies** (municipal corporations, municipalities, gram panchayats, taluka panchayats, and district panchayats).
- The increased OBC reservation, however, will **not be applicable in areas covered by the PESA Act 1996** where the **scheduled tribe (ST) population exceeds 50%**. In such regions, OBC candidates will receive a **10% reservation**.
- The **existing quota for SCs (14%) and STs (7%)** remains unchanged without any breach of the **50% reservation ceiling as mandated by the SC**.

### What is the SC's View about Reservation in Local Bodies?

- In the five-judge Constitution Bench decision in **K. Krishnamurthy (Dr.) v. Union of India (2010)**, the SC interpreted **Article 243D(6) and Article 243T(6)**, which **permit reservation by enactment of law** for backward classes in panchayat and municipal bodies respectively.
  - The SC also held that the barriers to political participation are not the same as the barriers that limit access to education and employment.

- **Article 15 (4) and Article 16 (4)** form the basis for reservation in education and employment.

- However, the SC also held that although reservation to local bodies is permissible, it is subject to empirical finding of backwardness in relation to local bodies as fulfilled through the **triple tests** which refers to the following three conditions:
  - Set up a **dedicated Commission to conduct empirical inquiry** into the nature of the backwardness in local bodies
  - **Specify the proportion of reservation** required to be provisioned local body-wise
  - Such **reservation shall not exceed an aggregate of 50%** of the total seats reserved for SCs/STs/OBCs taken together.

### What are the General Arguments regarding OBC Reservation in Local Body Polls?

#### Arguments in Favour:

- **Empowerment, Inclusion and Participation:** Reservation provides OBC individuals with opportunities to participate actively in local governance, allowing them to voice their concerns, advocate for their communities, and contribute to policy-making that affects their lives.
- **Policy Relevance:** Elected representatives from OBC communities are more likely to understand the challenges faced by their communities and work towards addressing them effectively.
- **Skill and Leadership Development:** Reservation would provide them more opportunities to gain experience in leadership roles, public speaking, and decision-making.
- **Enhanced Political Awareness:** It would encourage political awareness and engagement among community members inspiring them to contribute more actively in the political process.
- **Long-Term Positive Impact:** Proponents argue that over time, this may lead to a more equitable distribution of resources, improved socio-economic indicators, and reduced disparities between different sections of society.

#### Arguments Against:

- **Caste-Based Division:** Some opponents contend that caste-based reservations perpetuate divisions within society, emphasising differences rather than fostering unity.

Note:



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- **Disadvantaged Groups Within OBCs:** There is concern that within the OBC category, some groups may be more privileged (creamy layer) than others. Implementing reservations for the entire OBC category might result in some relatively more privileged groups benefiting disproportionately, while the most marginalised OBCs remain underrepresented.
- **Reservation Efficacy:** Sceptics also question the long-term efficacy of reservations in truly addressing socio-economic disparities. They argue in favour of alternative approaches like targeted welfare programs, skill development etc.
- **Impact on Local Governance:** There are apprehensions about political considerations outweighing governance concerns when candidates are elected through reservations. This could hinder effective decision-making and the overall development of local bodies.

## India's 6<sup>th</sup> Minor Irrigation Census

### Why in News?

The Ministry of Jal Shakti has released the **6<sup>th</sup> census of minor irrigation schemes (with reference year 2017-18)**, shedding light on the **state of irrigation practices across India**.

- So far, five censuses were conducted in 1986-87, 1993-94, 2000-01, 2006-07, and 2013-14.

### What are the Key Highlights of the Report?

- **Total Minor Irrigation Schemes:**
  - A total of **23.14 million minor irrigation (MI) schemes** have been reported in the country.
    - Among these, **21.93 million (94.8%) are groundwater (GW) schemes**, and **1.21 million (5.2%) are Surface Water (SW) schemes**.
- **Dominant Types of Schemes:**
  - **Dug-wells have the highest share in MI schemes** followed by shallow tube-wells, medium tube-wells and deep tube-wells.
  - The 6<sup>th</sup> MI census recorded an **increase of about 1.42 million MI schemes compared to the previous census**.

- Nationally, GW schemes saw a **6.9% increase**, while SW schemes increased by **1.2%**.

### ➤ Leading States in MI Schemes:

- **Uttar Pradesh leads in MI schemes in India**, followed by Maharashtra, Madhya Pradesh, and Tamil Nadu.
- **Maharashtra is the leading State in dug-wells**, surface flow and surface lift schemes.
- **Uttar Pradesh, Karnataka and Punjab** are the leading States in shallow tube-wells, medium tube-wells and deep tube-wells, respectively.
- In SW schemes, Maharashtra, Karnataka, Telangana, Odisha and Jharkhand have the highest share.

### ➤ Ownership Breakdown:

- Approximately **96.6% of MI schemes are under private ownership**.
- Among GW schemes, **98.3% are owned by private entities**, and in SW schemes, this share is **64.2%**.
- For the first time, data on the gender of MI scheme owners was collected.
  - **18.1% of individually owned schemes are owned by women**.

### ➤ Financing and Sources:

- Around **60.2% of schemes are financed through a single source**.
  - Own savings of individual farmers contribute significantly to single-source financing (79.5%).
- 39.8% of schemes have more than one source of finance.

### What is a Minor Irrigation scheme?

- A minor irrigation scheme is a type of irrigation project that uses surface water or groundwater to irrigate a **culturable command area (CCA)** of up to 2,000 hectares.
  - **CCA is an area which can be irrigated from a scheme** and is fit for cultivation.
- Minor irrigation schemes are classified **into two major categories and six sub-categories**.
  - **Ground Water (GW)** schemes encompass **dugwells, shallow tube wells, medium tube wells, and deep tube wells**.
  - **Surface Water (SW)** schemes consist of **surface flow and surface lift schemes**.
- The minor irrigation schemes provide the **farmers with controlled and timely irrigation which the new high yielding varieties of seeds demand**. These schemes are labour intensive, less implementation period and involve reasonable investments for their commissioning.

Note:



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### **What are the Initiatives Taken by the Government Related to Irrigation?**

- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY).**
- **Per Drop More Crop.**
- **Mission Kakatiya.**

## **Missing Public Information on RTI Online Portal**

### **Why in News?**

The **Union government's RTI Online portal** has encountered a situation where a significant amount of public information, including past applications and responses, has **gone missing**.

- The portal is undergoing maintenance with the aim of restoring the vanished archival data. This incident underscores the **challenges associated with upholding accountability within the framework of the RTI Act.**

### **What is the Right to Information (RTI) Act?**

- **About:**
  - The **Right to Information (RTI) Act** is a legislative framework that empowers Indian citizens to **access information held by public authorities**. Enacted in **2005**, the act aims to promote **transparency, accountability, and participation in government processes**.
    - It replaced the **Freedom of Information Act 2002**.
    - **Earlier Mazdoor Kisan Shakti Sangathan (MKSS)**, an NGO, in Rajasthan that forced the state government to pass the right to information Act in 1997.
  - According to Section 22 of RTI Act, the provisions of this Act will be **effective regardless of any contradictions with the Official Secrets Act of 1923**, existing laws, or any agreements established through laws other than this Act.
- **Constitutional Backing:**
  - The RTI Act is derived from the **Article 19(1)(a) of the Constitution of India**, which guarantees the freedom of speech and expression.
    - In **Raj Narain vs the State of Uttar Pradesh case**, the Supreme Court ruled that Right to information will be treated as a fundamental right under article 19.

### **Time Period:**

- In normal course, **information to an applicant is to be supplied within 30 days** from the receipt of application by the public authority.
- If information sought concerns the **life or liberty of a person**, it shall be supplied **within 48 hours**.
  - In case the application is sent through the **Assistant Public Information Officer or it is sent to a wrong public authority**, five days shall be added to the period of thirty days or 48 hours, as the case may be.

### **Exempted Information:**

- **Sec 8 (1) of RTI Act** talks about which information is exempted under RTI, it includes information related to **national security, strategic matters of the state, foreign relation, incitement to offenses etc.**

### **Implementation:**

- The **Public Information Office (PIO)** is a pivotal component of the RTI Act's implementation.
  - A PIO is a **designated officer within a public authority who acts as a bridge between citizens seeking information and the government organization holding that information.**

### **Appellate Authority and Mechanism:**

- If a citizen's RTI request is **denied or they are not satisfied with the response provided by the PIO**, they can appeal to the **First Appellate Authority** within the same public authority.
- If the citizen is **still dissatisfied with the decision of the First Appellate Authority**, they can file a second appeal to the **Central or State Information Commission**.

### **What are the Recent Amendments in the RTI Act?**

- **Amendment in 2023:** Recently, **section 44 (3) of the Digital Personal Data Protection Act 2023** modified **Section 8 (1)(j) of the RTI Act**, creating an **exemption for all personal information from disclosure** and removing the previously established exceptions that **permitted the release of such information**
- **Right to Information (Amendment) Act, 2019:** It brought **changes to the tenure and conditions of the Chief Information Commissioner (CIC) and Information Commissioners (ICs)** at both the central and state levels.

Note:

- **Term of ICs:** Their terms became subject to central government prescription (currently, set for a period of 3 years), unlike the previous fixed 5-year term.
- **Determination of Salary:** It also provides that the salary, allowances and other service conditions of the CIC and an ICs (of centre as well as states) shall be such as prescribed by the central government.
- **Deductions in Salary:** Act of 2019 removed the provisions of the deduction of pension, or any other retirement benefits for previous government service, at the time of the appointment of the CIC and ICs.

### What are the Issues

#### Associated with RTI in India?

- **Pendencies of Cases:** At present, more than 3 lakh complaints or appeals are pending with various information commissions across India.
  - In addition, there are significant vacancies in the positions of **Information Commissioners (ICs)** and **State Information Commissioners (SICs)**.
- **Misuse of RTI Act:** Some people use the RTI Act for frivolous, vexatious, or personal motives, rather than for public interest. This leads to **wastage of time and resources** of the public authorities and hampers their work efficiency.
- **Excessive Exemptions:** The act provides for exemptions to protect sensitive information. However, there have been instances where these exemptions have been misused to deny legitimate requests for information.
- **Right to Information vs. Right to Privacy:** The recent intersection between the RTI Act and the Digital Personal Data Protection Act 2023 raises questions about the hierarchy of these rights and the potential clashes that might arise between them.

## Stalled Real Estate Projects in India

### Why in News?

Recently, a committee chaired by former **National Institution for Transforming India (NITI Aayog)** CEO Amitabh Kant, formed by the **Ministry of Housing and Urban Affairs (MoHUA)**, has put forward a series of recommendations to address the issue of stalled legacy real estate projects in India.

- The committee's formation was recommended by the **Central Advisory Council under the Real Estate (Regulation and Development) Act, 2016**.
- According to the Indian Banks' Association, more than 4.12 lakh "stressed dwelling units" exist across India, of which around 2.4 lakh units are located in the **National Capital Region (NCR)**, mainly in Noida and Greater Noida.

### What are the Key Recommendations?

- **Model Package for Stalled Projects:**
  - Introduction of a "model package" designed for stalled projects in specific regions, starting with Noida and Greater Noida.
    - Other states are encouraged to develop similar packages tailored to their respective stalled projects.
  - The key components of the model package may include:
    - **Zero Period:**
      - The concept of a "zero period" that takes into account disruptions caused by factors like the **Covid-19 pandemic** and court orders.
      - During this period, **developers would be exempted from interest and penalty payments, acknowledging the unforeseen challenges that led to project delays.**
    - **Partial Surrender Policy:**
      - Inclusion of a **partial surrender policy** within the model package.
      - Developers were granted the **option to surrender a portion of the land associated with the project.**
      - Aims to offer flexibility in project planning and execution while optimizing resource utilization.
- **Subsidized Interest Rates:**
  - Suggestion of a "subsidized interest rates or guarantee scheme" similar to those benefiting the MSME sector.
  - Designed to incentivize financial institutions to provide funding for stalled real estate projects.
  - Aims to **improve liquidity and funding access for developers** struggling with stalled projects.
- **Establishment of a "Guarantee Fund":**

Note:



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- Proposal for the creation of a dedicated “guarantee fund” analogous to the one established for the MSME sector.
- Aimed at **enhancing financial support and investor confidence in the real estate sector.**
- The MoHUA is tasked with drafting the fund scheme and forwarding it to the Ministry of Finance.
- **Expansion of Fast-Track NCLT Benches:**
  - The committee has also suggested the creation of **five additional fast-track benches** at the **National Company Law Tribunal (NCLT)** so that all pending **Insolvency and Bankruptcy Code (IBC)** real estate cases can be disposed of on a “priority basis”.

#### **Real Estate (Regulation and Development) Act, 2016:**

- **Real Estate Regulatory Authorities (RERAs):**
  - The Act establishes RERAs in each state, serving as regulatory bodies and dispute resolution forums.
- **Mandatory Registration:**
  - All real estate projects with a **minimum plot size of 500 sq.mt or eight apartments must be registered with RERAs before launch.** This aims to enhance transparency in project marketing and execution.
- **Transparency and Database:**
  - RERAs maintain a public database of registered projects on their websites. This includes project details, registration status, and ongoing progress, providing transparency to buyers.
- **Funds Management:**
  - Promoters are required to **deposit 70% of the collected funds in a separate escrow account** for the specific project’s construction and land costs, preventing fund diversion.
- **Time-Bound Adjudication:**
  - Appellate Tribunals are mandated to adjudicate cases **within 60 days, while Regulatory Authorities must resolve complaints in the same timeframe,** ensuring faster dispute resolution.

#### **What are the Challenges Related to Stalled Real Estate Projects in India?**

- **Funding Shortages:**
  - Lack of timely funding due to **high-interest rates and strict lending norms.**
  - Reduced **cash flows and revenues from low demand in the real estate market.**

- Difficulty in **securing funds from alternative sources like private equity or foreign investors.**
- Results in project delays, **cost overruns, compromised quality, and dissatisfaction.**
- **Regulatory Complexities:**
  - The multiplicity of **regulations and approvals at central, state, and local levels.**
    - Time and cost escalations, uncertainty, litigation, and barriers to entry.
- **Legal Disputes:**
  - Boundary disputes **affecting land ownership and sovereignty.**
  - Land acquisition and compensation conflicts with stakeholders.
  - Project disruptions, damages, judicial interventions, and trust issues.
- **Market Slowdowns:**
  - Economic downturns affect buyer’s purchasing power.
  - Disruption due to the **Covid-19 pandemic** and lockdowns.
  - Policy changes create market uncertainty.
  - Resulting in **low demand, unsold units, falling prices, and reduced investments.**

## **Mizoram Pioneers Digital Health Revolution**

### **Why in News?**

The **National Health Authority (NHA)** has unveiled the “**100 Microsites**” project, aimed at **accelerating the adoption of Ayushman Bharat Digital Mission (ABDM)** across India.

- Mizoram has achieved a remarkable feat by becoming the **first state to operationalize an ABDM Microsite** in its capital city, Aizawl.

### **What is Ayushman Bharat Digital Mission?**

- The **Ayushman Bharat Digital Mission (ABDM)** is a national initiative that aims to develop the digital health infrastructure of the country. It was launched in September, 2021.
- Ayushman Bharat is a flagship scheme of India which was launched as recommended by the **National Health Policy 2017**, to achieve the vision of **Universal Health Coverage (UHC).**

Note:

## What are ABDM Microsites?

### ➤ About:

- The ABDM Microsites are **geographically defined regions where targeted outreach initiatives** are conducted to onboard small and medium-scale private healthcare providers.
  - The Microsite project aims to ensure that all healthcare facilities, including **private clinics, small hospitals, and labs**, become ABDM-enabled and **offer digital health services to patients**.
  - An interfacing agency under this program will have an on-ground team to reach out to the healthcare providers in the area.

### ➤ Implementation:

- The implementation of these microsites is primarily led by the **State Mission Directors of ABDM**, supported by the **NHA's financial resources and comprehensive guidance**.

### ➤ Benefits:

- Patients can benefit from digital services such as online appointments, **e-prescriptions, e-reports, e-bills, e-consent, e-referrals, and e-feedback** at these facilities.
  - **Health records generated within these ABDM-enabled facilities** can be seamlessly linked to their **Ayushman Bharat Health Accounts (ABHAs)**.
  - Furthermore, these records are accessible and shareable through any **ABDM-enabled Personal Health Record (PHR) application on mobile devices**, ensuring that patients have access to their health information at their fingertips.

### ➤ Current Progress:

- Mizoram's groundbreaking achievement is not in isolation; other states, including **Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Maharashtra, and Chhattisgarh**, are also making substantial strides in implementing ABDM Microsites.
- This collective effort signifies a nationwide movement towards achieving comprehensive healthcare digitization.

### What is the National Health Authority?

- **National Health Authority (NHA)** is the apex body responsible for implementing India's flagship **public health insurance/assurance scheme** called "**Ayushman Bharat Pradhan Mantri Jan Arogya Yojana**".

- It has been entrusted with the role of designing strategy, building technological infrastructure and implementation of "**National Digital Health Mission**" to create a National Digital Health Ecosystem.
- NHA is the successor of the **National Health Agency**, which has been functioning as a registered society since **23rd May 2018**.
  - Pursuant to Cabinet decision for full functional autonomy, **National Health Agency was reconstituted as the National Health Authority on 2nd January 2019**.

## Performance of the Fast Track Special Court

### Why in News?

The performance of the **Fast Track Special Courts (FTSCs)** has been commendable, making substantial progress in expediting the trial process for cases related to **Rape and the Protection of Children from Sexual Offenses (POCSO) Act, 2012**.

### What are the Fast Track Special Courts (FTSCs)?

#### ➤ Background (Scheme for Fast Track Courts):

- Fast track courts (FTCs) were first recommended by the **Eleventh Finance Commission in 2000** "to substantially bring down, if not eliminate, pendency in the district and subordinate courts over the next five years".
  - Following the report, the Centre created 1,734 additional courts in different states for a period of five years. In 2011, the central government stopped funding fast-track courts.
- **Following the December 2012 Gangrape and murder case**, the Union Government set up a '**Nirbhaya Fund**', amended the **Juvenile Justice Act, 2015** and set up **fast-track Mahila Courts (a Special Court)**.
  - Some other states such as Uttar Pradesh, Jammu and Kashmir, Bihar etc. also set up FTCs for rape cases thereafter.

#### ➤ About Fast Track Special Courts (FTSCs):

Note:

- FTSCs are dedicated courts expected to **ensure swift dispensation of justice**. They have a better clearance rate as compared to the regular courts and hold speedy trials.
  - In 2019, the government approved a scheme for setting up 1,023 FTSCs across the country for **expeditious disposal of pending rape cases under the Indian Penal Code (IPC)** and crimes under the POCSO Act.
  - It also strengthens the **deterrence framework for sexual offenders**.
- **Performance:**
- As of June 2023, the FTSCs have successfully disposed of more than **1.74 lakh cases related to rape and POCSO Act**.
  - This reflects the significant impact of these specialized courts in providing speedy justice to the victims of sexual offences.
  - 763 FTSCs are currently functional across **29 States and Union Territories**.
  - Among these, 412 courts are exclusive POCSO Courts.

### ***What are the Challenges Related to Fast Track Special Court?***

- **Inadequate Infrastructure and Low Disposal Rate:**
- Special courts in India **often suffer from the same challenges as regular courts**, as they are **usually designated rather than established as new infrastructure**.
  - This leads to overburdened judges who are assigned other categories of cases in addition to their existing **workload without the necessary support staff or infrastructure**.
  - Consequently, the disposal rate of cases in these special courts slows down.
    - According to data from the **Ministry of Law and Justice** till May 2023, **Delhi's FTSCs have a disposal rate of only 19%**, which is one of the lowest in the country.
- **Limited Jurisdiction:**
- These courts are established with a specific jurisdiction, which can limit their ability to deal with related cases. This can lead to **delays in justice delivery and a lack of consistency in the application of laws**.

- Ideally, cases in these special courts **should be disposed of within a year**. However, as of May 2023, Delhi had only disposed of 1,049 cases out of a total of 4,369 pending cases. This indicates a **significant lag in meeting the target**.

➤ **Vacancies and Lack of Training:**

- The lack of judges due to vacancies **affects the courts' capacity to handle cases effectively**.
  - As of 2022, lower courts across India **had a vacancy rate of 23%**.
- Regular judges from normal courts are **often deputed to work in FTSCs**.
- However, these courts require judges with specialized training to handle cases quickly and effectively.

➤ **Prioritization of Certain Offences Over Others:**

- The establishment of special courts in India is often determined by ad-hoc decisions made by both the judicial and executive branches of government.
- This approach means that certain **categories of offences are arbitrarily prioritised for faster disposal over others**.

### ***What are the Initiatives to Curb Women and Child Abuse?***

- **Child Abuse Prevention and Investigation Unit**
- **Beti Bachao Beti Padhao**
- **The Juvenile Justice (Care and Protection of Children) Act, 2015**
- **Child Marriage Prohibition Act (2006)**
- **Child Labour Prohibition and Regulation Act, 2016**

## **Rail-Sea-Rail Transportation**

### ***Why in News?***

The Ministry of Coal is promoting the **Rail-Sea-Rail (RSR) transportation strategy**, aimed at **streamlining the movement of domestic coal**.

### ***What is Rail-Sea-Rail (RSR) Transportation?***

➤ **About:**

- It is an innovative **multimodal transportation strategy**.
  - Integrates **rail and sea routes** for seamless coal transportation from **mines to ports and end-users**.

Note:

- Aims to enhance **logistical efficiency and reduce transportation costs.**
- **Addressing Coal Movement Challenges:**
  - RSR is designed to address challenges related to efficient coal movement from **production centers to consumption regions.**
    - A significant portion of **domestic raw coal dispatch, around 75%, is attributed to major coal-producing states like Odisha, Chhattisgarh, and Jharkhand.**
    - The Ministry of Coal recognizes the need to augment coal production to meet the growing demand for energy. In light of this, the ministry has projected a **substantial increase in coal production, targeting a Compound Annual Growth Rate (CAGR) of approximately 7.7% by FY'30.**
- **Leveraging Coastal Shipping:**
  - Coastal shipping has emerged as an economical and environmentally friendly mode of transporting goods, including coal.
    - As part of the RSR initiative, efforts are being made to fully utilize the **potential of ports along India's Southern and Western coasts.**
    - This optimisation enables the efficient movement of coal to powerhouses located in states like **Gujarat, Maharashtra, Karnataka, Goa, Tamil Nadu, Kerala, and Andhra Pradesh.**
- **Cost Optimization and Competitive Pricing:**
  - Opting for RSR could result in significant cost savings.
    - Potential savings of around **Rs. 760-1300 per ton for end-users in Southern India.**
    - These cost savings can make **domestically produced coal more competitive against the total landed cost of imported coal.**
- **Reducing Congestion and Enhancing Logistics:**
  - Presently, railways handle about **55% of coal evacuation.** The Ministry of Coal envisions raising the **railways' share in coal evacuation to 75% by FY'30.**
    - One of the primary goals of this initiative is to **reduce congestion on traditional rail routes, which often face bottlenecks due to high traffic.** The focus on alternative routes, including Rail-Sea-Rail (RSR), is expected to alleviate this congestion and streamline logistics.

- **Growth and Future Prospects:**
  - Rail-sea-rail transportation of coal has witnessed remarkable growth, experiencing an **increase of approximately 125% over the past four years.**
  - This growth trajectory indicates the effectiveness and viability of RSR as an alternative mode of transportation. With India's coal production expected to nearly double within the next seven years, the **success of RSR becomes even more crucial in ensuring an uninterrupted supply of coal** to consumption centres across the country.
- **Challenges in Rail-Sea-Rail Coal Evacuation:**
  - Robust **rail and port infrastructure** is required for efficient Rail-Sea-Rail coal transport and **handle increased capacity.**
  - There is a need to **develop risk mitigation strategies** to address potential challenges such as **adverse weather conditions, technical glitches, and disruptions in the transportation chain.**
  - Ensuring seamless collaboration between **various Ministries involved in Rail-Sea-Rail strategy implementation** for smooth execution.

### *What are the Initiatives*

#### *Related to the Coal Sector in India?*

- **UTTAM (Unlocking Transparency by Third Party Assessment of Mined Coal).**
- **Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India (SHAKTI).**
- **Online Coal Clearances System:** Provides a single window access to its investors to submit online applications for all the permissions / clearances and approvals granted by the Ministry of Coal.
- **Coal Allocation Monitoring System (CAMS):** Monitor the allocation of coal by Coal India Limited to States, States to Single Nodal Agency(SNA) and SNA to such consumers in a transparent manner.
- **Commercial coal mining:** The government has introduced commercial coal mining for private companies, allowing them to bid for coal blocks and sell coal in the open market.

#### **Coal**

- It is a type of **fossil fuel** found in the form of **sedimentary rocks and is often known as 'Black Gold'.**

Note:



- It is a conventional source of energy and is widely available. It is used as a domestic fuel, in industries such as **iron and steel, steam engines and to generate electricity. Electricity from coal is called thermal power.**
- The leading coal producers of the world include **China, US, Australia, Indonesia, India.**
- Indian coal has high ash content, which varies from 35 to 45%, compared with that of coal in other parts of the world, which is around 15% while it has low sulphur content, about 0.5%.
- Different Types of Coal in India:
  - **Anthracite** (80-95% carbon content, J&K), **Bituminous** (60-80% carbon content, Jharkhand, West Bengal, Odisha, Chhattisgarh, MP), **Lignite** (40-55% carbon content, Rajasthan, Assam, Tamil Nadu), **Peat** (less than 40% carbon content, early wood-to-coal stage).
- Major Coal Producing States:
  - Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh, and Telangana.

## Scientific Authenticity of Nano Liquid Urea

### Why in News?

Recently, an opinion paper published in the journal **"Plant and Soil"** has raised concerns about the scientific validity of **Nano Liquid Urea** produced by the **Indian Farmers and Fertiliser Cooperative (IFFCO).**

- The paper questions the **claims made about the efficacy and benefits** of the product, emphasizing the **need for rigorous scientific scrutiny** before launching nano fertilizers into the market.

### What is Liquid Nano Urea?

- About:
  - It is urea in the **form of a nanoparticle.** It is a nutrient (liquid) to provide **nitrogen to plants as an alternative** to the conventional urea.
    - Urea is a chemical nitrogen fertilizer, white in colour, which artificially provides nitrogen, a major nutrient required by plants.
  - It is developed to **replace conventional urea** and it can curtail the requirement of the same by at least 50%.

- It contains 40,000 mg/L of nitrogen in a 500 ml bottle which is equivalent to the impact of nitrogen nutrient provided by one bag of conventional urea.

### ➤ Developed At:

- It has been indigenously developed at **Nano Biotechnology** Research Centre, Kalol, Gujarat in line with **Atmanirbhar Bharat** and Atmanirbhar Krishi.

- India is dependent on imports to meet its **urea requirements.**

### ➤ Significance:

- Liquid Nano Urea has been **found effective and efficient for plant nutrition** which increases production with improved nutritional quality.
  - It can boost a balanced nutrition program by reducing the excess use of Urea application in the **soil and make the crops stronger, healthier** and protect them from the lodging effect.
- It has a positive **impact on the quality of underground water**, a very significant reduction in global warming with an impact on **climate change and sustainable development.**

### What is the Background?

- IFFCO had asserted that **a small quantity of nano liquid urea could replace a substantial amount** of conventional urea.
- The central government and IFFCO have ambitious plans to expand nano urea production and export.
- The researchers express concerns about the **potential consequences of these plans**, as **exaggerated claims could lead to severe yield losses**, impacting food security and farmer livelihoods.

### What are the Concerns Raised By the Paper?

#### ➤ Discrepancy Between Claims and Outcomes:

- Nano liquid urea was introduced as a promising alternative to traditional granular urea.
- Nano liquid urea has failed to **deliver noticeable results** in the field. Farmers using the fertiliser have **experienced increased input costs** without corresponding improvements in crop yield.
- This highlights the **discrepancy between product claims and real-world outcomes.**

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### ➤ Environmental Concerns:

- While IFFCO advertised nano urea as environmentally friendly, the paper finds **no scientific basis for this claim**.
- It emphasizes that nitrogen, a vital compound for crop growth, has been linked to **numerous environmental issues such as Climate Change, Ocean Acidification, and Ozone Depletion**.

### What are the Recommendations of the Study?

- The study underscores the **need to address excess nitrogen** due to its adverse impact on the environment.
- The opinion paper highlights the **importance of transparent and rigorous scientific evaluation** before introducing novel agricultural technologies.
- With implications for food security, farmers' livelihoods, and the environment, this controversy underscores the need for responsible innovation and evidence-based **decision-making in the agricultural sector**.

### What is Indian Farmers Fertilizer Cooperative Limited?

- About:
  - It is one of India's biggest cooperative societies which is wholly owned by Indian **Cooperatives**.
  - Founded in **1967 with just 57 cooperatives**, today it is an amalgamation of over 36,000 Indian Cooperatives with diversified business interests ranging from General Insurance to Rural Telecom apart from its core business of manufacturing and selling fertilizers.
- Objective:
  - To enable Indian farmers to prosper through timely supply of reliable, high quality agricultural inputs and services in an environmentally sustainable manner and to undertake other activities to improve their welfare.

## National Judicial Data Grid

### Why in News?

Recently, the **National Judicial Data Grid (NJDG)** has gained significant attention for its role in revolutionising the way judicial proceedings are managed in India.

### What is the National Judicial Data Grid?

#### ➤ About:

- NJDG is a database of orders, judgments and case details of 18,735 District & Subordinate Courts and High Courts created as an online platform under the **eCourts Project**.
- Data is updated on a **near real-time basis by the connected District and Taluka courts**. It provides data relating to **judicial proceedings/decisions** of all computerised district and subordinate courts of the country.
- All High Courts have also joined the NJDG through web services, providing easy access facility to the litigant public.

#### ➤ Features:

- Aligned with the **National Data Sharing and Accessibility Policy (NDSAP)**, NJDG provides an Open **Application Programming Interface (API)** to Central & State Governments.
  - This API offers streamlined access to NJDG data using designated departmental IDs and access keys.
- This feature is intended for **institutional litigants to evaluate and monitor cases**, with plans to extend access to non-institutional litigants in the future.

#### ➤ Significance:

- NJDG works as a **monitoring tool to identify, manage & reduce pendency** of cases.
- It helps to provide timely inputs for making policy **decisions to reduce delays in disposing of cases** and helps in reducing case pendency.
- It also facilitates **better monitoring of court performance** and systemic bottlenecks, and, thus, serves as an efficient resource management tool.
- To track cases related to land disputes, Land Records data of 26 States have been linked with NJDG.

#### ➤ International Recognition:

- In the **Ease of Doing Business report for 2018**, the **World Bank (WB)** commended NJDG for its role in generating case management reports that facilitate contract enforcement.
- This recognition underscores **NJDG's significance in improving the business environment**.

Note:



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## What are the Other Initiatives under E-court Projects?

- **Case Information Software (CIS)**
- **Virtual Courts**
- **Video-conferencing (VC).**
- **National Service and Tracking of Electronic Processes (NSTEP)**
- **Supreme Court Portal for Assistance in Court's Efficiency**

## Mission Amrit Sarovar

### Why in News?

Recently, the Ministry of Rural Development has provided insights into the advancements made in the implementation of **Mission Amrit Sarovar**, an initiative aimed at enhancing water security across various regions.

### What is the Mission Amrit Sarovar?

- **About:**
  - On April 24, 2022, **Mission Amrit Sarovar** was launched as part of India's "Azadi Ka Amrit Mahotsav" celebrations for the **75<sup>th</sup> year of independence**.
  - The mission aims to construct/rejuvenate **at least 75 Amrit Sarovars in each district across India** to overcome the water crisis in rural areas.
  - The target for these water bodies serves as a crucial step towards ensuring water sustainability at the local level.
  - Eight Central Ministries/Departments, including **Dept. of Rural Development, Department of land resources, Department of Drinking Water and Sanitation**, Department of Water resources, **Ministry of Panchayati Raj**, Ministry of Forest, Environment and Climate changes, Ministry of Railway, **Ministry of Road, Transport & Highways**, actively contribute to the mission's execution.
  - **Bhaskaracharya National Institute for Space Application and Geo-informatics (BISAG-N)** has been engaged as Technical partner for the Mission.

- BISAG-N is an **autonomous scientific society registered under the Societies Registration Act, of 1860**. It comes under the Ministry of Electronics and Information Technology.
  - Geospatial data and technology play a pivotal role in identifying and executing the construction and rejuvenation of Amrit Sarovar.
- **Progress and Achievements:**
  - So far, out of over 1 lakh identified Amrit Sarovars, the work has been started for **over 81,000 Amrit Sarovars** and a total of over **66,000 Amrit Sarovars have been constructed/ rejuvenated**.
  - The national target of **50,000 Amrit Sarovars has been accomplished, demonstrating the dedication and efficacy of the mission**.
- **State-Specific Challenges and Advancements:**
  - Several states have made commendable strides towards achieving the goal of 75 Amrit Sarovars per district.
  - While some states like **West Bengal, Punjab, Telangana, Kerala, Tamil Nadu, Haryana, Bihar, and Rajasthan** are still working to meet this target, their determination remains unwavering.
- **Bridging Resource Gaps:**
  - Mission Amrit Sarovar leverages various existing schemes and financial grants to realize its objectives.
  - The **Mahatma Gandhi National Rural Employment Guarantee Act, Pradhan Mantri Kisan Sampada Yojana sub-schemes**, and state-specific initiatives are channelled to mobilize resources for the mission's success.
- **Empowering Local Participation:**
  - The mission encourages citizen engagement and collaboration with non-governmental resources.
  - By fostering community involvement, the initiative seeks to harness additional support for the cause.
- **Water Security through Collaboration:**
  - The mission's collaborative nature, combining governmental departments, technical partners, and local communities, highlights its multi-faceted approach to water security.
  - The ultimate **goal is to transform the water landscape, enhance livelihoods, and ensure water availability for generations to come**.

Note:

## Bharat New Car Assessment Programme

### Why in News?

The **Ministry of Road Transport and Highways**, Government of India, has introduced the **Bharat New Car Assessment Programme (Bharat NCAP)**.

- This indigenous star-rating system aims to **evaluate the safety of vehicles in the event of a collision**, empowering consumers to make informed decisions while purchasing cars.
- This comprehensive program is set to come into effect from **October 1, 2023**, and will play a pivotal role in curbing the alarming number of road fatalities in India.

### What is Bharat NCAP?

- **About:** Under the Bharat NCAP initiative, vehicles, particularly **passenger cars**, will be **subjected to rigorous crash testing procedures**, and based on their performance as per protocols laid down in the soon-to-be-published Automotive Industry Standard 197, they will be assigned a safety rating ranging from one to five stars.
  - The programme is applicable to passenger vehicles with **not more than eight seats** in addition to the driver's seat with gross vehicle weight not exceeding **3,500 kgs**.
  - The test procedure involves **Frontal Offset Test, Side Impact Test and Pole-Side Impact Test**.
    - This rating will provide consumers with a clear indication of a vehicle's safety standards in the event of a collision.
  - Notably, **Bharat NCAP is voluntary**, encouraging manufacturers to nominate their vehicles for testing, thereby driving the production of safer cars in the Indian market.
- **Testing Parameters:** Bharat NCAP evaluates vehicles based on three crucial parameters:
  - **Adult Occupant Protection:** This parameter assesses the level of protection a vehicle offers to adult passengers in the event of a crash.
  - **Child Occupant Protection:** The safety of child occupants is equally vital. This parameter gauges a vehicle's effectiveness in safeguarding young passengers during collisions.

- **Safety Assist Technologies:** Modern vehicles are equipped with a range of safety assist technologies. This parameter examines the presence and effectiveness of these technologies in preventing accidents or minimizing their impact.
- **Mandatory and Recommended Testing:** While the Bharat NCAP is voluntary, certain scenarios can trigger mandatory testing:
  - **Base Model Testing:** The base model of a popular variant, with a minimum sale of 30,000 units, may be subjected to testing.
  - **Ministry Recommendations:** If recommended by the **Ministry of Road Transport and Highways** based on market feedback or public safety concerns, certain models might undergo testing.
- **Evolution and Alignment with Global Standards:** The Bharat NCAP draws inspiration from the **Global NCAP**, a project initiated by the **U.K.-based NGO Towards Zero Foundation**.
  - The Global NCAP acts as a collaborative platform for new car assessment programs worldwide including countries such as the U.S. which has the world's oldest crash testing regime since 1978. .
  - Over the years, India's testing protocols have evolved, with more than **50 crash test results published for the Indian market**.
    - Notably, Tata achieved India's first 5-star car rating in 2018.
- **Possible Outcomes:**
  - **Reduced Fatalities:** With India witnessing around **1.5 lakh road fatalities** annually, Bharat NCAP aims to reduce casualties by encouraging the **production of safer vehicles**.
  - **Healthcare and Insurance Relief:** Improved vehicle safety would lead to a reduction in the burden on **healthcare and insurance sectors**, resulting in positive societal and economic impacts.
  - **Manufacturer Reputation:** Manufacturers can enhance their brand reputation through consumer-centric practices, **fostering higher consumer loyalty**.
- **Challenges:**
  - **Diverse Road Conditions:** India's road infrastructure varies greatly, from **congested urban roads to poorly maintained rural highways**.
    - Different road conditions can impact the way vehicles behave during crashes, making it **challenging to design a one-size-fits-all safety assessment framework**.

Note:



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- **Affordability and Market Dynamics:** A substantial portion of the Indian population seeks **budget-friendly vehicles**, which might pose a challenge for manufacturers in implementing advanced safety features.
  - Striking a **balance between affordability and safety could be a complex task**, requiring innovative engineering solutions.
- **Variety of Vehicles:** India's automotive market is diverse, featuring a wide range of vehicle types and sizes.
  - Designing crash tests that effectively evaluate safety across this diversity, from **compact cars to SUVs**, requires thorough consideration of different vehicle dynamics.
- **Consumer and their Preferences:** While the Bharat NCAP aims to empower consumers, the **challenge lies in creating awareness about safety ratings and convincing buyers to prioritize safety over other features**.
  - Consumer preferences might still **lean towards design, features, and price**, limiting the immediate impact of safety ratings.

## National Curriculum Framework

### Why in News?

Recently, the final **National Curriculum Framework (NCF)** was released by the **National Council of Educational Research and Training (NCERT)**, leading to significant reforms in the education system, led by the principles of the **National Education Policy (NEP) 2020**.

- The NCF introduces changes in language learning, subject structure, evaluation strategies, and environmental education, reshaping the educational landscape for **Grades 3 to 12 under CBSE**.

### What are the Key Highlights of the National Curriculum Framework (NCF)?

- **Language Learning:**
  - Students in **Classes 9 and 10** learn three languages, with at least **two being native Indian languages**.
  - In **Classes 11 and 12**, students will study two languages, including **one of Indian origin**.

- Aim to achieve a **"literary level" of linguistic capacity in at least one Indian language**.
- **Board Exams and Evaluation:**
  - Students are allowed to take Board exams on at **least two occasions in a school year**.
    - Only the **best score among attempts will be retained**.
- **Alignment with NEP 2020:**
  - The NCF follows the guidelines of NEP 2020. Provides the framework for formulating new textbooks from Grades 3 to 12 under CBSE.
    - Textbooks for **Classes 3-12 aligned with 21st-century requirements**.
    - Focus on **ensuring rootedness in the current context while being forward-looking**.
- **Changes in Mandatory and Optional Subjects:**
  - Earlier, students in **Classes 9 to 12** studied **five mandatory subjects** with an option to add one more.
    - Now, the **number of mandatory subjects for Classes 9 and 10** is seven, and for **Classes 11 and 12** is six.
- **Optional Subjects:**
  - First group includes **art education, physical education, and vocational education**.
  - The second group includes **Social Science, Humanities, and interdisciplinary areas**.
  - The third group includes **Science, Mathematics, and computational thinking**.
- **Flexibility and Choice for Students:**
  - Redesigned "Secondary Stage" to provide more flexibility and choice.
  - No strict separation between academic and vocational subjects, or between Science, Social Science, Art, and Physical Education.
  - Students can choose varied subject combinations for their School Leaving Certificates.
- **Environmental Education:**
  - Emphasis on environmental awareness and sustainability.
  - Environmental Education integrated across all schooling stages.
  - Separate area of study dedicated to environmental education in the Secondary Stage.
- **Content Distribution for Social Science Curriculum (Classes 6-8):**
  - 20% content from local level.

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- 30% content from regional level.
- 30% content from national level.
- 20% content from global level.

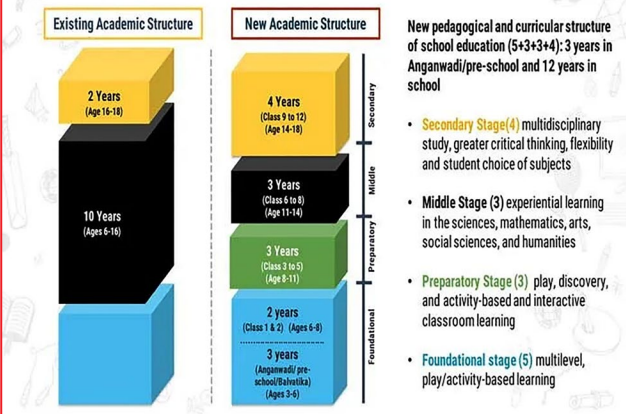
### What is the National Curriculum Framework?

- **About:**
  - **NCF is one of the key components of the New Education Policy (NEP) 2020**, that enables and energizes this transformation, informed by the aims, principles, and approach of NEP 2020.
  - The NCF has undergone four revisions in the past - in **1975, 1988, 2000, and 2005**. The **proposed revision, if implemented, would be the fifth iteration** of the framework.
- **Four Sections of NCF:**
  - **NCF for School Education (NCF-SE)**
  - **NCF for Early Childhood Care and Education (Foundational Stage)**
  - **NCF for Teacher Education**
  - **NCF for Adult Education**
- **Objective:**
  - It aims to help in positively transforming the school education system of India as envisioned in NEP 2020, through corresponding positive changes in the curriculum including pedagogy.
  - It aims to realize the highest quality education for all children, consistent with realizing an equitable, inclusive, and plural society as envisaged by the Constitution of India.

### What is the National Education Policy 2020?

- **About:**
  - The NEP 2020 is a **comprehensive framework for education reform** in India that was approved in 2020, aiming to bring **significant changes in the education system of India** by providing a holistic and multidisciplinary approach to education.
- **Features of the NEP 2020:**
  - Universalization of education from preschool to secondary level.
  - Introduction of a **new pedagogical and curricular structure** based on the cognitive and socio-emotional development of students.
  - Emphasis on the development of **foundational literacy and numeracy** skills in primary education.
  - Increased focus on research and development in education.

### Transforming Curricular & Pedagogical Structure



### What are the Other Government Initiatives Related to Educational Reforms?

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

## NMC Registered Medical Practitioner (Professional Conduct) Regulations 2023

### Why in News?

Recently, the **National Medical Commission (NMC)**, the apex regulatory body for **medical education and practice in India**, issued new guidelines on professional conduct for doctors, which mandate them to **prescribe only generic drugs instead of specific brands**.

- This has sparked a protest from the **Indian Medical Association (IMA)**, the largest body of doctors in the country, which has called the guidelines “**unscientific**” and “**impractical**”.

### What are the National Medical Commission (NMC) Guidelines?

- **Social Media Usage Guidelines:**
  - Doctors can provide **information online, ensuring it is verifiable and not misleading**.

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- Prohibition on discussing patient treatment specifics or sharing patient scans.
- Restriction on sharing patient testimonials, images, and videos.
- Prohibition on soliciting patients directly or indirectly through social media.

➤ **Right to Refuse Treatment:**

- Doctors may refuse treatment to **abusive, unruly, or violent patients and relatives.**
- Doctors may **deny treatment if the patient cannot afford it but not in medical emergencies.**
- Prohibition on discrimination based on **gender, race, religion, caste, socio-economic factors.**

➤ **Prescription and Medication Guidelines:**

- Prescriptions to be **written in legible, capital letters.**
- Generic medicines should be prescribed, except for specific cases.
- Judicious use of fixed-dose combinations, prescribing approved combinations only.
- Encouraging **education about the equivalence of generics and branded medicines.**

➤ **Continuous Professional Development (CPD):**

- Mandatory for **doctors to continue learning throughout their active years.**
- **Doctors should undertake 30 credit points in their relevant fields every five years.**
- Annual CPD sessions are recommended, with a maximum of 50% online training.
- **Recognized degrees and courses added to the national medical register.**

➤ **Conference Participation Guidelines:**

- CPD sessions or conferences cannot be sponsored by the **pharmaceutical industry.**
- Doctors should not participate in **third-party educational activities with pharma sponsorships.**
- Doctors or their families **should not receive gifts, hospitality, cash, or grants from pharmaceutical companies.**
- Prohibition on accepting commissions from diagnostic centers, medical equipment, etc., for referrals or endorsements.

**What is the National Medical Commission?**

➤ **About:**

- The NMC, is a **statutory body** established in 2019, replaced the **Medical Council of India (MCI)** and functions under the **National Medical Commission Act, 2019.** It serves as **India's regulatory body for medical education.**

➤ **Mission and Vision:**

- Ensure availability of adequate and high quality medical professionals in all parts of the country.
- Promote **equitable and universal healthcare that encourages community health** perspective and makes services of medical professionals accessible to all the citizens.
- Encourages **medical professionals to adopt the latest medical research** in their work and to contribute to research.
- Enforce high ethical standards in all aspects of medical services.
- It also has the authority to **regulate fees for medical courses** and to conduct inspections of medical colleges to ensure that they meet the necessary standards.

**What are the Issues with the NMC Guidelines?**

➤ **Generic Medicine Prescription:**

- One of the main concerns raised by doctors is the **quality and efficacy of generic drugs available in India.**
  - They claim that there is a lack of standardization and regulation of generic drugs and that **many of them are substandard, spurious, or counterfeit.**
- According to IMA less **than 0.1% of the drugs manufactured in India are tested for quality.** Doctors argue that prescribing generic drugs without ensuring their **quality and safety could compromise patient care** and outcomes, and expose them to **legal and ethical risks.**
  - They also point out that there is no mechanism to monitor the adverse effects or drug interactions of generic drugs in India.
- The new guidelines do not allow doctors to write a specific brand, which means that you will get **whichever medicine with the relevant active ingredient in pharmacist stocks.**

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- Additionally, doctors' choice in prescribing the most suitable drug for a patient may be **restricted, potentially affecting treatment efficacy.**
- Doctors also allege that there is a nexus between **drug manufacturers, wholesalers, retailers, and regulators**, which allows substandard and spurious drugs to enter the market.
- They demand that the government should ensure strict quality control and testing of generic drugs before making them mandatory for prescription.
- **Other Issues:**
  - Imposing an additional burden on doctors to accumulate credit points through CPD sessions.
    - Limited availability of **recognized continuous training courses for doctors to meet CPD requirements.**
  - Reduced **educational sessions due to prohibition of pharmaceutical industry sponsorships.**
    - Impact on **doctors' exposure to medical advancements and research.**
  - Doctors expressing concerns about **increased administrative burden due to adherence to the comprehensive guidelines.**
    - Balancing ethical conduct with the practical challenges faced by medical practitioners in diverse healthcare settings.
  - Challenges in clearly delineating situations in which doctors may ethically refuse treatment.
    - Legal and ethical concerns arising from doctors refusing treatment **based on patients' ability to pay.**

## India Post Payments Bank

### **Why in News?**

**India Post Payments Bank (IPPB)** has marked a significant milestone in the world of banking services with its continued profit streak, demonstrating its commitment to sustainable financial inclusion and citizen empowerment.

- IPPB on August 22, 2023 reported its **first-ever operational profit of Rs 20.16 crore for 2022-23.** The bank saw a **66.12% growth in overall revenue.**

### **What is India Post Payments Bank (IPPB)?**

- **About:**
  - Launched on September 1, 2018, with **100% equity owned by the Government of India.**

- IPPB embarks on its transformative journey with the launch of pilot branches.
  - Pilot branches opened in **Ranchi, Jharkhand, and Raipur, Chhattisgarh.**
- Leveraging **India's vast postal infrastructure with 1,55,000 Post Offices and 3,00,000 postal employees.**
- **Vision:** To create an **accessible, affordable, and trusted bank for all citizens.**
- **Principles and Approach:**
  - IPPB adopts the principles of **India Stack** to drive its operations.
    - **Paperless, Cashless, and Presence-less Banking:** Aims to facilitate banking through innovative technology and secure transactions.
  - Implements Biometrics integrated smartphones and biometric devices for seamless transactions.
  - IPPB delivers simple and affordable banking solutions through intuitive interfaces available in 13 languages.
- **Empowering Financial Inclusion:**
  - IPPB is committed to serving the **unbanked and underbanked.**
  - Contributed to the **vision of a less cash economy and Digital India.**
  - Ensured **equal opportunities for financial security and empowerment.**
- **Empowerment Initiatives:**
  - Recognized the tireless contributions of **Postmen/ Gramin Dak Sevaks.**
  - Introduced '**Niveshak Didi**' initiative, for empowering women beneficiaries.
  - IPPB introduced services including **loan referral services, low-cost health & accidental products** like **Antyodaya Shramik Suraksha Yojana for Shramyogis registered on the e-Shram portal, Digital Life Certificate to pensioners**, citizen services initiatives like **Aadhaar-mobile update, child Aadhaar enrolment, Aadhaar based banking transactions (AePS)**, enabling citizen access to govt. **Direct Benefit Transfer programmes like PM KISAN** etc.
- **Future Goals:**
  - Aims to **transform into a Universal Service platform.**
  - Leverages technology for expanded accessibility and reach.

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- Focuses on innovation to **empower citizens and contribute to a digitally inclusive society.**

#### Payment Bank:

- Payments banks were part of the **Reserve Bank of India's** strategy of offering differentiated banking licenses.
- A **committee headed by Dr. Nachiket Mor** recommended setting up of 'Payments Bank' to cater to the lower income groups and small businesses.
  - A payments bank is a differentiated bank, offering a limited range of products.
- It can accept **demand deposits only** that is **savings and current accounts, not time deposits.**
- Payment banks are restricted to holding a maximum balance of Rs. 2,00,000 (Rupees Two lakh only) per individual customer.
  - Payment Banks cannot accept **Non-Resident Indian (NRI)** deposits.
- The Payment Banks cannot set up **subsidiaries to undertake non-banking financial services activities.**

## Educational Qualifications of Political Representatives

### Why in News?

The recent termination of a **Tutor** over remarks about voting for educated candidates has sparked a debate on the correlation between political representatives' education and public sentiment.

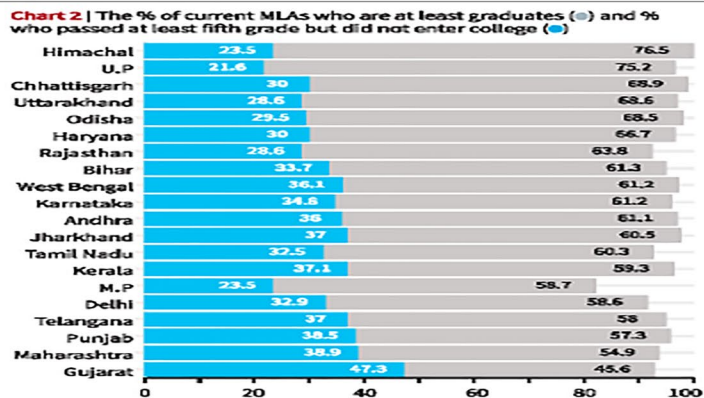
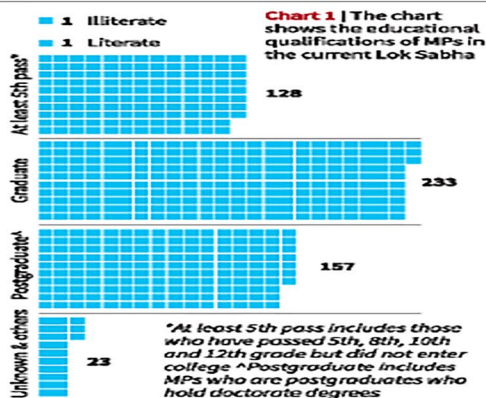
- The controversy has drawn attention to the educational qualifications of **MPs (Member of Parliament)** and **MLAs (Member of Legislative Assembly)** in India's legislative bodies, leading to discussions on the significance of such qualifications in the political landscape.

### What is the Scenario of Educational Qualifications of Political Representatives?

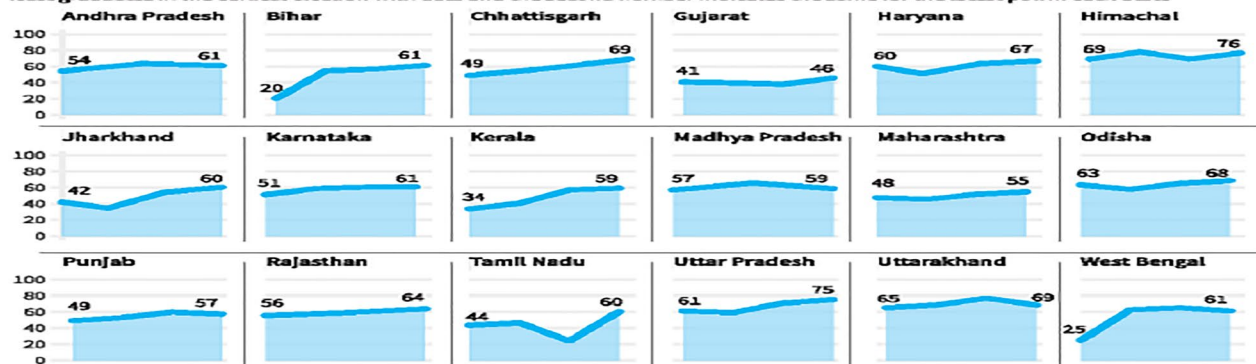
- **Educational Qualifications of MPs in the Lok Sabha:**
  - In the current Lok Sabha **72% of MPs** have **completed their graduation**. A small proportion of MPs (**less than 0.5%**) are classified as illiterate or just literate.

## How qualified are legislators?

The data for these charts were sourced from the Political Career Tracker for Candidates in the Indian National and State Assembly Elections, Trivedi Centre for Political Data, Ashoka University



**Chart 3** | The chart shows the share (in %) of MLAs who are at least graduates, over time, across major States. The graphs correspond to the share in the last four State elections in each State. The first number corresponds to the share of MLAs who are at least graduates in the earliest election with data and the second number indicates the same for the latest poll in each State



Note:

- This data challenges the notion that political representatives are predominantly uneducated.

➤ **Variations in Educational Qualifications among State MLAs:**

- Himachal Pradesh, Uttar Pradesh, and Chhattisgarh have the **highest percentages of graduate MLAs**, while Gujarat, Maharashtra, and Punjab show lower proportions.

➤ **Trends in Educational Qualifications of MLAs:**

- There is a rising trend in the **proportion of graduate MLAs in most states**.
- However, education **data was unavailable for some years in specific states**.

**Are there any Statutory Provisions Related to Educational Qualifications of MPs and MLAs?**

➤ **No Provision for Educational Qualification:**

- **Indian Constitution** does not contain any **proper provisions regarding the qualifications** that are needed for the Candidates for participating in the elections.
- The **RPA (The Representation of the People Act) of 1951** acts outline the **qualifications, disqualifications, and other essential aspects** of elected representatives.
  - Till now there are simple qualifications i.e.
    - Resident of the country or a particular area/state from where he wants to stand,
    - Not **less than 25 years** of age and **not holding any office of profit**.

- However, there are **no such educational and other moral qualifications** mentioned for them.

➤ **Need for a Law:**

- Proponents argue that educational qualifications can **potentially ensure a certain level of competence**, understanding, and analytical skills among elected representatives.
- This, in turn, might enhance the **Quality of Governance and Decision-Making**.
  - As per various data and studies, many foreign countries where educational qualification is necessary, **perform well at the country's growth and economic patterns** and also maintain their social backgrounds.
- There are certain subjects which play a key role and we used to study since our childhood i.e. **Value**

**Education, Moral Science and Basic Science** which also plays a key role over here.

➤ **Opposition of Such Law:**

- Opponents of such a law emphasise the **importance of Inclusivity and Representation** of all sections of society.
- India is marked by its diverse demographics and vast socio-economic disparities.
- Requiring educational qualifications **could inadvertently exclude marginalized groups** and **perpetuate Elitism in politics**.
  - The essence of **Democracy** lies in the **people's right to choose their representatives**.
- While educational qualifications might be a marker of competence, they do not **guarantee ethical conduct, dedication to public service**, or the ability to understand the needs of various constituencies.

**What is the Need for Educated Political Representatives?**

➤ **Informed Decision-Making:**

- Education equips individuals with critical thinking skills, the ability to analyze complex issues, and a broader understanding of various subjects.
- In politics, informed decision-making is vital for crafting effective policies and making choices that consider long-term consequences.

➤ **Policy Formulation and Analysis:**

- Crafting well-informed and effective policies requires a deep understanding of various domains such as economics, law, science, and social issues.
- Educated representatives are better equipped to analyze policy proposals, evaluate their impact, and contribute to discussions with informed insights.

➤ **Addressing Complex Issues:**

- Modern societies face multifaceted challenges like technological advancements, climate change, and socio-economic disparities. Educated representatives are better positioned to comprehend the intricacies of these issues and propose comprehensive solutions.

➤ **Communication and Advocacy:**

- Educated representatives often possess strong communication skills, enabling them to articulate complex ideas to the public and advocate for policies more effectively. This facilitates transparent governance and encourages citizen engagement.

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➤ **Effective Lawmaking:**

- Legislators are responsible for drafting and passing laws. An educated representative's legal literacy enables them to craft well-structured, fair, and constitutionally sound legislation.

## World Water Week and Jal Jeevan Mission

### Why in News?

**World Water Week**, taking place from **20<sup>th</sup> to 24<sup>th</sup> August, 2023** is the yearly global water forum organized by Stockholm International Water Institute. This year's theme, "**Seeds of Change: Innovative Solutions for a Water-Wise World,**" spotlights innovation in addressing current water challenges.

- In line, **Jal Jeevan Mission**, launched in 2019, is envisioned to **provide safe and adequate drinking water** through individual household tap connections by **2024** to all households in rural India.
- This ambitious initiative aims to learn from the shortcomings of past programs and rectify their failures.

### How do Past Rural Water Supply Efforts and Challenges shape the Jal Jeevan Mission?

- **Historical Attempts and Shortcomings:**
  - **Initial Efforts (1950s-1960s):** The priority of supplying basic water to rural areas was established during **India's first five-year plan (1951-56)**. However, focus was limited to easily accessible villages.
  - **National Rural Drinking Water Supply Programme (1969):** **United Nations Children's Fund (UNICEF)**'s technical support led to the **digging of borewells** and piped water connections, but coverage remained uneven.
  - **Changing Approaches (1970s-1980s):** Different initiatives like **Accelerated Rural Water Supply Scheme (ARWS)** and Minimum Needs Programme were introduced but faced challenges in implementation and coverage.
  - **Evolution of Mission Approach (1986-1996):** ARWS transformed into **National Drinking Water Mission** and later **Rajiv Gandhi National Drinking Water Mission (1991)**.
    - **Panchayati Raj Institutions** were assigned responsibility for water supply.

- According to a report released by the **Comptroller and Auditor General of India (CAG)**, in most years between **2002 and 2007**, stated that the existing schemes could **cover only about 50% of the target habitations**.
- Initiated in 2017, the **Har Ghar Jal program** was introduced by the government to provide piped water supply to every household for safe drinking water.
  - However, by April 1, 2018, according to the **Department of Drinking Water and Sanitation's data**, merely **20% of rural households were successfully linked to piped water**.

➤ **Principal Shortcomings of Previous Schemes:**

- **Unsustainable Water Source:** Reliance on groundwater led to depletion, making some initially covered villages lose access over time.
- **Lack of Community Ownership:** Inadequate sense of ownership among communities resulted in poor maintenance and defunct infrastructure.
- **Lack of Transparency:** Insufficient public awareness and involvement hindered progress and sensitization efforts.
- **Mismanagement of Funds:** Despite substantial investments, the water supply problem persisted due to inefficiencies in fund allocation and utilization.
- **Jal Jeevan Mission: Learnings from the Past:**
  - **Diverse Water Sources:** The mission allows for tapping into both surface water and groundwater, focusing on recharge and protection.
  - **Community Engagement:** The mission emphasizes sensitizing communities and implementing officers at all levels, encouraging active participation.
  - **Information Sharing:** A central dashboard publicly shares progress data, fostering healthy competition and encouraging action.
  - **Holistic Approach:** The program encompasses disaster preparedness, bulk water transfers, technological interventions, and greywater management.

### What is the Present

#### Status of the Jal Jeevan Mission?

➤ **Objective:**

- **Jal Jeevan Mission (Rural):** The goal of this mission is to **provide 55 litres of water per person per**

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day to every rural household through **Functional Household Tap Connections (FHTC)** by 2024.

- It comes under the **Ministry of Jal Shakti**.

**Note:** Government of India also launched **Jal Jeevan Mission (Urban)** that complements JJM(R) and has been designed to provide universal coverage of water supply through **functional taps in all 4,378 statutory towns of India**

#### ➤ **Current Status:**

- As of **January 3, 2023**, the count of rural households having access to tapped water connections had risen to 108.7 million, **equivalent to 56.14%**.
  - Consequently, the Mission is faced with the task of extending its coverage to an extra 76.3 million rural households **(47.3%) within the upcoming two years**.
- As reported by the program's dashboard, so far, the **Har Ghar Jal status**, which involves the provision of tap water supply to all rural households, has been attained by **9 states and Union Territories**: Haryana, Goa, Andaman and Nicobar Islands, Puducherry, Daman and Diu and Dadra Nagar Haveli, Telangana, Gujarat, Punjab and Himanchal Pradesh.

#### **What are the Current Challenges Related to Water Resource Management in India?**

- **Groundwater Depletion and Urbanization:** While the focus is often on surface water sources, groundwater depletion is a significant challenge.
  - **Rapid urbanization** leads to increased demand for water, causing overexploitation of groundwater.
  - As cities expand, they **cover soil surfaces with impermeable materials, reducing groundwater recharge**.
- **Interstate Water Disputes and Federalism:** Interstate conflicts over water-sharing agreements, such as the **Cauvery River dispute between Karnataka and Tamil Nadu**, highlight the tensions between state autonomy and national interest.
- **Water Quality and Health:** Beyond quantity, water quality is a grave issue. Contamination due to industrial discharge, agricultural runoff, and inadequate sanitation leads to the prevalence of **waterborne diseases, impacting public health, especially in rural areas**.
- **Gender Dynamics and Water Collection:** In many rural areas, women and girls bear the responsibility of fetching water.

- This not **only limits their educational and economic opportunities** but also puts them at risk of harassment and violence during long walks to distant water sources.

- **Climate Change and Glacial Retreat:** The Himalayan glaciers, which serve as a major water source for several Indian rivers, are receding due to climate change.

- This can lead to **water shortages in the long term**, affecting millions who depend on these rivers for irrigation and drinking water.

- **Lack of Efficient Wastewater Management:** With water resources in short supply in India, **inefficient wastewater management** is crippling the country's ability to make the most economic use of it.

- According to a recent report published by the **Central Pollution Control Board (March 2021)**, India's current water treatment capacity is **27.3%** and the sewage treatment capacity is **18.6%**.

## **PM-DevINE and NESIDS Schemes**

### **Why in News?**

Recently, the **Prime Minister's Development Initiative for North Eastern Region (PM-DevINE)**, designed to bolster **North-East India's development**, has undergone crucial revisions to align with the region's needs and aspirations.

- These new guidelines govern all PM-DevINE projects effective from 12<sup>th</sup> October 2022 onwards.
- Additionally, the **Ministry of Development of the North Eastern Region (MDoNER)** releases new Scheme Guidelines for implementing Cabinet-approved **North East Special Infrastructure Development Scheme (NESIDS)** during the **15<sup>th</sup> Finance Commission's balance period (2022-2026)**.

### **What are the Revised Guidelines of the PM-DevINE Scheme?**

- **Project Oversight and Governance:**
  - MDoNER will oversee **project selection, approval, and monitoring** in consultation with State Governments, **North Eastern Council (NEC)**, and concerned Central Ministries, with implementation through NEC or Central Ministries/agencies.

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- The guidelines outline the **process, including project identification, selection, DPR preparation, sanction, fund release, monitoring, and completion.**
- **Empowered Inter-Ministerial Committee (EIMC):**
  - Establishment of EIMC to oversee various functions within PM-DevINE.
  - Chaired by the Secretary of the MDoNER.
- **State Level Empowered Committee (SLEC):**
  - Creation of SLEC at the State level for project review and approval.
  - Composition of SLEC including **Chief Secretary, relevant Secretaries, and representation from NEC.**
- **Regarding Project Selection:**
  - North Eastern States must establish **Gati Shakti implementation mechanisms like Empowered Group of Secretaries, Network Planning Group, and Technical Support Unit**, along with notifying a State Logistics Policy and updating Gati Shakti National Master Plan data layers, including land revenue maps.
    - States not meeting these criteria **won't receive new PM-DevINE project sanctions from 2023-24 onwards.**

#### What is PM-DevINE?

- **The Genesis of PM-DevINE:**
  - The PM-DevINE scheme as a Central Sector scheme, was introduced as a part of the **Union Budget 2022-23.**
  - The Cabinet granted approval for the PM-DevINE scheme on 12th October 2022. It **has been granted 100% Central funding**, ensuring that resources are directly allocated to the development initiatives.
  - It will be implemented by the **Ministry of Development of the Northeast Region.**
- **Objectives of PM-DevINE:**
  - **Infrastructure Development:** In line with the spirit of **PM GatiShakti**, PM-DevINE aims to fund infrastructure projects in a cohesive manner, ensuring **seamless connectivity and accessibility across the NER.**
  - **Supporting Social Development Projects:** Recognizing the unique needs and challenges of the NER, the **scheme endeavours to support social development projects** that address critical issues and improve the overall quality of life for the region's inhabitants.

- **Empowering Youth and Women:** PM-DevINE seeks to create **livelihood opportunities specifically targeting the youth and women of the NER**, enabling them to participate actively in the region's development and progress.
- **Ineligible Projects under PM-DEVINE:**
  - Projects providing long-term individual benefits or **"Direct Benefit Transfer"** elements.
  - Projects for administrative buildings of **government offices/agencies or institutional needs.**
  - Sectors covered by other **MDoNER schemes and those specified in the Negative List by the Ministry of DoNER.**

#### What is the North East Special Infrastructure Development Scheme (NESIDS)?

- NESIDS, a **central sector scheme** with **100% central funding**, receives a renewed approved outlay of Rs. 8139.50 crore for 2022-23 to 2025-26.
- The scheme encompasses two components: **NESIDS-Road and NESIDS-Other Than Road Infrastructure (OTRI).**
- The merger of the **former North East Road Sector Development Scheme (NERSDS)** into NESIDS-Road led to the formulation of fresh guidelines.
- NESIDS aims to foster infrastructure development, especially connectivity, in identified sectors across the North Eastern States.

#### What are Other Initiatives Related to the Development of the Northeast Region?

- **North Eastern Council (NEC)**
- **Connectivity Projects: Kaladan Multi-Modal Transit Project (Myanmar) and Bangladesh-China-India-Myanmar (BCIM) Corridor.**
- **Bharatmala Pariyojana** ( 5,301 km road stretches in NER for improvement)
- **North East has been kept as a priority area under RCS-UDAN** (to make flying more affordable).

### Reforms for Secure Digital Connectivity

#### Why in News?

In order to promote Safe Telecom Utilisation, the government has introduced two reforms for mobile user

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protection to **promote a cleaner and safer Digital Ecosystem.**

- The two reforms, **KYC (Know Your Customer) Reforms** and **Point of Sale (POS) registration Reform.**
- These two reforms are in the direction of earlier reforms introduced with the launch of **Sanchar Saathi**, a citizen-centric portal that has empowered India's fight against the menace of cybercrimes and financial frauds.

### What are the Reforms?

- **KYC Reforms:** KYC reforms play a pivotal role in safeguarding subscribers of telecom services from potential frauds and bolstering public confidence in the digital ecosystem.
  - **QR Code Scanning of Aadhaar:** To prevent misuse of printed **Aadhaar**, demographic details are captured by scanning the QR code of printed Aadhaar during the KYC process.
  - **Mobile Number Disconnection:** Disconnected mobile numbers will not be allocated to new customers for 90 days after disconnection, preventing immediate reuse.
  - **Complete KYC for SIM Replacement:** Subscribers must complete KYC when replacing their SIM cards.
  - **Biometric Authentication:** In addition to thumbprints and iris-based authentication, facial-based biometric authentication is permitted in Aadhaar E-KYC.
  - **Business Connections:** Entities such as companies, organizations, trusts, and societies can obtain mobile connections after completing KYC for all end-users. Activation occurs only after successful KYC and physical verification of the entity's premises.
- **Point-of-Sale (POS) Registration Reforms:** This reform aims to ensure the integrity of the distribution network by mandatorily registering Franchisees, Agents, and Distributors (PoS).
  - The process involves **robust verification and written agreements** between PoS and Licensees. Any PoS engaged in **illegal activities will be terminated and blacklisted for three years.**

### What is the Sanchar Saathi Portal?

- **About:**
  - The **Sanchar Saathi portal**, developed by the **Centre for Development of Telematics (C-DOT)** under the **Department of Telecommunications (DoT)**, is revolutionizing the telecom sector in India.

- It was launched on **World Telecommunication Day** (17<sup>th</sup> May 2023).

### ➤ Objective:

- The primary objective of the Sanchar Saathi portal is to address various **fraudulent activities** prevalent in the telecom industry, such as **identity theft, forged KYC, and banking fraud.**
  - By leveraging advanced technologies and frameworks, the portal aims to provide users with a secure and trustworthy telecommunication experience.

### ➤ Reforms Introduced:

- **CEIR (Central Equipment Identity Register):**
  - Implemented to **block stolen or lost mobile phones.**
  - Users can submit **IMEI numbers** along with a copy of the police complaint to verify and block stolen devices.
  - Integrated with Telecom Service Providers and Law Enforcement Agencies.
  - **Prevents stolen devices from being used in Indian networks** and allows tracing by law enforcement when necessary.
- **Know Your Mobile Connections:**
  - Allows users to **check mobile connections registered in their name.**
  - Enables **identification of unauthorized or fraudulent connections.**
  - Users can report fraudulent or unrequired connections, triggering **re-verification and termination of reported connections.**
- **ASTR (Artificial Intelligence and Facial Recognition powered Solution for Telecom SIM Subscriber Verification):**
  - Developed to identify **subscribers who obtain connections using fraudulent or forged documents.**
  - Utilizes **facial recognition and data analytics** techniques.
  - Analyzes connections obtained through **paper-based KYC documents.**
- **Impact:**
  - Over 40 lakh fraudulent connections were identified and over 36 lakh were disconnected using the portal.
  - Provides a secure and trustworthy telecommunication experience for users.

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- Protects against identity theft, forged KYC, mobile device theft, and banking fraud.

## Non-Invasive Archaeological Survey at Gyanvapi Mosque

### Why in News?

Recently, the **Supreme Court of India** directed the **Archaeological Survey of India (ASI)** to conduct a detailed **non-invasive survey** of the **Gyanvapi mosque** in Varanasi, Uttar Pradesh to determine if the mosque was built atop a temple.

### What is the Purpose of the Survey?

- The petitioners argued that the mosque was built on the **foundation of the temple** and that there were several Hindu idols and structures hidden inside the mosque.
- The court directed the ASI to form a five-member committee of experts to conduct a comprehensive physical survey of the entire Gyanvapi compound using **non-invasive techniques such as ground-penetrating radar (GPR) and carbon dating**.
- The survey is expected to reveal whether there are any traces of a temple or other Hindu structures below or within the mosque and to **establish the age and origin of the existing structures**.
- The court also appointed an observer to monitor and supervise the survey process and report any irregularities or violations.

### What are Non-Invasive Methods in Archaeological Prospecting?

- Non-invasive methods are used when investigations are **undertaken inside a built structure and no excavation is permitted**.
- **Types of Methods:**
  - **Active Methods:** Inject energy into the ground and measure the response. The methods provide an estimate of the ground's material properties, such as density, electrical resistance, and wave velocity.
    - **Seismic Techniques:** Use shock waves to study subsurface structures.
    - **Electromagnetic Methods:** Measure electromagnetic responses after energy injection.

- **Passive Methods:** Measure existing physical properties.
  - **Magnetometry:** Detect magnetic anomalies caused by buried structures.
  - **Gravity Surveying:** Measure gravitational force variations due to subsurface features.
- **Ground-Penetrating Radar (GPR):**
  - ASI will use GPR to produce a **3-D model of buried archaeological features**.
  - GPR operates by introducing a short radar impulse from a surface antenna and records time and magnitude of return signals from the subsoil.
  - Radar beam spreads like a cone, causing reflections before the antenna passes over the object.
  - Radar beams spread out in a cone, leading to reflections that may not directly correspond to physical dimensions, creating false images.
- **Carbon Dating:**
  - Determine organic material age by measuring carbon content.

### What are the Limitations of

### Various Methods in Archaeological Surveys?

- Similar **physical properties of different materials** can generate the same response, leading to ambiguity in identifying targets.
- **Data collected is limited and contains measurement errors**, making it challenging to accurately estimate the spatial distribution of properties.
- Archaeological structures are often made of **heterogeneous materials with complex geometry**, making data interpretation challenging.
- Geophysical tools **might not accurately reconstruct target images**, especially in complex scenarios.
- In cases like disputes over religious sites, **emotional and political factors can influence interpretations and decisions**.

### Archaeological Survey of India (ASI)

- ASI, under the **Ministry of Culture**, is the **premier organization for the archaeological research and protection of the cultural heritage** of the nation.
- It administers more than 3650 ancient monuments, archaeological sites and remains of national importance.

Note:



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- Its activities include carrying out surveys of antiquarian remains, exploration and excavation of archaeological sites, conservation and maintenance of protected monuments etc.
- It was founded in 1861 by Alexander Cunningham—the first Director-General of ASI. Alexander Cunningham is also known as the “Father of Indian Archaeology”.

## Complexities of Bihar's Ongoing Caste Survey

### Why in News?

The ongoing caste-based survey in Bihar has garnered significant attention, leading to legal battles and debates surrounding its constitutionality, necessity, and potential implications.

### What is the Purpose of the Caste-based Survey?

- The caste-based survey was initiated by the Bihar government on 7th January 2023. The government stated that detailed information on socio-economic conditions would help create better policies and schemes for disadvantaged groups.
- The survey encompasses the recording of economic status alongside caste information, with a target population of 12.70 crore in Bihar's 38 districts.

**Note:** In 2011, the Union government undertook a Socio-Economic and Caste Census (SECC); however, due to data inaccuracies, the raw data collected from almost 1.3 billion Indians was never disclosed.

### Why is the Caste-based Survey Facing Legal Challenges?

- **Critics' Opposition to the Caste-Based Survey:**
  - The survey was challenged by several petitioners in the Patna High Court on various grounds, such as violating the Constitution, infringing on privacy, being beyond the competence of the state government, being politically motivated, and being based on unreliable methods.
  - The petitioners assert that the State government lacks the legal competence to appoint District Magistrates and local authorities for data collection without

a notification under Section 3 of the Census Act, 1948, issued by the Central government.

- Also, assigning a caste identity to all citizens, regardless of whether they intend to use State benefits, goes against the Constitution.
  - This is against the right to identity, right to dignity, right to informational privacy, and right of choice guaranteed by Article 21.

**Note:** The Constitution's Entry 69 in the Seventh Schedule's Union List gives the sole authority to the central government to conduct a census.

### ➤ Halt on the Second Phase by High Court:

- The first phase of the survey involved listing houses. The government was in the midst of the second phase when the survey was stopped due to a High Court order on May 4, 2023.

### ➤ High Court's Validation of the Survey:

- However, with the recent High Court verdict dismissing all petitions opposing the move, the government resumed work on the second phase of the survey.
  - In the second phase, data related to castes, sub-castes, and religions of all people is to be collected.
- The Court relied on the ruling in Indra Sawhney Case to rule that there is no fault with the identification of caste in a bid to ameliorate social backwardness as envisioned under Article 16(4) of the Constitution.
- Numerous petitions have also been submitted to the Supreme Court, contesting the verdict of the Patna High Court that upheld the ongoing caste survey.

### What are the Positive and Negative Aspects of Caste Based Survey?

#### ➤ Positive:

- **Informed Policy Making:** Accurate and up-to-date information about caste-based disparities can help policymakers design and implement more effective policies and programs to uplift marginalized communities and reduce social inequalities.
  - The last caste-based census that is openly available to the public dates back to 1931.
- **Addressing Intersectionality:** Caste intersects with other factors such as gender, religion, and region, leading to compounded disadvantages.

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- A survey can reveal these **intersections**, leading to more **nuanced policy approaches** that target multiple dimensions of marginalization.

➤ **Negative:**

- **Potential Stigmatization:** Disclosure of caste identities **could lead to individuals being stigmatized or discriminated** against based on preconceived notions associated with certain castes.
  - This can **deter honest responses** and undermine the survey's accuracy.
- **Political Manipulation:** Caste-based data can be **exploited by politicians for short-term gains**, leading to **identity-based vote bank politics**. This can divert attention from genuine policy issues and perpetuate divisive politics.
- **Fluidity of Caste Identities:** Simplistic interpretations might overlook **intra-caste variations and historical changes**, leading to policies that fail to address the nuances of contemporary caste dynamics.
  - Also, **caste identities are not static**; they can **change due to factors like inter-caste marriages**. A survey might struggle to capture these dynamic changes, leading to inaccurate representations of reality.

## Cauvery Water Sharing Dispute

### Why in News?

The **Cauvery water dispute** has once again taken center stage, as Tamil Nadu appeals to the **Supreme Court of India** for intervention in **ensuring the release of 24,000 cubic feet per second (cusecs) from its reservoir's water by Karnataka**.

- Tamil Nadu also urged the Court to direct **Karnataka to ensure the release of 36.76 TMC (thousand million cubic feet) stipulated for September 2023** as per the **Cauvery Water Disputes Tribunal (CWDT)'s final award of February 2007** that was modified by the SC in 2018.

### What Led to Tamil Nadu's Appeal to the Supreme Court?

- **Tamil Nadu's Appeal to SC:**
  - The issue arose from Karnataka's refusal to abide by previously agreed-upon water release quantities.

- Tamil Nadu advocates for the release of **10,000 cusecs of water for the stipulated 15-day duration**. On the other hand, Karnataka has suggested a reduced **water release of 8,000 cusecs for the same 15-day timeframe**.

➤ **Karnataka's Explanation:**

- Karnataka cites **poor inflow due to reduced rainfall in Cauvery catchment, including origin point Kodagu**.
  - Karnataka highlights a **44% rainfall deficit in Kodagu from June to August**.
- Karnataka rejects Tamil Nadu's distress-sharing formula demand.

➤ **Implications:**

- Tamil Nadu's farmers await Karnataka's response, as the Mettur reservoir **holds only 20 TMC, lasting ten days**.
- The Supreme Court's decision holds significance in resolving the complex dispute.
- Collaborative solutions are crucial for equitable water management and conflict resolution.

### How is the Cauvery Water Being Shared?

- A carefully crafted monthly schedule governs the distribution of water between Karnataka and Tamil Nadu, the two riparian states of the Cauvery basin.
  - In a **"normal" water year**, Karnataka is bound to **release 177.25 TMC (thousand million cubic feet) of water from June to May to Tamil Nadu**.
  - This annual **quota includes 123.14 TMC** allocated during the monsoon months from June to September.
- The ongoing southwest monsoon season often triggers disputes when rainfall falls short of expectations.

### What is the Cauvery River Dispute?

➤ **River Cauvery (Kaveri):**

- It is known as **'Ponni' in Tamil** and is a sacred **river of southern India**.
- It **rises on Brahmagiri Hill** of the **Western Ghats** in southwestern Karnataka state, flows in a southeasterly direction through the states of **Karnataka and Tamil Nadu**, and descends the **Eastern Ghats** in a series of great falls and **drains into Bay of Bengal** through **Pondicherry**.
- **Left Bank Tributary:** Arkavathi, Hemavathi, Shimsha, and Harangi.

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- **Right Bank Tributary:** Lakshmantirtha, Suvarnavati, Noyil, Bhavani, Kabini, and Amaravathi.



#### ➤ The Dispute:

- As the river originates in Karnataka, flows through Tamil Nadu with major tributaries coming from Kerala and drains into the Bay of Bengal through Pondicherry the **dispute therefore involves 3 states and one Union Territory.**
- The genesis of the dispute is **150 years old and dates back to the two agreements of arbitration in 1892 and 1924** between the then **Madras presidency and Mysore.**
- It **entailed the principle that the upper riparian state must obtain consent of lower riparian state** for any construction activity viz. reservoir on the river Cauvery.
- The Cauvery water dispute between Karnataka and Tamil Nadu began in 1974 when Karnataka started diverting water without Tamil Nadu's consent.
  - After several years, the **Cauvery Water Disputes Tribunal (CWDT)** was established in 1990 to resolve the issue. It took 17 years for the CWDT to reach a final order in 2007, which outlined the sharing of Cauvery water among the four riparian states. In distress years, water would be shared on a **pro-rata basis.**
  - CWDT issued its final award in February 2007, specifying **water allocations among the four states in the Cauvery basin**, considering the total availability of 740 TMC in a normal year.
    - The allocation of water among the four states is as follows: **Tamil Nadu - 404.25 TMC, Karnataka - 284.75 TMC, Kerala - 30 TMC, and Puducherry - 7 TMC.**

- In 2018, the Supreme Court declared the Cauvery a national asset and largely upheld the water-sharing arrangements determined by the CWDT.
  - It also directed the Centre to notify the **Cauvery Management Scheme.**
  - The central government notified the 'Cauvery Water Management Scheme' in June 2018, constituting the '**Cauvery Water Management Authority**' and the '**Cauvery Water Regulation Committee**'.

## PM-eBus Sewa

### Why in News?

The Indian Cabinet has approved the **"PM-eBus Sewa" scheme**, aiming to bolster city bus operations by **introducing 10,000 Electric Buses** through a **Public-Private Partnership (PPP)** model.

### What is PM-eBus Sewa?

- **About:**
  - It aims to enhance urban **transportation efficiency** and promote **Environmentally-Friendly Practices.**
- **Segment A: Augmenting City Bus Services (169 cities):**
  - This segment is dedicated to **strengthening urban transportation by 10,000 e-buses** under the PPP model.
  - The initiative recognizes that efficient operations require the development or upgrading of **depot infrastructure, alongside the creation of essential behind-the-meter power infrastructure** like substations to accommodate the electric buses.
- **Segment B: Green Urban Mobility Initiatives (181 cities):**
  - This segment includes **enhancing bus priority, improving infrastructure**, establishing multimodal interchange facilities, implementing **NCMC (National Common Mobility Card)-based Automated Fare Collection Systems**, and building necessary charging infrastructure.
  - By integrating these sustainable practices, the **scheme aims to transform urban mobility landscapes.**
- **Target Population and Unreached Areas:**
  - The scheme will encompass **cities with populations of three lakh and above**, based on the 2011 census data.

Note:



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- This comprehensive approach includes **all Capital cities of Union Territories, regions** in the **North Eastern** part of the country, **and hilly states**.
- A significant highlight of the scheme is its **focus on cities lacking organized bus services**, making it an effort to bridge the urban mobility gap.
- **Operation and Facilitation:**
  - The operational aspect of the scheme places the **responsibility on states and cities** to manage and sustain the bus services while making payments to the appointed bus operators.
  - The Central Government's role is to facilitate and support these operations by providing **subsidies as outlined in the scheme**.

### ***What is the Significance of the Scheme?***

- **Employment Opportunity:**
  - The scheme is projected to create a direct employment opportunity surge, with an **estimated range of 45,000 to 55,000 jobs**.
  - This boost will **stem from the deployment of electric buses** in city bus operations, contributing to **economic growth while addressing pressing urban mobility needs**.
- **Boosting E-Mobility:**
  - It seeks to propel the **adoption of E-Mobility, underpinned** by comprehensive support for the requisite behind-the-meter power infrastructure.
  - Furthermore cities will receive **backing for the development of crucial charging infrastructure** as part of the **Green Urban Mobility Initiatives**.
  - This holistic approach not only accelerates the adoption of energy-efficient electric buses but also **drives innovation within the e-mobility sector**.
- **Environmental Impact and GHG Reduction:**
  - The shift towards electric mobility is projected to have profound environmental benefits.
  - By reducing noise and air pollution and **curbing carbon emissions**, the scheme aligns with **broader sustainability goals**.
  - The increased utilization of bus-based public transportation will also lead to a modal shift, further contributing to the **reduction of Greenhouse Gas (GHG) Emissions**.

### **What are the Government Initiatives to Promote E-Mobility?**

- **Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme II**
- **National Electric Mobility Mission Plan (NEMMP)**
- **National Mission on Transformative Mobility and Battery Storage**
- **Production Linked Incentive (PLI) scheme**
- **Vehicle Scrappage Policy**
- **Go Electric campaign**

## **New Scheme to Complement PMAY-U**

### ***Why in News?***

Recently, Prime Minister in his address on 77th Independence Day, unveiled a new scheme aimed at **alleviating the housing crisis faced by the urban poor**.

- The new scheme complements the **Pradhan Mantri Awas Yojana Urban (PMAY-U)**, a flagship government initiative launched in 2015.

### ***What is Pradhan Mantri Awas Yojana Urban?***

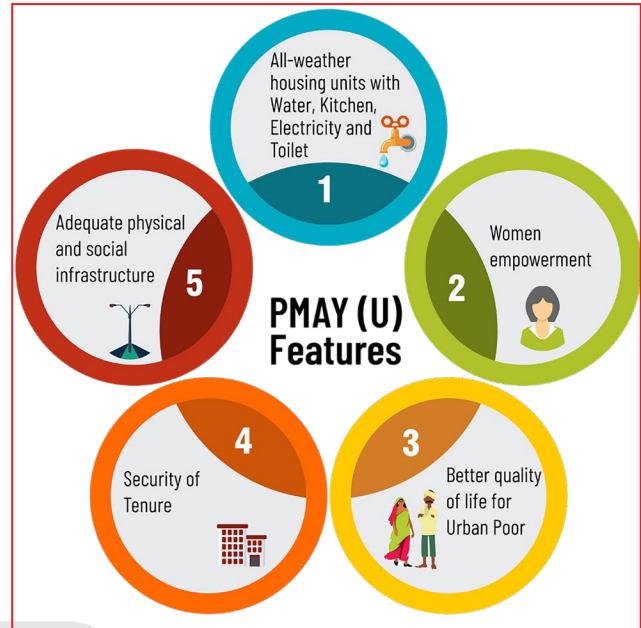
- **About:**
  - The PMAY-U, executed under the aegis of the **Ministry of Housing and Urban Affairs (MoHUA)**, aims to tackle the acute shortage of urban housing among economically disadvantaged segments.
  - The mission's overarching goal is to provide **"pucca" (durable and permanent) houses to all eligible urban households by 2022**.
    - To achieve this, the **scheme has been extended until December 2024** to ensure the completion of all sanctioned houses without altering the funding pattern and implementation methodology.
- **Beneficiaries:** The Mission addresses urban housing shortage among the **EWS/LIG and MIG categories including the slum dwellers**.
  - **Economically Weaker Section (EWS)** - with a maximum annual family income of Rs. 3,00,00
  - **Low Income Group (LIG)** - with maximum annual family income of Rs. 6,00,000 and
  - **Middle Income Groups (MIG I & II)** - with a maximum annual family income of Rs. 18,00,000

Note:

- A beneficiary family will comprise husband, wife, unmarried sons and/or unmarried daughters

➤ **Components of PMAY-U:**

- **In-situ Slum Redevelopment (ISSR):** The ISSR program offers **Central Assistance of Rs. 1 lakh per dwelling** for qualified slum residents during redevelopment, **utilizing land as a resource** in collaboration with private developers.
  - States/Cities have the flexibility to allocate this Central Assistance to other slum redevelopment projects.
- **Credit Linked Subsidy Scheme (CLSS):** The CLSS aids beneficiaries from **EWS/LIG, Middle Income Group (MIG)-I, and MIG-II** seeking housing loans for buying, constructing, or enhancing homes.
  - These **individuals can avail interest subsidies of:**
    - 6.5% on loan amount up to Rs. 6 Lakh
    - 4% on loan amount up to Rs. 9 Lakh
    - 3% on loan amount up to Rs. 12 Lakh
  - **Housing and Urban Development Corporation (HUDCO), National Housing Bank (NHB), and State Bank of India (SBI)** are the designated Central Nodal Agencies (CNAs) responsible for channeling the subsidy through lending institutions and monitoring progress.
- **Affordable Housing in Partnership (AHP):**
  - AHP provides Central Assistance of **Rs. 1.5 Lakh for each Economically Weaker Section (EWS)** dwelling by the Government of India.
  - Affordable housing projects can include various categories, but they qualify for Central Assistance **if at least 35% of the homes target the EWS category.**
  - States/UTs set an upper ceiling on the sale price of EWS homes to ensure affordability.
- **Beneficiary-led Individual House Construction/Enhancement (BLC-N/ BLC-E):**
  - Qualified Economically Weaker Section (EWS) families receive up to **Rs. 1.5 lakh as Central Assistance for constructing or enhancing individual houses.**
  - **Urban Local Bodies** verify the beneficiary's submitted information and building plan to confirm land ownership, economic status, and eligibility.



**Note:** PMAY-U promotes **Woman Empowerment** by **providing the ownership of houses in the name of a female member or in joint names.**

➤ **Progress:**

- As of the most recent update, a total of **118.9 lakh houses have been completed under the PMAY-U initiative**, out of which 76.25 lakh are occupied.

➤ **Related Initiatives:**

- **Affordable Rental Housing Complexes (ARHCs):** MoHUA has initiated ARHCs, a sub-scheme under PMAY-U.
  - This will provide **ease of living to urban migrants/poor in the Industrial Sector** as well as in the non-formal urban economy to get access to dignified affordable rental housing close to their workplace.
- **ANGIKAAR Campaign:** It focuses on **adopting best practices** such as water & energy conservation, waste management, health, sanitation and hygiene for PMAY(U) beneficiaries through community mobilization and IEC activities.
  - The campaign was formally launched on 2nd October, 2019, **commemorating 150th Gandhi Jayanti.**
- **GHTC India:** MoHUA has initiated the **Global Housing Technology Challenge - India (GHTC India)** which aims to **identify and mainstream a basket of innovative construction technologies** from across the globe for the housing construction sector that are sustainable, eco-friendly and disaster-resilient.

Note:



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## Vishwakarma Yojana and Lakhpati Didi Scheme

### Why in News?

In the recent **Independence Day address**, the Prime Minister unveiled two significant initiatives aimed at empowering **artisans** and **women's self-help groups (SHGs)** across India.

- The two initiatives are: the **Vishwakarma Yojana** and the **provision of drones for women SHGs under Lakpati Didi Scheme**.

### What is Vishwakarma Yojana?

- **About:**
  - The Vishwakarma Yojana is a pioneering scheme designed to **uplift individuals skilled in traditional craftsmanship**, particularly from the **Other Backward Classes (OBC) community**.
  - This scheme, named **after the divine architect and craftsman Vishwakarma**, seeks to preserve and enhance the **guru-shishya parampara (teacher-pupil tradition)** of passing down skills within families engaged in various artisanal trades.
- **Features:**
  - **Recognition and Support:** Artisans and craftspeople enrolled in the scheme will receive a **PM Vishwakarma certificate and an identity card**.
    - They will also be **eligible for collateral-free credit support of up to ₹1 lakh (first tranche) and ₹2 lakh (second tranche)** at a concessional interest rate of 5%.
  - **Skill Development and Empowerment:** The Vishwakarma Yojana has been allocated a budget ranging from **₹13,000 crore to ₹15,000 crore** for five financial years from 2023-2024 to 2027-2028.
    - The scheme offers a stipend of **₹500 for skill training** and ₹1,500 for the purchase of modern tools.
  - **Scope and Coverage:** The scheme encompasses **18 traditional trades across both rural and urban areas**. These trades encompass carpenters, **boat-makers, blacksmiths, potters, sculptors, cobblers, tailors, and more**.
  - **Registration and Implementation:** Registration for the Vishwakarma Yojana can be completed at **common services centers in villages**.

- While the central government will provide funding for the scheme, state governments' support will also be sought.
- **Integration with Value Chains:** A notable objective of the scheme is to **ensure that artisans are seamlessly integrated into both domestic and global value chains**, thus enhancing their market access and opportunities.

### What is the Lakhpati Didi Scheme?

- **About:** The government's goal is to create **two crore "lakhpati didis" (prosperous sisters) in villages**. This scheme aligns with the broader mission of poverty alleviation and economic empowerment.
  - Under this scheme, **women will be provided skill training so that they can earn over Rs 1 lakh per year**.
- **Features:**
  - Drones will be **provided to women SHGs for agricultural activities**.
    - This initiative aims to leverage technology to transform the agricultural landscape while empowering women **in rural communities**.
    - Around **15,000 women's SHGs will be given training in operating and repairing drones**.
      - This training will not only create new avenues for income generation but also equip women with cutting-edge skills.
    - Drones have the potential to revolutionize agriculture by enabling **precision farming, crop monitoring, and pest control**.
  - Under the scheme, women will be trained in skills like **LED bulb making, plumbing, among others**.

**Note:** Self-Help Groups (SHGs) are **informal associations of people** who choose to come together to find ways to improve their living conditions.

- It can be defined as self governed group of people with **similar socio-economic background** and having a desire to collectively perform common purpose.

### What are the Other Initiatives Related to Women Empowerment and Poverty Alleviation?

- **Swadhar Greh**
- **Sukanya Samriddhi Yojna**
- **Pradhan Mantri Mahila Shakti Kendra Scheme**
- **Rashtriya Mahila Kosh**

Note:



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## Organized Crime and Georgia RICO Act

### Why in News?

Recently, former **United States President Donald Trump**, along with 18 of his associates, has recently been charged under the **Georgia RICO (Racketeer Influenced and Corrupt Organizations) Act**.

- The charges encompass a range of alleged criminal activities which mainly include forgery, making false statements, impersonating a public officer, influencing witnesses, and conspiracy.
- RICO Act has similarities with the **Maharashtra Control of Organised Crime Act (MCOCA), 1999**.

**Note:** Georgia is one of the 50 US states situated in the southeastern mainland of the United States.



### What is the Georgia RICO Act?

- The **RICO Act originated in the US federal law in 1970**.
- Originally designed to combat **organized crime**, particularly mafia-related activities.
- Within a few years of the federal law taking effect, states began passing their own RICO laws.
- Georgia's RICO Act, adopted in 1980, makes it a crime to participate in, acquire or **maintain control of an "enterprise" through a "pattern of racketeering activity" or to conspire to do so**.
- A conviction for racketeering under the RICO Act in Georgia can result in a **prison term of up to 20 years**.
- The severe penalty underscores the gravity of the Act's application.

### What is the Maharashtra Control of Organised Crime Act (MCOCA), 1999?

- It was introduced to tackle **organized crime activities in Maharashtra**.
- The Act is not limited to the state of Maharashtra, but it is also applicable to the state of the **National Capital Territory of Delhi**.
- Every offence under the Act is a **cognisable offence**.
- Every offence punishable under this Act shall be **triable only by special courts constituted under the Act**.
- The Act has strict provisions to avoid misuse of power, and anyone failing to do what they are required by law to do shall be punishable by imprisonment which may extend to **three years or a fine**.

### What is Organized Crime?

- Organized Crime activities **refer to actions carried out jointly or severally by members of a gang or syndicate, with the intent of obtaining pecuniary or other advantages**.
- **Types of Organized Crime:** Organized gang criminality, Racketeering, Syndicate Crime, Smuggling etc.
- They operate covertly, exploiting gaps in law enforcement and regulations.

### What is the Legal Position In India on Organized Crime?

- Organized crime has always existed in India in some form or another. It has, however, assumed its virulent form in modern times due to several socio-economic and political factors and advances in science and technology.
  - Even though rural India is not immune from it, it is essentially an urban phenomenon.
- India **does not have a specific law to deal with organized crime at the national level**. The existing laws, such as the **National Security Act, 1980**, and the **Narcotic Drugs and Psychotropic Substances Act, 1985** are inadequate as they **target individuals and not criminal groups or enterprises**.
- Some states, such as **Gujarat (Gujarat Control of Organised Crime Act, 2015)**, **Karnataka (Karnataka Control of Organised Crime Act, 2000)**, and **Uttar Pradesh (Uttar Pradesh Control of Organised Crime Act, 2017)**, have enacted their own laws to combat organized crime.

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- India is also a party to several **international conventions and treaties** that aim to prevent and suppress organized crime at the global level.
  - These include:
    - **United Nations Convention against Transnational Organized Crime (UNTOC).**
    - **United Nations Convention against Corruption (UNCAC).**
    - **United Nations Office On Drug And Crime (UNODC).**
  - Conventions facilitate cooperation, mutual assistance, law enforcement, and information sharing among countries.

### ***What are the Challenges in Combating Organized Crime?***

- **Inadequate Legal Structure:** Lack of a **dedicated law targeting organized crime groups and enterprises.**
- **Difficulty in Obtaining Proof:** Hierarchy insulates higher leadership; witnesses fear for their lives.
- **Resource and Training Shortage:** Insufficient resources, training, and facilities for investigating organized crime.
- **Lack of Coordination:** Absence of a **national agency for coordination and information exchange.**
- **Criminal, Political & Bureaucratic Nexus:** Criminal syndicates maintain **connections with politicians, bureaucrats, and media.**

## **Need for Effective Self-Regulation of Media**

### ***Why in News?***

Recently, the **Supreme Court (SC)** has emphasized the importance of strengthening the self-regulatory mechanisms adopted by television channels to **ensure ethical conduct and responsible reporting.**

- The court was hearing an appeal presented by the **News Broadcasters and Digital Association (NBDA)** challenging remarks made by the Bombay High Court against the effectiveness of self-regulation.
- The Bombay High Court had criticized **media trials and observed that existing self-regulatory mechanisms lacked** the character of statutory mechanisms.

**Note:** The NBDA (Formerly known as News Broadcasters Association (NBA)) represents the **private television news**, current affairs and digital broadcasters. It is the collective voice of the news, current affairs and digital broadcasters in India.

- The NBDA has presently **27 leading news and current affairs broadcasters** (comprising 125 news and current affairs channels) as its members. The NBDA presents a **unified and credible voice before the Government**, on matters that affect the growing industry.

### ***What are the SC's Observations?***

- **Balancing Regulation and Freedom of Speech:**
  - The SC acknowledged the significance of avoiding pre-censorship or post-censorship by the government while **maintaining ethical standards in media content.**
  - The court commended the idea of **self-regulation by media outlets** but emphasized that such mechanisms should be **more effective in curbing unethical conduct.**
- **Notice Issued to Strengthen Regulatory Framework:**
  - The SC issued a notice to NBDA and other relevant parties to explore the enhancement of the regulatory framework.
  - The court emphasized the **necessity of examining whether the current steps taken to establish self-regulatory mechanisms** need to be strengthened both in terms of jurisdiction and the final consequences of violations.
- **Concerns Over Media Behavior:**
  - The SC highlighted the **frenzy in media coverage following** the death of an actor, where speculation about **guilt or innocence could impact ongoing investigations.**
  - Court emphasized that the **media's role should be to uphold the presumption of innocence** until proven guilty rather than preemptively shaping public opinion.
- **Proposals to Enhance Fines and Guidelines:**
  - The court questioned the adequacy of the current Rs 1 lakh fine imposed for violations, suggesting that fines **should be proportionate to the profits generated by the entire show.**
  - The Chief Justice raised the idea of **"disgorgement," similar to the practice in securities regulation**, where violators return ill-gotten gains.

Note:

### How is Media Regulated in India?

#### ➤ Conventional Media:

- Conventional media includes newspapers, magazines, TV, radio, etc. To regulate the conduct of traditional media, the government has **established various statutory bodies** under different statutes.
- **Print media** is regulated mostly through two major Acts, namely, the **Press and Registration of Books Act of 1867**, which provides for the registration, regulation and preservation of every copy of books and newspapers printed in India, and the **Press Council Act, 1978**.
- **Cinema is regulated through the Cinematographic Act of 1952**. The Act also establishes a regulating body named **Central Board of Film Certification** for the certification of cinematograph films, for the exhibition of movies, and to regulate those exhibitions.
- The **telecommunication sector** is regulated through the **Telecom Regulatory Authority of India Act, 1997**. Under this Act, Telecom Regulatory Authority of India, regulates, adjudicates disputes, disposes of appeals, and protects the interests of service providers and consumers.

#### ➤ Digital Media:

- Digital media broadly includes websites, blogs, video platforms like youtube, and social media sites. As these platforms act as a medium of communication between two or more people, they are **known as “intermediaries” under the governing law**.
- These are regulated under the provisions of the **Information Technology Act, 2000** and the rules framed therein under section 69, which are called **Information Technology (Intermediary Guidelines and Digital Media Ethics Code), Rules 2021 (from now on, IT Rules, 2021)**.

## Demolition Drive and Rule of Law

### Why in News?

The Punjab and Haryana High Court's Suo Motu intervention in the **Demolition Drive** in Haryana, asking whether it is an exercise of **Ethnic Cleansing** and shed

light on potential violation of **Fundamental Rights** and the erosion of rule of law.

- The recent demolition of dwellings and business establishments in Haryana has raised **significant constitutional and legal questions**.

### What is Ethnic Cleansing?

- The term **“Ethnic Cleansing”** originated from a **UN-appointed Commission of Experts** chaired by Prof. Cherif Bassiouni in 1992.
- It refers to deliberate acts by one ethnic or religious group to forcibly remove another group from specific geographic areas using violent and terror-inspiring methods.
- Although not defined in Indian law, acts amounting to ethnic cleansing violate **constitutional guarantees under Part III of the Indian Constitution**.

### What are the Reasons for Court's Intervention?

- The High Court took cognisance of the fact that the demolition drive was carried out without **“demolition orders and notices”**, thereby violative of the procedure established by law.
- **Article 21** of Indian Constitution commands that no person shall be deprived of his life and personal liberty except according to the procedure established by law.
  - In the **Maneka Gandhi case, 1978**, the Supreme Court had expanded the scope of procedure established by law by ruling that such procedure has to be “fair, just and reasonable, not fanciful, oppressive or arbitrary”, thereby introducing the **principle of “procedural due process”**.
- Despite such an expansion of the scope of Article 21, it is a constitutional travesty that scant regard for such basic **principles is demonstrated by elected governments**.

### How Does the Dichotomy of The Rule of Law and The Rule By Law Impact the Constitution?

- While the rule of law is declared a basic feature of the Constitution, **rule by law is the antithesis** of all that is represented by rule of law.
- The rule of law is a **government run by law, not men**.
  - The roots of the idea of a rule of law can be seen in **Article 39 of Magna Carta, 1215** that declares that “No freemen shall be taken or imprisoned or disseised or exiled or in any way destroyed, nor

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will we go upon him nor send upon him, except by the lawful judgment of his peers or by the law of the land.”

- This civilisational journey has **since then found its reflection in Article 21** of Indian constitution and had its contours expanded by the Supreme Court.
- This progressive journey gets **barbarically reversed when rule by law comes into play.**
- Rule by law is when the law is used as an instrument of **suppression, oppression and social control** in the course of implementing a political agenda.
  - The administrative act of demolishing dwellings and buildings without issuing notice and hearing the affected, to further selective social control necessarily **warrants judicial interference.**

### ***What is the Procedure for the Demolition in the Illegal Occupation?***

- Municipal Acts, such as the **Delhi Municipal Corporation Act, 1957** provide provisions that **prohibit encroachments on public roads** and footpaths.
- Before taking any action, the **municipal authorities are usually required to issue notices to the individuals** or establishments involved in illegal encroachments.
- Courts, including the Supreme Court, have emphasized the **importance of due process and have often ruled that proper notice** and opportunity to be heard are essential before any demolition is carried out.
  - In the **1985 Olga Tellis case**, emphasizing the right to livelihood and rights of slum dwellers, SC had noted that the right to livelihood is **a part of right to life.**
- If the individuals **fail to respond** or do not provide a satisfactory explanation, the municipal authorities may **proceed with the demolition process.**
- The authorities are generally expected to act proportionally, considering the nature of the violation and the **response taken** to adhere to principles of natural justice.

### ***How are the Demolition Drives Problematic?***

- **Right to Adequate Housing:**
  - The right to housing is a fundamental right recognized under **Article 21** of the Indian Constitution.
- **ICESCR:**
  - Article 11.1 of the **International Covenant on Economic, Social and Cultural Rights (ICESCR)**

recognises “the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions”.

### ➤ **International Human Rights Law Framework:**

- It is also a well-documented right under the international human rights law framework.
  - For instance, Article 25 of the **Universal Declaration of Human Rights (UDHR)** states that “everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care”.
- UDHR does **not have any binding force behind it** but it is accepted by all nations as a **Moral Code of Conduct.**

### ➤ **ICCPR:**

- **Article 17 of the International Covenant on Civil and Political Rights (ICCPR)** also provides that everyone has the right to own property alone as well as in association with others and that no one shall be arbitrarily deprived of his property.

### ***What are the Related Supreme Court Judgements?***

- **Olga Tellis & Ors. v. Bombay Municipal Corporation & Ors, 1985:**
  - The Supreme Court ruled that eviction of pavement dwellers using unreasonable force, without giving them a chance to explain, is unconstitutional.
    - It is a violation of their **right to livelihood.**
- **Maneka Gandhi vs Union of India, 1978:**
  - The Supreme Court, while interpreting the scope of Article 21 of the Constitution, stated that the “due process of law” is an integral part of “procedure established by law”, explaining that such procedure must be fair, just and reasonable.
    - If the procedure prescribed by law is fanciful, oppressive and arbitrary in nature then it should not be considered procedure at all and thus not all the requirements of Article 21 would be satisfied.
- **Municipal Corpn., Ludhiana v. Inderjit Singh, 2008:**
  - The apex court ruled that if the requirement of giving notice is provided under a municipal legislation, then this requirement must be necessarily complied with.

Note:



- No authority can directly proceed with demolitions, even of illegal constructions, without providing notice and an opportunity of being heard to the occupant.
- **Other Important Judgements:**
  - The **Supreme Court** in cases like **Bachan Singh vs State of Punjab, 1980**, **Vishaka vs State of Rajasthan, 1997**, and recently in the famous **Puttaswamy vs Union of India, 2017** has laid down the principle that the fundamental rights guaranteed under the Constitution must be read and interpreted in a manner which would enhance their conformity with international human rights law.

## BOCW SCHEME

### Why in News?

Recently, the Minister of Labour and Employment provided valuable insights into the **Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996** during a written reply in the Rajya Sabha.

### What is the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996?

- **About:**
  - The **Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996**, commonly referred to as the BOCW Act, plays a significant role in **safeguarding the rights and interests of workers in the construction sector**.
- **Major Provisions:**
  - The **constitution of State Welfare Boards** to administer the welfare fund and to provide various benefits to the registered workers such as **accident insurance, medical assistance, education, housing, pension, etc.**
  - The **fixing of hours of work, wages for overtime work, prohibition of employment of certain persons in certain building** or other construction work, and the provision of drinking water, latrines, urinals, accommodation, creches, first-aid, canteens, etc.
  - The establishment of **safety committees and safety officers at every establishment** and the framing of rules for the safety and health of building workers.

- It provides for the **levy and collection of cess at 1-2%** of the cost of construction, as the **Central government may notify**.
- **Eligible Beneficiaries:**
  - As per the provisions, **any worker aged between eighteen and sixty years**, engaged in building or construction activities for a **minimum of ninety days in the preceding twelve months**, is eligible for registration as a beneficiary with the **State Welfare Boards**.
- **Implementation:**
  - The implementation of **welfare schemes for building and construction workers**, ranging from **life and disability cover to health, maternity support, transit housing, and skill development**, is entrusted to the State/UT BOCW Welfare Boards under Section 22 of the Act.
    - These welfare measures strive to uplift the livelihoods and well-being of workers who contribute significantly to the construction sector.
- **Recent Developments to Streamline Registration Process:** Recognizing the need for simplification and accessibility, the government introduced various measures to ease the registration/enrollment process:
  - **Unique Identification Number:** The introduction of a **Unique Identification Number** for registered building and construction workers aims to streamline the identification process and enhance efficiency.
  - **Local Competent Officers:** The delegation or appointment of competent officers at the **local, municipal, and panchayat levels** contributes to a more decentralized and accessible registration process.
  - **Self-Certification:** The practice of self-certification empowers workers to provide **accurate information without requiring physical presence**, expediting the registration process.
  - **Facilitation Centers and Camps:** To enhance accessibility, the government established facilitation **centers at prominent labor chowks and addas**, along with holding regular camps, which provide a convenient means for workers to enroll and update their information.

### What are the Other Government Schemes Related to Construction Workers?

- **National Initiative for Promotion of Upskilling of Nirman workers (NIPUN)**

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- Model Welfare Scheme for Building and Other Construction Workers and Action Plan for Strengthening Implementation Machinery
- **Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)**

## Surge in Bail Appeals in Indian High Courts

### Why in News?

The number of Bail Appeals filed in **India's High Courts** surged post 2020, according to the **'High Court dashboard'** by DAKSH, a think-tank focussed on law and justice system reforms.

- DAKSH analyzed **9,27,896 bail cases filed between 2010 and 2021** across 15 High Courts. These courts followed distinct naming patterns for bail cases. The data revealed **81 case types associated with bail across** the analyzed High Courts.

### What are the Statistics Related to Bail Appeals?

- **Bail Appeals are on Rise:**
  - Bail appeals have risen from approximately 3.2 lakh to 3.5 lakh annually before 2020, to 4 lakh to 4.3 lakh thereafter from July 2021 to June 2022.
  - Consequently, the number of pending bail appeals in High Courts has surged from around 50,000 to 65,000 to between 1.25 lakh to 1.3 lakh.

## Indian judicial data hides more than it reveals in bail cases

Bail outcomes were not known in 80% of cases, and the underlying offence in 77%

### DATA POINT

#### The Hindu Data Team

**T**he number of bail appeals filed in India's High Courts surged post 2020, according to the 'High Court dashboard' by DAKSH, a think-tank focussed on law and justice system reforms. Bail appeals went up from around 3.2 lakh to 3.5 lakh each year before 2020, to 4 lakh to 4.3 lakh thereafter.

Consequently, the number of pending bail appeals in High Courts also surged from around 50,000 to 65,000 to between 1.25 lakh to 1.3 lakh. **Chart 1** shows the number of fresh appeals and pending appeals in High Courts over time.

The data follow a July to June cycle. For instance, between July 2021 and June 2022, 4.3 lakh bail appeals were filed in High Courts.

One possible reason could be the sharp increase in cases related to the flouting of COVID-19-related lockdown norms during the pandemic. At the same time, pending bail cases piled up as the functioning of the courts was compromised during this time.

However, the exact reason cannot be ascertained from court data. The DAKSH 'High Court dashboard' explains that in 77% of regular bail cases, it was not possible to ascertain the Act under which the person seeking bail was imprisoned. It was not mentioned in the e-courts data of various High Courts. An analysis of 23% of cases in which the Act was mentioned shows that the Epidemic Diseases Act, 1897, was ranked fourth, hinting at the possibility of cases surging under this Act as the reason for more bail appeals.

The reason to understand the surge becomes paramount because in some of the States, bail appeals formed more than 30% of the caseload between July 2021 and June 2022, as shown in **Chart 2**. In five High Courts, i.e., in Pat-

na, Jharkhand, Odisha, Madhya Pradesh and Chhattisgarh – bail appeals formed more than 30% of their total caseload.

Across all High Courts, DAKSH analysed 9,27,896 bail cases that were filed between 2010 and 2021. Each High Court follows a unique naming pattern for bail cases. The case type abbreviation for bail application was "BA" in Bombay and "BAIL APPL." in Kerala. Uttarakhand had the most variation among bail case types – 18 types, where the first bail application was named BA1 and in successive applications, BA2, BA3, a unique naming pattern which no other High Court followed. In all, there were 81 case types associated with bail across the 15 High Courts analysed.

The database also reveals that the median number of days taken from the filing date to the decision date for regular bail applications was 23. However, for some High Courts, the median days taken for disposal were much higher, as shown in **Chart 3**. The median days for disposal of regular bail cases in the Jammu & Kashmir High Court was 156, for the Orissa High Court 61 days, and for the Bombay High Court, 56 days. Given the very high number of days it takes to dispose of bail cases (which are generally considered to not require much judicial time or deliberation), the lack of data to understand the reason for delay is worrying. "Delays in resolution have the same effect as denying bail as the accused remains in prison for the duration of their trial," the DAKSH database argues.

Finally, data regarding the outcome of bail appeals in High Courts were also missing in many cases. In close to 80% of the disposed bail cases in all High Courts, the outcome of the bail appeal – whether it was granted or rejected – was either unclear, or the outcome was missing. For instance, in the Bombay High Court, the bail outcome of over 95% of appeals was not known, as shown in **Chart 4**.

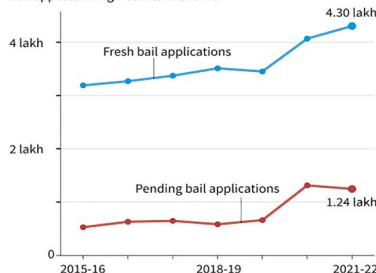
### Case in point

The data for the charts were sourced from the DAKSH 'High Court Data' portal



Bombay High Court

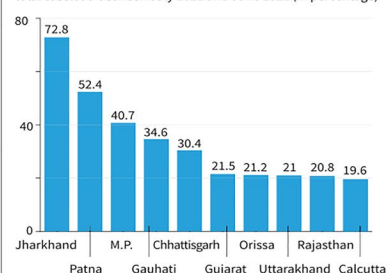
**Chart 1:** The chart shows the number of fresh and pending bail appeals in High Courts over time



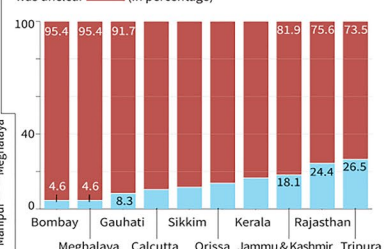
**Chart 3:** The chart shows the median days taken for the disposal of regular bail cases in various High Courts



**Chart 2:** Bail applications filed in High courts as a share of their total caseload between July 2021 and June 2022 (in percentage)



**Chart 4:** The chart shows the share of cases in which bail was granted/rejected and where the outcome was not given/was unclear (in percentage)



Note:



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### ➤ High Courts and Caseload Distribution:

- The distribution of caseloads varied across **different High Courts**. In some states, such as Patna, Jharkhand, Odisha, Madhya Pradesh, and Chhattisgarh, bail appeals **formed more than 30% of the total caseload** between July 2021 and June 2022.

### ➤ Disposal Time and Outcome Uncertainty:

- The median time taken for disposal of regular **bail applications varied among High Courts**. Some High Courts had significantly **higher disposal times**, raising concerns about delays in the resolution process.
- Delays in deciding on **bail cases are seen as equivalent to denying bail**, as the accused remains incarcerated during this period.

### ➤ Incomplete Outcome Data:

- The data also **highlighted the lack of clarity regarding the outcomes** of bail appeals in High Courts. In nearly 80% of disposed bail cases in all High Courts, the **outcome of the appeal**, whether it was granted or rejected, **was unclear or missing**.

## What are the Reasons for Surge in Bail Appeals?

### ➤ Covid Violations and Disruption in Court Functioning:

- There has been an increased number of cases related to violations of Covid-19 lockdown **norms during the pandemic**.
- Additionally, the **disruption of court functioning during this period could** have contributed to the accumulation of pending bail cases.
  - However, the exact **cause cannot be definitively determined** from court data.

### ➤ Epidemic Diseases Act as a Factor:

- The **Epidemic Diseases Act, 1897** may have played a role in the increase in bail appeals. While 77% of regular bail cases did not mention the specific Act under which the **appellant was imprisoned**, analysis of the remaining 23% showed the Epidemic Diseases Act ranked fourth.
- This hints at a **potential surge in cases under this Act** contributing to the increase in bail appeals.

## What is Bail and What are its Types?

### ➤ Definition:

- Bail is the **conditional/provisional release** of a person held under legal custody (in matters

which are yet to be pronounced by the Court), by undertaking a promise to appear in the Court as and when required.

- It signifies a **security/collateral deposited before the Court** for release.

- In **Supt. and Remembrancer of Legal Affairs v. Amiya Kumar Roy Choudhry** (1973) case, the Calcutta High Court explained the **principle behind giving Bail**.

### ➤ Types of Bail in India:

- **Regular Bail:** It is a direction given by the **Court (any Court within the country)** to release a person who is already under arrest and kept in police custody. For such Bail, a person can file an application under Section 437 and 439 of the **Code Of Criminal Procedure (CrPC), 1973**.
- **Interim Bail:** Bail granted for a **temporary and short period** by the Court till the application seeking Anticipatory Bail or Regular Bail is pending before a Court.
- **Anticipatory Bail or Pre-arrest Bail:** It is a legal provision that allows an accused person to apply for bail before being arrested. In India, pre-arrest bail is granted under section 438 of the CrPc, 1973. It is issued only by the Sessions Court and High Court.
  - The provision of pre-arrest **bail is discretionary**, and the court may grant bail after considering the nature and gravity of the offence, the **antecedents of the accused**, and other relevant factors.
  - The court may also impose certain conditions while granting bail, such as surrendering the passport, refraining from leaving the country, or reporting to the police station regularly.
- **Statutory Bail:** The remedy of statutory bail, also known as **default bail**, is distinct from bail obtained in the **ordinary procedure under CrPC Sections 437, 438, and 439**. As the name implies, statutory bail is **given when the police or investigating agency fails to file its report/complaint** within a certain time frame.

**Note:** Article 21 of the Indian Constitution gives everyone the **right to life and personal liberty**. It provides the fundamental **right to live with human dignity and personal freedom**, which entitles us to seek bail when detained by any law enforcement entity.

Note:



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# Economic Scenario

## Highlights

- Inflation and Current Outlook of Indian Economy
- RBI Study on Investment Trends in India for FY 2022-23
- MPC Recent Decisions: Repo, Inflation Projection, I-CRR
- Floating Rate Loans
- Public Tech Platform for Frictionless Credit
- Advisory Board on Banking and Financial Frauds
- Coking Coal
- AYUSH Sector's Growth
- Urea Gold
- Pulses Production India
- India's Ageing Workforce
- Production Linked Incentive Scheme

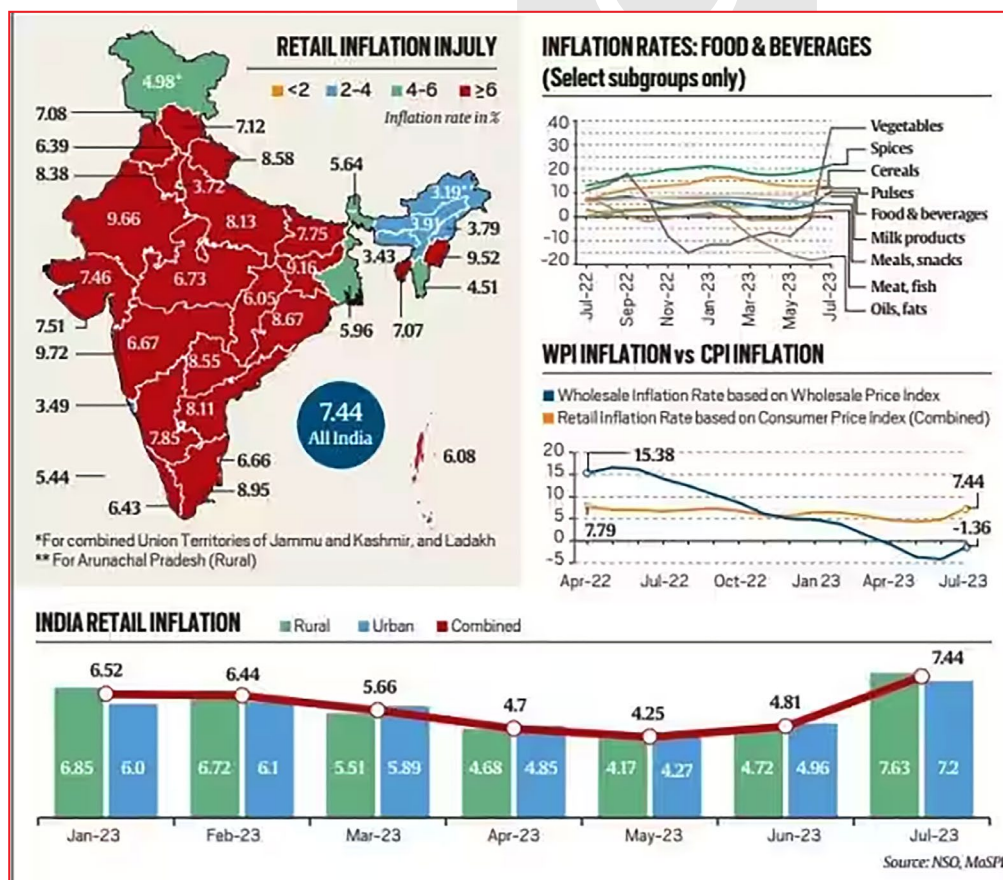
## Inflation and Current Outlook of Indian Economy

### Why in News?

July 2023 witnessed a notable increase in **Retail Inflation**, reaching **7.44%**, creating **Goldilocks scenario**

for India, making investors and savers **uncertain about the economic situation**.

- A Goldilocks Scenario describes an **ideal state for an economy** whereby the economy is not expanding or contracting by too much. A Goldilocks economy has steady economic growth, preventing a recession, **but not so much growth** that inflation rises by too much.



### What is the Current Economic Scenario of India and Projections?

- **GDP Projection:**
  - The projected **GDP (Gross Domestic Product)** growth for 2023-24 is 6.5%, while the benchmark Sensex index **stands currently at 65,000 points**.
  - However, if inflation remains high, it could affect **returns on stock market investments**.
  - Gold and bank deposit rates, on the other hand, are **expected to remain stable in the coming months**.

Note:

### ➤ Inflation Projection:

- The **Reserve Bank of India (RBI)** anticipates inflation to stay above 5% until the first quarter of 2024-25, potentially reaching 6.2% in the current quarter (July-Sept) 2023, exceeding the RBI's comfort level of 4%.

### ➤ Food Price Pressures:

- Food prices are expected to remain elevated for a few more months. July's data reveals a **surge in vegetable prices (37.3%)**, along with inflation in cereals, pulses (both 13%), spices (21.6%), and milk (8.3%).
- It is expected that government interventions and fresh crop arrivals will eventually ease this pressure.

### ➤ Interest Rates and Monetary Policy:

- Due to the higher inflation projections, the **possibility of a rate cut has been postponed** to the next **Fiscal Year (2024-25)**.
- The **Monetary Policy Committee (MPC)** is likely to maintain policy rates in the upcoming meeting, with the **first rate cut potentially occurring** in the following fiscal year.

### ➤ Market Outlook:

- Despite inflation and high interest rates, India's market has performed well.
- Supported by strong earnings prospects and **stable macro conditions**, India has outperformed other markets.

### ***What is the Impact of Such Rising Inflation on the Indian Economy?***

#### ➤ Impact on Markets:

- When inflation is high, stock prices are undervalued, and the value of gold increases. Rising inflation reduces **purchasing power**, leading to **lower real earnings**.
- Additionally, higher inflation **results in higher Interest Rates**, affecting the **cost of equity**.
  - The RBI's series of repo rate hikes since April 2022 has contributed to an overall increase in lending rates, affecting various types of loans.

#### ➤ Income Redistribution:

- Inflation can impact **different groups within society unevenly**. Creditors may lose out, as the **value of the money they receive** from debtors decreases.

- Conversely, debtors **could benefit by repaying loans** with money that is worth less than when they borrowed it.

### ➤ International Competitiveness:

- High inflation in one country can lead to a decrease in its international competitiveness. If domestic prices rise faster than those in trading partner countries, the **country's exports may become less attractive on the global market**.

### ➤ Wage-Price Spiral:

- Inflation can sometimes trigger a cycle of rising wages and prices. Workers demand higher wages to keep up with rising costs, and businesses pass on those higher costs to consumers in the form of higher prices. This cycle can perpetuate inflation.

## **RBI Study on Investment Trends in India for FY 2022-23**

### ***Why in News?***

The **Reserve Bank of India's (RBI)** recent study sheds light on the **state-wise distribution of capital investments in India during the fiscal year 2022-23**.

- The study examines the geographical and sectoral trends that shape the landscape of project funding across the country.

### ***What are the Highlights of the Study?***

#### ➤ Investment Surge and Capital Outlay:

- **Credit offtake soared by 19.7%** in July 2023, amidst a **250 basis points hike in the repo rate by the RBI** since April 2022, indicating robust investment momentum.
- The aggregate capital outlay reached an impressive of over Rs 3.5 lakh crores, reflecting a significant increase compared to the previous years.

#### ➤ State-wise Share in Total Project Costs:

##### ○ Top Performers:

- **Uttar Pradesh** emerges as the frontrunner, accounting for the **highest share of 16.2%** in the total cost of projects sanctioned by banks and financial institutions.
- Following closely are **Gujarat (14%)**, **Odisha (11.8%)**, **Maharashtra (7.9%)**, and **Karnataka (7.3%)**, showcasing a dynamic distribution of investments.

Note:



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- **Bottom Performers:**
  - **Kerala, Goa, and Assam** secured the lowest shares, with **Kerala receiving just 0.9%** of the total investment plans.
  - Haryana and West Bengal also fell within the 1% bracket of the total investment projects.
- **Sectors Driving Investments:**
  - The **infrastructure sector** played a pivotal role, accounting for **60% of the total project cost in 2022-23**.
  - Notably, road and bridge projects within the infrastructure sector garnered significant attention, benefiting from the **"Bharatmala" initiative**.
- **Factors Influencing Investment Momentum:**
  - Government capital expenditure, rising business optimism, and a revival of **private capital expenditure** in select sectors have fueled investment activity.
  - Despite the upward revision of the **repo rate**, credit offtake experienced robust growth, reflecting the confidence in investment opportunities.
- **Outlook and Future Trends:**
  - The RBI study provides a **positive outlook for private investment**, attributing the surge to increased government spending, improved business sentiments, and policy support.
  - **Greenfield projects, constituting 93.1% of total project costs financed by banks and financial institutions**, underscore the focus on new initiatives.
    - **Greenfield project** refers to investment in a manufacturing, office, or other physical company-related structure or group of structures in an area **where no previous facilities exist**.

## MPC Recent Decisions: Repo, Inflation Projection, I-CRR

### Why in News?

The **Monetary Policy Committee (MPC)** of the **Reserve Bank of India (RBI)** has recently opted to **maintain the policy repo rate at 6.5%**, while simultaneously revising its projection for retail inflation in the current fiscal year (2023-24).

- Additionally, a **temporary 10% Incremental Cash Reserve Ratio (I-CRR)** is imposed on banks to absorb excess liquidity.

### What are the Key Decisions of the MPC?

- **Repo Rate Unchanged:** The RBI decided unanimously to **keep the policy repo rate unchanged at 6.5%** to **balance economic growth and inflation control**.
- **Inflation Projection Increased:** The projection for retail inflation in the **current fiscal year has been raised by 30 basis points to 5.4%**.
  - This adjustment **acknowledges the upward trend in headline inflation**, driven in part by rising vegetable prices.
  - While the spike in vegetable prices is expected to be temporary, **external factors like possible El Nino weather conditions** and global food prices pose potential risks.
- **Projected GDP Growth:** The MPC retained its projection for real GDP growth in 2023-24 at **6.5%**.
- **Incremental Cash Reserve Ratio (I-CRR):** Effective from 12th August 2023, **scheduled banks are required to maintain an I-CRR of 10% on the net increase in their demand and time liabilities** between May 19, 2023, and July 28, 2023.
  - This move aims to **absorb surplus liquidity**, particularly due to the recent demonetisation of Rs. 2000 notes.
  - The RBI opted for **I-CRR over a general CRR increase to prevent penalizing banks for their current deposits** and to limit impacts on credit growth and the economy.
    - A CRR rise would have restricted loan funds and raised borrowing costs. **I-CRR only targets excess liquidity from demonetization** without disrupting regular banking operations.
      - The existing **CRR remains unchanged at 4.5%**.
    - Also, the RBI clarified that the **I-CRR is a temporary measure**. In 2016, during the time of demonetisation, a 100% I-CRR was employed.

### What are the Other Measures

#### that RBI can Adopt to Suck Excess Liquidity?

- **Reverse Repo Operations:** The RBI can conduct **reverse repo operations**, where it absorbs excess liquidity from banks by offering them government securities in exchange for funds.
  - However, recently RBI opted for using I-CRR instead of raising the reverse repo rate because **increasing the reverse repo rate would have also increased the repo rate which would have tightened monetary policy** and hampered economic recovery.

Note:

- **Foreign Exchange Operations:** Selling foreign exchange reserves can reduce liquidity in the domestic currency market.
  - This approach can be used cautiously, **as it can impact the exchange rate and international trade.**
- **Moral Suasion:** The RBI can communicate with banks and financial institutions to encourage them to voluntarily manage their liquidity positions and curtail excessive lending.

#### Note:

- **CRR:** Cash Reserve Ratio, a percentage of **Net Demand and Time Liabilities**, banks must keep with the central bank (RBI) to control liquidity.
  - **Incremental CRR:** Additional requirement imposed by RBI on banks' liabilities to manage excess liquidity and stabilize the economy.
- **Repo Rate:** It is the interest rate set by the RBI for **short-term loans to commercial banks**. It's a tool used to control inflation and stimulate economic growth.
- **Inflation:** It refers to the **sustained increase in the general price level of goods and services in an economy over a period of time**, leading to a decrease in the purchasing power of money.
  - **Headline Inflation:** It is the total inflation for the period, **comprising a basket of commodities**.
    - The **food and fuel inflation** form one of the components of headline inflation in India.
  - **Core Inflation:** It excludes volatile goods from the basket of commodities tracking Headline Inflation. These volatile commodities mainly comprise food and beverages (including vegetables) and fuel and light (crude oil).
    - **Core inflation** = Headline inflation – (Food and Fuel) inflation.
- **Inflation Targeting:** It is a monetary policy framework aimed at maintaining a specific target range for inflation.
  - The **Urjit Patel Committee** recommended **CPI (Consumer Price Index) over WPI (Wholesale Price Index)** as a measure for inflation targeting.
    - The current inflation target also aligns with the committee's recommendation to establish a **target inflation rate of 4%**, accompanied by an acceptable range of deviation of **+/- 2%**.

- The central government, in consultation with the RBI, sets an inflation target, and an upper and lower tolerance level for retail inflation.

- **Liquidity** refers to the **ease with which an asset or security can be quickly bought or sold** in the market without significantly affecting its price.
  - It signifies the **availability of cash or liquid assets** to meet financial obligations or make investments. **In simpler terms, liquidity is to get your money whenever you need it.**

#### What are the Implications of Excess Liquidity in India?

- **Positive Implications:**
  - **Lower Interest Rates:** Excess liquidity can lead to **lower interest rates in the economy**.
    - When there is an abundance of funds, banks and financial institutions tend to lower their lending rates to attract borrowers.
    - This can **stimulate borrowing and investment activities, promoting economic growth.**
  - **Stimulating Investment:** With lower interest rates, **businesses may find it cheaper to borrow and invest in expanding their operations**, launching new projects, and creating jobs.
    - This can have a **positive impact on economic activity and job creation.**
- **Negative Implications:**
  - **Inflationary Pressure:** Excess liquidity can contribute to inflationary pressures in the economy.
    - When there is too much money chasing a limited supply of goods and services, prices can rise.
    - This can **erode the purchasing power of consumers** and reduce their overall standard of living.
  - **Exchange Rate Volatility:** Sudden inflows of foreign capital can lead to currency appreciation, **making exports more expensive** and imports cheaper.
    - On the other hand, **outflows can lead to currency depreciation**, which can **impact trade balances and external debt.**
  - **Asset Price Bubbles:** While excess liquidity can boost asset prices, it can also lead to the formation of **speculative bubbles.**

Note:



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- If the increase in asset prices is not supported by fundamentals, it **could result in a sudden collapse of prices, leading to financial instability.**
- **Income Inequality:** The benefits of excess liquidity, such as increased asset prices, **might disproportionately benefit the wealthy who have more exposure to these assets.**
- This can exacerbate income inequality in the economy.

### ***How can High Inflation and High Liquidity be Managed Simultaneously?***








- **Interest Rate Adjustment:** The RBI can consider a cautious approach to interest rate adjustments.
  - While **high liquidity might suggest lowering interest rates**, the **focus should also be on curbing inflation.**

- A balanced approach might involve incremental interest rate hikes to manage both liquidity and inflation concerns.
- **Open Market Operations (OMOs):** The RBI can engage in **controlled Open Market Operations**, which involve **selling government securities to counterbalance the liquidity** injected into the system.
  - This can help mitigate the inflationary effects of excessive liquidity.
- **Targeted Fiscal Measures:** The Indian government can **adopt targeted fiscal policies to address sectors contributing to inflation.**
  - For instance, **investing in agricultural infrastructure and supply chain improvements** can help **stabilize food prices**, a current major driver of inflation in India.

## **Floating Rate Loans**

### ***Why in News?***

Recently, the **Reserve Bank of India (RBI)** will introduce a comprehensive framework to enhance transparency and establish proper rules for resetting **Equated Monthly Installments (EMIs)** for floating rate loans.

FIXED RATE	FIXED RATE Vs FLOATING RATE OF INTEREST	FLOATING RATE
<p><b>BENEFITS</b></p> <p>Interest Rate remains fixed irrespective of Market Conditions. </p> <p>A fixed rate home loan is good for those who want a fixed monthly repayment schedule </p> <p>It brings a sense of Certainty and Security. </p> <p><b>DRAWBACKS:</b></p> <p>Usually 1 - 2.5% more than the floating rate home loan.</p>	<p></p> <p><b>What is Fixed Rate of Interest</b></p> <p>Fixed Interest Rate means repayment of home loans in Fixed Equal Instalments over the entire period of loan.</p> <p><b>What is Floating Rate of Interest</b></p> <p>Floating rate varies with the market conditions. Floating interest rate home loans are tied up to a base rate plus a floating element.</p>	<p><b>BENEFITS</b></p> <p>At least 1-2% cheaper than fixed interest rates. </p> <p>Over a long period, interest rates may fall. </p> <p>Floating interest rates bring savings. </p> <p><b>DRAWBACKS:</b></p> <p>Uneven nature of monthly instalments make financial planning difficult.</p>

Note:

- This move aims to address **borrower concerns and ensure fair practices by financial institutions.**

### **What are Floating Rate Loans?**

- Floating rate loans are **loans that have an interest rate that changes periodically, depending on a benchmark rate or the base rate.**
  - This base rate, such as the **repo rate** - rate at which RBI lends money to financial institutions- is influenced by market forces.
- Floating-rate loans are also **known as variable or adjustable-rate loans**, as they can vary over the term of the loan.
- Floating rate loans are **common for credit cards, mortgages, and other consumer loans.**
- Floating rate loans **are beneficial to borrowers when interest rates are expected to drop in the future.**
  - In contrast, a **fixed interest rate loan** requires a borrower to pay set installments during the loan tenure. It offers a **greater sense of security and stability in times** of fluctuations in the economy.

### **What is the Need for the New Transparent Framework?**

- Until recently, the RBI had been raising the **repo rates** in order to **contain inflation**. With a rise in repo rates, the floating rates too increase. This translates into higher EMIs for borrowers.
  - But it has been found that instead of asking for higher EMIs, some banks are simply **increasing the tenure of the loan without informing the borrower.**
  - This is making loan repayments **unreasonably long and without proper consent from borrowers.**
- Prevent borrowers from being harmed by **changes in the internal benchmark rate** and the spread during the term of the loan.
- Address issues faced by borrowers such as **lack of information about foreclosure charges, switching options, and key terms and conditions.**

### **What are the Features of the Framework Proposed by RBI?**

- Lenders should **communicate clearly with borrowers on resetting the tenor and/or EMI.**
- RBI has asked lenders to **offer borrowers an option to switch to fixed-rate home loans** or foreclosure of loans whenever they want.

- Banks would also need to **disclose various charges incidental to the exercise of these options beforehand to borrowers** and properly communicate key information to borrowers.
  - This would result in **borrowers taking a more informed and calculated decision while repaying their home loans.**
- Lenders should **not engage in unethical or coercive loan recovery practices**, such as harassment, intimidation, or violation of privacy.

### **How will the Framework Benefit Borrowers and Lenders?**

- Borrowers will have **more clarity, transparency, and choice regarding their floating rate loans**, and will be able to exit or switch them without any penalty or hassle.
- Borrowers will be protected from **unfair or arbitrary changes** in interest rates or EMIs by lenders and will be able to plan their finances better.
- Borrowers will be **treated with dignity and respect by lenders**, and will not face any harassment or abuse during loan recovery.
- Lenders will be **able to maintain good customer relations and trust and avoid reputational risk or legal action** due to improper lending conduct.
- Lenders will be able to improve their asset quality and risk management and ensure compliance with regulatory norms and expectations.

## **Public Tech Platform for Frictionless Credit**

### **Why in News?**

The **Reserve Bank of India (RBI)** has initiated a pilot programme aimed at evaluating the feasibility of a '**Public Tech Platform for Frictionless Credit**', seeking to facilitate **seamless and efficient credit delivery** by lenders for **Credit Appraisal**, and therefore boosting **Financial Inclusion** in India.

- The initiative comes as part of RBI's developmental and regulatory policies and was introduced following the **Monetary Policy Committee (MPC)** meeting in August 2023.

Note:



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**Note:** Frictionless credit is a **borrowing approach** that seeks to streamline the **lending process for consumers**. Unlike the traditional credit systems, where individuals need to go through extensive paperwork, **credit checks, and lengthy approval procedures, frictionless credit promises a smoother and faster experience.**

### What is the Public Tech Platform for Frictionless Credit?

- **About:**
  - Developed by the **Reserve Bank Innovation Hub (RBIH)**, It is an end-to-end digital platform that will have **an open architecture, open Application Programming Interfaces (APIs)**, and standards to which all banks can connect in a **“Plug and Play” Model**.
  - The public tech platform seeks to make this **process seamless by providing all the required information** in one place to facilitate credit.
- **Process:**
  - The process of delivering credit through digital means involves **Credit Appraisal**, which evaluates the **borrower's ability to repay the loan** and adhere to the credit agreement.
  - This process rests on three pillars:
    - Adverse selection (information asymmetry between borrowers and lenders)
    - Exposure risk measurement
    - Default risk assessment.
- **Key Data Sources:**
  - The platform would integrate data from **central and state governments, Account Aggregators (AA)**, banks, credit information companies, and digital identity authorities.
  - This consolidation would eliminate **hindrances and streamline rule-based lending processes.**
- **Scope and Coverage:**
  - **Diverse Loan Types:** The platform's scope encompasses **digital loans beyond KCC (Kisan Credit Card)**, including dairy loans, **MSME** loans without collateral, personal loans, and home loans.
  - **Data Integration:** It will link with various services like Aadhar e-KYC, Aadhar e-signing, land records, satellite data, PAN validation, transliteration, account aggregation by account aggregators (AAs), and more.

### What are the Benefits and Outcomes?

- **Enhanced Credit Portfolio Management:**
  - The platform's data consolidation will enable **improved credit risk assessment** and efficient credit portfolio management.
- **Improved Access to Credit:**
  - Access to accurate information supports informed and **swift credit assessments**. This expansion of credit availability benefits borrowers by lowering the cost of capital access.
- **Reduced Operational Costs:**
  - The platform addresses **operational challenges such as multiple visits** and documentation requirements, leading to cost reduction for both lenders and borrowers.
    - RBI's survey indicated that **processing of farm loans took two to four weeks** and cost about 6% of the loan's total value.
- **Efficiency and Scalability:**
  - The platform's streamlined **processes lead to quicker disbursement and scalability**, resulting in a more efficient credit ecosystem.

### What is the Significance of Financial Inclusion and Access to Credit in Economic Growth?

- **Reduced Income Inequality:**
  - Financial inclusion ensures that all segments of society, including low-income individuals and marginalized groups, have **access to essential financial services**.
  - This empowers them **to save, invest, and access credit, reducing income disparities** and fostering more equitable economic growth.
- **Entrepreneurship and Innovation:**
  - Access to credit enables **aspiring entrepreneurs to start and expand** businesses.
  - This leads to increased **job creation, innovation, and economic diversification**, all of which contribute to higher **GDP (Gross Domestic Product)** growth and overall prosperity.
- **Poverty Alleviation:**
  - Financially excluded individuals **often face barriers to economic progress**.
  - Providing access to credit allows **them to invest in education, healthcare, and income-generating activities**, breaking the cycle of poverty and enhancing overall human development.

Note:



### ➤ Infrastructure Development:

- Adequate credit access is essential for funding large-scale infrastructure projects. These projects, such as transportation, **energy, and communication networks, provide the necessary backbone** for sustained economic growth.

### ➤ Rural Development:

- In agrarian economies, access to credit can **enable farmers to invest in modern agricultural practices**, leading to increased productivity and rural development. This, in turn, supports overall economic growth.

### ➤ Financial Stability:

- A well-functioning credit market contributes to financial stability by diversifying funding sources for individuals and businesses. It reduces dependence on informal lending, which can be more volatile and risky.

## Advisory Board on Banking and Financial Frauds

### Why in News?

The **Central Vigilance Commission (CVC)** has reconstituted the **Advisory Board on Banking and Financial Frauds (ABBFF)** to fortify the examination of **bank fraud cases**.

### What is the Advisory Board on Banking and Financial Frauds (ABBFF)?

#### ➤ About:

- ABBFF serves as the **first-level examination body for bank fraud cases** before they are referred to **investigative agencies like the Central Bureau of Investigation (CBI)**.
  - ABBFF is empowered to **conduct periodic fraud analysis within the financial system**.
- It offers insights and policy recommendations related to fraud prevention and management to regulatory bodies like the **Reserve Bank of India (RBI)** and CVC.

#### ➤ Composition and Tenure:

- The reconstituted ABBFF board includes the **Chairman and four other members, each contributing their expertise to fraud-related matters**.

- The Chairman and Members of ABBFF hold their positions for a **tenure of two years**.

#### ➤ Mandatory Referrals and Advisory Role:

- All public sector banks, insurance companies, and financial institutions are required to refer **fraud cases exceeding Rs. 3 crore to ABBFF before initiating criminal investigations**.
- The advice provided by ABBFF regarding criminality and malafide (acting in **bad faith or with dishonest intentions**) involvement of officials must be considered by the competent authority.
- ABBFF's purview extends to providing advisory support for cases referred by the CVC or the CBI.

#### ➤ Omission of "Sun Set Clause":

- Notably, the concept of a **"sunset clause,"** which could have **limited actions against bankers for credit decisions after a specified period**, has not been included in ABBFF's functioning.

### What is the Central Vigilance Commission (CVC)?

#### ➤ About:

- The Central Vigilance Commission was **set up by the Government in 1964 on the recommendations of the Committee on Prevention of Corruption, headed by Shri K. Santhanam**, to advise and guide Central Government agencies in the field of vigilance.
- The Parliament enacted the **Central Vigilance Commission Act, 2003 (CVC Act)** conferring statutory status on the CVC.

#### ➤ Members:

- **Central Vigilance Commissioner and not more than two Vigilance Commissioners**, who are **appointed by the President** on the recommendation of a committee consisting of the **Prime Minister, the Home Minister and the Leader of the Opposition in Lok Sabha**.
  - They hold office for a **term of four years or until they attain the age of 65 years, whichever is earlier**.

#### ➤ Functions:

- The CVC **receives complaints on corruption or misuse of office** and recommends **appropriate action**.
  - Following institutions, bodies, or a person can approach CVC:

Note:



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- The central government, **Lokpal, Whistle blowers.**
- It is not an investigating agency. The CVC either gets the investigation done through the **CBI** or through chief vigilance officers (CVO) in government offices.
- It is empowered to inquire into **offences** alleged to have been committed under the **Prevention of Corruption Act, 1988** by specific categories of public servants.

## Coking Coal

### Why in News?

Recently, collaborative endeavors between the **Ministry of Steel and the Ministry of Coal** have yielded remarkable outcomes, enhancing the **availability of domestic Coking Coal** and **significantly reducing the need for imports**.

- Domestic raw **Coking Coal production is projected to reach 140 MT by 2030**, yielding about **48 MT of usable Coking Coal** after washing.

### What are the Initiatives to Boost Domestic Coking Coal?

- **Mission Coking Coal:**
  - The Ministry of Coal embarked on "**Mission Coking Coal**" during **FY'22**, aligning with the **National Steel Policy 2017**. This strategic mission aims to significantly **curb Coking Coal imports by embracing a multifaceted approach**.
    - The National Steel Policy 2017 has set a **target to reach 300 million tonnes (MT) of annual production by 2030** from the **existing level of 120 MT**.
  - The goal is to reduce dependence through **exploration, enhanced production, technological advancements, private sector engagement**, the establishment of new washeries, and quality enhancement.
- **Auction of Coking Coal Blocks:**
  - A significant milestone was accomplished as the Ministry of Coal **allocated 16 Coking Coal Blocks**. Among these, **4 blocks were auctioned in 2022-23**. This substantial step is projected to contribute a **noteworthy 1.54 MT to Coking Coal production**.

### ➤ Reviving Abandoned Mines:

- **Bharat Coking Coal Limited (BCCL)**, a subsidiary of **Coal India Limited** has opened new avenues by inviting agencies and companies to undertake Coking Coal extraction from abandoned or discontinued BCCL-owned mines. This initiative is likely to **revive 8 identified discontinued mines**.

### ➤ Collaborative Pact with Steel Authority of India Limited (SAIL):

- SAIL and BCCL signed an MoU to supply **1.8 MT of washed Coking Coal, bolstering availability**.

### ➤ Auction for Raw Coking Coal:

- BCCL and Central Coalfields Limited (CCL), a subsidiary of Coal India Limited, organized an auction in June 2023. Tata Steel secured 50,000 tonnes of raw Coking Coal from CCL mines, underscoring the commitment to domestic sourcing.

### ➤ Encouraging Innovative Greenfield Washeries:

- The Ministry of Coal actively promotes the establishment of greenfield washeries or refurbishment of existing BCCL washeries. A diligently appointed Transaction Adviser is crafting a methodology for the refurbishment of existing washeries.

### Coking Coal

- Coking coal, also known as **metallurgical coal**, is a type of coal that is used to make **coke**, a key material for the **production of steel**.
  - Coke is used as a **fuel and as a reducing agent in smelting iron ore** in a blast furnace (converting iron oxide (hematite) into iron metal).
- Coking coal is different from other forms of coal because it has a unique caking ability that makes it **suitable for heating at high temperatures in the absence of air**.
- Coking coal is classified into four types based on its quality and performance: **hard coking coal, semi-hard coking coal, semi-soft coking coal, and pulverised coal for injection (PCI)**.

## AYUSH Sector's Growth

### Why in News?

The **Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy (AYUSH)** sector is witnessing a remarkable growth trajectory. This growth is poised to

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continue, with projections indicating a leap to **24 billion USD by the end of 2023**.

- Amidst this promising landscape, the Ayush sector is set to take centre stage at the **World Health Organization (WHO) Global Traditional Medicine Summit**.

### **What is the AYUSH Sector?**

- **About:**
  - The AYUSH sector represents India's traditional healthcare systems.
  - Indian systems of medicine are **diverse, accessible, and affordable, with broad public acceptance**, making them vital healthcare providers. Their economic value is growing, offering crucial services to a significant population.
- **Diverse Disciplines Under AYUSH:**
  - **Ayurveda:** Ancient system emphasizing holistic well-being.
  - **Yoga:** Union of body, mind, and spirit through physical postures and meditation.
  - **Naturopathy:** Natural healing using elements like water, air, and diet.
  - **Unani:** Balance restoration through herbal medicines and humoral theory.
  - **Siddha:** Traditional Tamil medicine with roots in five elements and humors.
  - **Homeopathy:** Highly diluted remedies stimulating self-healing responses.
- **Growth of AYUSH Sector:**
  - **Exponential Financial Surge:**
    - Production of AYUSH medicines and supplements has seen exponential growth.
    - Revenue surged from 3 billion USD (2014) to 18 billion USD (2020).
    - Anticipated growth to **24 billion USD in 2023 showcases its financial impact**.
  - **Integration in Healthcare:**
    - AYUSH-based health and wellness centres garner significant response.
    - 7,000 operational centers; 8.42 crore patients availed services (2022).
    - Increasing integration in modern healthcare systems.

### **What are the Schemes Related to AYUSH?**

- **National Ayush Mission.**
- **New Portals on Ayush Sector.**
- **AYUSH Entrepreneurship Programme.**
- **Ayush Wellness Centers.**
- **ACCR Portal and Ayush Sanjivani App.**

### **What is the WHO Global Traditional Medicine Summit?**

- **About:**
  - The WHO Global Traditional Medicine Summit is a pivotal event that underscores the **importance of traditional medicine in global healthcare practices**.
  - This platform brings together **experts, policymakers, researchers, and stakeholders** to discuss and shape the future of traditional medicine.
  - The **First WHO Traditional Medicine Global Summit** will take place in Gandhinagar, Gujarat, India.
  - The summit is a collaborative **effort between the WHO and the Indian Government, which holds the G20 presidency in 2023**.
- **Global Participation:**
  - Participation from more than 90 countries.
  - Gathering of diverse stakeholders representing various sectors.
- **Objectives and Focus Areas:**
  - Aimed at sharing **best practices, evidence, data, and innovations in traditional medicine**.
  - Platform to discuss the role of traditional medicine in health and sustainable development.

## **Urea Gold**

### **Why in News?**

Recently, Indian Prime Minister officially launched '**Urea Gold**' fertiliser'. It is developed by **Rashtriya Chemicals and Fertilizers Ltd (RCF)**, a leading fertilizer and chemical manufacturing company in India in the Public Sector.

### **What is Urea Gold?**

- **About:** Urea Gold is created by **infusing urea with sulfur**, creating a composite fertilizer with **37% nitrogen (N) and 17% sulfur (S)**.

Note:



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- This nutrient blend serves two primary objectives: **fulfilling sulfur requirements in Indian soils and enhancing nitrogen use efficiency (NUE).**

**Note:** Normal **urea** contains 46% of a single plant nutrient: Nitrogen or N.

#### ➤ Features:

- **Addressing Soil Deficiencies:** Indian soils frequently **lack sulfur**, an essential element particularly crucial for oilseeds and pulses.
  - By incorporating sulfur into the fertilizer composition, **'Urea Gold' aims to provide a comprehensive nutrient package**, thus catering to the specific needs of crops reliant on sulfur.
- **Enhancing Nitrogen Efficiency:** A key innovation of 'Urea Gold' is its ability to **improve nitrogen use efficiency (NUE)**.
  - The sulfur coating on urea enables a gradual release of nitrogen, leading to **prolonged nutrient availability**.
  - As a result, **plants maintain their greenness for an extended duration**. This phenomenon allows farmers to reduce the frequency of usage.
    - Farmers tend to apply urea when **they notice the leaves turning yellowish**.
- **Potential Yield Increase:** 'Urea Gold' has the potential to increase crop yields through improved nutrient utilization.
  - The **gradual release of nutrients minimizes wastage and enhances the nutrient uptake by plants**, ultimately translating into enhanced productivity.

### ***What is the Status of Urea Consumption in India?***

#### ➤ About Urea:

- Urea is a **white crystalline compound** commonly used as a **synthetic fertilizers** in agriculture.
- When applied to the soil or crops, **urea is broken down by enzymes into ammonia and carbon dioxide**.
  - The **ammonia then gets converted into ammonium ions**, which can be taken up by plant roots and used for growth and development.

#### ➤ Status of Consumption in India:

- Urea is India's most widely used fertiliser, with its consumption/sales rising from **26.7 million tonnes (mt) to 35.7 mt between 2009-10 and 2022-23**.

#### ➤ Interventions Similar to Urea Gold:

- **Neem Coated Urea:** This is a modified form of urea that is **coated with neem oil**.
  - It **reduces the leaching and volatilization losses of nitrogen**, has insecticidal and nematicidal properties, and improves the soil texture and water holding capacity.
- **Liquid Nano Urea:** This is a **nanotechnology-based fertilizer that is sprayed on leaves** and is assimilated by the plant cells.
  - It **enhances the nutritional quality and productivity of the crop**, reduces the fertilizer consumption, improves the nitrogen use efficiency, and saves the input costs.

#### ➤ Challenges:

- **Urea Imports and Feedstock Dependency:** In 2022-23, **7.6 million metric tons (mt) of urea were imported out of a total of 35.7 mt sold**, raising significant apprehensions.
  - Even **domestically produced urea heavily relies on imported natural gas**, the essential feedstock for production.
- **Nitrogen Use Efficiency (NUE) and Loss:** Around **65% of applied N is lost to various factors: ammonia gas release into the atmosphere** and nitrate leaching underground after conversion.
  - The decline in NUE has led to a **situation where farmers need to apply increasingly more fertilizer to achieve the same crop yield**.
- **Subsidy Burden:** Urea is heavily subsidized by the Indian government to ensure affordable prices for farmers.
  - However, this **subsidy has led to issues of overuse and inefficiencies in urea consumption**.
  - Farmers often apply more urea than necessary due to its low cost, which can result in imbalanced nutrient application and environmental degradation.

## **Pulses Production India**

### ***Why in News?***

Recently, the Union Minister of Agriculture and Farmers Welfare provided valuable insights in a written reply in **Rajya Sabha** regarding the comprehensive strategies being employed to enhance pulses production in India.

Note:

- The **National Food Security Mission (NFSM)-Pulses**, aimed at increasing productivity and ensuring sustainable practices in the agriculture sector was highlighted.

### What are India's Initiatives to Boost Pulses Production?

#### ➤ National Food Security Mission (NFSM)-Pulses:

##### ○ About:

- The NFSM-Pulses initiative, led by the Department of Agriculture & Farmers Welfare, operates in 28 States and 2 Union Territories including Jammu & Kashmir and Ladakh.

##### ○ Key Interventions Under NFSM-Pulses:

- Assistance to farmers through States/UTs for various interventions.
- Cluster demonstrations on improved package of practices.
- Cropping system demonstrations.
- Seed production and distribution of HYVs/hybrids.
- Improved farm machinery/tools.
- Efficient water application tools.
- Plant protection measures.
- Nutrient management/soil ameliorants.
- Processing & post-harvest equipment.
- Cropping system-based trainings.
- Distribution of seed mini-kits of newer pulse varieties.
- Technological demonstrations by **Krishi Vigyan Kendras (KVKs)**.
- Additionally, the establishment of **150 Seed Hubs for Pulses** has significantly contributed to increasing the availability of quality pulse seeds.
  - These hubs have collectively produced over 1 lakh quintals of quality pulse seeds since their inception in 2016-17.

#### ➤ ICAR's Role in Research and Variety Development:

- The **Indian Council of Agricultural Research (ICAR)** plays a pivotal role in enhancing the productivity potential of pulse crops through research and development efforts. The ICAR focuses on:
  - Basic and strategic research on pulses. Collaborative applied research with State Agricultural Universities.

- Development of location-specific high-yielding varieties and production packages.
- During the period from **2014 to 2023**, an **impressive 343 high-yielding varieties and hybrids of pulses have been officially recognized** for commercial cultivation across the country.

#### ➤ Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA) Scheme:

- This comprehensive umbrella scheme (launched in 2018) comprises three components:

- **Price Support Scheme (PSS):** Procurement from pre-registered farmers at **Minimum Support Price (MSP)**.

#### ➤ 2021-22: Around 30.31 lakh tonnes of pulses procured, benefiting over 13 lakh farmers.

#### ➤ 2022-23 (as of July 2023): Approximately 28.33 lakh tonnes of pulses procured, benefitting over 12 lakh farmers.

- **Price Deficiency Payment Scheme (PDPS):** Compensates farmers for price differences.

- **Private Procurement Stockist Scheme (PPSS):** Encourages private sector participation in procurement.

#### India's Pulses Production:

- India is the **largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world.**
- Pulses account for around **20% of the area under foodgrains** and contribute around **7-10% of the total foodgrains production in the country.**
- Though pulses are grown in **both Kharif and Rabi seasons**, **Rabi pulses contribute more than 60% of the total production.**
- **Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka** are the top five pulses-producing states.

#### The production of pulses during the last three years and in 2022-23 (as per third advance estimates) are given as under:

Year	Production (Lakh Tonnes)
2019-20	230.25
2020-21	254.63
2021-22	273.02
2022-23*	275.04

\*As per third advance estimates

Note:



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## India's Ageing Workforce

### Why in News?

Despite having the largest youth population globally, India's workforce is ageing rapidly according to an analysis of India's workforce using data from **CMIE's (Centre for Monitoring Indian Economy)**'s Economic Outlook, which is a concerning trend.

- An ageing workforce basically means that if one looks at all the employed people in India, the **share of young people is going down** while the share of those **closer to 60 years of age is going up**.

### What are the Key Highlights of the Analysis?

- **Age Groups and Workforce Composition:**
  - The analysis categorizes the workforce into **three distinct age groups** to better understand the ageing workforce trend,
    - **Aged 15-29 years:** The share of this age group in the total workforce has decreased **from 25% in 2016-17 to 17%** in the financial year 2022-23.
    - **Aged 30-44 years:** The share of individuals in this age group has also declined from **38% to 33% over the same period**.
    - **Aged 45 years and older:** This age category's share has grown significantly, **increasing from 37% to 49%**.

**Table 1: Composition of the workforce by age group (%)**

Year	Share of >15 and <30 in workforce (in %)	Share of 30 to <45 in workforce (in %)	Share of 45 years and more in workforce (in %)
2016-17	25	38	37
2017-18	23	38	39
2018-19	22	38	40
2019-20	21	37	42
2020-21	18	36	45
2021-22	18	35	47
2022-23	17	33	49
Source: CMIE's Economic Outlook and Indian Express Research			

- **Falling Employment Rates Among Youth:**
  - While the youth population has grown by 2.64 crore (from 35.49 crore in 2016-17 to 38.13 crore in 2022-23), the number of **employed individuals in this group has fallen by a staggering 3.24 crore**.

- Consequently, the employment rate for this age group has plummeted from 29% to 19% over seven years.

**Table 2: Composition of the workforce by age group (absolute numbers)**

Year	Total Employed	Total employed between 15 and 30	Total Employed between 30 and 45	Total Employed 45 and above
2016-17	41,27,19,418	10,34,17,128	15,69,29,377	15,23,72,914
2017-18	41,13,98,737	9,39,75,526	15,70,70,663	16,03,52,550
2018-19	40,61,06,308	8,77,18,559	15,58,01,007	16,25,86,742
2019-20	40,88,93,381	8,47,23,694	15,22,15,577	17,19,54,109
2020-21	38,72,14,189	7,12,90,790	14,08,07,839	17,51,15,563
2021-22	40,18,57,445	7,23,30,277	14,01,08,658	18,94,18,508
2022-23	40,58,36,970	7,10,03,678	13,52,38,752	19,95,94,541
Source: CMIE's Economic Outlook, Indian Express Research				

### ➤ Varying Impact on Different Age Groups:

- While the decline in employment rates is most pronounced among the youth, the trend extends to other **age groups as well**, albeit to a lesser extent.
- Notably, the oldest age category (45 years and above) has experienced a **relatively smaller decline in employment rates** and has actually seen an increase in the absolute number of employed individuals.

### What are the Factors

#### Contributing to an Ageing Workforce?

##### ➤ Lack of Adequate Job Opportunities:

- One of the primary reasons for the declining youth employment is the lack of sufficient job opportunities.
- The rapid growth of the youth population has not **been matched with a proportional increase in available jobs**, leading to intense competition for limited positions.

##### ➤ Skill Mismatch:

- A mismatch between the skills possessed by the youth and the skills **required by the job market can result in higher rates** of unemployment.
- The education system may not **be adequately preparing young individuals for the evolving job landscape**, leading to underemployment or unemployment.

##### ➤ Informal Sector Dominance:

- A significant portion of India's workforce is engaged in **the informal sector, which often lacks stable employment opportunities** and social security benefits.

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- Youth entering the job market may find it challenging to secure stable and formal employment, leading to instability and underutilization of skills.

➤ **Educational Attainment and Aspirations:**

- While educational attainment is rising among the youth, there may be a **disconnect between the skills acquired** through education and the skills demanded by the job market.
- Aspirations for higher-level jobs might lead to a situation where youth are willing to wait for suitable positions, contributing to a decline in youth employment.

**What are the Concerns and Implications of the Ageing Indian Workforce?**

➤ **Productivity:**

- Older employees might experience **reduced productivity due to health issues** and declining physical abilities. This could impact overall economic output.
- There may be an increased demand for healthcare services, which could strain the **healthcare system and affect both public and private spending**.

➤ **Innovation:**

- Younger workers often bring **fresh perspectives and technological savviness**, which can drive innovation in industries.
  - An ageing workforce lacks this dynamism.

➤ **Economic Growth:**

- A declining workforce can impact economic growth potential, as a smaller working-age population **contributes less to production and consumption**.
- **Sectors** that rely heavily on manual labor, such as construction and manufacturing, might face **labor shortages if younger workers are not available** to replace older ones.

➤ **Skill Shortages:**

- An aging workforce can create skill shortages, particularly in industries that require specialized knowledge.
- This can hinder **technological progress and innovation**.

➤ **Consumption Patterns:**

- Older individuals often have different consumption patterns, focusing more on **savings and essential goods**, which can impact **consumer demand and industries geared toward luxury goods**.

## **Production Linked Incentive Scheme**

### **Why in News?**

Recently, a debate has emerged over the effectiveness of India's **Production-Linked Incentive (PLI)**, an **Electronics Manufacturing scheme**, suggesting it generates import-dependent assembly jobs **rather than fostering Self-Sufficiency in manufacturing** and economic growth.

### **What is the Production Linked Incentive Scheme (PLI)?**

➤ **About:**

- The PLI scheme was **conceived to scale up domestic manufacturing capability**, accompanied by **higher import substitution** and employment generation.
- **Launched in March 2020**, the scheme **initially targeted three industries**:
  - Mobile and allied Component Manufacturing
  - Electrical Component Manufacturing and
  - Medical Devices.
- Later, it was **extended to 14 sectors**.
- In the PLI scheme, **Domestic and Foreign companies** receive financial rewards for **manufacturing in India**, based on a percentage of their revenue over up to five years.

➤ **Targeted Sectors:**

- The 14 sectors are mobile manufacturing, manufacturing of medical devices, automobiles and **auto components**, pharmaceuticals, drugs, specialty steel, telecom & networking products, electronic products, white goods (ACs and LEDs), food products, textile products, solar PV modules, advanced chemistry cell (ACC) battery, and **drones and drone components**.

➤ **Incentives Under the Scheme:**

- The incentives given, are **calculated on the basis** of incremental sales.
  - In some sectors such as advanced chemistry cell batteries, textile products and the drone industry, the incentive **to be given will be calculated on the basis of sales**, performance and local value addition done over the period of five years.

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- The emphasis on **R&D investment will also help the industry keep up with global trends** and remain competitive in the international market.

➤ **Success in Smartphone Manufacturing:**

- In FY 2017-18, mobile phone imports were USD 3.6 billion, while exports were a mere USD 334 million, resulting in a -USD 3.3 billion trade deficit.
- By FY 2022-23, imports reduced to USD 1.6 billion, while exports surged to nearly USD 11 billion, yielding a positive net exports of USD 9.8 billion.

**What are the Issues with the PLI Scheme?**

➤ **Assembly vs. Value Addition:**

- The subsidy in the scheme for Mobile and **allied Component Manufacturing** is paid **only for finishing the phone** in India, not on how much value is added by manufacturing in India, turning out that **very little apart from assembly is done** in India.
- So India still imports much of **what goes into the mobile phones**.
  - The imports of mobile phone components — including display screens, cameras, batteries, printed circuit boards — shot up between FY21 and FY23.
  - Incidentally, these are the same two years when mobile phone exports jumped the most.

➤ **WTO Constraints and Limited Value Addition:**

- WTO rules prevent India from tying PLI subsidies to domestic value addition.
- Although India's aspiration to make chips is sound, chips are complex components.
- The absence of significant domestic **value addition likely stems from these constraints**.

➤ **Vague Disbursal of Incentives:**

- While an Empowered Committee has been formed to oversee the scheme and **handle fund disbursement for different sectors**, the process of awarding incentives lacks clarity.
- There are no well-defined criteria or standardized parameters that ministries and departments use to **determine the allocation of these incentives**, raising concerns about the fairness and effectiveness of the scheme.

➤ **Lack of a Centralized Database:**

- The lack of a centralized database that **captures information like increase in production or exports**, number of new jobs created etc. make the evaluation process an **administrative complexities**.
- This information ambiguity impacts **transparency and can lead to malfeasance**, further widening the fault lines and weakening the policy structure.



Note:

# International Relations

## Highlights

- G20 Culture Ministerial Meeting and B20 Summit 2023
- 15th BRICS Summit
- 20th ASEAN-India Economic Ministers' Meeting
- India's Interest Arctic Region and the Northern Sea Route
- China Releases a Map Asserting Territorial Claims
- Challenges in Major Defence Deals with Russia
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- China and Bhutan Meet to Delimit Boundary
- Indian Pharmacopoeia Recognition in Suriname

## G20 Culture Ministerial Meeting and B20 Summit 2023

### Why in News?

Recently, the Prime Minister (PM) of India concluded the **G20** Culture Ministerial Meeting in Varanasi, Uttar Pradesh, with a consensus on safeguarding **cultural heritage highlighting** repatriation and addressing threats to assets.

- Additionally, the PM also addressed the **Business 20 (B20) India 2023 summit** in New Delhi.

### What are the Key

### Highlights of the G20 Culture Meet?

- **Acknowledgment of Threats to Cultural Heritage:**
  - The "**Kashi Culture Pathway**" document identified various **threats to cultural heritage**, including looting, illicit trafficking of cultural property, destruction of cultural sites, desecration of relics, and more.
- **Impact of Cultural Threats:**
  - These threats can lead to the irreversible loss of cultural assets, disrupt socio-cultural practices, and affect the cultural, human, economic, and social rights of people and communities.
- **Concern Over Illicit Online Trade:**
  - Culture ministers from G20 countries expressed concerns about the **rise of online platforms enabling illicit trafficking of cultural property** and emphasized the need for potential regulations to address this issue.

### ➤ Link Between Cultural Property and Organized Crime:

- Ministers highlighted the connection between the destruction and trafficking of cultural property and **organized crimes** like **money laundering, corruption, tax evasion, and terrorist financing, especially in conflict situations.**

### ➤ Unity Against Cultural Destruction:

- All participating nations united against intentional or collateral destruction of cultural heritage, particularly in conflict scenarios that hinder peace and sustainable development.

### ➤ Commitment to Living Heritage for Development:

- The G-20 nations also reaffirmed their commitment to **strengthen institutional and policy frameworks to harness living heritage** (inherited from our ancestors and passed on to our descendants) for sustainable development.

### ➤ Prime Ministers' Museum:

- The PM of India highlighted the "**Prime Ministers' Museum**" in New Delhi, which showcases India's democratic heritage and emphasized the development of the "**Yuge Yugeen Bharat**" National Museum, set to become the world's largest museum showcasing India's history and culture spanning over 5,000 years.

### What is Business 20 (B20)?

#### ➤ About:

- The B20 is the **official G20 dialogue forum involving the global business community.**

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- B20 plays a leading role in mobilizing global business leaders' perspectives on global economic and trade governance.
  - It represents the **unified voice of the entire G20 business community**.
- Each year, a **B20 Chair is appointed by the G20 Presidency**, supported by a B20 Sherpa and secretariat.
- B20's goal is to provide **actionable policy recommendations aligned with rotating presidency priorities to foster economic growth**.
- B20 operates through **Task Forces (TFs) and Action Councils (ACs) responsible for consensus-based policy recommendations**.
- These recommendations are directed towards the G20 and international organizations.
- **B20 India 2023 Theme:**
  - The theme for the B20 India is **R.A.I.S.E. This stands for Responsible, Accelerated, Innovative, Sustainable, Equitable Businesses**.
    - The vision is to collaborate with global partners in areas such as inclusive global value chains (GVCs), energy and climate change, digital transformation, financial inclusion, and the future of work.
- **B20 India Members:**
  - Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, European Union, United States, United Kingdom, Türkiye, South Africa, Saudi Arabia, Russia, and Mexico.
- **Highlights of B20 India Summit:**
  - **Caution Against Treating Countries as Markets:**
    - The PM of India cautioned global businesses to move beyond treating countries solely as markets.
    - Stressed the importance of **balancing the interests of both producers and consumers for sustaining a profitable market**.
  - **Global Supply Chain Disruptions and India's Solution:**
    - Pointed to **irreversible disruptions in global supply chains post-Covid-19 pandemic**.
    - Questioned the efficiency of such supply chains during critical times.
    - Presented India as a trustworthy solution to address disruptions in global supply chains.
  - Highlighted India's technological prowess, indicating its capacity to adopt innovative solutions and digital tools to manage and optimize supply chains.
- **Rethinking Business Approach:**
  - Advocated for a reboot of the **traditional "brand and sales" approach**.
    - Emphasised the need to **improve the purchasing power of people**.
  - Highlighted **India's success in lifting 13.5 crore people out of poverty in five years, creating a new consumer base**.
- **International Consumer Care Day:**
  - Suggested an **annual "International Consumer Care Day" to enhance trust between producers and buyers**.
    - Proposed businesses globally come together to pledge commitment towards consumers' well-being and market integrity.
- **Cryptocurrencies and AI Ethical Considerations:**
  - Addressed the emerging challenges posed by **cryptocurrencies and artificial intelligence (AI)**.
    - Highlighted the need for an integrated global framework to address concerns from all stakeholders.
  - Discussed **ethical considerations associated with AI, including algorithm bias and societal impact**.
  - Advocated for collaboration between **global business communities and governments to ensure the expansion of ethical AI**.
- **Challenges and Opportunities:**
  - Urged businesses and society to analyze decisions' impact on the planet.
  - Stressed that answers to challenges like **climate change, energy crisis, food supply chain imbalance, and cybersecurity will shape business and humanity's future**.
- **B20 Task force Recommendations:**
  - The Task Force has made four key recommendations they are
    - Global **Sustainable Development Goals (SDG) Acceleration**.
    - **Fund for financing of 'Global Public Goods'** (with initial thrust on geographically fungible SDG projects in climate, energy, biodiversity, and ocean pollution)

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- **Capacity building of domestic financial sectors** for SDGs financing
- Improving **MSME access to finance and reducing cost of capital to foster inclusive growth.**
- Financing **sustainable and resilient infrastructure with enhanced focus on healthcare, energy, and digital infrastructure.**

#### Ethical AI:

- AI that adheres to well-defined ethical guidelines regarding fundamental values, including such things as individual rights, privacy, non-discrimination, and non-manipulation.

## 15<sup>th</sup> BRICS Summit

### Why in News?

The 15<sup>th</sup> **BRICS summit** hosted by South Africa in Johannesburg, holds significant importance against the backdrop of **geopolitical changes and global economic dynamics.**

- Notably, this summit marks the first in-person gathering since 2019 due to the **Covid -19 pandemic.**
- The theme for the 15th BRICS Summit is **“BRICS and Africa: Partnership for Mutually Accelerated Growth, Sustainable Development and Inclusive Multilateralism”.**

### What are the Key

#### Highlights of the 15th BRICS Summit?

- **BRICS Expansion:**
  - BRICS marked its 15th summit by **expanding its membership from five to eleven countries**, reflecting a concerted effort to enhance its global standing.
  - **Egypt, Iran, Saudi Arabia, UAE, Ethiopia, and Argentina** joined the BRICS fold, amplifying the group's representation **across the Middle East, Africa, and South America.**
  - Full membership will take effect on January 1, 2024.
- The original BRIC members had two things in common: **large economies, and high potential growth rates.**

- The expanded BRICS-11 is a less coherent group; some are going through **crises, and others are thriving.** This could signal an expansion of the **agenda beyond economics.**

#### ➤ India's Stakes in the BRICS Summit:

- The summit is important for India, as it is the first in-person meeting since the **India-China military standoff at the Line of Actual Control.**
- After the bilateral talks between the **Prime Minister (PM) of India and President of China**, both nations have agreed to step up efforts for the **disengagement of troops and de-escalation of tensions along the LAC.**
- India played a key role in **drafting membership criteria and promoting strategic partnerships among new entrants.**
- India leverages BRICS to expand its network of allies and enhance its geopolitical influence.
- India sees BRICS as a **“non-western” rather than an “anti-western” group**, emphasizing the platform's diversity of perspectives.
- India aims to enhance **cooperation with China and Russia for the Leader's declaration.**
- The Indian PM proposed to establish a **BRICS space exploration consortium** to advance cooperation in the field of space technology and research.
- India called for BRICS collaboration under the **International Big Cat Alliance** in protecting the endangered big cats that live in their countries .
- **Geopolitical Context and Significance:**
  - The summit gains new importance as it follows the **Russian invasion of Ukraine in 2022, impacting global stability and security.**
  - BRICS discussions are perceived to carry a **“counter-western” perspective.**
  - Amidst attempts to **“isolate” Russia over the Ukraine conflict, BRICS deliberations gain importance.**
- **United Nations Reform:**
  - India and other BRICS members support comprehensive **reform of the United Nations**, including the Security Council, to make it more democratic, representative, effective and efficient.
- **Climate Change:**
  - BRICS members agreed to **address the challenges posed by climate change while also ensuring a just, affordable and sustainable transition to a low-carbon and low-emission economy.**

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- The five nations called on developed countries to lead by example and support developing countries towards such transitions.
- BRICS nations opposed trade barriers imposed by certain developed countries under the pretext of tackling climate change.

### What is BRICS?

#### ➤ About:

- BRICS is an **acronym** for the grouping of the world's leading emerging economies, namely **Brazil, Russia, India, China, and South Africa**.
- In **2001**, the **British Economist Jim O'Neill** coined the term BRIC to describe the four emerging economies of Brazil, Russia, India, and China.
- The grouping was **formalized** during the first meeting of BRIC Foreign Ministers in **2006**.
- **South Africa was invited to join BRIC in December 2010**, after which the group adopted the acronym BRICS.

#### ➤ Share of BRICS:

- The BRICS brings together five of the largest developing countries of the world, representing **41% of the global population, 24% of the global GDP and 16 % of the global trade**.

#### ➤ Chairmanship:

- The **chairmanship of the forum is rotated annually** among the members, in accordance with the acronym B-R-I-C-S.
  - India hosted the chair for the 2021 BRICS Summit.

#### ➤ Initiatives of the BRICS:

- **New Development Bank:**
  - During the **Sixth BRICS Summit in Fortaleza (Brazil) in 2014**, the leaders signed the Agreement establishing the **New Development Bank (NDB - Shanghai, China)**.
  - It has so far approved 70 infrastructure and sustainable development projects worth.
- **Contingent Reserve Arrangement:**
  - In 2014, the **BRICS governments had signed a treaty on the setting up** of the contingent reserve arrangement
  - The arrangement is **aimed at forestalling short-term balance of payments pressures**, providing mutual support and strengthening the financial stability of the BRICS nations.

#### ○ Customs Agreements:

- Customs agreements were signed to **coordinate and ease trade transport** between BRICS countries.

#### ○ Launched of Remote Sensing Satellite:

- In **August 2021**, the **five space agencies signed an agreement on the Cooperation on BRICS Remote Sensing Satellite Constellation**.
  - The constellation is made up of six existing satellites: **Gaofen-6 and Ziyuan III 02**, both developed by China, **CBERS-4**, jointly developed by Brazil and China, **Kanopus-V** type, developed by Russia, and **Resourcesat-2 and 2A**, both developed by India.

## 20<sup>th</sup> ASEAN-India Economic Ministers' Meeting

### Why in News?

Recently, the 20<sup>th</sup> **ASEAN-India Economic Ministers' meeting** was held in Semarang, Indonesia, marking a significant step in **enhancing economic cooperation** between **India and the ASEAN** member countries.

### What are the Key Highlights of the Meeting?

#### ➤ Strengthening Economic Partnership:

- The meeting underscored the shared commitment to fortify the **ASEAN-India Comprehensive Strategic Partnership**, ensuring substantial benefits for both sides.
- The ministers highlighted the importance of fostering **economic collaboration** amid the challenges posed by the **Pandemic**.
  - The bilateral trade between India and ASEAN in **2022-23 amounted to USD 131.5 billion**, constituting 11.3% of India's global trade for the same period.

#### ➤ ASEAN-India Business Council (AIBC):

- The ministers acknowledged **AIBC's** endeavors throughout 2023, including the 5th ASEAN-India Business Summit held in Kuala Lumpur in March, 2023.
  - AIBC is an organization formed by the Governments of **ASEAN and India in 2005** with the aim to foster

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**closer business linkages and provide an industry perspective** to the broadening and deepening of economic linkages between ASEAN and India.

- Recognition was given to the **concerns raised by businesses regarding Non-Tariff Barriers (NTBs)**, highlighting the growing exchanges and interactions among stakeholders from both sides.

- NTB refers to any obstacle or restriction that hinders international trade **but does not involve the imposition of a direct tariff or customs duty** on imported goods. Some examples of NTB are General or product-specific quotas, Quality conditions imposed by the importing country on the exporting countries, Unjustified Sanitary and Phyto-sanitary conditions etc.

➤ **Addressing Regional and Global Challenges:**

- Amidst the intricate landscape of regional and global challenges, the ministers engaged in discussions about the **multi-dimensional effects of the Covid-19** pandemic, climate change, financial market volatility, inflation, and geopolitical tensions.
- Key areas for cooperation were identified, such as **robust Supply Chains, Food Security**, energy security, health, and financial stability.

➤ **AITIGA Review - A Key Agenda:**

- A pivotal point of this year's meeting was the thorough review of the **ASEAN-India Trade in Goods Agreement (AITIGA)**, originally signed in 2009.
- The discussions were preceded by a **meeting of the AITIGA Joint Committee, which deliberated** on the review's roadmap.
- The Term of Reference and Work Plan for AITIGA Review Negotiations were **finalized during this process**.

➤ **Endorsement and Commencement of Review:**

- The ministers officially endorsed the review documents for AITIGA, paving the way for the **formal commencement of negotiations with predefined modalities**.
- The initiation of the AITIGA review addresses a longstanding demand from Indian businesses and promises to make the **Free Trade Agreement (FTA)** more conducive to trade and mutually beneficial.
- A quarterly schedule of negotiations was agreed upon, with the aim of concluding the AITIGA review by 2025.

- This review process is anticipated to **bring about enhancements in trade diversification** while also addressing existing trade imbalances.

### **What is the Association of Southeast Asian Nations (ASEAN)?**

➤ **About:**

- It is a **regional grouping that promotes** economic, political, and security cooperation.
- It was established in **August 1967 in Bangkok, Thailand** with the signing of the ASEAN Declaration (Bangkok Declaration) by the founding members of ASEAN, namely Indonesia, Malaysia, Philippines, Singapore and Thailand.
- Its chairmanship rotates annually, based on the alphabetical order of the English names of Member States.
- ASEAN countries have an estimated 666.19 million people and a combined **Gross Domestic Product (GDP)** of USD **USD 3.2 Trillion**.
- Commodity trade between India and ASEAN region has reached 98.39 billion in the period April 2021- February 2022. India's main trading ties are with Indonesia, Singapore, Malaysia, Vietnam and Thailand.

➤ **Members:**

- ASEAN brings together ten Southeast Asian states – Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam – into one organisation.



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## India's Interest Arctic Region and the Northern Sea Route

### Why in News?

Murmansk, popularly called the capital of the **Arctic Region** and the beginning point of the **Northern Sea Route (NSR)**, is witnessing the rising trend of **Indian involvement in Cargo traffic**.

- In the first seven months of 2023, India got a share of **35%** of eight million tonnes of cargo handled by the Murmansk port, which is about **2,000 km northwest of Moscow, Russia**.

### What is the Significance of the Arctic for India?

#### ➤ Untapped Hydrocarbon Reserves:

- The region constitutes the **largest unexplored prospective area** for hydrocarbons remaining on the earth. It is estimated that the region may hold over 40% of the current global reserves of oil and gas.
- The region has rich deposits of coal, gypsum and diamonds and also substantial reserves of zinc, lead, placer gold and quartz.
  - The Arctic can therefore **potentially address India's energy security** needs and deficiency of strategic and rare earth minerals.

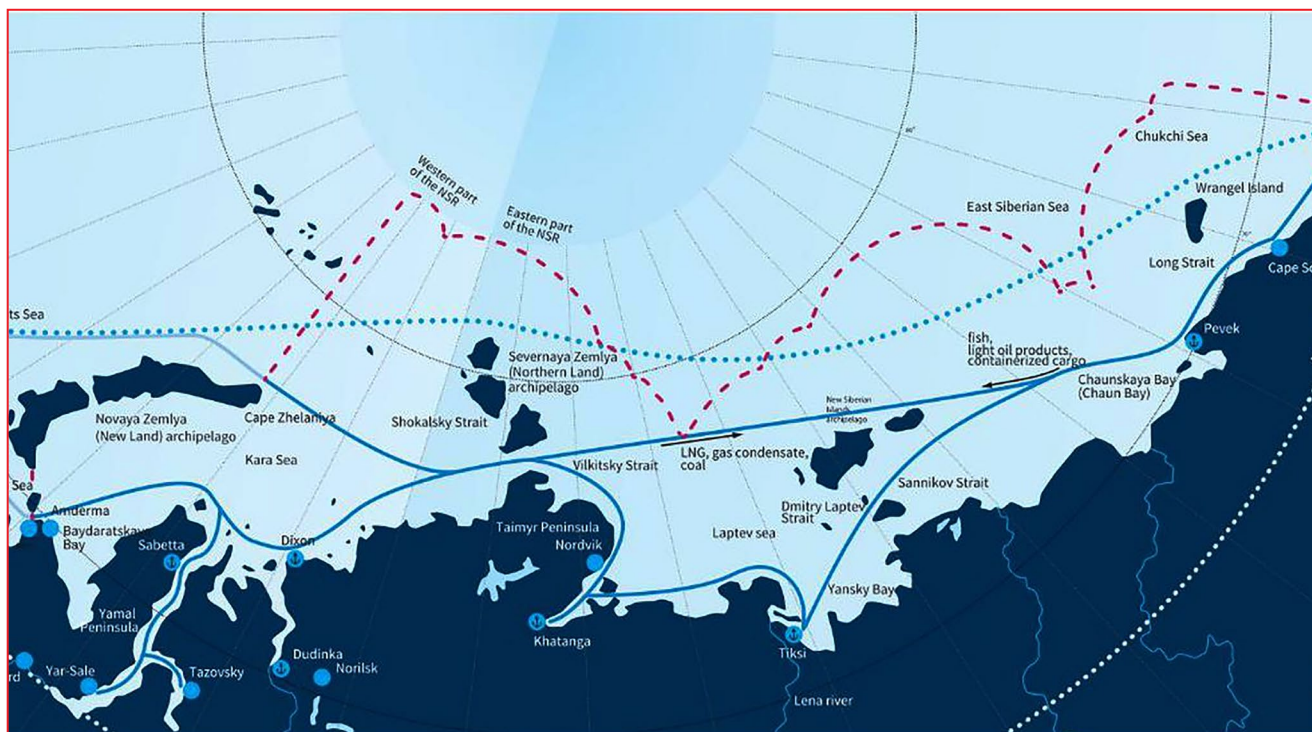
- However, the government's Arctic Policy of 2022 mentions that the country's approach to economic development of the region is guided by **UN Sustainable Development Goals**.

#### ➤ India's Historical Engagement:

- India's engagement with the Arctic dates back to the signing of the **Svalbard Treaty in 1920**.
- India has conducted various scientific studies and research in the region, focusing on **atmospheric, biological, marine, hydrological**, and glaciological studies.
- Initiatives like the Himadri research station, multi-sensor moored observatory, and northernmost atmospheric laboratory showcase India's commitment to Arctic research.
  - Becoming an observer-state of the Arctic Council in 2013 strengthened **India's Arctic presence**.

#### ➤ Geographical Significance:

- The Arctic helps circulate the world's **ocean currents**, moving cold and warm water around the globe.
- Also, Arctic sea ice acts as a huge white reflector at the top of the planet, bouncing some of the sun's rays back into space, helping keep the Earth at an even temperature.



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### ➤ Environmental Significance:

- The Arctic and the **Himalayas**, though geographically distant, are interconnected and share similar concerns.
  - The Arctic meltdown is helping the **scientific community to better understand the glacial melt in the Himalayas**, which has often been referred to as the 'third pole' and has the largest freshwater reserves after the North and South poles.
  - Therefore, the study of the Arctic is critical to Indian scientists. In line, India launched its first scientific expedition to the Arctic Ocean in 2007 and opened the **Himadri research base** in the Svalbard archipelago (Norway) and has been actively engaging in research there ever since.

### What is the North Sea Route (NSR)?

#### ➤ About:

- The NSR, the **shortest shipping route for freight transportation** between **Europe and countries of the Asia-Pacific** region, straddles the **Four Seas (Barents, Kara, Laptev and East Siberian Sea)** of the **Arctic Ocean**.
- Running to 5,600 km, the Route begins at the boundary between the Barents and the **Kara seas (Kara Strait)** and ends in the **Bering Strait (Provideniya Bay)**.
- It offers potential distance **savings of up to 50% compared to traditional routes through the Suez or Panama Canals**.
  - The **2021 Suez Canal Blockage** heightened interest in the **NSR as an alternative trade route**.

#### ➤ Russia's Role in NSR Development:

- The Arctic's icebound nature necessitates icebreaking assistance for safe navigation along the NSR. **Russia boasts the world's only nuclear-powered icebreaker fleet, ensuring year-round operation. Rosatom, the NSR infrastructure operator, oversees this fleet.**
- With Russia's ambitious plans to enhance the NSR's cargo traffic, its **nuclear icebreaker fleet remains central to the project**.

#### ➤ Driving Factors for India's NSR Engagement:

- The increasing cargo traffic along the NSR, with a growth rate of **approximately 73% during 2018-2022**, aligns with India's expanding imports of **Russian Crude Oil and coal**.

- The NSR's potential as a transit route also suits **India's trade-heavy economy**.
- The **Chennai-Vladivostok Maritime Corridor (CVMC)** project offers a **shorter and efficient trade route**, further boosting India's interest in the NSR.
- Additionally, India seeks to balance **China and Russia's potential collective influence** over the NSR.

#### ➤ Future Developments and Collaborations:

- Russia's NSR development plan aims for significant cargo traffic growth by 2035. The CVMC project, designed to link India and Russia via the NSR, holds promise for reducing transport times and enhancing trade efficiency.
- A forthcoming workshop between the two countries is expected to provide a platform for advancing the CVMC project.

## China Releases a Map Asserting Territorial Claims

### Why in News?

China's government recently unveiled the **"2023 edition of the standard map of China,"** reaffirming its territorial claims over disputed regions.

- The release of the map coincides with **China's "National Mapping Awareness Publicity Week,"** which emphasizes the significance of accurate and consistent mapping.

### What are China's Claims in the New Map?

#### ➤ Territorial Claims:

- The map incorporates **China's territorial claims**, encompassing Arunachal Pradesh and the **Aksai Chin Region**.
  - These claims have long been points of contention between China and India.
- The map also features the **"Nine-Dash Line,"** a contentious demarcation that covers the entire South China Sea and underscores Beijing's claims over this strategic maritime region.
- The map also **shows the tenth dash line** which underlines **Beijing's claims over Taiwan island**.

#### ➤ Renaming of Places:

- China's release of the **new map aligns with its previous actions**, such as standardizing the **names of places in Arunachal Pradesh**, including areas close to the state capital.

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### ➤ Digital Mapping:

- Apart from the physical map, China is set to release **digital maps for various applications**, including location-based services, precision agriculture, platform economy, and intelligent connected vehicles.

## What is the Point of Contention Between India-China Border?

### ➤ Background:

- The India-China border dispute **refers to the long-standing and complex territorial disputes** along their shared border of **3,488 kilometers**.
- The main areas of dispute are **Aksai Chin**, located in the western sector, and **Arunachal Pradesh**, in the eastern sector.
  - **Aksai Chin:** China administers Aksai Chin as part of its Xinjiang region, while India considers it part of its union territory of Ladakh. The region holds

strategic significance due to its proximity to the **China-Pakistan Economic Corridor (CPEC)** and its potential as a military route.

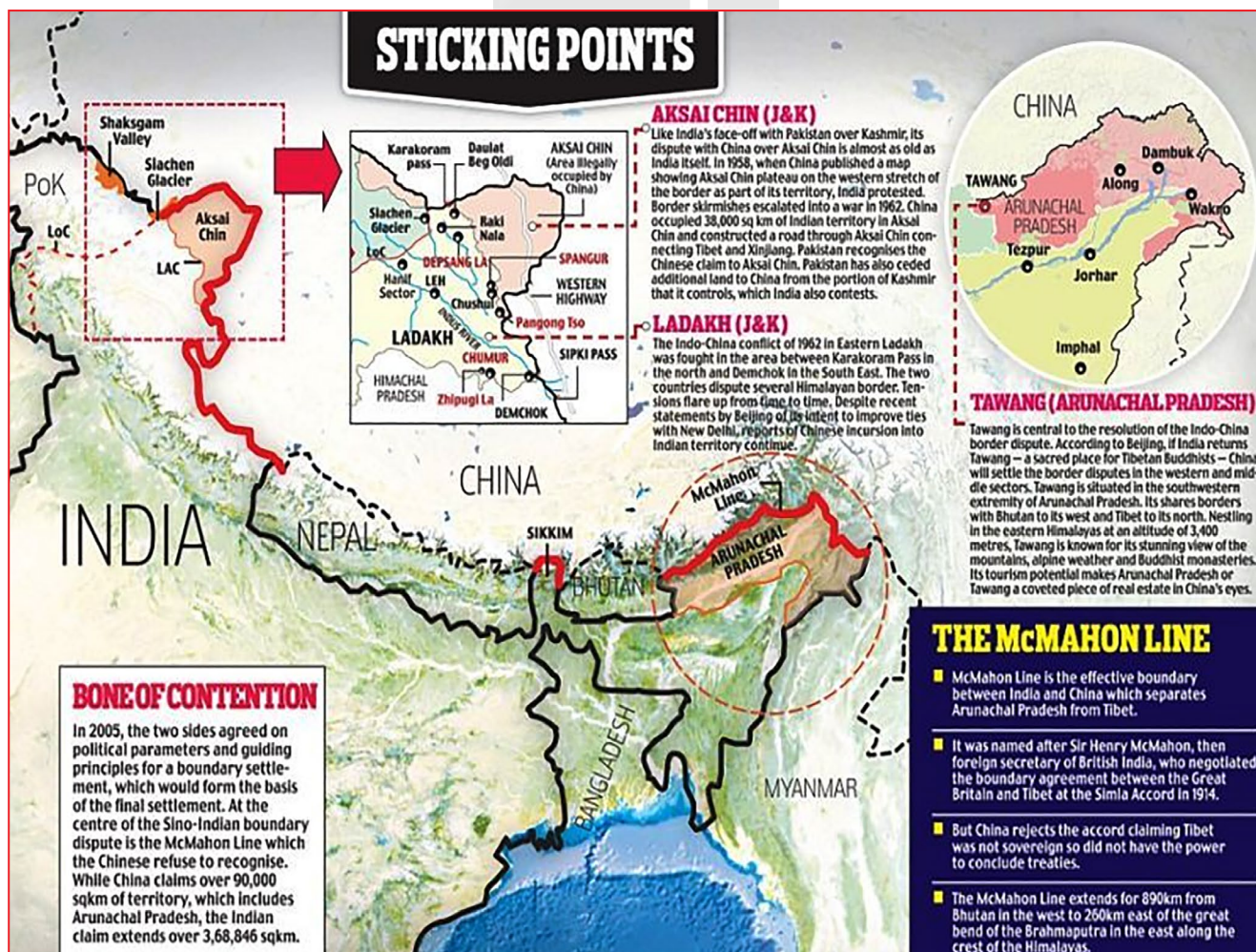
- **Arunachal Pradesh:** China claims the entire state of Arunachal Pradesh, referring to it as **"South Tibet."** India administers this region as a northeastern state and considers it an integral part of its territory.

- **No Clear Demarcation:** The border between India and China is not clearly demarcated throughout and there is no mutually agreed **Line of Actual Control (LAC)** along certain stretches.

- LAC came into existence after the 1962 Indo-China war.

- The India-China border is divided into three sectors.

- **Western Sector:** Ladakh
- **Middle Sector:** Himachal Pradesh and Uttarakhand
- **Eastern Sector:** Arunachal Pradesh and Sikkim



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➤ **Military Standoffs:**

- **1962 Sino-Indian War:** The border dispute has led to a number of military standoffs and clashes, including the **1962 Sino-Indian War**. Both countries have made efforts to manage the tensions, with various agreements and protocols aimed at **maintaining peace along the border**.
- **Recent Faceoffs:** The most serious recent episodes of conflict were in **Galwan Valley in Ladakh in 2020** and in **Tawang** in Arunachal Pradesh in 2022.
  - Observers on both sides of the border—the Line of Actual Control (LAC)—agree that the number of serious military **confrontations has increased since 2013**.

#### What have been the Border Dispute Settlement Mechanisms?

- **Shimla agreement of 1914:** To demarcate the boundary between Tibet and North East India, a convention was held at Shimla in 1914, representatives of all three i.e. Tibet, China, and British India.
  - After the discussion, the agreement was **signed by British India and Tibet but not by the Chinese officials**. Presently **India recognizes but China rejected both the Shimla agreement and the McMahon line**.
- **Panchsheel Agreement of 1954:** The Panchsheel doctrine clearly indicated the willingness to '**Respect each other's sovereignty and territorial integrity**'.
- **The Agreement on the Maintenance of Peace and Tranquility:**
  - It was signed in 1993, which called for a renunciation of the use of force, recognition of the LAC, and the resolution of the border issue through negotiations.
    - The Agreement on Confidence Building Measures in the Military Field along the LAC:
  - It was signed in 1996, which laid down pledges on non-aggression, prior notification of large troop movements, and exchange of maps to resolve disagreements over the LAC.
    - The Border Defence Co-operation Agreement:
  - It was signed in 2013 following the Depsang Valley incident.

#### What are the Implications of China's New Map on India?

➤ **Territorial Assertion:**

- By incorporating disputed territories into its official map, China is **reinforcing its territorial claims, challenging India's sovereignty over Arunachal Pradesh and Aksai Chin**, and escalating the border dispute.

➤ **Diplomatic Tensions:**

- China's actions can lead to **diplomatic tensions between the two countries**. India has consistently rejected China's territorial claims and will **likely respond with reaffirmations of its own claims**.

➤ **Impact on Bilateral Relations:**

- It can strain **India-China relations**, affecting cooperation in various areas, including **trade, investment, and people-to-people exchanges**.

➤ **Regional Balance:**

- The border dispute has implications for the **broader regional balance of power**. It can influence India's strategic alignment with other countries and regional groupings to counter China's influence.

#### How Should India Tackle China's Territorial and Regional Assertiveness?

➤ **Diplomacy and Dialogue:**

- Continue engaging in diplomatic talks with China through established mechanisms like the **Special Representative talks and Working Mechanism for Consultation and Coordination (WMCC)** on India-China border affairs.
- Emphasize peaceful resolution, adherence to **bilateral agreements, and the importance of maintaining peace and stability** along the border.

➤ **Strengthen Border Infrastructure:**

- Invest in improving border infrastructure, **including roads, bridges, airstrips, and communication networks**, to enhance mobility and response capabilities for Indian forces.
- Develop **logistics hubs and forward bases** to ensure swift deployment of troops and supplies in the border regions.

➤ **Enhance Military Preparedness:**

- Invest in modernizing the **armed forces with advanced equipment**, technology, and surveillance capabilities to effectively monitor and respond to any border incidents.

Note:



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- Focus on enhancing the training and readiness of troops stationed in border areas.
- **Regional and Global Partnerships:**
  - Strengthen partnerships with **like-minded countries and regional organizations** that share concerns about China's assertiveness in territorial disputes.
  - Collaborate on **intelligence-sharing, joint military exercises**, and coordinated responses to regional challenges.
- **Economic and Trade Measures:**
  - Diversify economic ties to **reduce dependence on China** and enhance economic resilience.
- Explore trade agreements and partnerships with countries that can provide alternative markets and investment opportunities.
- **International Forums:**
  - Raise the border issue at international **forums to garner support for a peaceful resolution** based on international norms and principles.
  - Uphold international norms and principles related to territorial integrity and dispute resolution mechanisms.
  - Continue to engage with international legal experts to present India's case on the border issue.

## Challenges in Major Defence Deals with Russia

### Why in News?

Major defence deals between India and Russia, particularly the **S-400 Deal**, are facing uncertainties due to various factors including the ongoing **War in Ukraine** and payment challenges.

- The S-400 deal involves the **procurement of advanced air defense systems** from Russia. Three out of the contracted five **S-400 regiments have been delivered** as part of a deal signed in 2018.



### What are the Challenges Faced by the Defense Deals?:

- **S-400 Deal Complexities:**
  - The S-400 deal has faced complications, including concerns about U.S. sanctions **Countering America's Adversaries Through Sanctions Act (CAATSA)** and delays in milestone payments.

Note:



- The war in Ukraine has compounded challenges in executing the deal.

➤ **Payment Crisis:**

- An estimated USD 3 billion payments are **currently held up due to payment challenges**. Efforts to resolve this crisis through a **Rupee-Rouble Arrangement have not been successful** due to trade imbalances and accumulating Rupees on the Russian side.
- Due to **Russia's Exclusion** from the **Society for Worldwide Interbank Financial Telecommunication (SWIFT) system**, India and Russia had adopted a Rupee-Rouble payment mechanism to settle payments for defence deals.
- While small payments have resumed, larger payments remain stuck, creating challenges in **completing ongoing and future deals**.

➤ **Delays in S-400 Deliveries and Frigates:**

- While three regiments have been delivered, the delivery of the **remaining two regiments is delayed**. The revised schedule remains **uncertain until payment issues are resolved**.
- Delivery of two **Krivak-Class Stealth Frigates** under construction in Russia for the **Indian Navy** is further delayed.

### **How is the Defence Trade**

#### **Dynamics Between India and Russia?**

➤ **Buyer-Seller Framework to Joint Research:**

- India-Russia military-technical cooperation has **evolved from a buyer-seller framework to one involving joint research**, development and production of advanced defence technologies and systems.

➤ **Joint Military Programmes:**

- **BrahMos cruise missile programme**
- 5<sup>th</sup> generation fighter jet programme
- Sukhoi Su-30MKI programme
- Ilyushin/HAL Tactical Transport Aircraft
- KA-226T twin-engine utility helicopters
- Some frigates

➤ **Military Hardware:**

- The military hardware purchased/leased by India from Russia includes:
  - **S-400 Triumf**
  - **Kamov Ka-226 200 to be made in India under the Make in India initiative**

- **T-90S Bhishma**
- **INS Vikramaditya aircraft carrier programme**

➤ **Submarine Programmes:**

- Russia also plays a very important role in **assisting the Indian Navy** with its submarine programmes:
  - Indian Navy's first submarine, **'Foxtrot Class'** came from Russia
  - **INS Vikramaditya**, the sole aircraft carrier operated by India, is of Russian origin.
  - India operates nine of the fourteen conventional submarines sourced from Russia.

➤ **Recent Development:**

- Between 2018 and 2021, defence trade between India and **Russia amounted to approximately USD 15 billion**, encompassing significant deals including **S-400, frigates, AK-203 assault rifles**, and emergency procurements.
- The defence trade relationship has been influenced by geopolitical dynamics, including the Balakot air strike in 2019 and the standoff with **China in Eastern Ladakh in 2020**.

#### **What is Russia's S-400 Deal?**

➤ **About:**

- Russia's S-400 deal refers to the procurement of the **S-400 Triumf, a highly advanced mobile Surface-to-Air Missile (SAM) system**.
- In October 2018, India signed a **5.43 billion USD deal with Russia for the S-400 Triumf missile system** despite objections from the US and the threat of sanctions under **Countering America's Adversaries Through Sanctions Act (CAATSA)**.

➤ **Features:**

- The system can engage all types of aerial targets including aircraft, unmanned aerial vehicles (UAV) and ballistic and cruise missiles within the range of 400km, at an altitude of up to 30 km.
- The system can track 100 airborne targets and engage six of them simultaneously.

## **India-Bangladesh Relations**

### **Why in News?**

The **14<sup>th</sup> Joint Group of Customs (JGC) meeting** between **India and Bangladesh** was convened recently, in New Delhi.

Note:



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- The India-Bangladesh Joint Group of Customs meetings serves as a critical platform for fostering **collaboration on customs-related matters** and **enhancing the facilitation of cross-border trade**.

### What are the Key

#### Outcomes of the 14<sup>th</sup> JGC Meeting?

- **Expansion of Land Customs Stations:** The meeting deliberated on the **establishment of new land customs stations**, which play a pivotal role in facilitating cross-border trade.
  - The meeting explored the possibility of entering into a bilateral agreement on customs cooperation, which could serve as a comprehensive framework for future collaboration.
- **Easing Port Restrictions:** The discussion revolved around measures to **simplify port restrictions**, thereby enhancing the overall efficiency of port operations and reducing trade barriers.
  - India expressed appreciation for Bangladesh's completion of trial runs and the subsequent notification for operationalizing the **Agreement on Use of Chattogram and Mongla Ports (ACMP)**, as agreed upon in the 13th JGC meeting.
- **Electronic Connectivity of Transit Modules:** Discussions were initiated concerning the **electronic connectivity of the respective transit modules of ACMP**, signifying a step toward efficient digital collaboration.
- **Pre-Arrival Customs Data Exchange:** Both parties engaged in talks regarding the **pre-arrival exchange of customs data**. This step aims to expedite the customs clearance process by enabling authorities to prepare in advance.

### What are the Major Areas of Cooperation Between India and Bangladesh?



### About:

- India was the **first country to recognise Bangladesh as a separate and independent state** and established diplomatic relations with the country immediately after its **independence in December 1971**.
- India's links with Bangladesh are **civilisational, cultural, social and economic**.
  - Bangladesh's geographical location as **India's eastern neighbor** gives it strategic importance.
  - It provides India with **access to the Bay of Bengal and an important route for trade and connectivity with Southeast Asia**.
- **Economic Cooperation:**
  - **Bangladesh is India's biggest trading partner in the subcontinent**. India's export to Bangladesh stood at **USD 8 billion during April –November 2022**.
    - India enabled the **export of cargo from ICDs within India to Bangladesh through inland waterways**.
    - Also, the transshipment of containerized export cargo **from Bangladesh to third countries through India** gained a streamlined process.
      - Utilizing both riverine and land routes, this measure reinforces trade routes and opens up new possibilities for cargo movement.
    - India has provided **duty free quota free access to Bangladesh** on all tariff lines except tobacco and alcohol under **South Asian Free Trade Area (SAFTA)** since 2011.
    - Bangladesh and India in **July 2023** launched a **trade transaction in rupees**, a move aimed at **reducing dependence on the US dollar** and strengthening regional currency and trade.

**Note:** According to the **India Tourism Statistics Report 2022 of Ministry of Tourism**, Bangladesh has been the second largest amongst tourist generating markets for India in the year 2021.

### Defence Cooperation:

- India and Bangladesh share 4096.7 km. of border; the **longest land boundary that India shares with any of its neighbors**.
  - Assam, West Bengal, Mizoram, Meghalaya, and Tripura share borders with Bangladesh.
- The two also conduct Joint Exercises- **Army (Exercise Sampriti)** and **Navy (Exercise Bongosagar)**

Note:

- **Energy and Connectivity:**
  - The **India-Bangladesh Friendship Pipeline** connecting **Siliguri in West Bengal and Parbatipur in Dinajpur district of Bangladesh**, will transport **one million Metric Tonnes Per Annum (MMTPA)** of High-Speed Diesel to Bangladesh.
    - India and Bangladesh have been cooperating in developing cross-border infrastructure projects, such as the **Akhaura-Agartala rail link** and **Maitri Setu**.
- **Multilateral Cooperation:**
  - India and Bangladesh are also engaged in regional cooperation through multilateral forums such as **SAARC (South Asian Association for Regional Cooperation)**, **BIMSTEC (Bay of Bengal Multi-Sectoral Technical and Economic Cooperation)** and **Indian Ocean Rim Association (IORA)**.

### ***What are the Current Major Issues Between India and Bangladesh?***

- **Sharing of Transboundary River Waters:** India and Bangladesh share 54 common rivers, but only two treaties have been signed so far of **Ganga Waters Treaty** and **The Kushiara River Treaty**.
  - The other major rivers, such as the **Teesta and Feni** are still under negotiation.
- **Illegal Migration:** Illegal migration from Bangladesh to India, **involving refugees and economic migrants, remains a pressing issue**.
  - This influx strains Indian border states, impacting resources and security. The problem intensified with **Rohingya refugees** entering India through Bangladesh.
  - The **National Register of Citizens (NRC)**, aimed at curbing such migration, has raised concerns in Bangladesh.
- **Drug Smuggling & Trafficking:** There have been many incidences of **cross border drug smuggling & trafficking**. Humans (especially children & women) are trafficked & various animal & bird species are poached through these borders.
- **Growing Chinese Influence in Bangladesh:** At present, Bangladesh is an active partner in the **Belt and Road Initiative (BRI)** (India is not a part of BRI).
  - China's increasing involvement with Bangladesh could potentially undermine India's regional standing and impede its strategic aspirations.

## **India and Greece Relations**

### ***Why in News?***

Recently, India and Greece have taken a significant step by upgrading their relationship to a strategic partnership. The partnership aims to **double trade, enhance defence and security collaboration, and address shared challenges**.

- On this occasion, the Greek President Katerina Sakellaropoulou conferred the Prime Minister (PM) of India with **"The Grand Cross of the Order of Honour"**.
- The Indian PM paid tribute at the **'Tomb of Unknown Soldier'** in Athens.

### ***What are the Main Areas of Cooperation Under the Strategic Partnership?***

- **Defence and Security:**
  - India and Greece agreed to **intensify their defence and security cooperation**, especially in maritime security, **counter-terrorism, cyber security, and the defence industry**.
  - Decided that there should also be an **India-Greece dialogue framework at the level of National Security Advisors (NSAs)**.
- **Maritime Security and Adherence to International Law:**
  - As leaders of two **ancient sea-faring nations with a long-standing maritime outlook**, they shared their vision of a **free, open and rules-based Mediterranean Sea and Indo-Pacific**, in accordance with the law of the sea, in particular the provisions of the **United Nations Convention on the Law of the Sea (UNCLOS)** and with full respect for the **sovereignty, territorial integrity, and freedom of navigation to the benefit of international peace, stability and security**.
- **Culture and Tourism:**
  - Both leaders **welcomed efforts to promote exchanges in all forms of art**.
  - They also agreed to encourage joint efforts in preserving and protecting ancient sites and **strengthen cooperation within the United Nations Educational, Scientific and Cultural Organization (UNESCO)**.
- **Trade and investment:**

Note:



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- The two countries also aimed to **double bilateral trade by 2030**. They agreed to explore new opportunities in sectors such as renewable energy, infrastructure, pharmaceuticals, agriculture, and innovation.
- **Mobility and Migration Partnership Agreement (MMPA):**
  - Both leaders agreed that an early finalization of an MMPA would be mutually beneficial, facilitating in particular the **free movement of the workforce between the two countries**.
- **Broad Spectrum of Collaboration:**
  - Discussions span various domains, including digital **payments, shipping, pharmaceuticals, and education**.

### ***What is the Tomb of the Unknown Soldier?***

- The Tomb of the Unknown Soldier is a **war memorial located in Syntagma Square in Athens, Greece**.
- It is dedicated to **Greek soldiers who lost their lives in various wars**.
- The tomb serves as a symbol of remembrance and honour for the sacrifices made by anonymous soldiers.
- It was sculpted between **1930 and 1932 by sculptor Fokion Rok**.



### ***What is the Grand Cross of the Order of Honour?***

- The Grand Cross of the Order of Honour is the **second-highest civilian honour in Greece, after the Grand Cross of the Order of the Redeemer**.

- The award was established in 1975 and features the **head of goddess Athena on its front side**, along with the inscription **"ONLY THE RIGHTEOUS SHOULD BE HONORED"**.
- The award is given to individuals who have distinguished themselves in the fields of politics, diplomacy, culture, science, or social service, and who have promoted the interests and values of Greece.

### ***How are India's Relations with Greece?***

- **Historical Linkages:**
  - India's contacts with Greece began over 2500 years ago.
  - **Alexander the Great's campaign** in the 4th century BCE, which reached the **north-western part of the Indian subcontinent**.
  - Diplomatic, trade, and cultural relations between India and Greece were mentioned in **Ashoka's edicts**.
  - Trading between the **Mauryan Kings** and Greece is evidenced by coinage and writings.
  - **Chanakya**, in Chandragupta's Court, records in **Arthashastra** about the Yavan Ambassador in the Kings' court named Megasthenes.
  - **Gandhara art**, which flourished in the region of present-day Pakistan and Afghanistan, is believed to be a result of Indian and Greek influences.
- **Commercial Relations:**
  - Bilateral trade between India and Greece **stood at USD 2 billion in 2022-23**.
  - India mainly exports **aluminum, organic chemicals, fish and crustaceans and iron and steel** to Greece, among other things.
  - Meanwhile, Greece's top exports to India are **minerals fuels, mineral oils and products, sulphur and aluminium foil**.
  - India Participated as 'Honoured Country' in the **84th Thessaloniki International Fair(TIF), 2019**, the largest annual commercial exposition of Greece.
- **Political Relations:**
  - Diplomatic relations were established between India and Greece in May 1950. Greece opened its embassy in Delhi in 1950 and India opened its embassy in Athens in 1978.

Note:



- Greece has been marked by consistent support to each other on issues of core national interest, such as **Kashmir and Cyprus**.
- Greece is also favouring **United Nation Security Council (UNSC)** expansion, with India as a permanent member.
- **Defence Relations:**
  - India and Greece's Defence Cooperation accelerated in 1998, which envisages cooperation in areas such as military training, joint exercises, defence industry collaboration, etc.
  - Indian Air Force participation in **EXERCISE INIOCHOS-23**.
- **Culture:**

- Dimitrios Galanos, a Greek, became the first European Indologist and spent 47 years in **India translating many Hindu texts into Greek** and compiled a **Sanskrit-English-Greek dictionary of over 9000 words**.
  - A "**Dimitrios Galanos**" Chair for Hellenic Studies was established at Jawaharlal Nehru University in New Delhi, India in September 2000.
- The Indian Council for Cultural Relations has been offering an **annual scholarship for Greek students to study in India**.
- Prof. Nicholas Kazanas, a distinguished Greek Indologist, was declared as one of the awardees of the prestigious **Padma Shri award** on the occasion of the 72nd Republic Day of India in 2021.

#### Key Facts about Greece:

- Greece is a country in southern Europe with a long coastline on the **Mediterranean Sea**. It is bordered by **Albania, North Macedonia, Bulgaria, and Turkey**.
- Greece is one of the **oldest civilizations in the world and is considered the cradle of Western civilization**. It is the birthplace of **democracy, philosophy, theater, and the Olympic Games**.
- **Government:** Parliamentary Republic.
- **Capital:** Athens, National
- **Language:** Greek
- **Currency:** Euro
- **Major Mountains Ranges:** Pindus and the Taurus mountains.
- The longest river in Greece is the river **Haliacmon**.
- Greece's highest mountain is Mount Olympus.



Note:

# Aviation Cooperation Between India and New Zealand

## Why in News?

Recently, India and New Zealand signed a Memorandum of Understanding (MoU) to boost cooperation in **civil aviation**.

- Furthermore, a meeting took place between the **Agriculture Ministers of both countries**, where they not only reaffirmed their commitment to **boost agricultural collaboration** and invited India to join the **Global Research Alliance(GRA)**.



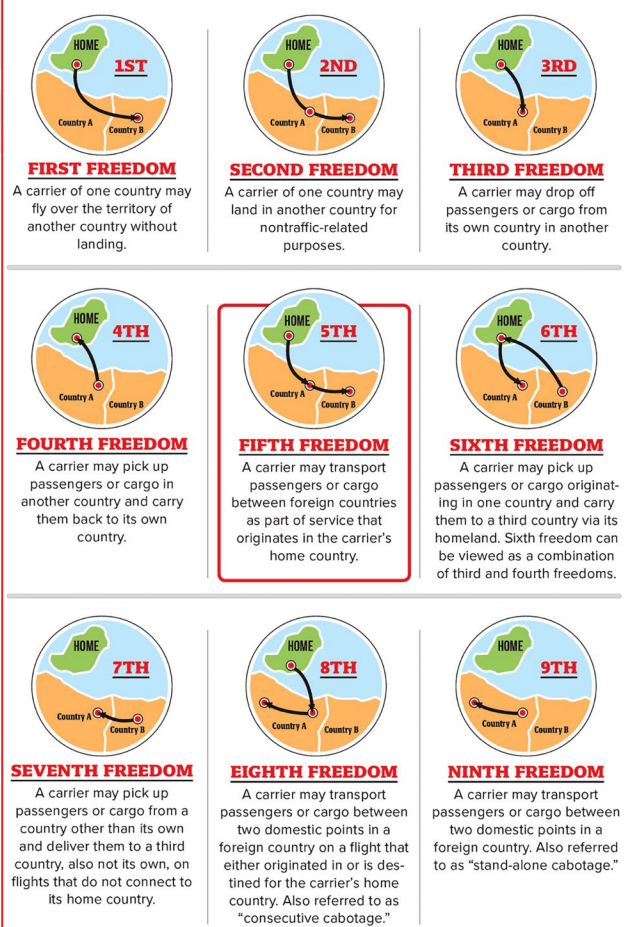
## What are the Key Highlights of MoU on Civil Aviation?

- Building upon an **Air Services Agreement, 2016**, the MoU aims to **further strengthen the aviation partnership between India and New Zealand**.
- The cooperation in civil aviation includes **scheduling new routes, codeshare services, traffic rights, and capacity entitlement**.
- Both **India and New Zealand enjoy the privilege of exercising third and fourth freedom traffic rights**, enabling them to conduct unlimited services using any type of aircraft.
  - New Zealand's airlines **can operate to/from six destinations in India**, while Indian airlines can serve Auckland, Wellington, Christchurch, and three additional points in New Zealand, as determined by the Government of the Republic of India.

- Airlines from both countries **can freely operate unlimited cargo services using any type of aircraft**, with the right to stop at **intermediate points** and **extend their services to destinations beyond**, without being restricted by specified route points.

## Freedom Traffic Rights in Aviation

- Freedom traffic rights refer to the **rights granted to airlines by international agreements or treaties to operate air services between countries**.
- These rights outline the extent to which airlines can fly into and out of a country, including the number of flights, routes, and destinations they can serve.
- There are different levels or "freedoms" of traffic rights, **ranging from the first freedom (the right to overfly a country without landing) to the ninth freedom (cabotage, which allows foreign airlines to operate domestic flights within another country)**.
- These rights are negotiated and agreed upon in bilateral or multilateral air service agreements between nations.



Note:



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### Global Research Alliance

- The GRA is an **international organization** that brings countries together to find ways to grow **more food without growing greenhouse gas emissions**.
- The **GRA was launched in 2009 by New Zealand** and has since grown to include 67 member countries (**India is not a member**).
- The GRA goal is to reduce the **emissions intensity of agricultural production systems** and increase their potential for **soil carbon sequestration**.
- The GRA focuses on three main agricultural sub-sectors: **paddy rice, croplands, and livestock**.
  - It also coordinates **cross-cutting activities such as inventories and nationally determined contributions (NDCs), soil carbon and nitrogen cycling, and integrative research**.

## China and Bhutan Meet to Delimit Boundary

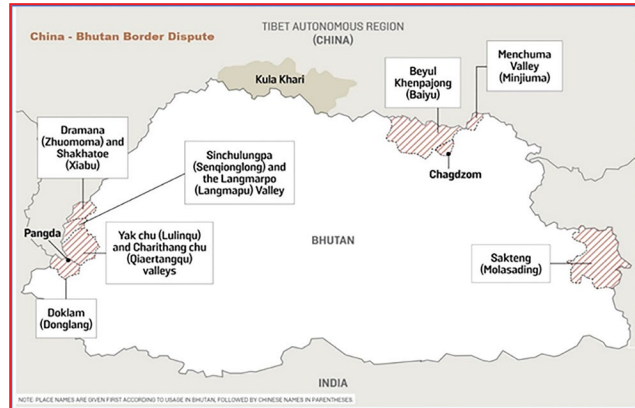
### Why in News?

Recently, **China and Bhutan held the 13th Expert Group Meeting (EGM)** in Beijing, focusing on boundary delimitation. The meeting marked the establishment of a **Joint Technical Team on the Delimitation of the China-Bhutan Boundary**.

- As both nations aim to expedite boundary resolution, this move holds implications for the broader regional context, including India.

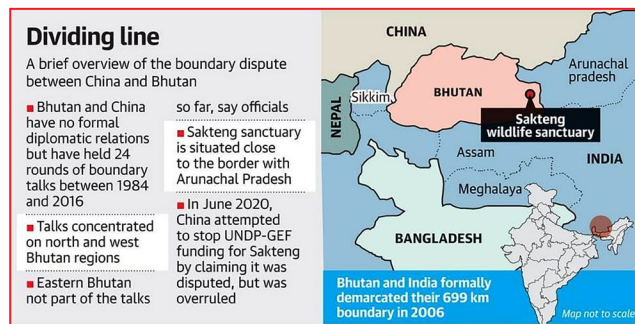
### What are the Key Highlights of the 13<sup>th</sup> Expert Group Meeting Meeting?

- Both nations expressed their commitment to **expedite efforts towards achieving a resolution on the disputed boundary**.
- Plans were laid out for the upcoming **14th round of boundary talks to maintain the encouraging pace**.
- The meeting addressed the implementation of the **Three-Step Road Map**, reflecting the commitment to follow the **outlined strategy for expediting boundary negotiations**.



### How Recent Developments in China-Bhutan Relations Concerning India?

- Recent developments of China and Bhutan could affect India's strategic interests, especially in the **Doklam tri-junction, where India, Bhutan, and China meet**.
- China has also revived its claim to the eastern region of Bhutan, known as **Sakteng (Wildlife Sanctuary)**, which **borders the Indian state of Arunachal Pradesh**.
  - **China considers Arunachal Pradesh as part of its territory** and calls it "**South Tibet**". China's claim to Sakteng could be seen as a pressure tactic to force Bhutan to accept its terms on the boundary issue, as well as to challenge India's sovereignty over Arunachal Pradesh.
- **Bhutan is one of India's closest allies** in the region, and India has long provided economic and military support to Bhutan. However, in recent years, China has been increasing its economic and diplomatic ties with Bhutan, which could potentially weaken India's influence in the region.



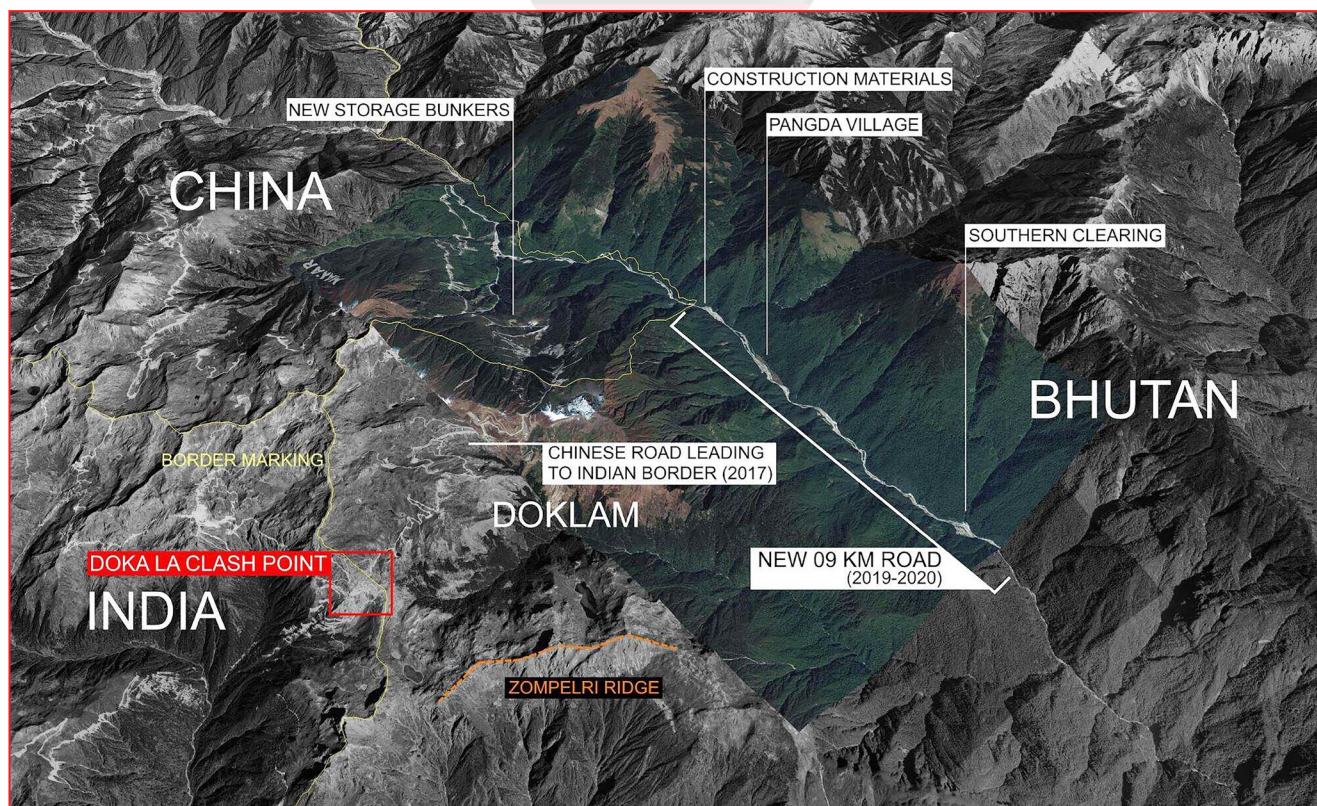
### How have been India's Relations with Bhutan?

- **Historical and Cultural Ties:**
  - India and Bhutan share a common cultural heritage, rooted in **Buddhism, Hinduism, and other traditions**.

Note:



- A number of **Bhutanese pilgrims travel to Bodh Gaya, Rajgir, Nalanda, Sikkim, Udayagiri, and other Buddhist sites in India.**
- Bhutan was one of the first countries to recognize India's sovereignty and independence in 1947 and has supported its development and modernization ever since.
- **Strategic and Security Cooperation**
  - India and Bhutan signed a **Treaty of Friendship in 1949, which was revised in 2007**, to establish **peace and non-interference in each other's internal affairs.**
  - India has provided Bhutan with assistance in areas such as defence, infrastructure, and communication, which has helped to maintain Bhutan's sovereignty and territorial integrity.
    - In 2017, during the **Doklam standoff between India and China**, Bhutan played a crucial role in allowing Indian troops to enter its territory to resist Chinese incursions.
- **Economic and Development Partnership:**
  - The **India-Bhutan Agreement on Trade, Commerce, and Transit** (signed in 1972 and revised in 2016) establishes a **free trade regime between the two countries.**
- **India is Bhutan's largest trading partner.** India also provides economic aid and assistance to Bhutan's socio-economic development, especially in the sectors of agriculture, irrigation, infrastructure, energy, health, education, and culture.
- **India's top exports to Bhutan** are petrol & diesel, passenger cars, rice, wood charcoal, cellphones, soya-bean oil, excavators, electric generators and motors, parts for turbines, and transport vehicles.
- **India's top imports from Bhutan** are electricity, betel nut, oranges, semi-finished products of iron or non-alloy steel, boulders, etc.
- India is the leading source of investments in Bhutan, comprising 50% of the country's total FDI.
- **Hydropower Cooperation:**
  - This hydropower cooperation comes under the 2006 Agreement on Cooperation in Hydropower.
    - **India has agreed to assist Bhutan in the development of a minimum of 10,000 MW** of hydropower and import of surplus electricity from the same by 2020.
  - **Four hydroelectric projects (HEPs)- Chhukha, Kurichu, Tala, and Mangdechhu** totaling 2136 MW are already operational in Bhutan and are supplying electricity to India.



Note:



- Two HEPs **Punatsangchhu-I and, Punatsangchhu-II** in **Inter-Governmental mode** are under various stages of implementation

#### ➤ **Multilateral Partnership:**

- Both of them share multilateral forums such as **South Asian Association for Regional Cooperation (SAARC)**, **BBIN (Bangladesh, Bhutan, India, and Nepal)**, **BIMSTEC (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation)** etc.

#### ➤ **People-to-People Contacts:**

- **About 50,000 Indian citizens are working in Bhutan**, mainly in the construction sector, education and technical consultants involved in infrastructure projects.
- India is the most popular educational destination for Bhutanese students.
- **India and Bhutan also exchange cultural delegations**, artists, scholars, exhibitions, festivals, etc. to promote cultural understanding and appreciation.

### ***What are the Challenges in the India-Bhutan Relations?***

- China's increased presence in Bhutan, especially along the **disputed border, raises alarms in India due to strategic implications.**
- India and Bhutan share a 699 km border, **mostly peaceful, but recent Chinese border incursions, like the 2017 Doklam standoff**, have caused tensions among India, China, and Bhutan, potentially affecting India-Bhutan relations.
- Bhutan's economy relies heavily on hydropower, with India playing a crucial role in its development. Concerns in Bhutan about terms of **some projects favoring India have led to public opposition.**
- India is Bhutan's largest trading partner and source of tourists. However, there have been some frictions over trade and tourism policies between the two countries.
  - For instance, **Bhutan has expressed concerns over the environmental impact of trade and tourism on its fragile ecology and culture** and proposed to **levy entry charges on Indian tourists.**
- According to **All India Surveys of Higher Education (AISHE)**, the **number of Bhutanese students receiving tertiary education in India declined** to just 3.8% of all international students from 7% a decade ago.

## **Indian Pharmacopoeia Recognition in Suriname**

### ***Why in News?***

Recently, a Memorandum of Understanding (MoU) has been signed between the **Indian Pharmacopoeia Commission (IPC)** and the Ministry of Health of Suriname, aiming to recognize the **Indian Pharmacopoeia (IP)** as a standard for medicines in Suriname.

- The signed MoU exemplifies the **mutual commitment of India and Suriname** to collaborate closely in the **realm of medicine regulation.**
- This collaboration is rooted in the recognition of the importance of adhering to respective laws and regulations **while ensuring the quality of medicines in both countries.**

### **What is the Indian Pharmacopoeia Commission (IPC)?**

- IPC is an **Autonomous Institution** of the Ministry of Health and Family Welfare.
- IPC is created to **set standards of drugs in India.** Its basic function is to regularly **update the standards of drugs** commonly required for treatment of diseases prevailing in this region.
- It publishes **official documents for improving Quality of Medicines** by way of adding new and updating existing monographs in the form of **Indian Pharmacopoeia (IP).**
- It further **promotes rational use of generic medicines** by publishing **National Formulary of India.**
- IP prescribes standards for identity, purity and strength of drugs essentially required from the health care perspective of human beings and animals.
- IPC also provides **IP Reference Substances (IPRS)** which act as a fingerprint for identification of an article under test and its purity as prescribed in IP.

### ***What are the Key Highlights of the MoU?***

- **Acceptance of Indian Pharmacopoeia (IP):**
  - The MoU solidifies the **acceptance of the IP as a comprehensive** book of standards for medicines in Suriname.

Note:



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➤ **Streamlined Quality Control:**

- The requirement for duplicate testing of medicines **within Suriname is eliminated through the acceptance of the Certificate of Analysis** issued by **Indian Manufacturers** adhering to the IP standards.
- This streamlining reduces **redundancy, saving time and resources**.

➤ **Cost-effective Standards:**

- The MoU facilitates access to **IP Reference Substances (IPRS)** and Impurity standards from the IPC at reasonable costs.
- This provision benefits **Suriname by enhancing its quality control** analysis procedures.

### **What is the Significance of the MoU?**

➤ **Affordable Medicines:**

- The recognition of IP opens **doors for the development of generic medicines in Suriname**. This translates to increased availability of cost-effective medicines for the citizens of Suriname, aligning with the goal of enhancing public health.

➤ **Economic Advantages:**

- For India, the recognition of the Indian Pharmacopoeia in Suriname is a step towards an **'Atmanirbhar Bharat' (self-reliant India)**. This recognition facilitates the export of Indian medical products, generating foreign exchange earnings and reinforcing India's pharmaceutical industry on the global stage.

➤ **Boosting Indian Pharmaceutical Exports:**

- The recognition of IP by Suriname removes the need for duplicative testing and checks, giving Indian drug exporters a competitive edge. The reduction in regulatory hurdles leads to more remunerative trade for the Indian pharmaceutical sector.

➤ **Wider International Recognition:**

- The Indian Pharmacopoeia's official recognition has already extended to **Afghanistan, Ghana, Nepal, Mauritius, and now, Suriname**. This expansion reflects India's efforts to enhance its influence and cooperation in the global pharmaceutical landscape.

### **What are the Key Facts about Suriname?**

➤ **About:**

- Suriname is located on the **northeastern coast of South America**. It is bordered by the **Atlantic Ocean to the north, French Guiana to the east, Brazil to the south, and Guyana to the west**.
- The capital city of **Suriname is Paramaribo**, which is situated on the banks of the Suriname River.
- Suriname is a democratic republic with **a president as the head of state and government**. The country has a multi-party political system.

➤ **Official Language:**

- The official language is Dutch, reflecting the **country's colonial history**. However, several other languages are spoken, including Sranan **Tongo (Surinamese Creole), Hindustani, Javanese, and English**.
  - Formerly a Dutch colony known as Dutch Guiana, Suriname gained independence from the Netherlands on November 25, 1975.

➤ **Economy:**

- The economy of Suriname is diverse, **with key sectors including mining** (gold, bauxite, oil), agriculture (rice, bananas, timber), and services.
- Suriname is rich in **natural resources, particularly gold, bauxite, and recently discovered oil reserves**.



Note:

# Social Issues

## Highlights

- UWW Suspends of Wrestling Federation of India
- SC Handbook on Gender Stereotypes
- SC Allows Termination of Pregnancy for Rape Survivor
- Combating Ragging in Educational Institutions
- Changing Youth Concerns and Aspirations
- Post-Hospitalization Mortality in Covid-19 Patients
- Nutrition's Role in Tuberculosis Prevention
- Eastern Equine Encephalitis
- Amyotrophic Lateral Sclerosis
- Concerns Over Consuming Ultra-Processed Food

## UWW Suspends of Wrestling Federation of India

### Why in News?

The **Wrestling Federation of India (WFI)**, the national governing body for wrestling, has been provisionally suspended by the **United World Wrestling (UWW)**, for not conducting its elections on time.

- This has serious implications for the Indian wrestlers, who will not be able to compete under the **national flag in the upcoming World Championships in Serbia**.

### Why was the WFI Suspended by UWW?

- The UWW has suspended the WFI for violating its constitution, which mandates that **all member federations must hold their elections every four years**.
  - The WFI was supposed to hold its **elections in February 2023**, but they were delayed due to various reasons, including **allegations of sexual harassment**, intimidation, financial irregularities, and administrative lapse against the former WFI president and others by some prominent wrestlers.
- The UWW also wanted to protect the athletes and make the federation work properly again.

### What are the Other Sports

### Bodies in India Facing Similar Conflicts?

- **FIFA (Fédération internationale de Football Association)**, the global governing body of football, **suspended All India Football Federation of India** due to delayed elections in 2002, The ban was lifted subsequently.

- The **International Olympic Committee (IOC)** and **International Hockey Federation (FIH)** also warned of potential bans for Indian sports bodies for similar reasons.
- In June 2020, the Indian government revoked recognition of **54 national federations for non-compliance with the National Sports Development Code of India 2011**.

### Wrestling Federation of India (WFI)

- The WFI is the governing body of wrestling in India. It is **headquartered in New Delhi**.
- It is recognized by the **Government of India and the Indian Olympic Association**.
- It organizes various national and international wrestling events, such as the **Pro Wrestling League, the National Wrestling Championship, and the Asian Championships**.
- The WFI also **supports and trains Indian wrestlers who participate in the Olympic Games**.

### United World Wrestling (UWW)

- UWW is the international governing body for the sport of amateur wrestling. It oversees wrestling at the **Olympics and the World Championships**.
- **UWW is headquartered in Corsier-sur-Vevey, Switzerland**.
- UWW was founded in 1912 as the **International Federation of Associated Wrestling Styles (FILA)**. It changed its name to United World Wrestling in 2014.
- UWW has a vision to be globally recognized as an inspiring, innovative, and leading Olympic Federation<sup>3</sup>. Its mission is to lead the growth of wrestling around the world.

Note:



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### History of the Game of Wrestling in India

- Wrestling in India dates back to the **5th millennium B.C.**
- Ancient India practised wrestling known as **MallaYudha**.
- **Bhima from Mahabharata was a renowned wrestler**, along with Jarasandha, Keechaka, and Balrama.
- Ramayana also mentions wrestling, with **Hanuman as a notable wrestler**.
- Wrestling is referred to as **"Dangal" in India** and is a basic form of wrestling tournament. It's called **"kushti" in Punjab and Haryana regions**.
- Originally a fitness activity and entertainment for royals, wrestling has evolved into a professional sport.

### What is the Impact of the Suspension?

- **Wrestlers' Participation:**
  - According to the UWW, wrestlers and their support personnel can still participate in **UWW-sanctioned events, but under the UWW flag rather than the national flag**.
- **UWW Events:**
  - Indian wrestlers will be unable to compete under the national flag in UWW events, including the **upcoming World Championships in Belgrade, Serbia**. Additionally, **no Indian national anthem will be played if a wrestler secures a gold medal**.
  - WFI cannot **receive any financial or technical assistance from the UWW**.
- **Indian Wrestling:**
  - The suspension tarnishes **India's image and reputation in the international wrestling community**. It also demoralizes and disheartens the Indian wrestlers, who have worked hard to prepare for the World Championships and other events.
  - Suspension of WFI hinders wrestler's qualification chances for the **2024 Paris Olympics, as the World Championships are a qualifying event**.
  - The suspension is a major setback for Indian wrestling, which has been one of the most successful sports for India in recent years. India has **won four Olympic medals, 19 World Championship medals, and 69 Asian Championship medals in wrestling since 2008**.

## SC Handbook on Gender Stereotypes

### Why in News?

Recently, the **Chief Justice of India (CJI)** has released a Handbook, correcting **Gender Stereotypes** and offering guidance on how to avoid utilising harmful gender stereotypes, in particular those about women, in judicial decision making and writing.

### What is the Handbook?

- **About:**
  - The Handbook on Gender Stereotypes is released by the **Supreme Court of India** with the intention of assisting judges and legal practitioners in **recognizing, understanding, and combating gender stereotypes** present in legal language and judgments.
  - It highlights common stereotypical words and phrases that are often used to describe **women in legal documents**.
  - It points out instances where such language **perpetuates antiquated or incorrect notions about women's roles and behavior**.
  - It also provides specific examples of **language that should be replaced with more neutral and accurate terms**.
    - For instance, it suggests using **"woman" instead of "career woman," "street sexual harassment" instead of "eve teasing," and "rape" instead of "forcible rape."**

### ALTERNATIVE TO STEREOTYPE-PROMOTING LANGUAGE

<b>'ADULTERESS'</b> Woman who has engaged in sexual relations outside of marriage	<b>'EVE TEASING'</b> Street sexual harassment
<b>'AFFAIR'</b> Relationship outside of marriage	<b>'HOUSEWIFE'</b> Homemaker
<b>'BASTARD'</b> Non-marital child or, a child whose parents were not married	<b>'FEMININE HYGIENE PRODUCTS'</b> Menstrual products
<b>'BIOLOGICAL SEX' / 'BIOLOGICAL MALE' / 'BIOLOGICAL FEMALE'</b> Sex assigned at birth	<b>'UNWED MOTHER'</b> Mother
<b>'CARNAL INTERCOURSE'</b> Sexual intercourse	<b>'VIOLATED'</b> (e.g. 'he violated her') Sexually harassed / assaulted or raped
<b>'CHILD PROSTITUTE'</b> Child who has been trafficked	<b>'MISTRESS'</b> Woman with whom a man has had romantic or sexual relations outside of marriage
<b>'CONCUBINE' / 'KEEP'</b> Woman with whom a man has had romantic or sexual relations outside of marriage	<b>'PROSTITUTE'</b> Sex worker
<b>'DUTIFUL WIFE' / 'FAITHFUL WIFE' / 'GOOD WIFE' / 'OBEDIENT WIFE'</b> Wife	<b>'PROVIDER' / 'BREADWINNER'</b> Employed or earning
	<b>'PROVOCATIVE CLOTHING / DRESS'</b> Clothing / dress
	<b>'SEX CHANGE'</b> Sex reassignment or gender transition
	<b>'SPINSTER'</b> Unmarried woman

Note:



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➤ **Objective:**

- The handbook aims to promote **more equitable and unbiased language usage** in judicial discourse.
- The goal of the handbook is to encourage a **shift towards language that reflects a more modern and respectful understanding of gender** and promotes equal rights for all individuals, regardless of their gender.

### ***Why is it Important for Judges to Use the Right Words?***

- The handbook argues that the language a judge uses reflects not only their interpretation of the law, **but their perception of society as well.**
- Even when the use of stereotypes does not alter the outcome of a case, stereotypical language may **reinforce ideas contrary to our constitutional ethos.**
- Language is critical to the life of the law. Words are the **vehicle through which the values of the law are communicated.**
- Words transmit the ultimate intention of the lawmaker or the judge to the nation.

### ***Have there been Similar Efforts in other Countries?***

- There have been **projects in other countries**, pushed by both academia and practitioners, which hold up a mirror for the court's practices.
- For example, the **Women's Court of Canada**, a collective of female lawyers, academics and activists write "**shadow judgements**" on equality law.
- In India, the **Indian Feminist Judgement Project** also '**rewrites**' judgements with a feminist critique.

#### **What is Gender Stereotyping?**

➤ **About:**

- Gender stereotyping **refers to the practice of assigning specific attributes**, characteristics, or roles **to individuals based solely** on their gender.
- These stereotypes can be pervasive in **societies and can impact how people perceive and treat each other** based on their gender.
  - For example, women are **supposed to be nurturing and avoid dominance**, and men are supposed to be agentic and avoid weakness.

➤ **Impacts of Gender Stereotyping on Women:**

- Gender stereotypes act as a **barrier for girls to access quality education.**
  - For example, stereotypes about the role of women as confined to the **domestic and family sphere underpin** all obstacles to girls' equal access to quality education.
- Women are often **held back from high status positions** in society.
- The persistent gender gap in education, employment and wages is **due in part to gender stereotyping.**
- Harmful gender stereotypes, rigid constructions of femininity and **masculinity and stereotyped gender roles are a root cause** of gender-based violence against women.

## **SC Allows Termination of Pregnancy for Rape Survivor**

### ***Why in News?***

Observing that pregnancy outside marriage, especially in cases of sexual assault, is injurious and a cause of stress, the **Supreme Court of India** allowed a rape survivor from Gujarat to terminate her **27-week pregnancy.**

- The court **overruled the Gujarat High Court's order** that denied her request and directed the hospital to carry out the procedure without any delay.
- Under the **Medical Termination of Pregnancy (MTP) Amendment Act 2021**, the upper limit for termination of pregnancy is 24 weeks.

### ***What are the Legal Provisions Related to Abortion in India?***

- Until the **1960s, abortion was prohibited in India**, and violating this led to imprisonment or fines under **Section 312 of the Indian Penal Code.**
  - The **Shantilal Shah Committee** was set up in the mid-1960s to investigate the need for abortion regulations.
  - Based on its findings, the **Medical Termination of Pregnancy (MTP) Act, 1971** was enacted, **allowing safe and legal abortions, safeguarding women's health, and reducing maternal mortality.**
- The **MTP Act, 1971**, allows **abortion up to 20 weeks of gestation**, with the consent of the **woman and on the advice of one registered medical practitioner (RMP).** However, the law was updated in **2002 and 2021.**

Note:

- The 2021 amendment **permits abortion from 20 to 24 weeks of gestation** for specific cases like rape survivors, with **approval from two doctors**.
  - It sets up **state level Medical Boards** to decide if a pregnancy may be terminated after **24 weeks in cases of substantial fetal abnormalities**.
- It extends the failure of contraceptive clauses to **unmarried women (initially only married women)**, allowing them to seek abortion services on grounds of their choice, irrespective of their marital status.
  - Consent requirements vary based on age and mental state, ensuring medical practitioner oversight.

The MTP Act 1971 and The MTP Act Amendments 2021		
	MTP Act 1971	The MTP Amendment Act 2021
Indications (Contraceptive failure)	Only applies to married women	Unmarried women are also covered
Gestational Age limit	20 weeks for all indications	24 weeks for rape survivors Beyond 24 weeks for substantial fetal abnormalities
Medical practitioner opinions required before termination	One RMP till 12 weeks Two RMPs till 20 weeks	One RMP till 20 weeks Two RMPs 20-24 weeks Medical Board approval after 24 weeks
Breach of the woman's confidentiality	Fine up to Rs 1000	Fine and/or Imprisonment of 1 year

**Note:**

In *Justice K.S. Puttaswamy (Retd.) vs. the Union Of India And Others (2017)*, the Supreme court recognized the constitutional right of women to make reproductive choices, as a part of **personal liberty under Article 21 of the Indian Constitution**, which, despite laying a robust jurisprudence on reproductive rights and the privacy of a woman, does not translate into a fundamental shift in power from the doctor to the woman seeking an abortion.

- **Recent Supreme Court judgments reaffirm women's bodily autonomy.** Courts recognized abortion rights in cases of rape and acknowledged reproductive choice as a component of personal liberty.

## Combating Ragging in Educational Institutions

### Why in News?

The issue of **ragging**, a persistently troubling phenomenon in Indian educational institutions, has once again captured national attention due to a **recent incident at Jadavpur University**.

- The **Supreme Court** of India has taken significant steps to address this issue through various cases and guidelines.

### What is the Current State of Anti-ragging Measures in India?

- **Defining Ragging: Supreme Court's Perspective**
  - In the 2001 (Vishwa Jagriti Mission) case, the **Supreme Court** provided a **comprehensive definition of ragging**.
  - It described ragging as **any disorderly conduct that involves teasing, treating, or handling fellow students with rudeness**, engaging in undisciplined activities causing **annoyance or psychological harm**, or generating fear among junior students.
    - The Court also noted that the **motives behind ragging often include deriving sadistic pleasure**, showcasing power, authority, or superiority by seniors over freshers.
- **Key Guidelines Issued by the Supreme Court:**
  - The Supreme Court guidelines emphasized the importance of setting up **proctoral committees within educational institutions** to prevent and address ragging.
  - Furthermore, it highlighted the **possibility of reporting ragging incidents to the police** if they become unmanageable or amount to cognizable offenses.
- **Raghavan Committee and UGC Guidelines:**
  - In 2009, the Supreme Court revisited the ragging issue and appointed a committee led by former **CBI Director RK Raghavan** to address it comprehensively.

Note:



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- The committee's recommendations were later adopted by the **University Grants Commission (UGC)**.
  - The UGC issued detailed guidelines that universities were required to follow in order to counter ragging effectively.
- The UGC guidelines, titled "**Regulations on Curbing the Menace of Ragging in Higher Educational Institutions**," highlighted several forms of ragging, including teasing, causing physical or psychological harm, generating a sense of shame, and engaging in financial extortion.
- The guidelines also **mandated universities to publicly declare their commitment to preventing ragging** and required **students to sign undertakings** that they would not engage in such activities.
- The UGC also placed **responsibility on educational institutions to take proactive measures against ragging**.
  - Universities were required to establish committees comprising course-in-charges, student advisors, wardens, and senior students.
  - These committees were tasked with monitoring and regulating interactions between freshers and seniors, ensuring a healthy and safe environment.

**Note:** UGC also recognised gender identity and sexual orientation as grounds for ragging in 2016.

- **Legal Consequences of Ragging in India:**
  - While ragging itself is **not categorized as a specific offense**, it can be penalized under various provisions of the **Indian Penal Code (IPC)**.
  - For instance, **wrongful restraint, as defined under Section 339 of the IPC**, can lead to imprisonment for up to one month or a fine of up to five hundred rupees, or both.
  - **Wrongful confinement**, governed by **Section 340 of the IPC**, can result in imprisonment for up to a year or a fine of up to one thousand rupees, or both.
- **Related State-Level Legislation:**
  - Several Indian states have introduced special legislation to combat ragging.
    - For instance, the **Kerala Prohibition of Ragging Act, 1998**, Andhra Pradesh Prohibition of Ragging Act, 1997, The Assam Prohibition of Ragging Act 1998 and Maharashtra Prohibition of Ragging act, 1999.

## Changing Youth Concerns and Aspirations

### Why in News?

In the ever-evolving landscape of youth concerns and aspirations, a recent survey conducted by **Lokniti-CSDS** across 18 states in India sheds light on the **shifting priorities of the young population**.

- The survey highlights the **rising prominence of unemployment and price rise as pressing issues**, the intersection of these concerns with **economic classes and gender**, and the **evolving preferences in job aspirations**.

### What are the Major Highlights of the Survey?

- **Unemployment, Price Rise and Gender Disparity:**
  - A **7% point increase** in the share of respondents **identifying price rise as a primary concern**.
  - **40% of highly educated respondents** (graduate and above) pointing to **unemployment as their most pressing concern**.
  - **27% of non-literate individuals** expressed concern about unemployment, attributed to their flexibility in undertaking various job opportunities.
    - Poverty and price rise emerged as more prominent issues for young women, regardless of their economic background.
- **Occupational Diversity: Insights into Youth Employment:**
  - Almost half (49%) of the respondents were engaged in some form of work.
    - 40% held full-time jobs, while 9% worked part-time.
  - 23% of employed youth were self-employed, showcasing a significant entrepreneurial inclination.
  - Professions such as doctors and engineers constituted 16% of the workforce.
  - Agriculture and skilled labor comprised 15% and 27% respectively.
- **Job Aspirations and Preferences:**
  - **16%** of respondents expressed a preference for jobs in the **health sector**.
  - The education sector was the second most preferred, chosen by **14% of youth**.

Note:



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- Science and technology-related jobs, along with starting their own businesses, garnered 10% support each.
- Government jobs continued to hold allure, with **60% of respondents opting for them when given a choice between a government job, a private job, or starting their own business.**
- The **preference for self-employment has grown steadily from 16% in 2007 to 27% in 2023**, indicating an increasing entrepreneurial inclination among the youth.

### ***What are the Opportunities and Challenges Related to Youth Population in India?***

- **Status of Youth Population:** India has more than **50% of its population below the age of 25** and more than **65% below the age of 35.**
  - India is home to a **fifth of the world's youth demographic** and this population advantage could play a critical role in achieving the nation's ambitious target to become a **USD 5 trillion economy.**

**Note:** There is no universally agreed international definition of the youth age group. In India, as per **National Youth Policy 2014**, the persons between the age group of **15 and 29 years are considered youth.** Several UN entities, instruments, and regional organizations have differing definitions of youth:

Entity/Instrument/ Organization	Age (years)
UN Secretariat/UNFSCO/ILO	Youth: 15-24
UN Habitat (Youth Fund)	Youth: 15-32
UNICEF/WHO/UNFPA	Adolescent: 10-19 Young people: 10-24 Youth: 15-24
UNICEF/ The Convention on Rights of the Child	Child under 18
The African Youth Charter	Youth: 15-35

#### ➤ **Opportunities:**

- **Human Capital Investment:** India's youth population is a potential demographic dividend, which means if harnessed correctly, it can **contribute significantly to economic growth.**
  - A youthful population provides an opportunity to focus on **education and skill development**, creating a highly skilled workforce that can meet the demands of various industries.

- **Innovation and Entrepreneurship:** The youth are often more **open to innovation, new technologies, and entrepreneurship.**
  - They can drive the development of new industries and start-ups, fostering economic diversification.
  - Also, with a significant portion of India's population engaged in agriculture, youth involvement in modernizing and optimizing farming practices through technology and sustainable methods **can lead to increased agricultural productivity.**
- **Digital Connectivity:** India's youth are **tech-savvy** and can play a crucial role in **adopting and promoting digital technologies**, contributing to the growth of the digital economy.
- **Social Change and Activism:** Young people are often at the forefront of **social and political change.**
  - They can **drive positive social movements, advocate for change, and raise awareness** about critical issues.

#### ➤ **Challenges:**

- **Underemployment and Skill Mismatch:** While unemployment is often discussed, **underemployment and skill mismatch are equally pressing issues.** Many young Indians find jobs that are below their skill levels or do not align with their education.
  - This not only leads to dissatisfaction but also hampers productivity and economic growth.
- **Mental Health and Stigma:** **Mental health** problems among the youth are on the rise, yet there is a significant stigma associated with seeking help.
  - This stigma is **deeply ingrained in Indian society** and can discourage young people from accessing proper care.
- **Digital Divide within Youth:** While India has a large and growing youth population, access to digital technology is still uneven.
  - This digital divide creates **disparities in education, employment opportunities**, and access to information.
- **Gender Inequality and Traditional Norms:** Despite progress, gender inequality remains a significant concern.
  - Traditional norms and patriarchal attitudes persist, affecting young **women's education, employment, and agency.**

Note:



- **Political Apathy and Youth Representation:** Despite comprising a substantial portion of the population, the youth in India often feel disconnected from the **political process**.
  - This leads to **inadequate representation of their concerns and aspirations**.

#### What are the Government Schemes Related to Youth?

- **Pradhan Mantri Kaushal Vikas Yojana**
- **YUVA: Prime Minister's Scheme For Mentoring Young Authors**
- **Integrated Child Development Services (ICDS) Scheme**
- **National Youth Policy-2014**
- **National Skill Development Corporation**
- **Rashtriya Yuva Sashaktikaran Karyakram Scheme**

## Post-Hospitalization Mortality in Covid-19 Patients

### Why in News?

Recently, a new study conducted by the **Indian Council of Medical Research (ICMR)** has shed light on the **post-hospitalization mortality rate among former Covid-19 patients**.

- The study's comprehensive examination of factors such as **comorbidities (more than one disease or condition at the same time), age, and vaccination** sheds light on vulnerabilities and emphasizes the importance of managing health conditions to reduce mortality risk.

### What are the Key Highlights From the Study?

- **Mortality Rate and Participant Demographics:**
  - The study examined 14,419 former Covid-19 patients across 31 Indian medical centers.
    - The **observed mortality rate one year after hospital discharge is 6.5%**.
  - Around **50% of patients** who died, passed away **within 28 days of hospital discharge**.
    - **The risk of mortality decreases as time elapses after discharge**.
  - The **elderly age group (60+) with comorbidities** is particularly **vulnerable to mortality**.
- **Prevalence of Post-Covid-19 Conditions:**

- 17.1% of participants experienced Post-Covid-19 conditions, including **lethargy, breathlessness, cognitive abnormalities, and difficulty in concentrating**.
- **Focus on All-Cause Mortality:**
  - The study primarily concentrated on all-cause mortality, rather than attributing deaths solely to Covid-19.
  - All-cause mortality encompasses various causes of death, including comorbidities and other factors.
- **Vaccination and Disease Severity:**
  - Vaccination confers **approximately 60% protection before Covid-19 infection**.
  - Vaccines contribute to **reducing disease severity during hospitalization**.
- **Vulnerabilities Leading to Higher Mortality:**
  - Comorbidity, age, and gender were identified as factors influencing mortality risk.
  - Individuals with **one comorbid condition are over 9 times more likely to die**.
  - Men faced a **1.3-fold higher risk**, and **aged 60 and above were associated with a 2.6-fold higher risk**.
  - The study underscores the **importance of managing comorbidities to reduce mortality risk**.
- **Children's Vulnerability:**
  - **Children aged 0 to 18 faced a 5.6 times higher risk of death** between four-week and one-year follow-ups.
    - Risk 1.7-fold higher in the first four weeks post hospitalization.
  - Children with serious health conditions like **cancer and kidney disorders had a higher chance of passing away**.
- **Limitations of the Study:**
  - The study did not examine **long Covid symptoms**.
  - The operational definition of Post Covid Condition (PCC) used in this study is not an exact match with the definitions provided by either the **World Health Organization (WHO)** or the **Centers for Disease Control and Prevention (CDC)**, the national public health agency of the United States.
    - WHO definition for PCC says that we have to **wait for three months and then check if the symptoms persist for two months**, it says long covid symptoms **persist post-three months after initial infection**.

Note:



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- Long Covid-19, as defined by the CDC, encompasses various ongoing health problems post-Covid-19 infection, starting from **at least four weeks after infection**. However, the **ICMR study only did a symptomatic assessment at four weeks' time, not after that**.

#### Indian Council of Medical Research (ICMR):

- ICMR is the apex body in **India for the formulation, coordination, and promotion of biomedical research**.
- ICMR was established in 1911 as the Indian Research Fund Association (IRFA) and was renamed as ICMR in 1949.
- ICMR is funded by the Government of India through the **Department of Health Research, Ministry of Health and Family Welfare**.
- Its mandate is to conduct, coordinate and implement medical research for the benefit of the Society; translating medical innovations into products/processes and introducing them into the public health system.
- ICMR also collaborates with international organizations, such as WHO, **United Nations Children's Fund (UNICEF)**, etc., on various health research projects and programs.
- ICMR has also supported human resource development and capacity building in biomedical research through various schemes and programs.

## Nutrition's Role in Tuberculosis Prevention

### Why in News?

Recently, two studies conducted by the **Indian Council of Medical Research (ICMR)** and published in prestigious journals such as **The Lancet** and **The Lancet Global Health**, have unveiled a pivotal connection between **nutrition and tuberculosis (TB) prevention**.

- **Reducing Activation of Tuberculosis by Improvement of Nutritional Status (RATIONS) trial** shows **correlation between nutritional support and the reduction of TB incidence**.
- **Weight gain's impact on TB mortality** revealing how increased weight among **malnourished TB patients** correlates with reduced mortality rates.

#### Note:

- As per **WHO**, India accounts for **27% of the global TB incidence and 35% of total TB-related deaths**.
- **India is set to eliminate TB by 2025**.

### What are the Key Highlights of the Studies?

- A total of 5,621 people were given the **nutrient-dense food for a year while 4,724 people received food parcels with no extra nutrition**.
  - At the end of the trial, there was a 39% reduction in TB incidence in the intervention group versus the control one.
- Weight gain **decreased the risks of tuberculosis mortality in severely malnourished TB patients in Jharkhand**.
  - Instantaneous risk of death was reduced by 13% for a 1% weight gain and 61% for 5% weight gain.
- The study involved **2,800 severely malnourished TB patients in Jharkhand**, with a prevalence of undernutrition in 4 out of 5 patients.
  - Nutritional support was provided to individuals responding to TB drugs for six months, while the duration was 12 months for those with multidrug-resistant tuberculosis.
- An early weight gain in the **first two months was associated with a 60% lower risk of TB mortality**.
  - Patients showed higher treatment success, better weight gain, and low rates of weight loss during follow-ups.

### Nutrition and Tuberculosis

● More than two-thirds of **trial participants were tribals**, most of whom were accessing ration from the PDS.

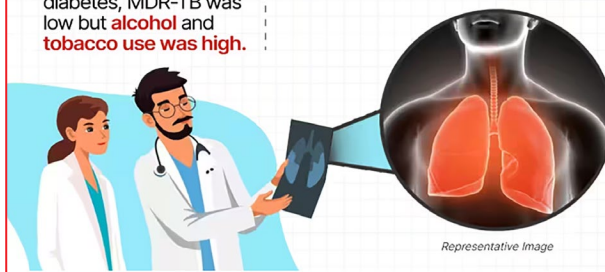
● **Undernutrition** (BMI < 18.5 kg/m<sup>2</sup>) was prevalent in four out of five patients, with severe undernutrition (BMI < 16 kg/m<sup>2</sup>) in nearly half of these.

● Prevalence of HIV, diabetes, MDR-TB was low but **alcohol and tobacco use was high**.

● Nearly one per cent of patients were **hypotensive, hypoxic**, or were unable to stand, indicating need for in-patient care.

● One of three contacts across all ages had **undernutrition** at enrolment.

● There was a **39 per cent reduction** of incidence of **all forms of TB** and a **48 per cent reduction** of incidence of **infectious TB** in the intervention group of families.



Note:

### What is Tuberculosis?

#### ➤ About:

- Tuberculosis is an infection caused by bacteria **called *Mycobacterium tuberculosis***. It can practically affect **any organ of the body**. The most common ones are lungs, pleura (lining around the lungs), lymph nodes, intestines, spine, and brain.

#### ➤ Transmission:

- It is an airborne infection that spreads through **close contact with the infected**, especially in **densely populated spaces** with poor ventilation.

#### ➤ Symptoms:

- Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.

#### ➤ Treatment:

- TB is a treatable and curable disease.
- Anti-TB medicines have been used for decades and strains that are **resistant to 1 or more of the medicines have been documented** in every country surveyed.

- **Multidrug-resistant tuberculosis (MDR-TB) is a form of TB** caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs.

#### ➤ MDR-TB is treatable and curable by using second-line drugs such as Bedaquiline.

- Extensively drug-resistant TB (XDR-TB) is a more serious form of **MDR-TB** caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

### What are India's Initiatives to Combat TB?

- **Pradhan Mantri TB Mukh Bharat Abhiyan.**
- **National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025).**
- **TB Harega Desh Jeetega Campaign.**
- **Nikshay Poshan Yojna**

## Eastern Equine Encephalitis

### Why in News?

**Mosquito-borne illnesses** continue to pose a significant threat across various parts of the world, and

one of the latest additions to this concern is the **emergence of the Eastern equine encephalitis (EEE) virus** in the **United States**.

- This rare virus has recently been reported in **Alabama and New York**, with serious implications for public health.

### What is Eastern Equine Encephalitis?

#### ➤ About:

- **Eastern Equine Encephalitis (EEE)** is a viral disease that causes **inflammation of the brain (encephalitis)**. It spreads to **people and animals** by the bite of an **infected mosquito**.

- EEE was first identified in **horses** in **Massachusetts, United States**, in 1831.

#### ➤ Causes: EEE is caused by the **Eastern Equine Encephalitis Virus (EEEV)**, which belongs to the **genus Alphavirus** and the family **Togaviridae**.

- EEE virus has a single-stranded, positive-sense RNA genome.
- EEEV is primarily transmitted through the bite of infected mosquitoes, particularly species belonging to the **Culiseta melanura** group.

- These **mosquitoes feed on both birds (reservoir hosts) and mammals**, including **humans and horses** (dead-end hosts).

- The virus **does not spread between humans** or from animals like horses to humans.

#### ➤ Symptoms: The symptoms associated with EEE can range from mild to severe, often progressing rapidly:

- The virus typically begins with high fever, headache, chills, and nausea.
- As the infection advances, more serious symptoms may develop, including **seizures, disorientation, and even coma**.

#### ➤ Effects:

- Roughly **33% of individuals who are infected do not survive**, typically passing away between 2 to 10 days after the symptoms first appear.
- Survivors of the virus **might experience long-lasting neurological issues**, with a greater likelihood of occurrence in individuals above 50 and under 15 years of age.

#### ➤ Treatment:

- Currently, there are **no vaccines** available to directly **treat Eastern equine encephalitis**.

Note:



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- To mitigate the risk of infection, individuals are advised to take several precautionary steps, including **avoiding mosquito bites by using repellents and wearing protective clothing.**

## Amyotrophic Lateral Sclerosis

### Why in News?

Amyotrophic Lateral Sclerosis (ALS), a debilitating **Neurodegenerative Disease**, presents a range of challenges for both patients and caregivers in India.

- Despite its rare occurrence, ALS profoundly impacts the **lives of those affected due to its progressive nature** and lack of effective treatment.

### What is Amyotrophic Lateral Sclerosis (ALS)?

#### ➤ About:

- ALS is a rare and **fatal type of motor neuron** disease. It is characterized by **progressive degeneration** of nerve cells in the spinal cord and brain.
  - It's often called **Lou Gehrig's disease**, after a famous baseball player who died from the disease.
- ALS is one of the most **devastating of the disorders** that affects the function of nerves and muscles.
- As motor neurons degenerate and die, they stop sending **messages to the muscles**, which causes the muscles to weaken, start to twitch (fasciculations), and waste away (atrophy).
- Eventually, the brain loses its ability to initiate and control **Voluntary Movements**.
  - The **movements** that are **under our control** are called voluntary actions, such as walking, running, sitting etc.
  - On the other hand, the movements that **are not under our control** are called **involuntary movements**.

#### ➤ Causes:

- Causes are not yet, in a few cases, **genetics** is involved.
- ALS research is looking into **possible environmental causes of ALS**.

#### ➤ Symptoms:

- With ALS, there may be **weakness in a limb that develops over a matter of days** or, more commonly, a few weeks. Then, several weeks to months later,

weakness develops in another limb. Sometimes the initial problem can be one of slurred speech or trouble swallowing.

#### ➤ Treatment:

- There is no cure and proven treatment for ALS.

### What are the Initiatives to Tackle ALS?

- The Government's **National Policy for Rare Diseases (NPRD)**, 2021, introduced a significant provision offering **financial aid of up to Rs. 50 lakh to patients afflicted by Rare Diseases** and receiving treatment at designated Centers of Excellence.
  - The **World Health Organisation (WHO)** characterizes rare diseases as debilitating conditions with a prevalence of 1 or less per 1000 population.
- This policy initiative aims to support individuals, including **those with conditions like ALS**, by providing **substantial financial assistance** for their treatment.

## Concerns Over Consuming Ultra-Processed Food

### Why in News?

Recently, a report released by **World Health Organization (WHO)** and the **Indian Council for Research on International Economic Relations** found that India's **Ultra-Processed Food Sector** grew at a Compound Annual Growth Rate (CAGR) of 13.37 % in retail sales value from 2011 to 2021.

### What is Ultra Processed Food?

#### ➤ About:

- Processed food usually has **salt, sugar and fat added** to it. Food is considered ultra-processed if **five or more ingredients have been added** to the original product.
- These other ingredients are usually **flavour and taste enhancers, emulsifiers and colours**, and all of them are meant to **improve shelf life and taste** or make the food convenient to eat.
  - For instance, **atta in raw form is unprocessed**. Dalia, with salt and sugar added, is processed food. If we make **cookies out of atta** and add a lot of other things, **it is ultra-processed**.

Note:



### ➤ Concerns:

- Salt, sugar and fat are commonly added to **all processed food**. Such foods are not healthy to consume regularly or in large quantities.
- They can cause **obesity, hypertension, cardiac issues** and lifestyle diseases. The artificial chemicals added to ultra-processed food have a **negative impact on gut health**.
- Any imbalance in gut health can lead to a host of problems, from neurological **issues and stress to mood swings and obesity**.
- Most ultra-processed foods use taste enhancers, so people automatically get addicted to them.
  - On top of that, the natural food is broken down to such an extent that it gets absorbed very quickly by the body.
- The effect of high doses of simple sugar is that the body releases insulin, which makes you **feel hungry and want to eat more food**. That is why we say sugar is addictive.

### What are the Key Highlights of the Report?

#### ➤ Temporary Disruption and Rebounded:

- The **Covid-19 Pandemic** caused a temporary disruption, causing the annual growth rate of the Indian ultra-processed food sector to plummet from 12.65% in 2019 to 5.50% in 2020.
  - However, the sector rebounded remarkably, with an 11.29% growth recorded in 2020-2021.

#### ➤ Dominant Categories and Sales Volume:

- The most popular ultra-processed food categories include **chocolate and sugar confectionery**, salty snacks, beverages, ready-made and convenient foods, and breakfast cereals.
  - In terms of retail sales volume from 2011 to 2021, **beverages held the highest share**, followed by chocolate and sugar confectionery and ready-made and convenience foods.

#### ➤ Health Consciousness and Changing Consumption Patterns:

- Health-conscious consumers shifted away from carbonated sugar-sweetened beverages to **fruit and vegetable juices** during the pandemic, potentially due to their perceived immune-boosting properties.

- However, these alternative beverages may also contain high levels of free sugars.

### What are the Recommendations?

#### ➤ Stricter Advertising and Marketing Regulations:

- The report underscores the **necessity for stricter advertising and marketing regulations**, particularly concerning products like sweet biscuits that are popular among children.
  - The high salt content in salty snacks poses risks to consumers' health, making it crucial to address through regulations.

#### ➤ Clear Definition of High Fat Sugar Salt (HFSS) Foods:

- The **Food Safety and Standards Authority of India (FSSAI)** should collaborate with stakeholders to establish a clear definition of High Fat Sugar Salt (HFSS) foods.
- Linking the **tax structure with the definition of HFSS foods** through the GST Council can **incentivize healthier and reformulated options by imposing higher taxes** on products exceeding recommended levels of fat, sugar, and salt.

#### ➤ Comprehensive National Nutrition Policy:

- There is a need for a **robust national nutrition policy** addressing both under- and over-nutrition, with well-defined objectives and targets, after thorough consultations with stakeholders.
  - Existing policies like **Saksham Anganwadi and Poshan 2.0** lack comprehensive coverage of overnutrition and diet-related diseases.

#### ➤ Nutritional Transition and Long-Term Goals:

- The report calls for a shift towards a healthier lifestyle, emphasizing the importance of reducing the consumption of ultra-processed foods and increasing the intake of whole grains.
- Low intake of whole grains has been identified as a **primary dietary risk factor for noncommunicable diseases in India**.

### What are the Government Initiatives to Promote Healthy Lifestyle?

- **The National Food Security Act (NFSA), 2013.**
- **PM-POSHAN Scheme.**
- **Fit India Movement**



Note:

# Science & Technology

## Highlights

- Chandrayaan-3 Successfully Lands on Moon's South Pole
- Challenges in Lunar Landing Missions
- Agnibaan SubOrbital Technological Demonstrator (SOrTeD)
- NASA's STEREO-'s Earth Flyby
- Long Read Sequencing and Y Chromosome
- Somatic Genetic Variants
- Metagenomics
- Gene Editing in Mustard Breeding
- Demon Particle
- Radio Thermoelectric Generators
- Project Worldcoin

## Chandrayaan-3 Successfully Lands on Moon's South Pole

### Why in News?

**Chandrayaan-3** has made history by becoming the first mission to soft-land on the lunar south pole, a region that has never been explored before. The mission aimed to demonstrate safe and soft lunar landing, rover mobility, and in-situ scientific experiments.

- India now joins the **United States, Russia, and China** as one of the few countries to successfully land on the Moon.

### How did Chandrayaan-3 Prevail Over Obstacles Encountered in the Previous Mission?

- Chandrayaan-3's successful landing came after the setback of the **Chandrayaan-2** mission's landing failure in 2019.
  - The Vikram lander of Chandrayaan-2 had lost control and communication during descent, leading to a crash on the lunar surface.
- Lessons from the Chandrayaan-2 mission were applied to Chandrayaan-3, focusing on a **"failure-based" design approach** to anticipate and mitigate potential issues.
  - Critical changes included strengthening the lander's legs, increasing fuel reserves, and enhancing landing site flexibility.

### Why did Chandrayaan-3 Choose Moon's Near Side for Landing?

- Chandrayaan-3 aimed to investigate **"permanently shadowed regions"** near the **South Pole** for potential water-ice and resources.

- The Vikram lander's controlled descent achieved one of the closest approaches to the Moon's South Pole.

- While a notable achievement, **Vikram's landing occurred on the Moon's near side, unlike China's Chang'e 4 on the far side.**

- The near side, **visible from Earth due to synchronous rotation**, covers **60% of the Moon**.
- The **far side, though not always in darkness**, remained hidden until the **Soviet spacecraft Luna 3 captured images in 1959.**

- Astronauts aboard the **Apollo 8 mission in 1968** became the first humans to observe the far side directly.

- The near side boasts smoother surfaces and numerous **'maria' (large volcanic plains)**, while the far side features massive craters from asteroid impacts.
  - The lunar crust on the near side is thinner, causing volcanic lava to flow and fill craters over time, creating flat terrains.
- The decision to land on the near side was **driven by the mission's primary goal of a controlled soft landing.**
  - Landing on the far side would require a **relay for communication due to the lack of direct line-of-sight with Earth.**

### What are the Intended Actions for Chandrayaan-3 after its Landing?

- **Chandrayaan-3** is expected to **operate for at least one lunar day (14 Earth days)** on the lunar surface.
  - The **Pragyan rover will move around the landing site within a radius of 500 meters**, conducting experiments and sending data and images to the lander.

Note:

- The **Vikram lander** will relay the data and images to the orbiter, which will then transmit them to Earth.
- **Lander and Rover modules** are collectively equipped with advanced scientific payloads.
  - These instruments are designed to conduct comprehensive investigations into diverse facets of lunar characteristics, **encompassing terrain analysis, mineralogical composition, surface chemistry, atmospheric attributes**, and crucially, the **exploration for water and potential resource reservoirs**.
  - The **propulsion module** that carried the lander and rover configuration till 100 km lunar orbit also has a **Spectro-polarimetry of Habitable Planet Earth (SHAPE) payload** to study the spectral and Polarimetric measurements of Earth from the lunar orbit.



### What are ISRO's Future Expeditions?

- **Chandrayaan-4: Navigating the Path of Lunar Evolution**
  - Building upon past missions, **Chandrayaan-4 emerges as a potential candidate for a sample return mission**.
    - If successful, it could mark the next logical step after Chandrayaan-2 and 3, offering the capability to retrieve lunar surface samples.
  - The mission holds promise for advancing our understanding of the Moon's composition and history.
- **LUPEX: Lunar Polar Exploration (LUPEX) mission**, a collaborative effort between **ISRO and JAXA(Japan)**, is poised to explore the Moon's polar regions.
  - It will be specifically designed to venture into **permanently shaded areas**.
  - Investigating the presence of water and assessing the potential for a sustainable long-term station are among LUPEX's objectives.
- **Aditya-L1: Aditya L1** will be the first space based Indian mission to study the Sun.
  - The spacecraft shall be placed in a **halo orbit around the Lagrange point 1 (L1)** of the Sun-Earth system, which is about 1.5 million km from the Earth.
  - Observing the sun's **corona, emissions, solar winds, flares, and coronal mass ejections** are the primary focus areas of **Aditya-L1**.
- **XPoSat (X-ray Polarimeter Satellite)**: It is India's **first dedicated polarimetry mission to study various dynamics of bright astronomical X-ray sources** in extreme conditions.
  - The spacecraft will carry two scientific payloads in a low earth orbit.
- **NISAR: NASA-ISRO SAR (NISAR)** is a **Low Earth Orbit (LEO)** observatory being jointly developed by NASA and ISRO.
  - NISAR will **map the entire globe in 12 days** and provide spatially and temporally consistent data for understanding **changes in Earth's ecosystems, ice mass, vegetation biomass, sea level rise, ground water and natural hazards** including earthquakes, tsunamis, volcanoes and landslides.
- **Gaganyaan: Gaganyaan** mission aims to send **humans to space and return them safely to Earth**. The mission will consist of **two unmanned flights and one manned flight**, using the **GSLV Mk III launch vehicle** and a **human-rated orbital module**.
  - The **manned flight will carry three astronauts, including a woman**, for up to seven days in low Earth orbit.
- **Shukrayaan 1**: It is a planned mission to send an **orbiter to Venus**, the second planet from the Sun. It is expected to **study Venus's geological and volcanic activity**, emissions on the ground, wind speed, cloud cover, and other planetary characteristics.

Note:



# CHANDRAYAAN 3

India's 3<sup>rd</sup> lunar mission; a successful attempt at achieving a soft landing on lunar south

## BRIEF HISTORY

### Lunar Mission

Chandrayaan 1  
(2008)

### Aim

Create a 3D atlas of moon  
& Mineralogical mapping

### Launch Vehicle

PSLV – C11

### Success

Detection of water and  
hydroxyl on lunar surface

Chandrayaan 2  
(2019)

Exploring lunar south pole

GSLV MkIII-M1

Lander and rover crashed  
but orbiter successfully  
collected data

## COMPONENTS

- Lander - **Vikram**; Rover - **Pragyan** (same as Chandrayaan 2)
  - ▶ Both designed to last for 14 days; not supposed to come back to the earth
- Spectro-polarimetry of Habitable Planet Earth (**SHAPE**)
  - ▶ An experimental payload in propulsion module
  - ▶ Study spectro-polarimetric signatures of Earth (near-infrared wavelength range)

## ASPECTS TO STUDY

- Lunar quakes
- Thermal properties of lunar surface
- Changes in plasma near the surface
- Accurately measuring distance b/w Earth and the moon

## MISSION LIFE

- 1 lunar day (~14 Earth days)

## LAUNCH VEHICLE

- LVM3 - M4

India became the 1<sup>st</sup> country to successfully land on Lunar south pole and 4<sup>th</sup> to achieve soft-landing on Lunar surface (after US, Russia and China)

## Why Chandrayaan 3 Succeeded?

- A "failure-based design", unlike the "success-based design" of Chandrayaan-2
  - ▶ Even if all the sensors failed and engines stopped, **Vikram was sure to make the landing**
  - ▶ Provision of **multiple attempts** for landing if attempt 1 failed
- Developed accordingly to **rule out the scenario of crash landing**
  - ▶ Expanded landing area for more flexibility to land safely
  - ▶ Equipped with more fuel to enable longer-distance travel

## Importance of Lunar South Pole

- Vastly different, more **challenging terrain** compared to lunar equatorial region
- Potential repositories of valuable **information about early Solar System**
- Impact **future deep space exploration** significantly
- **Water may be concentrated** in the moon's southern hemisphere



## Challenges in Lunar Landing Missions

### Why in News?

Recently, **Russia's Luna-25** crashed on the Moon's

surface, ending its first mission to the lunar surface 47 years after the last landing by the **former Soviet Union**.

- This leaves **India's Chandrayaan-3** on course to become the first spacecraft to land **near the Lunar South Pole**.
- Russia's Luna-25 marked the resumption of lunar interest and plans to continue the Luna series.

Note:



### What is the Luna-25 Mission?

#### ➤ About:

- The Luna 25 mission, originally named **Luna-Glob**, underwent over two decades of development before joining the historic Luna series initiated in 1976.
- The mission aimed to **secure Russia's access to the Moon's surface** amid its significance in space exploration and geopolitical rivalry.
  - While Russia and China lead the **International Lunar Research Station (ILRS)**, the U.S. heads the Artemis Accords.

#### ➤ Failure:

- The Luna 25 spacecraft encountered a technical glitch, surpassing its **operational limits**.
- The failure appears linked to an **attempt to shift its circular orbit to a lower pre-landing orbit**.
- **Excessive thrust during this maneuver caused a trajectory deviation**, causing the craft to crash onto the Moon's surface.
  - Roscosmos lost communication during this critical event.
- Due to the Russia-Ukraine war, Russia lost its privileges to **use satellite tracking systems operated by countries** in different parts of the world. Roscosmos could contact Luna 25, and receive signals from the spacecraft, only at three stations: two in **Russia and one in Russian-occupied Crimea**.
  - ISRO, unlike Russia, is receiving help from **National Aeronautics and Space Administration (NASA)** and the European Space Agency (ESA) to track Chandrayaan 3 around the moon.

### What are the Complexities in Successful Lunar Landing?

#### ➤ Complexity of Lunar Descent:

- Lunar landings involve a **challenging descent from lunar orbit to the Moon's surface**, often referred to as the **"15 minutes of terror."**
- The complexity arises from the **need to precisely control the spacecraft's speed, trajectory, and altitude** during this crucial phase.

#### ➤ Historical Perspective:

- Despite more than 20 successful landings, including six with human crew, the **technology remains imperfect**.

- Most successful lunar landings occurred within a **decade between 1966 and 1976**, with three Chinese landings in the past decade as exceptions.
- Lunar landing technology during the 1960s and 1970s was far from perfected, with a 50% success rate among 42 attempts.
- Contemporary lunar missions deploy safer, cost-efficient, and fuel-efficient technologies **but require testing and validation**.

#### ➤ Complex Propulsion:

- Lunar landing involves a **sequence of controlled maneuvers**, from deceleration to final touchdown. Precise propulsion systems must be employed to manage speed and altitude accurately.

#### ➤ Thermal Challenges:

- Extreme temperature variations on the Moon, from scorching heat to freezing cold, pose challenges for spacecraft systems. Thermal protection and insulation are critical to prevent equipment malfunctions.

### What are the Recent Failures and Successes in Lunar Landing Attempts?

#### ➤ Failure:

- Missions from **India, Israel, Japan, and Russia** all faced challenges during the landing process, resulting in crashes on the Moon's surface.
  - **ISRO's Chandrayaan-2:** Malfunctions **prevented the desired speed levels from being achieved**.
  - **Beresheet (Israel), Hakuto-R (Japan):** Different kinds of malfunctions disrupted landing plans.

#### ➤ Successes:

- China's Chang'e-3, Chang'e-4, and Chang'e-5 missions **achieved successful lunar landings**.

## Agnibaan SubOrbital Technological Demonstrator (SOrTeD)

### Why in News?

Recently, AgniKul Cosmos, a space tech start-up based in Chennai, set to launch their groundbreaking **Agnibaan SubOrbital Technological Demonstrator (SOrTeD)**, the world's first 3D-printed rocket into space.

Note:



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- AgniKul Cosmos' journey is supported by the **Indian Space Research Organisation (ISRO)** and **Indian National Space Promotion and Authorisation Centre (IN-SPACe)**.

### What are the Key

#### Highlights of AgniKul's SOrTeD?

- The Agnibaan SOrTeD is a **customisable launch vehicle** that could be launched in **one or two stages**. It is powered by AgniKul's patented Agnilet engine.
  - Agnilet, is a **3D-printed, 6 kilonewton (kN) semi-cryogenic engine** that uses liquid oxygen and kerosene as propellants.
- Unlike **traditional sounding rockets that launch from guide rails**, Agnibaan SOrTeD will **take off vertically and follow a predetermined trajectory**, executing precisely **orchestrated maneuvers during its flight**.
  - It is capable of carrying payloads up to 100 kg to an altitude of 700 km in five different configurations.
- Agnibaan SOrTeD will be the first step towards launching the **world's first 3D-printed rocket into space**.

#### What is 3D Printing?

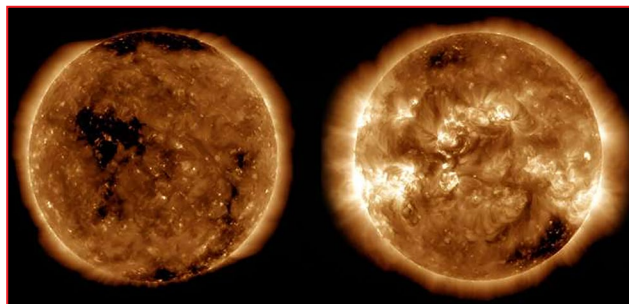
- **3D printing is also known as additive manufacturing** which uses materials such as plastics and metals to convert products envisaged on computer-aided design to real three-dimensional items.
  - It is the opposite of **subtractive manufacturing** which is cutting out/hollowing out a piece of metal or plastic with, for instance, a milling machine.
- 3D printing traditionally has been used for prototyping and **has a lot of scope in making artificial limbs, stents, dental crowns, parts of automobiles and consumer goods**, among others.

## NASA's STEREO-'s Earth Flyby

### Why in News?

- In a significant development, **NASA's (National Aeronautics and Space Administration) Solar Terrestrial Relations Observatory (STEREO-A)** spacecraft has made its first Earth Flyby, nearly 17 years after its initial launch.
- During the Earth flyby, **STEREO-A will collaborate with Nasa's Solar and Heliospheric Observatory (SOHO)** and Nasa's Solar Dynamics Observatory (SDO), enhancing its observations.

- This collaboration aims to optimize the spacecraft's stereo vision to capture varying-sized solar features at different distances.



### What are

#### STEREO-A and STEREO-B?

- **STEREO-A (A stands for Ahead)**, along with its twin **STEREO-B (B stands for Behind)**, was launched in 2006 to study the **Sun's Behavior** by charting Earth-like orbits around it.
  - Their primary goal was to provide a stereoscopic view of the Sun, **enabling researchers to study it from multiple perspectives**.
- In 2011, STEREO-A achieved a **pivotal milestone by reaching a 180-degree separation** in its orbit from STEREO-B. This spatial arrangement allowed humanity to **observe the Sun as a complete sphere** for the first time, offering **crucial insights into its complex structure** and activity.
  - STEREO-B broke contact with **mission control in 2014 after a planned reset (B's mission officially ended in 2018)**.

### What is the Purpose of STEREO-A's Earth Flyby?

- **Stereoscopic Vision of the Sun:**
  - STEREO-A's Earth flyby will enable it to **once again employ stereoscopic vision**, a technique mirroring **human depth perception**.
  - This method involves combining views from different locations to extract **3D information from 2D images of the Sun**.
- **Scientific Objectives:**
  - Scientists plan to utilize this opportunity to identify active regions beneath sunspots and uncover 3D information about their structure.
  - Additionally, a new **theory suggesting that coronal loops may be optical illusions** will be tested.

Note:



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- The flyby also offers **insights into the evolution of the magnetic field of Coronal Mass Ejections (CMEs)** as they travel towards Earth.
  - CMEs, which are bursts of solar material, have the potential to disrupt satellite communications, radio signals, and even impact power grids on Earth.
  - By obtaining multipoint measurements from inside a CME, researchers aim to enhance their computer models and predictions about these solar eruptions.

#### ➤ Solar Activity Dynamics:

- This upcoming flyby will be starkly different from STEREO-A's early days in 2006, because at that time the **Sun was in its Solar Minimum phase**.
- As the Sun approaches the predicted Solar Maximum for 2025, its heightened activity **presents a distinct perspective for STEREO-A's observations**.

**Note:** Solar Maxima and Minima refer to the two phases of the **Solar Cycle** that occur over an approximately **11-year period**. These cycles are characterized by changes in the number of **sunspots, solar flares, and other solar phenomena**.

- The solar maximum is the phase **when the Sun is most active**, with many sunspots and intense eruptions.
- The solar minimum is the phase **when the Sun is least active**, with few or no sunspots and calm surface.

## Long Read Sequencing and Y Chromosome

### Why in News?

The new **"long-read" sequencing technique** has provided a reliable sequence from one end of the **Y chromosome** to the other.

- The findings published in *Nature* Journal provide information about the working of sex genes and sperm, the evolution of the Y chromosome, and its possible disappearance in a few million years.
- Earlier, some studies shed light on the **role of the Y chromosome in colorectal and bladder cancer**, revealing key genetic mechanisms that contribute to tumour progression, **immune response**, and clinical prognosis.

### What is the Difference between DNA, Gene, and Chromosome?

#### ➤ DNA:

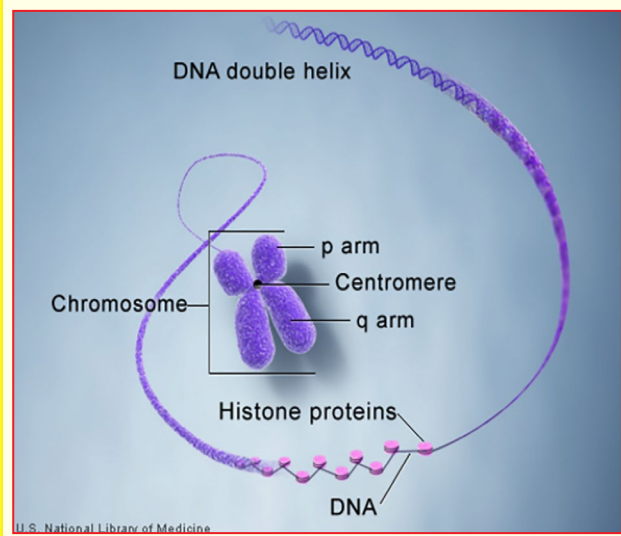
- **DNA is a long molecule that contains our unique genetic code.** DNA is composed of two strands that wrap around each other to form a double helix shape, like a spiral staircase.
- Each strand of DNA is formed of four basic building blocks or **'bases'**: adenine (A), cytosine (C), guanine (G), and thymine (T).

#### ➤ Gene:

- **Genes are sections of DNA** that contain the set of instructions to produce one specific molecule in the body, usually a protein.
  - These proteins control how the body grows and works and are responsible for characteristics like eye colour, blood type, or height.
- Each cell contains two sets of genes, one from your mother and one from your father. For ease of storage and access, the **genes are packaged up into 46 parcels called chromosomes**.

#### ➤ Chromosome:

- In the nucleus of each cell, the DNA molecule is packaged into thread-like structures called chromosomes.
- Each chromosome is made up of DNA tightly coiled many times around proteins called **histones** that support its structure.
- **Chromosomes are not visible in the cell's nucleus** - not even under a microscope.



Note:

### What is the Y Chromosome and Its Related Findings?

- **About:**
  - The Y chromosome is a male-determining chromosome; it bears a gene called **SRY (Sex-Determining region Y)**, which directs the development of a testis in the embryo.
- **Y vs X:**
  - Y is very different from X and the 22 other chromosomes of the human genome; **it is small in size** and has a lot of DNA sequences that don't seem to contribute to traits (**aka "junk DNA"**) (only 27 compared to about 1,000 on the X) making it difficult to sequence the chromosome.
- **Disappearance of Y:**
  - About 150 mn years ago, the SRY evolved and defined a new proto-Y which degenerated fast enough (losing ~10 active genes per million years).
  - If this degradation continues, then in a few million years, the **whole human Y chromosome will disappear** (as it already has in some rodents).
- **Findings of Y Sequencing:**
  - The Y is the **last human chromosome to have been sequenced end-to-end**, or T2T (telomere-to-telomere).
    - Telomeres are structures made from DNA sequences and proteins **found at the ends of chromosomes**.
  - Some new genes have been discovered, but they are just extra copies of known genes.
  - The **centromere structure is now known**, and the repetitive sequences at the end of the Y have been read.
    - Centromere is a region of the chromosome that **pulls copies apart when the cell divides**.
    - The **location of the centromere on each chromosome gives the chromosome its characteristic shape** and can be used to help describe the location of specific genes.
  - The findings are significant for scientists all over the world. It will **help in examining the details of Y genes**; how SRY and the sperm genes are expressed or where and how repeated sequences originated.

### What is Long Read Sequencing?

- Long-read sequencing, also called **third-generation sequencing**, is a DNA sequencing technique that enables the **sequencing of much longer DNA fragments** than traditional short-read sequencing methods.
  - One of the most basic forms of DNA sequencing is **Sanger sequencing** which can sequence relatively small fragments of DNA (up to 900 base pairs).
  - The more modern forms of DNA sequencing are called **next-generation sequencing** which can efficiently determine longer DNA sequences compared to Sanger sequencing.
- Over the past decade, long-read, single-molecule DNA sequencing technologies have emerged as powerful players in genomics. It can read the **DNA sequence of much longer DNA fragments** (normal range: 10,000 - 100,000 base pairs).
  - While short reads can capture the majority of genetic variation, **long-read sequencing allows the detection of complex structural variants** that may be difficult to detect with short reads.

## Somatic Genetic Variants

### Why in News?

Recent advances in **genome sequencing** unveil the impact of **somatic genetic variants** on **human health**, from **cancer development to immune disorders**, driving innovation in disease detection and treatment strategies.

### What are Somatic Genetic Variants?

- **About:**
  - Somatic genetic variants also known as somatic mutations **refer to alterations in the DNA sequence that occur specifically within the cells** of an individual's body (somatic cells), **excluding the germline cells** (sperm and egg cells).
  - **Somatic genetic mutations occur after birth during development and are not inherited from parents.**
- **Somatic Mutation Progression:**
  - The **human genome consists of 23 pairs of chromosomes**, inherited from each parent, forming the **blueprint of our genetic identity**.
    - Following the fertilization of an egg cell by a sperm cell, the resultant single cell amalgamates genetic material from both parents.

Note:



- Through subsequent rounds of division, **this initial cell proliferates extensively**, ultimately generating the **countless trillions of cells constituting the human body**.
- During the **process of DNA replication**, the incorporation of errors is notably minimized by error-correcting proteins. Nevertheless, a minute error rate persists and occurs at different times, **contributing to the emergence of somatic genetic mutations**.
  - As cells continue to renew and replace old ones throughout life, errors keep occurring, leading to the **gradual accumulation of somatic mutations over time**.
  - This is why **differences in genetic makeup are observed between different tissues in the body as people get older**.
- **Influence of Somatic Genetic Variants on Human Health:**
  - **Cancer Development:** Somatic genetic variants can drive the **uncontrolled cell growth and division characteristic of cancer**, leading to **tumor** formation.
  - **Neurological Disorders:** Accumulated somatic mutations in **brain cells can contribute to neurological conditions**, affecting cognitive and motor functions.
  - **Aging and Tissue Function:** Gradual accumulation of somatic mutations with age can **impair tissue function** and contribute to age-related diseases.
  - **Immune System Dysfunction:** Somatic variants can **disrupt immune cell development and function**, leading to autoimmune disorders and immunodeficiencies.
- **Harnessing Somatic Genetic Variants for Human Health Advancement:**
  - **Disease Biomarkers:** Somatic variants can serve as **diagnostic and prognostic markers for diseases**.
    - Detecting specific mutations can aid in **early disease detection** and predicting disease progression.
  - **Precision Medicine:** Knowledge of an individual's somatic mutations allows **personalized treatment plans**.
    - Tailoring therapies to a patient's unique genetic makeup can **enhance treatment outcomes**.
  - **Aging and Longevity:** Studying somatic mutations associated with aging can shed light on the **aging process and age-related diseases**, potentially leading to interventions for healthier aging.

- **Solution of Genetic Disease:** In some instances, somatic mutation brings a deleterious change to a normal one, a phenomenon known as **revertant mosaicism**.

- E.g., **Around 10% of cases of Wiskott-Aldrich syndrome**, a rare genetic immunodeficiency, have been found to have revertant mosaicism, as a result alleviating the severity of the disease in many individuals.

## Metagenomics

### Why in News?

Recently, scientists from the **Nigerian Centre for Disease Control** conducted a study utilizing **metagenomic sequencing for pathogen surveillance**.

- The devastation caused by **Covid-19 pandemic** led to the rapid development of new techniques, like **metagenomics**, and ignited a paradigm shift in **how we identify, monitor, and respond to emerging pathogens**.

### What is Metagenomics?

- **About:**
  - Metagenomics is the **study of microbes in their natural living environment**, which involves the complex microbial communities in which they usually exist.
  - The study examines the **genomic composition of an entire organism**, including each of the microbes that exist within it. It facilitates direct sequencing of patient samples, **removing the need for prior knowledge of the infectious agent**.
    - For instance, **a single gram of soil consists of 4000 to 5000 different species of microbes**, while **human intestines consist of 500 different types of bacteria**.
      - It enables us to **understand the diversity, abundance, and interaction of microbes in any system**.
    - It is different from **conventional sequencing methods**, which requires **culturing or isolating individual species** before **sequencing their genomes**.

Note:

➤ **Applications:**

- **Microbial Community Dynamics:** Longitudinal metagenome studies can reveal how microbial communities change in response to **environmental perturbations or human interventions**.
- **Biodiversity Studies:** Metagenomics allows researchers to study the diversity of microorganisms in different ecosystems, such as **oceans, soil, freshwater, and extreme environments like hot springs**.
- **Human Microbiome Research:** Metagenomics has revolutionized our understanding of the **human gut microbiome and its impact on digestion, metabolism, and overall health**.
- **Bioremediation and Environmental Cleanup:** It can **identify microorganisms with the ability to degrade pollutants** and toxic compounds, which can be harnessed for bioremediation purposes.
- **Drug Discovery and Biotechnology:** It can uncover novel genes and pathways responsible for the **production of bioactive compounds**, potentially leading to the discovery of new drugs and therapeutic agents.
- **Agriculture and Plant-Microbe Interactions:** Understanding the microbial communities in agricultural soils can help **optimize nutrient cycling and enhance crop productivity**.

**What is Genome Sequencing?**➤ **About:**

- **Genome sequencing** is the **process of determining the complete DNA sequence of an organism's genome**.
- **DNA (deoxyribonucleic acid)** is composed of a sequence of nucleotides, which are represented by the letters **A, T, C, and G**, corresponding to the four nucleotide bases: **adenine, thymine, cytosine, and guanine**.
  - Genome sequencing involves identifying the order of these nucleotides along the DNA strands.

**Note:** The genome is the entire set of genetic material within an organism's cells, and it contains all the information necessary for the growth, development, functioning, and reproduction of that organism.

➤ **Genomic Surveillance and Covid-19 Pandemic:**

The global response to the **Covid-19 pandemic** prompted scientists to leverage genome sequencing technologies for surveillance purposes.

- The establishment of platforms like **GISAID** facilitated the submission and sharing of **SARS-CoV-2 genome data**, aiding **high-throughput genome** surveillance activities.

- High-throughput' refers to sequencing techniques that can parse large quantities of DNA at the same time, including a whole genome at once.

- **Potential:** Genome sequencing's potential extended to seasonal viruses like **Zika and dengue**, as well as diseases like **lumpy skin disease in cattle and drug-resistant tuberculosis**.

## Gene Editing in Mustard Breeding

**Why in News?**

Indian scientists have developed the **first ever low-pungent mustard** that is pest and disease-resistant. It is based on **CRISPR/Cas9 gene editing**, while being non-GM and transgene-free.

### What is the Significance of Gene Editing in Mustard Breeding?

➤ **Background:**

- Traditional mustard seeds (*Brassica juncea*) that are grown in India contain about **120-130 parts per million (ppm) of compounds called glucosinolates**, which are a group of sulphur and nitrogen-containing compounds contributing to the **characteristic pungency of their oil and meal**.
  - These compounds serve as **natural defenders, protecting the plant from pests and diseases**.
  - In comparison, **canola seeds have much fewer glucosinolates**, around 30 ppm. These lower levels let the canola oil and meal have a **specific pleasant taste**.
- Oilseeds yield oil for cooking, and **their leftover meal**, a protein-rich ingredient, is used in **animal feed**. **Rapeseed meal, rich in glucosinolates**, is fed to livestock but requires mixing with grass and water.

Note:



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- High glucosinolates are also known to **cause goiter (swelling of neck)** and internal organ abnormalities in livestock.
- Scientists have been **working on a goal to develop mustard seeds that have fewer glucosinolates**, similar to canola seeds.
  - However, reducing glucosinolates in mustard seeds can weaken the plant's overall ability to defend itself against pests and diseases, which presents a challenge.
- **The Role of Gene Editing in Mustard Breeding:**
  - Scientists directed their efforts toward modifying specific genes known as **glucosinolate transporter (GTR) genes**.
    - These genes play a crucial role in how glucosinolates, important compounds in mustard seeds, build up.
  - To achieve this modification, **they employed a gene-editing tool called CRISPR/Cas9**, which works like precision scissors to alter gene sequences accurately.
  - In a particular mustard variety named '**Varuna**,' the researchers focused on 10 out of the 12 GTR genes.
    - Through these genetic modifications, **they deactivated the proteins produced by these genes**, resulting in a significant reduction in glucosinolate levels within the seeds.
- **Implications of Gene Editing on Plant Defense and Pest Resistance:**
  - The modified mustard plants showcased glucosinolate levels in their seeds that were **lower than the 30 ppm threshold set for canola-quality seeds**.
  - Interestingly, the **leaves and the walls of the pods around the seeds displayed higher amounts of glucosinolates**.
    - This increase was attributed to a disruption in the transport of these compounds. This heightened accumulation of glucosinolates in the leaves and pods plays a **crucial role in bolstering the plant's ability to resist pests**.
  - As a result of these genetic modifications, the edited mustard lines exhibited robust defense mechanisms against both fungal and insect pests.

#### What is the Difference between Genome Editing and Genetic Modification?

- The GTR genes-edited mustard lines are the **result of genome editing (GE), distinguishing them from genetically modified (GM) plants**.
  - Unlike GM crops, where **foreign genes are introduced, like those of the** *Bacillus thuringiensis* bacteria in cotton or Bar-Barnase-Barstar (isolated from other soil bacteria) in the GM hybrid mustard (DMH-11), **GE focuses on modifying the genes that already exist** without adding new genetic material.
  - The recently developed mustard lines are completely free of transgenes and do not possess any foreign genes.
- It's important to note that the **CRISPR/Cas9 enzyme**, which is employed for gene editing, is **not present in the final genome-edited plants**.
  - This sets them apart from transgenic GM crops, where the introduced genes can persist.

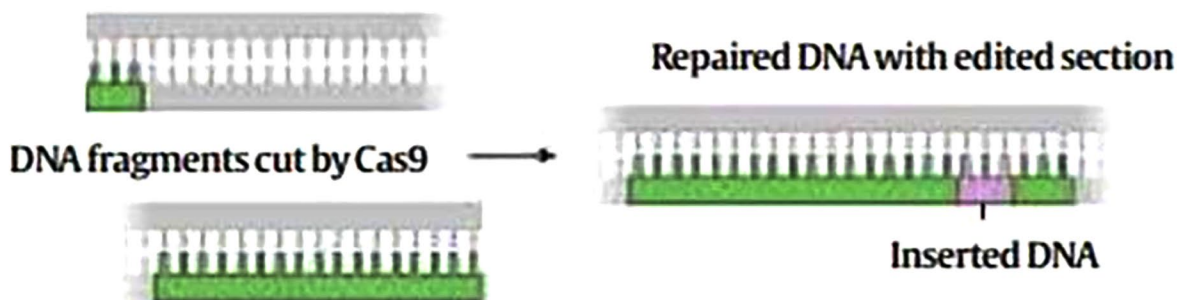
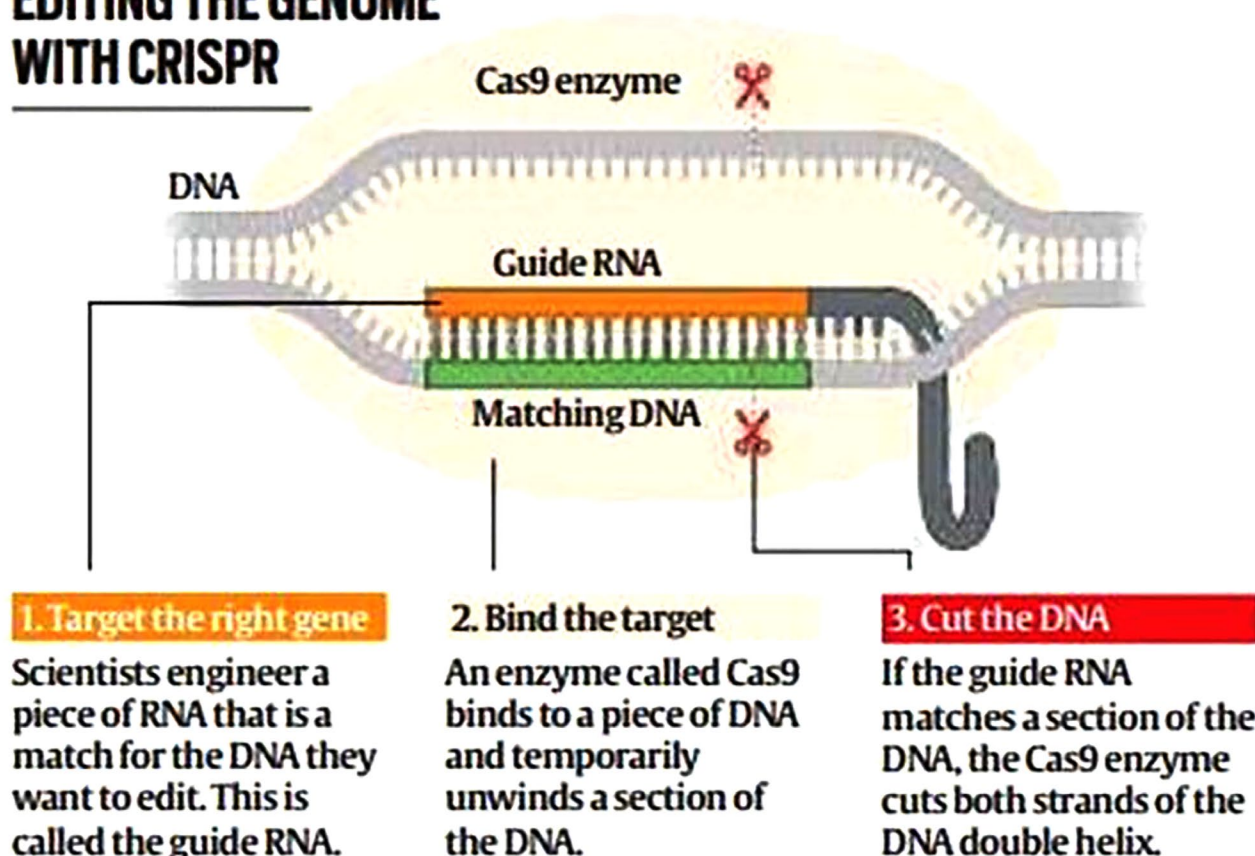
#### ➤ Regulatory Landscape and Future Prospects:

- In India, the regulation of genetic modification is stringent and necessitates approval from the **Genetic Engineering Appraisal Committee (GEAC)** under the **Ministry of Environment, Forest and Climate Change**.
  - However, an official memorandum from the MoEFCC has **exempted genome-edited (GE) plants that don't incorporate foreign DNA from requiring GEAC approval** for open field trials.
  - The newly developed genome-edited mustard lines are **poised to undergo open field trials**, having obtained clearance from the **Institutional Bio-safety Committee (IBSC)**.
- The potential benefits of these advancements are substantial, particularly because **India currently imports a significant amount of edible oils**, incurring substantial costs annually.
  - These innovations hold the promise of enhancing domestic oilseed production by bolstering crop yields, resistance to pests, and product quality.
  - This progress could **ultimately contribute to diminishing the country's reliance on imported vegetable oils**.

Note:



## EDITING THE GENOME WITH CRISPR



### What is the Status of Mustard Cultivation in India?

- Mustard is India's most widely-cultivated oilseed crops, planted annually on **9 million hectares area**

respectively. It is grown in Rabi season.

- Its higher average oil extractable content (38%) makes mustard a good "oilseed" crop, while a **source of both fat for humans and protein for animals.**

Note:



- Mustard is an important cash crop for farmers in **Rajasthan, Haryana, Madhya Pradesh and Uttar Pradesh**, among others.

#### What is CRISPR Cas9 Technology?

- CRISPR-Cas9 is a groundbreaking technology that empowers geneticists and medical researchers to modify specific portions of the genome.
  - This is achieved through the precise **removal, addition, or modification of segments within the DNA sequence**.
- The CRISPR-Cas9 system involves two important components that bring about changes or mutations in DNA. These components are:
  - An enzyme known as **Cas9**, which acts like a **pair of precision "molecular scissors"**.
    - Cas9 has the **ability to cut the two strands of DNA** at a specific spot within the genome. This precise cutting enables the **addition or removal of segments of DNA**.
  - A segment of RNA referred to as guide **RNA (gRNA)**. This consists of a small, pre-designed RNA sequence.
    - This RNA sequence is embedded within a longer RNA structure. **The lengthier part of the RNA attaches itself to DNA**, while the specific sequence within it functions as a "guide" for Cas9.
    - This guidance mechanism **directs the Cas9 enzyme to the exact location in the genome where it should make the cut**.
    - This ensures that the cutting action of the Cas9 enzyme takes place accurately at the intended point in the genome.

## Demon Particle

### Why in News?

Recently, a team of researchers from the University of Illinois discovered a unique particle, **known as a "demon particle,"** within a **metal called strontium ruthenate**. This discovery has the potential to pave the way for the development of **superconductors capable of operating at room temperature**.

### What is a Demon Particle?

- The demon particle is a name given to a type of **quasiparticle**, which is not a real particle, but rather a **collective excitation or vibration of many electrons in a solid**.
  - Quasiparticles are useful for describing the **complex behavior of electrons in solids, such as metals and semiconductors**.
- The demon particle was **first predicted by theoretical physicist David Pines in 1956**.
  - He believed that electrons would behave strangely when passed through a solid. **Electric interactions make electrons combine to form collective units. This can make them lose individuality in solids.**
    - However, with such a large mass, **plasmons (collective oscillation of conduction electrons in metals)** cannot form with **energies available at room temperature**.
  - However, **demons do not contain mass**, they can form with **any energy and at room temperature as well**.
- The demon particle could have many applications in computing, medical imaging, transportation, and energy.

#### Superconductors:

- About:
  - A superconductor is a material that can **conduct electricity or transport electrons from one atom to another with no resistance**.
  - No heat, sound or any other form of energy would be released from the material when it has **reached critical temperature ( $T_c$ )**, or the temperature at which the material becomes superconductive.
    - The critical temperature for superconductors is the **temperature at which the electrical resistivity of metal drops to zero**.
  - Superconductors also exhibit the **Meissner effect, which is the expulsion of a magnetic field from the interior of a material** during the process of becoming a superconductor.
- **Examples: Aluminium, niobium, magnesium diboride, etc.**
- **Applications:**
  - Superconductors are used in operations such as **levitating trains and highly accurate magnetic resonance imaging (MRI) machines**.

Note:



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➤ **Limitations:**

- Their usefulness is still **limited by the need for bulky cryogenics** (production of and behaviour of materials at very low temperatures) as the common superconductors **work at atmospheric pressures**, but only if they are kept very cold.
  - Even the most sophisticated ones like **copper oxide-based ceramic materials** work only below  $-140^{\circ}\text{C}$ .

## Radio Thermoelectric Generators

### Why in News?

Recently, **Indian Space Research Organisation (ISRO)** in collaboration with the **Bhabha Atomic Research Center (BARC)**, has embarked on the joint development of **Radio thermoelectric generators (RTGs)**, an innovative approach aimed at surpassing the constraints of conventional **chemical engines** for interplanetary voyages.

- Chemical engines work well for satellite thrusters, but they are **inadequate for deep space travel due to fuel limitations and lack of solar power in distant regions**.
- RTGs have been successfully employed by US spacecraft such as the Voyager, Cassini and Curiosity, to power missions with exceptional achievements.

### What are the Radio Thermoelectric Generators (RTGs)?

➤ **About:**

- RTGs are innovative power sources designed to **address challenges in deep space missions**.
- RTGs utilize radioactive materials, such as **Plutonium-238 or Strontium-90**, which **emit heat as they decay over time**.
- This **heat is harnessed and converted into electricity**, enabling the propulsion and power of spacecraft.

➤ **Components of RTGs:**

- **Radioisotope Heater Unit (RHU):**
  - The RHU is responsible for **generating heat through the decay of radioactive materials**.
  - It initiates the process by **releasing thermal energy**, which serves as the foundation for electricity generation.

○ **RTG (Heat-to-Electricity Conversion):**

- The RTG component transforms the **heat generated by the RHU into usable electricity**.
- This conversion takes place through a **thermocouple**, a material that generates **voltage when subjected to a temperature gradient**.
- The voltage produced by the thermocouple is utilized to **charge batteries onboard the spacecraft**.
- These batteries, in turn, power various systems, including propulsion mechanisms, enabling interplanetary travel.

➤ **Advantages of RTGs for Space Missions:**

○ **Independence from Solar Proximity:**

- Unlike solar-powered systems, RTGs operate effectively regardless of the **spacecraft's distance from the sun**.
- This characteristic **eliminates constraints related to launch windows and planetary alignment**.

○ **Reliability and Consistency:**

- RTGs offer a **consistent and reliable source of power**, essential for sustaining prolonged deep space missions.
- The gradual decay of radioactive materials ensures a continuous supply of heat and electricity.

### Bhabha Atomic Research Centre

- BARC is India's premier **nuclear research** facility based in Mumbai, Maharashtra.
- It is a multi-disciplinary research center with extensive infrastructure for advanced research and development.
- Its core mandate is to sustain peaceful applications of nuclear energy, primarily for power generation.

## Project Worldcoin

### Why in News?

Recently, a project called Worldcoin has been launched by OpenAI, an **Artificial intelligence** company. The project claims to be building the **world's largest identity and financial public network**.

Note:

## What is Project Worldcoin?

### ➤ About:

- Worldcoin is an **initiative to create a digital network** in which everyone can claim some kind of stake, and join the digital economy.



### ➤ Worldcoin Working Process:

- The initiative uses a **device called “Orb” to collect biometric (iris) data** and help participants get a World ID through the World app.
  - With the app, participants can collect a **cryptocurrency** called **Worldcoin [WLD]**.
- Users need to be willing to scan irises and/or get their own irises scanned to make the Worldcoin network possible.
- Those who have their irises scanned and **collect a World ID can use this to claim the WLD crypto**, which they may use for transactions (if possible and legal) or hold on to the asset in the hope that its price might rise.
- Worldcoin claims that using **biometric information to avoid duplication is a valid method for including everyone in its network**.

- This process is called **“proof of personhood”** and makes sure that people do not sign themselves up multiple times in exchange for crypto.

### ➤ Worldcoin in India:

- The company claimed that India had **“proven the effectiveness of biometrics”** through its Aadhaar system.
- Worldcoin lists **18 locations in India — largely in Delhi, Noida, and Bangalore — where Orb operators are scanning people’s eyes**.

### ➤ Criticism of Worldcoin:

- Worldcoin faced **early criticisms, with concerns raised about privacy, data security, and the validity of biometric scans**.

### Cryptocurrency:

- A **cryptocurrency** is a **digital or virtual currency** that uses **cryptography for security**.
- It is a **decentralized currency, meaning it is not controlled by any government** or institution.
- Some examples of cryptocurrencies include **Bitcoin, Ethereum, and Litecoin**.
- Transactions with cryptocurrency are recorded on a public digital ledger called **blockchain**.
  - This ledger is maintained by a network of computers around the world, and each new transaction is verified and added to the blockchain by these computers.



Note:

# Environment & Ecology

## Highlights

- *Urban Form of a City to Deal with Heatwaves*
- *State of India's Birds 2023 Report*
- *Environmental Challenges in Northeast India*
- *Dholpur-Karauli: India's 54th Tiger Reserve*
- *UK's North Sea Drilling*
- *India Sets Emission Threshold in Green Hydrogen Standard*
- *Unveiling California's Past Extinction to Illuminate Modern Challenges*
- *Rising Methane Levels and the Threat to Climate Stability*
- *Sixth Anniversary of the Minamata Convention*
- *Indian Himalayan Region*
- *Large-Scale Wildfires in Hawaii*
- *World Elephant Day 2023*

## Urban Form of a City to Deal with Heatwaves

### Why in News?

Rising instances of **Heatwaves** have emerged as a critical issue in India, making it imperative to adopt **Urban Form** of a City.

- While Larger cities are struggling to deal with **Climate Change** to improve Livability, the smaller ones are on the brink of explosive growth and require "heat-proof" development.

### What is the Urban Form of a City?

- **About:**
  - Every city has a **unique combination of natural and human-made infrastructure** and the activities resulting from them.
  - Closely packed buildings, for instance, will generate shorter trips and hence, less vehicular emissions **that pollute the air and trap heat**.
  - More greenery and water bodies will sequester carbon emissions and cool the ambient environment.
  - This combination of green spaces, water bodies and buildings is called the **Urban Form of a city**, which plays a crucial role in its **heat resilience and liveability**.
- **The Role of Urban Form in Heat Resilience:**
  - Parameters such as urban morphology, aspect ratio, sky view factor (SVF), blue/green infrastructure (B/GI), floor area ratio (FAR)/floor space index (FSI),

and street orientation **collectively define a city's urban form and influence its susceptibility to heat.**

- A study by the **Centre for Science and Environment (CSE)** in 2022 investigated the response of diverse urban forms to heat across 10 Indian cities, including Pune, Delhi, Kolkata, Bengaluru, and Jaipur.
- Key findings from the study highlighted potential steps for combating heat in urban India.

### What are the Findings of the CSE Related to Urban Infrastructure?

- **Urban Morphology and Heat Resilience:**
  - Urban areas characterized by **open highrise, open midrise**, and compact midrise morphologies with moderate vegetation exhibited **lower land surface temperatures (LST) in heat pockets**.
  - Neighborhoods featuring lowrise buildings **suffered 2-4°C higher LST** due to sparse vegetation. Large low rise industrial zones are particularly **problematic due to heat-trapping roofing materials** like asbestos, galvanised iron sheets and plastic sheets.
    - Such neighbourhoods can benefit by using better roof materials, **reflective paints and green roofs**.
- **Aspect Ratio:**
  - Aspect ratio is the ratio of building height and street width. It affects how much heat is trapped by urban surfaces.
  - The study shows that the **higher the aspect ratio, the lower the LST**. This means the narrower the street, the lesser the heat gain. Buildings shade each other and decrease direct exposure of surfaces to the sun.

Note:



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- **Sky View Factor and Heat Trapping:**
  - The SVF determines **heat trapping and dissipation within streets** and open spaces. The **value of sky view factor lies between 0 and 1**. Value 1 means there is none to negligible enclosure. Higher SVF values were associated with a considerable increase in LST.
  - Locations with higher SVF, including highways, road intersections, and open parking lots, **experienced heightened temperatures**.
- **Street Orientation and Sun Exposure:**
  - Street orientation impacts heat gain due to sun exposure and wind speed. North-south-oriented streets had higher LST due to greater sun exposure.
  - Streets aligned along the **east-west axis were cooler** as they received less direct sun exposure.
- **Blue / Green Infrastructure:**
  - Greens play a crucial role in **enhancing microclimate of an urban area**. They regulate temperature and relative humidity, absorb and decompose pollutants, improve the overall air quality.
    - However, the benefits vary widely depending on the kind of greens — grass, shrubs or trees with thick foliage.
    - Singapore provides a methodology to calculate effective vegetation cover (EVC) to **reduce urban heat island effect** and conserve natural resources.
  - The CSE study found that **a 30% rise in EVC reduces LST by 2-4°C**. EVC is better in trees with canopy. LST under trees with thick foliage is about 10°C cooler than LST under palm trees in the same locality.

### **What are the Steps to Adopt Urban Form of a City?**

- Urban form-based codes **can offer context-specific cooling solutions**. These codes can tailor zoning regulations to the unique characteristics of a city or neighbourhood. Old markets could feature shaded walkways, temple precincts, cool roofs, and business districts with high EVC (30%).
- Cities must revise their **building by-laws and master plans to incorporate** the insights from this study and improve heat resilience.
  - For instance, Pune's focus on SVF, aspect ratio, effective vegetation cover, and urban morphology could be the model for similar cities.

- Even a modest 1°C temperature decrease could translate into a 2% reduction in a city's power consumption, showcasing the **potential impact of effective planning**.

## **State of India's Birds 2023 Report**

### **Why in News?**

Recently, the **State of India's Birds (SoIB) 2023** was released, which highlighted that despite thriving a few bird species, there is a **substantial decline in numerous bird species**.

- The **SoIB 2023** is a first-of-its-kind collaborative effort of 13 government and non-government organisations, including the **Bombay Natural History Society (BNHS)**, **Wildlife Institute of India (WII)**, and **Zoological Survey of India (ZSI)**, **Wildlife Trust of India (WTI)**, Worldwide Fund for Nature—India (WWF—India) among others, which evaluates the overall **conservation status of the most regularly occurring bird species** in India.

### **What are the Methodologies Used in the Report?**

- This report is based on data collected from **approximately 30,000 birdwatchers**.
- The report relies on **three primary indices to assess bird populations**,
  - Long-term trend (change over 30 years)
  - Current annual trend (change over the past seven years)
  - Distribution range size within India
    - Among the 942 bird species assessed, the report indicates that many could not have their **long-term or current trends accurately established**.

### **What are the Key Highlights of the Report?**

- **Status:**
  - For the 338 species with identified long-term trends, 60% have experienced declines, 29% are stable, and **11% have shown increases**.
  - Among the 359 species with determined current annual trends, 39% are declining, 18% are rapidly declining, 53% are stable, and 8% are increasing.
- **Positive Trends: Increasing Bird Species:**
  - Despite the general decline, there are some positive trends among certain bird species.

Note:



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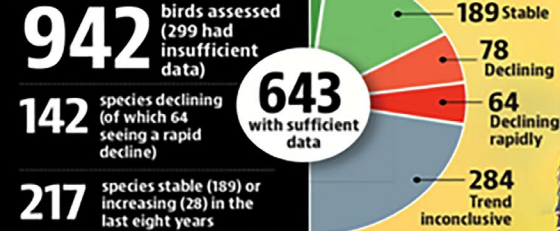
- The **Indian Peafowl**, for instance, the national bird of India, is **showing a remarkable increase** in both abundance and distribution.
    - This species has expanded its range into new habitats, including high-altitude Himalayan regions and rainforests in the **Western Ghats**.
  - The **Asian Koel**, House Crow, Rock Pigeon, and Alexandrine Parakeet are also highlighted as **species that have demonstrated a notable increase in abundance since the year 2000**.
- **Specialist Birds:**
- Bird species that are **“specialists” – restricted to narrow habitats** like wetlands, rainforests, and grasslands, as opposed to species that can inhabit a wide range of habitats such as plantations and agricultural fields – **are rapidly declining**.
  - The **“generalist” birds that can live in multiple habitat types** are doing well as a group.
    - “Specialists, however, **are more threatened than generalists**.”
    - Grassland specialists have **declined by more than 50%**.
  - Birds that are **woodland specialists** (forests or plantations) **have also declined more than generalists**, indicating a need to conserve natural forest habitats so that they provide habitat to specialists.
- **Migrant and Resident Birds:**
- **Migratory Birds**, especially long-distance migrants from Eurasia and the Arctic, have experienced **significant declines** by more than 50% – followed by short-distance migrants.
  - Shorebirds that breed in the Arctic have been particularly affected, declining by **close to 80%**.
  - By contrast, resident species as a group have remained much more stable..
- **Diet and Decline Patterns:**
- Dietary requirements of birds have also shown up in abundance trends. Birds that feed on vertebrates and **carion have declined the most**.
    - Vultures were nearly driven to extinction by consuming carcasses contaminated with diclofenac.
  - White-rumped Vultures, Indian Vultures, and Red-headed Vultures have suffered the maximum **long-term declines (98%, 95%, and 91%, respectively)**.
- **Endemic and Waterbird Declines:**
- Endemic species, unique to the **Western Ghats** and Sri Lanka biodiversity hotspot, have experienced rapid declines.
    - Of India’s 232 endemic species, many are inhabitants of **rainforests, and their decline raises concerns** about habitat preservation.
  - **Ducks, both resident and migratory, are declining**, with certain species like the Baer’s Pochard, Common Pochard, and Andaman Teal being particularly vulnerable.
  - Riverine sandbar-nesting **birds are also declining due to multiple pressures** on rivers.
- **Major Threats:**
- The report highlighted several major threats – including **Forest Degradation, urbanization, and energy infrastructure** – that bird species face across the country.
  - **Environmental pollutants** including veterinary drugs such as nimesulide still threaten vulture populations in India.
  - Impacts of **Climate Change** (such as on migratory species), **avian disease, and illegal hunting and trade** are also among the major threats.
- **Other Species:**
- **Sarus Crane has rapidly declined** over the long term and continues to do so.
  - Of the 11 species of woodpeckers for which clear long-term trends could be obtained, **seven appear stable, two are declining, and two are in rapid decline**.
    - The **Yellow-crowned Woodpecker**, inhabiting widespread thorn and scrub forests, has **declined by more than 70% in the past three decades**.
  - While half of all bustards worldwide are threatened, the three species that breed in India – **the Great Indian Bustard, the Lesser Florican, and the Bengal Florican** – **have been found to be most vulnerable**.
- What are the Recommendations?**
- **There is a need to conserve specific groups of birds.** For instance, the report found that **grassland specialists** have declined by more than 50% – indicating the importance of **protecting and maintaining grassland ecosystems**.

Note:

# Warning signs for bird species

A total of 142 bird species in India were found to be declining, while only 28 were increasing, in recent years (annual change over past eight years), according to the State of Indian Birds report 2023 released on Friday. A look at its findings. **By Jayashree Nandi**

## CURRENT ANNUAL TREND



## HOW SPECIES ARE FARING

Certain groups of birds are faring particularly poorly, including open habitat species such as bustards and coursers; riverine sandbar-nesting birds; coastal shorebirds; open-country raptors; and a number of ducks, the report said.

- 14 species, including Indian Roller, recommended for IUCN Red List reassessment
- Asian Koel has increased in the past three decades
- Birds that live in **key habitats** like open ecosystems, rivers, and coasts have declined
- Indian Peafowl continues to thrive
- Raptors, migratory shorebirds, and ducks have **declined the most**

## THE MAJOR THREATS FACING INDIAN BIRDS

### CLIMATE CRISIS

Timings of annual events (e.g. migration, nesting, insect emergence) become asynchronous.

For sedentary birds, dealing with climate change will require rapid adaptive changes.

Higher temperatures also cause birds to alter their behaviour, making them more likely to seek shade and spend less time foraging.

Bird species are shifting their ranges to higher latitudes (i.e., away from the tropics and towards the poles) and in mountains, to higher elevations.

### DISEASE

Nearly 7% of globally threatened bird species have declined due to avian malaria.

Avian influenza outbreaks in 2020–2021 across India, caused mass mortality of wild birds.

### ENERGY INFRA

Collision of birds with rotating wind turbine blades; Displacement of birds from the turbine area due to disturbance

### URBANISATION

Urban habitats tend to be unsuitable for rare and specialist species, while promoting common species.

In central Delhi, fruiting trees offer resources for arboreal frugivorous birds such as Brown-headed Barbet and Yellow-footed Green Pigeon. But, urbanisation leads to a homogenisation of bird communities due to the increased abundance of birds adept at exploiting ecological niches.

The Asian Koel (top) shows a dramatic increase since 2000  
Photo by Abhishek Das

Western Ghat endemic birds like the White-bellied Blue Flycatcher (above) are most severely impacted.  
Photo by Albin Jacob

- Systematic monitoring of bird populations over long periods of time is critical to **understanding small-scale changes** in bird populations.
- It is becoming clearer the need for more research to **understand the reasons behind the declines or increases**.
- The report's findings emphasize the importance of **habitat preservation, addressing pollution, and understanding the dietary requirements of birds** in order to reverse the decline of bird populations and ensure a healthier ecosystem.

## What Can be done to Ensure the Viable Population of the Birds in the Ecosystem?

- **Habitat Conservation and Restoration:**
  - Protect and preserve natural habitats, such as forests, wetlands, grasslands, and coastal areas, that are essential for birds' nesting, feeding, and breeding.
  - Restore degraded habitats by **planting native vegetation and removing invasive species** that can threaten bird populations.
- **Protected Areas and Reserves:**

- Establish and manage protected areas and wildlife reserves where birds can **thrive without human disturbances**.
- Implement regulations and guidelines to prevent habitat destruction and disturbances in these areas.
- **Reducing Pollution:**
  - **Control pollution sources, including air and water pollution**, that can harm bird populations directly or through the contamination of their food sources.
  - Promote sustainable practices to minimize pollution in urban and industrial areas.
- **Mitigating Climate Change:**
  - Address **climate change by reducing greenhouse gas emissions** and promoting sustainable energy sources.
  - **Support habitat corridors** that allow birds to move and adapt to changing climatic conditions.
- **Limiting Human Disturbances:**
  - Educate the public about the **importance of minimizing disturbances** to nesting and feeding sites, particularly during breeding seasons.
  - Establish buffer zones around sensitive bird habitats to reduce human interference.

Note:



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### What Measures Have Been Taken to Safeguard Different Bird Species?

- **National Action Plan for the Conservation of Migratory Birds (2018-2023)**
- Transboundary protected areas for conservation of species like **Tigers, Asian elephants, Snow Leopard, the Asiatic Lion, the one-horned rhinoceros, and the Great Indian Bustard.**
- **Wildlife Protection Act, 1972**
- India has taken several steps to **conserve vultures** like imposing a ban on the veterinary use of diclofenac, establishment of Vulture breeding centres, etc.

## Environmental Challenges in Northeast India

### Why in News?

Recently, the Meghalaya High court In the case of **Re: Cleanliness of Uiam Lake versus State of Meghalaya, 2023**, stated that “In the absence of any other employment opportunities the **natural beauty of the State should not be destroyed**”.

- The Ruling shed light on the challenge of promoting tourism, infrastructure development, and construction while **safeguarding the region’s natural beauty.**

### What is the Background?

- The Meghalaya High Court was hearing a **Public Interest Litigation (PIL)** on the cleanliness of the **Uiam Lake.**
- The Uiam Lake case brought attention to the adverse impact of unregulated **construction and tourism on the lake and around the waterbody.**
- The court emphasized that economic development shouldn’t come at the cost of destroying the region’s natural beauty.
- The **Meghalaya Water Bodies (Preservation and Conservation) Guidelines, 2023**, were criticized for inadequately addressing the issue of unchecked construction around water bodies, highlighting the need for more comprehensive regulations.

### How does the Biodiversity of Northeast Intersect with its Developmental Challenges?

- **Biodiversity Hotspot:**

- Northeast India is a **green belt region** due to its **abundant natural resources** such as oil, natural gas, minerals and freshwater.
- The **Garo-Khasi-Jaintia hills** and the Brahmaputra valley are **some of the most important biodiversity hotspots.**
- Northeast India is a part of **Indo-Burma hotspot.**

### Concerns:

- Though the northeast is industrially backward, **deforestation, floods, and existing industries are causing serious problems** to the environment in the region.
  - An environmental assessment of the **North East Rural Livelihood Project** undertaken by the Ministry of Development of the North-eastern Region lays out that “**Northeast India lies within an ecologically fragile**, biologically rich region, highly prone to climatic changes, located in trans-boundary river basins.
- Both flora and fauna of the areas are under threat due to **Deforestation, Mining, Quarrying, Shifting Cultivation.**

### Legal Framework and Challenges:

- The **Sixth Schedule of the Constitution** grants autonomy to District Councils, limiting state authority over land use.
  - This **autonomy** sometimes results in **inadequate regulations**, as seen in the case of Uiam Lake.
- PILs and judicial activism, under **Articles 32 and 226 of the Constitution**, have played a pivotal role in **enforcing environmental protections.**
- The **National Green Tribunal’s** imposing fines on states for environmental violations underscores the role of legal mechanisms in safeguarding the environment.

### How can Sustainable Growth be Promoted in the North East?

#### ➤ North East Industrial Development Scheme:

- The ‘**Negative List**’ within the **North East Industrial Development Scheme (NEIDS)**, 2017, is a commendable step, ensuring that entities adhering to environmental **standards receive incentives.**
- If an entity is not complying with environment standards; not having applicable environmental clearances; does not have consent from the

Note:



concerned pollution boards, it will not be **eligible for any incentive under the NEIDS** and will be put on the **'negative list'**.

➤ **Act Fast for North East:**

- The 'Act Fast for Northeast' policy should not only include "trade and commerce" but also the **preservation of "environment and ecology"** in the region.

➤ **Uniform and Comprehensive Environmental Legislation:**

- To effectively address environmental issues at all governance levels, a uniform and comprehensive environmental legislation is crucial.
- Such legislation would bridge gaps in regulations, ensuring that economic growth aligns with environmental sustainability.

**What are the Key Facts about Umiam Lake?**

- Umiam Lake is one of the **biggest artificial lakes** in Meghalaya that is situated about 15 km from Shillong.
- The lake is a reservoir that was **created as part of a dam construction project on the Umiam River** (also known as **Barapani River**).
  - The dam was constructed to generate **hydroelectric power for the region**.



## **Dholpur-Karauli: India's 54<sup>th</sup> Tiger Reserve**

### **Why in News?**

**National Tiger Conservation Authority (NTCA)** has given its approval for the **establishment of the Dholpur-Karauli Tiger Reserve** in the state of Rajasthan.

- It has secured its position as the **fifth tiger reserve** in the state of Rajasthan following **Mukundra Hills, Ramgarh Vishdhari, Ranthambore, and Sariska**.

### **What are Tiger Reserves?**

- A protected area designated for the conservation of the **striped big cats (tigers)** is referred to as **Tiger Reserve**. However, a **tiger reserve may also be a national park or wildlife sanctuary**.
  - For Example: The **Sariska Tiger Reserve** is also a **national park**. It is so because the place was originally created as a national park and **later dedicated to tiger conservation**.
- Tiger Reserves are **notified by State Governments** as per provisions of **Section 38V of the Wildlife (Protection) Act, 1972** on advice of the National Tiger Conservation Authority.
  - Presently, India accommodates **a total of 54 Tiger Reserves** (with the most recent addition being the **Dholpur-Karauli Tiger Reserve**).

**Note:**

- India is home to **75% of the world's tiger population**. As per the latest report on the **Status of Tigers in India**, the tiger count in the country has surged to **3,167 as of 2022**.
- **Project Tiger** is an ongoing **centrally sponsored program** of the Ministry of Environment, Forests, and Climate Change that provides **government assistance to tiger states for tiger conservation in designated tiger reserves**

### **What is the National Tiger Conservation Authority?**

- **About:**
  - The **NTCA is a statutory body under the Ministry of Environment, Forests and Climate Change** constituted under enabling provisions of the **Wildlife (Protection) Act, 1972**, as amended in 2006, for strengthening tiger conservation.
- **Objectives:**
  - Providing **statutory authority to Project Tiger** so that compliance of its directives becomes legal.
  - Fostering **accountability of Center-State in management of Tiger Reserves**, by providing a basis for MoU with States within our federal structure.
  - Addressing **livelihood interests of local people in areas surrounding Tiger Reserves**.

Note:



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# Tiger Reserves

53 Tiger Reserves  
(as of August, 2022)



## FACTS

- A State Government, on the recommendation of the National Tiger Conservation Authority, notify an area as a tiger reserve.
- Largest Tiger Reserve (Core Area): Nagarjunsagar Srisailem (Andhra Pradesh).
- Smallest Tiger Reserve (Core Area): Orang (Assam).
- Reserve with Highest Tiger Density: Corbett (Uttarakhand) (All India Tiger Estimation 2018).
- State with Maximum Tigers: Madhya Pradesh (All India Tiger Estimation 2018).



## UK's North Sea Drilling

### Why in News?

Recently, The Prime Minister of the UK has endorsed plans for additional fossil fuel drilling off the British coast

in the North Sea, aiming at enhancing Britain's energy independence, and has raised questions about the U.K.'s commitment to its climate goals

- The **North Sea Transition Authority (NTSA)**, responsible for regulating the industries for drilling, is overseeing the **33<sup>rd</sup> offshore oil and gas licensing round**.

Note:



### What is the Evolution of North Sea Drilling?

#### ➤ About North Sea:

- The North Sea is **located in northwest Europe**. It is bordered by several countries, including Norway to the east and north, Sweden, Denmark, Germany, the Netherlands, Belgium, France, and the United Kingdom.
- It is connected to the Atlantic by **the Strait of Dover and the English Channel** and opens directly onto the ocean between the Orkney and Shetland islands and between the Shetland Islands and Norway.

#### ➤ History

- The **1958 Geneva Convention on the Continental Shelf** was the first international legislation to establish the rights of countries over the continental shelves adjacent to their coastlines and **paved the way for exploration in the North Sea**.
- The **U.K. Parliament's Continental Shelf Act of 1964** solidified the country's jurisdiction over **oil and gas resources beneath the seabed** near its shores.



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- British Petroleum (BP) secured the first exploration license in the **U.K. North Sea in 1964**, leading to the discovery of natural gas the following year.
- However, drilling operations faced setbacks, notably the collapse of the **BP-operated Sea Gem drilling rig in 1965**.
- Subsequently, commercial oil was discovered in the Forties Field, east of Aberdeen, Scotland in 1970, and the North Sea witnessed **increased exploration efforts by various companies** in the following decades.
- **Present Need of UK:**
  - The UK emphasized that even after **achieving Net-Zero Emissions by 2050**, a significant portion of the U.K.'s energy needs, about a quarter, **would still be reliant on oil and gas**.
  - The UK's Prime Minister argued that it is **preferable to meet these needs using domestic supplies** rather than depending on potentially unreliable sources from other nations.
    - Despite the U.K.'s commitment to achieving net-zero emissions by 2050, concerns are raised about its adherence to climate targets.
    - The Climate Change Committee (CCC) reported in its March 2023 Progress Report that the U.K. had not adequately prepared for climate change under the second **National Adaptation Programme**.

### ***What are the Environmental Concerns Surrounding Offshore Drilling?***

- **Oil Spills:**
  - Offshore drilling operations carry the **risk of oil spills, which can have catastrophic effects on marine ecosystems** and wildlife. Spilled oil can coat birds, marine mammals, and fish, leading to suffocation, reduced insulation, and impaired ability to find food.
- **Marine Ecosystem Disturbance:**
  - The physical presence of drilling platforms, pipelines, and other infrastructure can **disrupt marine habitats**.
  - The noise and vibrations from **drilling operations can harm marine life** by disrupting communication, navigation, and breeding patterns.
- **Biodiversity Impact:**

- The construction of **drilling structures can damage underwater habitats**, such as coral reefs and seagrass beds, which serve as **crucial breeding and feeding grounds** for marine species.
- **Climate Change:**
  - Extracting and burning fossil fuels obtained from **offshore drilling contributes to greenhouse gas emissions**, exacerbating global climate change.
  - Offshore drilling also warms oceans, leading to sea-level rise and disruption of ocean currents.
- **Resource Depletion:**
  - Intensive offshore drilling can deplete oil and gas reserves, leading to increased pressure to explore new areas, often in environmentally sensitive regions.
- **Acidification:**
  - Carbon dioxide released from burning fossil fuels is absorbed by oceans, leading to ocean acidification. This acidification harms marine life, particularly organisms with calcium carbonate shells or skeletons, such as coral reefs and shellfish.

## **India Sets Emission Threshold in Green Hydrogen Standard**

### ***Why in News?***

The **Ministry of New and Renewable Energy (MNRE)** recently defined a clear **Green Hydrogen Standard**, which establishes **emission thresholds for hydrogen production** categorized as 'green'.

- This significant development positions India at the forefront of global efforts towards sustainable energy solutions.

### ***What is Green Hydrogen, and its Emission Threshold?***

- **Definition of Green Hydrogen:**
  - "Green Hydrogen" shall mean **Hydrogen produced using renewable energy**, including, but not limited to, **production through electrolysis or conversion of biomass**.
  - Renewable energy also includes such electricity generated from renewable sources which is stored in an **energy storage system or banked with the grid in accordance with applicable regulations**.

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### ➤ Emission Threshold:

- The MNRE has determined that Green Hydrogen should have a **well-to-gate emission of not exceeding 2 kg carbon dioxide (CO<sub>2</sub>) equivalent per kg Hydrogen(H<sub>2</sub>)**, taken as an **average over the last 12-month period**.
  - The well-to-gate emission includes water treatment, electrolysis, gas purification, drying and compression of hydrogen.
- Methodology and Monitoring:
  - The MNRE will specify a detailed methodology for measuring, reporting, monitoring, on-site verification, and certification of green hydrogen and its derivatives.
  - The **Bureau of Energy Efficiency (BEE)**, Ministry of Power, will serve as the **Nodal Authority** for accrediting agencies overseeing monitoring, verification, and certification of green hydrogen production projects.

### **What are India's Initiatives to Promote Green Hydrogen?**

#### ➤ National Green Hydrogen Mission:

- India launched the **National Green Hydrogen Mission** with the objective of **producing 5 million metric tonnes of green hydrogen annually by 2030**.
- The mission aligns with a **target of about 125 gigawatts of associated renewable energy capacity**.
- The program offers **financial incentives to promote domestic production of electrolyzers and green hydrogen**.
- These incentives are designed to facilitate rapid scale-up, technology development, and cost reduction.

#### ➤ Green Hydrogen Consumption Obligations:

- The **MNRE** has proposed to introduce **green hydrogen consumption obligations** for fertilizer and the petroleum refining industry, like the renewable purchase obligations for electricity distribution companies.
  - The obligations will require these industries to consume a certain percentage of green hydrogen in their total hydrogen consumption.

## **Unveiling California's Past Extinction to Illuminate Modern Challenges**

### **Why in News?**

As the prevalence of deadly **wildfires** has surged, driven by the combined forces of human-caused **climate change** and disruptive land management practices, a new study delves into **California's** history during the **Pleistocene epoch**, a time marked by **profound climatic shifts** and **Earth's largest extinction event in over 60 million years**.

### **What is the Pleistocene Epoch?**

- It is the geological epoch that lasted from about **2,580,000 to 11,700 years ago**, spanning the earth's most recent period of repeated glaciations.
  - It was during the Pleistocene that the most recent episodes of global cooling, or ice ages, took place.
- The epoch featured ice age giants, such as **woolly mammoths** (*Mammuthus primigenius*) **giant bears, dire wolves and camels**, many of which disappeared at the end of the Pleistocene in a major extinction event.
  - The extinction resulted in substantial losses, **North America lost over 70% of mammals** weighing more than 97 pounds, **South America lost over 80%, and Australia nearly 90%**.
- The end of the Pleistocene epoch also marks the beginning of the **Holocene epoch**, which is the **current epoch we are living in**.

### **What are the Major Highlights of the Study?**

- **Revealing Insights from the La Brea Tar Pits:** **La Brea Tar Pits is a prolific ice age fossil site in Los Angeles, US** home to preserved remains of thousands of large mammals trapped in asphalt seeps.
  - By analyzing proteins in the fossils, the study reveals a deadly **combination of a warming climate marked by prolonged droughts and rapid human population growth**.
    - These factors pushed Southern California's ecosystem to a tipping point, causing irreversible changes in vegetation and mega-mammal populations.

Note:

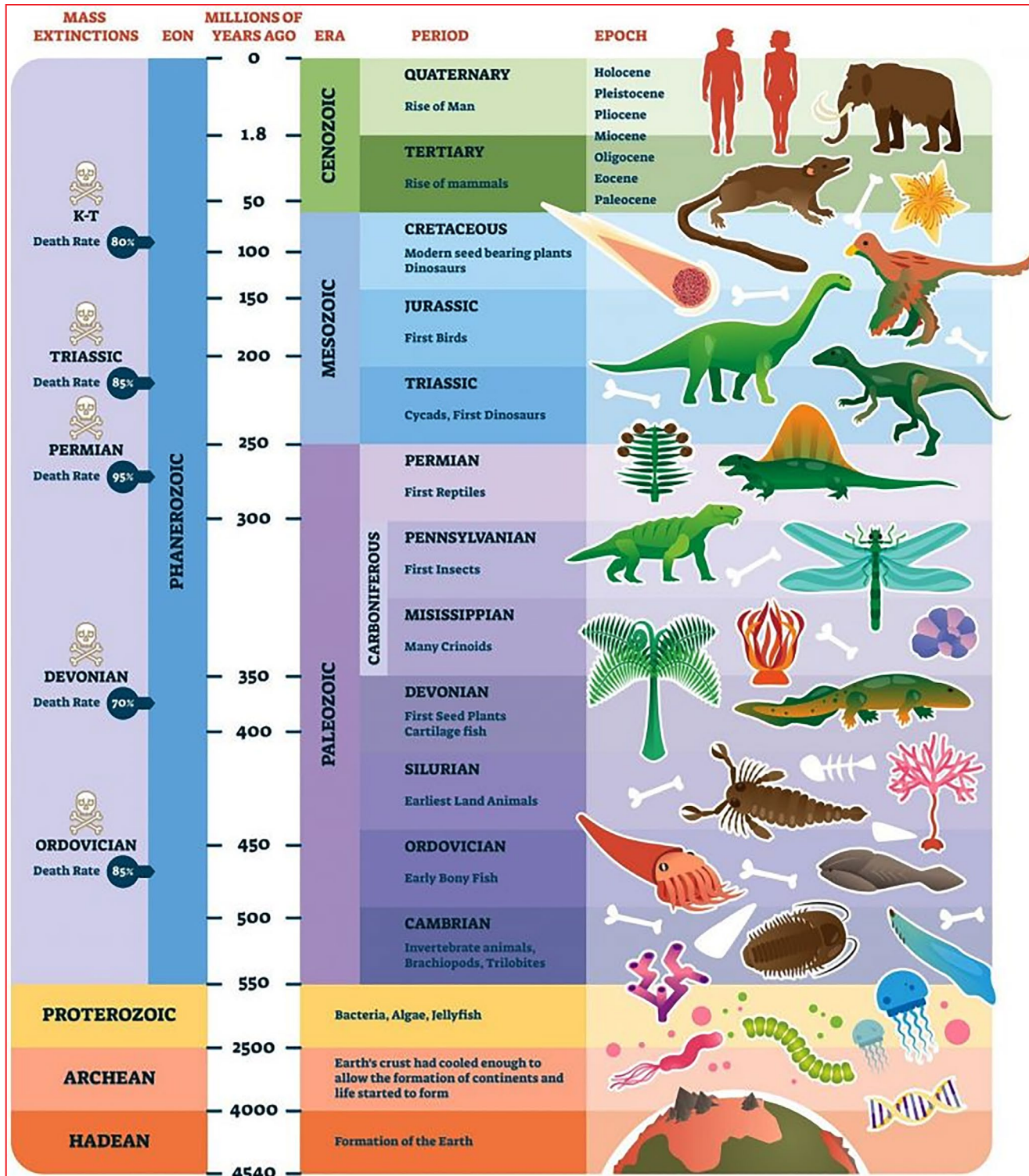


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- As California warmed coming out of the last ice age, the landscape became drier and forests receded.
- At La Brea, herbivore populations also declined, probably from a combination of human hunting

and habitat loss. Species associated with trees, like camels, disappeared entirely.

- **A New Paradigm: Fire's Role:** The study highlights that fire is a relatively recent phenomenon in Southern California, with fire becoming frequent only after human arrival.



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- Over **90% of wildfires in coastal California are ignited by human activities** such as downed power lines and campfires.
- Parallels between Pleistocene extinctions and contemporary crises underscore the vulnerability of ecosystems under compounded stress.
- **Relevance for Today's Climate and Biodiversity Crisis:** Today's **convergence of climate warming, human population expansion, biodiversity loss**, and human-triggered fires mirrors the past.
- The pace of current temperature rise, primarily fueled by fossil fuel burning, far **surpasses that of the ice age's end**.
- The study underscores the need to intensify efforts to curtail greenhouse gas emissions, prevent reckless fire ignitions, and safeguard megafauna.

#### What is the Geological Time Scale?

- The **Geological Time Scale** is like a vast timeline that helps us understand the history of our planet.
  - Just as a calendar breaks down years, months, and days, the Geological Time Scale breaks down **Earth's history into eons, eras, periods, and epochs**.
- Eons are divided into **Eras**, Eras into **Periods**, Periods into **Epochs**, and Epochs into **Ages**.

#### What Should be the Priorities to Prevent Future Mass Extinctions?

- **Holistic Ecosystem Restoration and Preservation:**
  - **Innovative Ecosystem Mapping:** Develop **advanced mapping technologies to assess ecosystem health** and identify critical areas for restoration.
  - **Bio-corridor Creation:** Establish **ecological corridors to connect fragmented habitats**, enabling species to migrate and thrive across diverse environments.
  - **Preemptive Conservation:** Prioritize conservation of **keystone species** to maintain the ecological balance crucial for long-term ecosystem resilience.
- **Synthetic Biology for Species Resilience:**
  - **Genetic Augmentation:** Employ **synthetic biology techniques to enhance genetic diversity within vulnerable species**, bolstering their adaptability to changing conditions.
  - **Assisted Evolution:** Proactively guide **species adaptation through controlled interventions**, accelerating their response to environmental shifts.

- **Ethical Considerations:** Forge a global ethical framework to guide the responsible use of synthetic biology in conservation efforts.
- **Green Innovation for Sustainable Resource Utilization:**
  - **Circular Economies:** Promote **circular economies** to minimize resource depletion and waste, thereby reducing stress on ecosystems.
  - **Biomimicry and Sustainable Design:** Harness **nature-inspired designs to develop eco-friendly products**, reducing environmental impacts across industries.
  - **Green Infrastructure:** Invest in **sustainable infrastructure that reduces habitat destruction**, such as **wildlife-friendly roadways and energy installations**.
- **Data-Driven Conservation Management**
  - **Predictive Analytics:** Utilize **machine learning and AI to model ecosystem dynamics**, enabling timely interventions to prevent disruptions.
  - **Real-time Monitoring:** Implement remote sensors and satellite technology for real-time monitoring of ecosystems and early detection of stressors.
    - There is a need to establish interconnected data-sharing networks to facilitate collaborative conservation efforts across borders.
- **Youth and Community Empowerment:**
  - **Environmental Education Reform:** Revamp educational curricula to foster a deep understanding of biodiversity's importance and instill a sense of stewardship from an early age.
  - **Youth-Driven Initiatives:** Encourage youth-led conservation projects and platforms to amplify their influence and involvement in shaping policies.
  - **Cultural Integration:** Integrate **indigenous and local knowledge systems into conservation strategies**, promoting community ownership and sustainable practices.

## Rising Methane Levels and the Threat to Climate Stability

### Why in News?

The surge in **methane levels** in Earth's atmosphere has raised concerns about the planet's ongoing climate transition.

Note:



- As methane, a potent greenhouse gas, gains momentum in its growth, it raises questions about whether **Earth is undergoing a 'termination-level transition' similar to past climate shifts.**

### **What is Termination-Level Transition?**

- The concept of a **"termination-level transition"** refers to a **significant and abrupt shift in Earth's climate from one state to another.**
- These transitions are marked by **rapid and substantial changes in various climatic factors**, which can have far-reaching consequences for the planet's ecosystems, weather patterns, and overall environmental stability.
- Earth's climate has undergone termination-level transitions throughout its history.
  - These transitions are often associated with the **end of ice ages** (It was during the Pleistocene, epoch spanning from approximately 2.6 million to 11,700 years ago, which witnessed the most recent instances of global cooling, or ice ages) and the subsequent shift to warmer interglacial periods.
- Various factors, including **changes in ocean currents, and atmospheric composition, can trigger termination-level transitions.**

### **How Does Methane Threaten Warming Limits?**

- **Potency of Methane as a Greenhouse Gas:**
  - Methane is much more effective at trapping heat than **carbon dioxide (CO<sub>2</sub>)**.
  - It has a shorter atmospheric lifespan of less than a decade compared to CO<sub>2</sub>'s centuries.
  - While present in smaller quantities than CO<sub>2</sub>, methane's heat-trapping capacity is **approximately 28-36 times stronger over a 100-year period.**
  - Methane was about **0.7 parts per million (ppm) in the air** before humans began burning fossil fuels. **Now it is over 1.9 ppm and rising fast.**
    - This enhanced warming potential **intensifies its impact on the greenhouse effect.**
- **Challenges in Limiting Warming:**
  - The rapid increase in methane levels complicates efforts to **limit global warming to safe levels.**
  - Elevated methane concentrations contribute to the overall greenhouse gas effect, **exacerbating temperature rise.**

- Rising methane levels can push the **planet closer to dangerous temperature thresholds.**
- Warming caused by methane can lead to further methane release from **thawing permafrost and melting Arctic ice**, amplifying its warming effects.

### **Effects on Ecosystems:**

- The increased methane concentrations can impact ecosystems, **disrupt natural processes, and affect biodiversity.**
- Vulnerable ecosystems, such as **wetlands, are particularly sensitive to methane-related changes.**

### **Implications for Sea-Level Rise:**

- Elevated methane levels can contribute to **sea-level rise** by accelerating the melting of polar ice and glaciers.
- Sea-level rise threatens **coastal communities and exacerbates the impacts of climate change.**

### **Methane**

- Methane is the **simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms (CH<sub>4</sub>).**
- It is flammable and is used as a fuel worldwide.
- Methane is a powerful **greenhouse gas.**
- Methane has more than **80 times the warming power of carbon dioxide** over the first 20 years of its lifetime in the atmosphere.
- Roughly three-fifths of methane emissions come from **fossil fuel use, farming, landfills and waste.** The remainder is from **natural sources, especially vegetation rotting in tropical and northern wetlands.**

### **What are the Initiatives to Tackle Methane Emissions?**

#### **Indian:**

- **'Harit Dhara' (HD):** Indian Council of Agricultural Research (ICAR) has developed an anti-methanogenic feed supplement **'Harit Dhara' (HD)**, which can cut down cattle methane emissions by 17-20% and can also result in higher milk production.
- **India Greenhouse Gas (GHG) Program:** The India GHG Program led by WRI India (non-profit organization), Confederation of Indian Industry (CII) and **The Energy and Resources Institute (TERI)** is an industry-led voluntary framework to measure and manage greenhouse gas emissions.
  - The programme builds comprehensive measurement and management strategies to

Note:



reduce emissions and drive more profitable, competitive and sustainable businesses and organisations in India.

- **National Action Plan on Climate Change (NAPCC):** **NAPCC** was launched in 2008 which aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industry and the communities on the threat posed by climate change and the steps to counter it.
- **Bharat Stage-VI Norms:** India shifted from **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI)** emission norms.

➤ **Global:**

- **Methane Alert and Response System (MARS):** MARS will integrate data from a large number of existing and future satellites that have the ability to detect methane emission events anywhere in the world, send out notifications to the relevant stakeholders to act on it.
- **Global Methane Pledge:** At the **Glasgow climate conference (UNFCCC COP 26)** in 2021, **nearly 100 countries had come together in a voluntary pledge**, referred to as the Global Methane Pledge, to cut methane emissions by at least 30% by 2030 from the 2020 levels.
  - **India is not a part of the Global Methane Pledge.**
- **Global Methane Initiative (GMI):** It is an international public-private partnership focused on reducing barriers to the recovery and use of methane as a clean energy source.

## Sixth Anniversary of the Minamata Convention

### **Why in News?**

The **sixth anniversary of the Minamata Convention on Mercury** is a reminder of global efforts to combat the toxic effects of mercury.

- On this occasion, the **United Nations Environment Programme (UNEP)** reflects on the ongoing campaign to **eradicate the use of mercury in small-scale gold mining**.
- This practice, despite its economic significance, poses **severe risks to both miners and the environment** due to the hazardous properties of mercury.

### **What is the Minamata Convention?**

- The **Minamata Convention on Mercury** is a global treaty to protect human health and the environment from the adverse effects of mercury and its compounds.
  - It was agreed at the **fifth session of the Intergovernmental Negotiating Committee in Geneva, Switzerland** 2013.
- Controlling the anthropogenic releases of mercury throughout its lifecycle is one of the key obligations under the Convention.

### **What is Mercury Pollution?**

➤ **About Mercury:**

- Mercury is a **naturally occurring element** found in the Earth's crust. It is considered by the **World Health Organization (WHO)** as one of the top **ten chemicals** or groups of chemicals of major public health concern.

➤ **Major Applications of Mercury:**

- **Thermometers and Barometers:**
  - Mercury's **high coefficient of thermal expansion** and easy visibility make it suitable for use in traditional thermometers and barometers.
- **Chemical and Mining Processes:**
  - Mercury has been used in various chemical and mining processes, including the production of chlorine and mining of gold.
- **Electronics and Electrical Switches:**
  - Mercury-wetted switches are used in various electrical applications because **mercury's conductivity and low resistance** make it suitable for creating a reliable electrical connection.

➤ **Sources of Mercury Pollution:**

- **Natural Sources:**
  - **Volcanic eruptions** release small amounts of mercury.
  - **Erosion of rocks** and soil can release mercury into water bodies.
- **Anthropogenic Sources:**
  - **Artisanal and Small-Scale Gold Mining (ASGM):** ASGM is a major source of mercury pollution, where mercury is used to extract gold from ore.

Note:



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- Mercury is used to extract gold particles from ores, **creating amalgams** that are later heated to evaporate the mercury, leaving behind gold.
- Artisanal gold mining **operations are responsible for 37% of global mercury pollution.**
- **Industrial Processes:** Various industries, such as **chlorine production, cement manufacturing, and waste incineration**, emit mercury.

- The cement industry is responsible for around **11% of global anthropogenic mercury emissions.**
- **Waste Disposal:** Improper disposal of e-waste products containing mercury, such as **fluorescent bulbs and batteries**, leads to mercury leaching into the environment.
- **Associated Impact:**

# MERCURY POLLUTION AND MINAMATA CONVENTION

## Mercury

- Symbol - Hg; Atomic No - 80
- Naturally occurring element (rocks in earth's crust, deposits of coal),
- Toxic effects on nervous, digestive and immune systems, lungs, kidneys etc.
- One of the top **10 chemicals/groups of chemicals of major public health concern** (WHO)

## Methylmercury vs Ethylmercury

- Methylmercury (**MeHg**) is linked to health issues
- Ethylmercury is utilized as a preservative in some vaccines

## MERCURY POLLUTION

### Sources

- Volcanic eruption and weathering of rocks
- Artisanal and Small-Scale Gold Mining (ASGM) (**major source**)
- Industrial processes (**chlorine production, cement manufacturing** etc)
- Improper disposal of **e-waste** (fluorescent bulbs and batteries)

### Impact:

- MeHg accumulates in aquatic organisms (later consumed by humans)
- MeHg carries a **higher risk of causing Minamata disease** (neurological symptoms)

## MINAMATA CONVENTION

### Objective

- Protect human health and environment from adverse effects of Hg and its compounds
- Controlling anthropogenic releases of Hg throughout its lifecycle (**key obligation**)

### Agreed at

- Intergovernmental Negotiating Committee (5<sup>th</sup> session), Geneva, Switzerland (2013)

### Covers Control on

- Mercury mining
- Manufacture/trade of Hg and related products
- Disposal of Hg waste
- Emissions of Hg from industrial facilities

### Members

- 144 parties (**India has ratified**)
- Member countries **bound to put the above controls in place**



Note:

- Methylmercury accumulates in aquatic organisms like fish. People primarily come into contact with **methylmercury** through the **consumption of fish and shellfish**.
  - This compound carries a **higher risk of causing Minamata disease**, a condition characterized by **sensory impairment, tremors, and both auditory and visual deficits**.
- This illness was initially observed in the residents of **Minamata Bay, Japan**, who consumed mercury-contaminated fish due to industrial waste pollution.

**Note:** Methylmercury and ethylmercury differ significantly. While methylmercury is linked to health issues, **ethylmercury is utilized as a preservative** in certain vaccines and **is not associated with health concerns**.

## Indian Himalayan Region

### Why in News?

The **Himalayan region**, renowned for its **breathtaking landscapes and cultural heritage**, faces a pressing need to address **sanitation issues** that have long been overshadowed by concerns over **illegal construction and surging tourist influx**.

- A recent analysis conducted by the **Centre for Science and Environment (CSE)**, highlighted the dire state of sanitation systems in Himalayan states.

### What are the Major Highlights of the Analysis?

- **Water Supply and Wastewater Generation:** According to **Swachh Bharat Mission-Gramin** guidelines, each hill town receives **approximately 150 liters per capita of water supply**.
  - Alarmingly, **65-70% of this water supply is converted into wastewater**.
- **Grey Water Management Challenges:** In Uttarakhand, **merely 31.7% of households are connected to sewerage systems**, leaving the majority reliant on on-site sanitation facilities.
  - Both households and small hotels frequently resort to **using soak pits to manage grey water**, generated from bathrooms and kitchens.
  - The presence of unlined open drains in some towns leads to the unregulated flow of grey water, **exacerbating its infiltration into the ground**.

- **Implications for Soil and Landslides:** The Himalayan region's soil makeup, including **clayey, loamy, and metamorphosed schist, phyllite, and gneiss rocks**, is inherently delicate.
  - The **excessive seepage of water and wastewater into the ground**, as observed in the analysis, can render the soil softer and trigger vulnerability to landslides.

### What are the Other Challenges Associated with the Indian Himalayan Region?

- **About:**
  - The Indian Himalayan Region (IHR) is spread across 13 Indian States/Union Territories (namely **Jammu and Kashmir, Ladakh, Uttarakhand, Himachal Pradesh, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Assam and West Bengal**), stretching across 2500 km.
  - Nearly **50 million people reside in this region**, which is characterized by a diverse demographic, and versatile economic, environmental, social and political systems.
    - With its **towering peaks, majestic landscapes, rich biodiversity and cultural heritage**, the IHR has long drawn visitors and pilgrims from the Indian sub-continent and across the world.
- **Challenges:**
  - **Environmental Degradation and Deforestation:** The IHR faces **extensive deforestation**, which disrupts the delicate ecological balance.
    - Rampant construction for infrastructure and **urbanization** leads to habitat loss, soil erosion, and disrupted water flow.
  - **Climate Change and Disasters:** The IHR is **highly sensitive to climate change**. Rising temperatures lead to **glacier retreat**, altering the **timing and availability of water resources** for downstream communities.
    - **Erratic weather patterns**, increased intensity of rainfall, and prolonged dry spells further impact ecosystems and local communities.
    - The region is also highly susceptible to natural disasters like **earthquakes, landslides, and flash floods**.
    - Poorly planned development, lack of disaster-resilient infrastructure, and inadequate early warning systems amplify the impact of such events.

Note:



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- **Cultural and Indigenous Knowledge Erosion:** The IHR is home to diverse indigenous communities with unique knowledge and practices that have sustained them for generations.
  - However, **modernization can lead to the erosion of these cultural traditions**, which often contain valuable insights for sustainable resource management.

## Large-Scale Wildfires in Hawaii

### Why in News?

Recently, Hawaii has been grappling with extensive **Wildfires** that have wreaked havoc across the state.

- The situation has highlighted the significance of hazard mitigation plans and the identification of **vulnerable areas, like Lahaina and West Maui communities**, where frequent wildfire ignitions and a large number of at-risk buildings were identified in Maui County's plan last updated in 2020.



### What caused such a Severe Wildfire in Hawaii?

- **Flash Droughts:**
  - Dry weather combined with strong winds from a passing hurricane **played a significant role** in fueling the blaze. These conditions, known as "Flash Droughts," involve **rapid moisture evaporation from the atmosphere**, creating ideal conditions for fire spread.
  - Maui is home to one of the **six active Volcanoes of Hawaii**. Most of Maui was **experiencing severe drought, so the dry land, with dry non-native grasses** and vegetation, was ready fuel for fires.

- These fed the fires and helped them spread.
- **Anthropogenic and Climate Change:**
  - **Climate change** has increasingly been linked to **the rising occurrence of devastating forest fires** globally and Hawaii's wildfire outbreak is likely not an exception.
  - As temperatures rise and air becomes warmer **due to climate change, the conducive conditions for storms and wildfires** are amplified.
  - Furthermore, the historical **land use practices of cultivating** irrigated pineapples and sugar cane gave way to **invasive, fire-prone grass species** as these industries declined.
  - This transition has contributed to the vulnerability of the land to rapid fire spread.
- **The Winds of Hurricane Dora:**
  - The fire in Hawaii started in the wild and was carried by the **wind that was blowing at almost 100 kmph**.
    - The winds have their **origins in Hurricane Dora**, an unusually strong storm in the Pacific Ocean.
  - Hundreds of miles away from Hawaii, **Hurricane Dora did not hit Hawaii**. Instead, the islands **were caught between high and low pressure zones** due to the hurricane, which resulted in the **winds fanning the flames and making these difficult to control**.

### What are the Key Facts About Hawaii?

- Hawaii sits over 2,000 miles west of California in the **Pacific Ocean**, comprising a diverse and unique ecosystem.
- It is the 50<sup>th</sup> and youngest state of the United States.
- Renowned for its stunning natural beauty, **Hawaii consists of eight main islands formed by volcanic activity**.
  - The state's capital is Honolulu.
- With a rich cultural heritage influenced by **Polynesian, Asian, and American cultures**, Hawaii boasts a **vibrant and diverse society**.
- The islands offer a variety of **landscapes, from lush rainforests to volcanic landscapes**, making it a haven for outdoor enthusiasts.
- The archipelago is famous for its **hula dance, luaus, and traditional ukulele music**. Hawaii's unique **flora and fauna include endangered species like the Hawaiian monk seal and green sea turtle**.

Note:



## What are Wildfires?

### ➤ About:

- Wildfires, also known as **forest fires or bushfires**, are uncontrolled fires that **rapidly spread across vegetation**, including forests, grasslands, shrublands, and other natural landscapes.
- They can be caused by **both natural factors, such as lightning strikes, and human activities**, including discarded cigarettes, campfires, power lines, and intentional acts.

### ➤ Types of Wildfires:

- **Crown Fires:** They burn **trees up their entire length** to the top. These are the most intense and dangerous wildland fires.
- **Surface Fires:** They burn only surface litter and duff. These are the easiest fires to put out and cause the least damage to the forest.
- **Ground Fires:** Sometimes called underground or subsurface fires occur in **deep accumulations**

of humus, peat and similar dead vegetation that become dry enough to burn.

- These fires move very slowly, **but can become difficult to fully put out**, or suppress. Occasionally, especially during prolonged drought, such fires can smoulder all winter underground and then emerge at the surface again in spring.

### ➤ Causes of Wildfires:

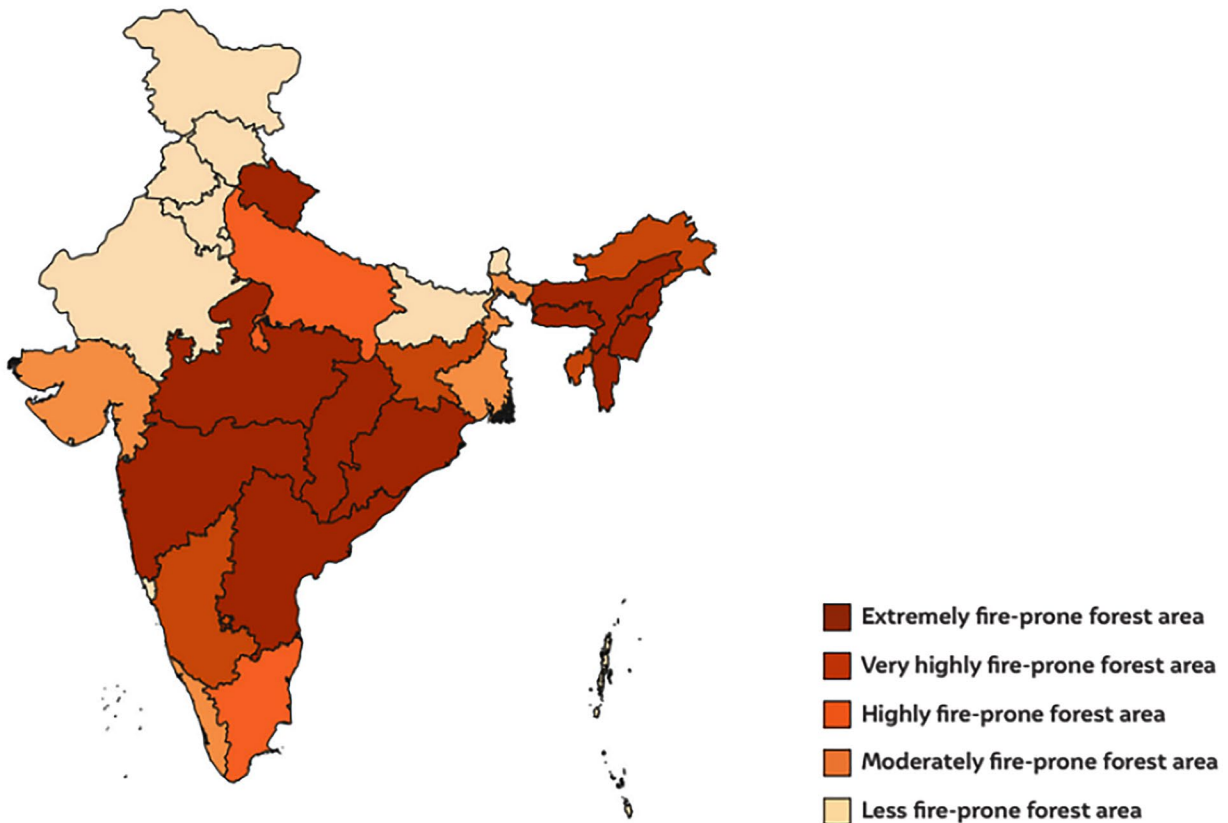
#### ○ Human Causes:

- Human acts of **carelessness such as leaving campfires** unattended and **negligent discarding of cigarette butts** result in wildfire disasters.
- Accidents, deliberate **acts of arson, burning of debris, and fireworks** are the other substantial causes of wildfires.

#### ○ Natural Causes:

- **Lightning:** A fairly good number of wildfires are triggered by lightning.

More than 62% of Indian states are prone to high-intensity forest fire events (2000–19)



Note:

- **Volcanic eruption:** Hot **Magma** in the earth's crust is usually expelled out as lava during a volcanic eruption. The hot lava then flows into nearby fields or lands to start wildfires.
- **Temperature:** High atmospheric temperatures and dryness offer favorable conditions for a fire to start.
- **Climate change:** It is causing a gradual but highly significant increasing trend in surface air temperatures, and it leads to record-breaking extremes in many areas when it interacts with the normal periodic warming associated with an **El Nino**.

### How Vulnerable is India to the Wildfires?

- The forest fire **season normally extends from November to June** in India.
- A report by the **Council of Energy, Environment and Water (CEEW)** has noted:
  - A tenfold increase in forest fires over the past two **decades and says more than 62% of Indian states** are prone to high-intensity forest fires.
  - Andhra Pradesh, Odisha, Maharashtra, Madhya Pradesh, Chhattisgarh, Uttarakhand, Telangana, and the Northeastern states are most prone to forest fires.
  - Mizoram has seen the highest incidence of forest fires over the last two decades, and 95% of its districts are forest fire hotspots.
- The **ISFR (India State of Forest Report) 2021** estimates that **more than 36%** of the country's forest cover is prone to frequent forest fires, 6% is 'very highly' fire-prone, and almost 4% is 'extremely' prone.
  - Also, An FSI study has found that nearly 10.66% area under forests in India is 'extremely' to 'very highly' fire prone.

### What are the Government Initiatives to Tackle Wildfires?

- **National Action Plan for Forest Fires (NAPFF):** It was started in 2018 with the goal of reducing forest fires by informing, enabling, and empowering forest fringe communities and incentivizing them to collaborate with state forest departments.
- **National Mission for Green India (GIM):** Launched under the **National Action Plan on Climate Change**, the GIM aims to increase forest cover and restore degraded forests.

- It promotes the use of community-based forest management, biodiversity conservation, and sustainable forest practices, which contribute to preventing forest fires.
- **Forest Fire Prevention and Management Scheme (FFPM):** FFPM is implemented by the FSI under the MoEF&CC. It aims to strengthen the forest fire management system by utilizing advanced technologies such as **remote sensing**.
  - It is the only government-sponsored programme dedicated to assisting states in dealing with forest fires.

### What are the Wildfires Mitigation Strategies?

- **Create Fire Breaks:** Fire breaks are areas where vegetation has been removed, creating a gap that can slow or stop the spread of a fire.
- **Monitor and Manage Forests:** Monitoring **forests and managing them appropriately** can help prevent fires from starting or spreading.
- **Early Detection and Rapid Response:** Early detection **of a forest fire is critical** for effective mitigation.
  - The **Forest Survey of India (FSI)** is using satellite imaging technology (like MODIS) to analyse forest fire affected areas and boost prevention.
- **Fuel Management:** Reducing the **accumulation of dead trees, dry vegetation**, and other combustible materials through activities such as thinning and selective logging.
- **Firewise Practices:** Safe practices must be adopted in areas near forests viz. factories, coal mines, oil stores, chemical plants and even in household kitchens.
- **Practice Controlled Burning:** Controlled burning involves setting small fires in a controlled environment.

## World Elephant Day 2023

### Why in News?

Recently, on the occasion of **World Elephant Day**, the Union Minister of Environment, Forest and Climate Change and Labour and Employment highlighted various initiatives and accomplishments in India's elephant conservation journey.

Note:



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### What is World Elephant Day?

#### ➤ About:

- World Elephant Day, observed **globally on August 12**, is a dedicated observance aimed at raising awareness about the **critical challenges confronting elephants and advocating for their protection and conservation**.
- This significant day provides a platform to emphasize the issues elephants face, encompassing habitat loss, ivory poaching, human-elephant conflicts, and the imperative for enhanced conservation endeavours.

#### ➤ Historical Perspective:

- The campaign World Elephant Day was **initiated in 2012 to bring awareness to the disturbing situations of African and Asian elephants**.
  - The objective of this campaign is to **create a sustainable environment where animals are not exploited and taken care of**.
- It was first observed by Canadian filmmakers Michael Clark and Patricia Sims with the Thailand-based Elephant Reintroduction Foundation.
  - In 2012, Patricia Sims **founded an organization called the World Elephant Society**.
    - The organization has succeeded to create awareness about the dangers confronted by elephants and the inevitability to protect them globally.

### What are the Key Highlights of Elephants?

#### ➤ About:

- Elephant is the **Natural Heritage Animal of India**.
- Elephants are considered a **"Keystone Species"** as they play a critical role in maintaining the balance and health of forest ecosystems.
  - They are **known for their exceptional intelligence**, boasting the largest brain size of any land animal.

#### ➤ Significance in Ecosystem:

- Elephants are very **important grazers and browsers**, eating vast amounts of **vegetation every day, spreading seeds around as they go**.
  - They also help **shape the often-thick vegetation of the Asian landscape**.
    - For example, in forests, **elephants create clearings and gaps in the trees that let sunlight in to reach new seedlings**, helping

plants grow and the forest to regenerate naturally.

- Elephants will also dig for water when there is not any surface water – **opening water access for other creatures as well as themselves**.

#### ➤ Elephants in India:

- India has the **largest number of wild Asian Elephants**, estimated at **29,964 according to the 2017 census by Project Elephant**.
  - It is about 60% of the species' global population.
- **Karnataka** has the highest number of elephants, followed by **Assam** and **Kerala**.

#### ➤ Conservation Status:

- **International Union for Conservation of Nature (IUCN)** Red List of threatened species:
  - African Forest Elephant (*Loxodonta Cyclotis*)- **Critically Endangered**
  - African Savanna Elephant (*Loxodonta Africana*)- **Endangered**
  - Asian Elephant (*Elephas maximus*)- **Endangered**
- **Convention of the Migratory species (CMS)**:
  - African Forest Elephant: **Appendix II**
  - Asian Elephant: **Appendix I**
- **Wildlife (Protection) Act, 1972: Schedule I**
- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**:
  - African Savanna Elephant: **Appendix II**
  - Asian Elephant: **Appendix I**

### What are the Initiatives and Accomplishments in India's Elephant Conservation Journey?

#### ➤ Addressing Elephant-Human Conflict:

- Establishment of over **40 elephant corridors and 88 wildlife crossings to reduce conflicts**.
- Creation of **buffer zones around protected areas covering more than 17,000 sq. km**.

#### ➤ Project Elephant:

- Launched in 1992, covering 23 states across India.
- Improved the status of wild elephants, with a **population increase from about 25,000 in 1992 to around 30,000 in 2021**.

#### ➤ Elephant Reserves:

- Establishment of **33 Elephant Reserves** covering approximately **80,777 Sq.km**.

Note:

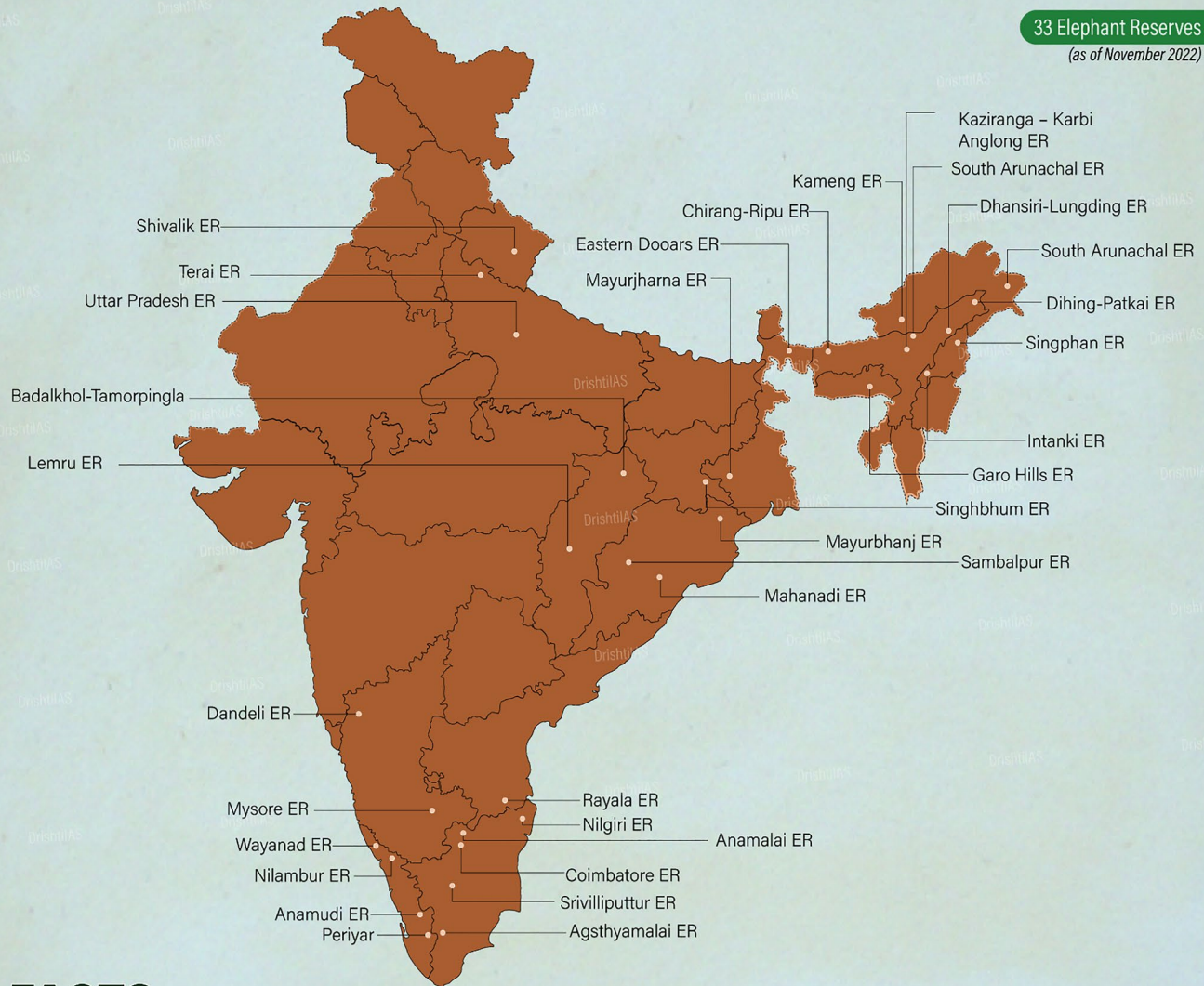


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# Elephant Reserves

33 Elephant Reserves  
(as of November 2022)



## FACTS

- Tamil Nadu and Assam have the highest number (5) of elephant reserves in India.
- The Indian elephant *Elephas maximus* is included in Schedule I of the Indian Wildlife (Protection) Act, 1972 and in Appendix I of CITES.
- Indian Elephant has also been listed in the Appendix I of the Convention of the Migratory Species and as 'Endangered' in the IUCN Red List.
- The elephant was declared the National Heritage Animal of India in 2010.
- MoEFCC provides financial and technical support to major elephant range states in the country through Project Elephant. Project Elephant was launched by the Government of India in the year 1992 as a Centrally Sponsored Scheme.



- These reserves play a crucial role in safeguarding wild elephant populations and their habitats.

### ➤ Human-Elephant Conflict Management:

- Rapid response teams deployed in various states to handle conflict situations.

- Around **110 critical stretches across the railway network in the country that traverse through elephant habitats** have been identified for the implementation of eco-friendly measures to mitigate human-elephant conflicts.

Note:



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- In these locations measures such as building underpasses, clearing vegetation along the tracks to increase visibility for the loco pilots to avoid collisions, provisioning ramps, and others will also be taken up.
- **Community Participation and Empowerment:**
  - **Gaj Yatra program** and **Gaj Shilpi initiative** involving people to raise awareness about elephant conservation.
- **Recognition of Exemplary Efforts:**
  - Conferment of **Gaj Gaurav awards** individuals and organizations for their exemplary contributions in the field of elephant conservation and management.
- **International Agreements and Protocols:**
  - Participation in international conferences like the **Conference of Parties under CITES**.
  - **Monitoring of Illegal Killing of Elephants (MIKE) Programme**- The MIKE Programme was established by the CITES by **Resolution 10.10 adopted at the tenth Conference of the Parties in 1997**.
- The MIKE program **started in South Asia in the year 2003 with the following purpose:**
- To provide information needed for elephant range States to make appropriate management and enforcement decisions, and to **build institutional capacity within the range States for the long-term management of their elephant populations**.
- **Mike Sites in India:**
  - Chirang-Ripu Elephant Reserve (Assam)
  - Deomali Elephant Reserve (Arunachal Pradesh)
  - Dihing Patkai Elephant Reserve (Assam)
  - Garo Hills Elephant Reserve (Meghalaya)
  - Eastern Dooars Elephant Reserve (West Bengal)
  - Mayurbhanj Elephant Reserve (Odisha)
  - Shivalik Elephant Reserve (Uttarakhand)
  - Mysore Elephant Reserve (Karnataka)
  - Nilgiri Elephant Reserve (Tamil Nadu)
  - Wayanad Elephant Reserve (Kerala)

Note:

# Security

## Highlights

- Indian Army Enhancing Operational Preparedness

## Indian Army Enhancing Operational Preparedness

### Why in News?

To enhance its overall operational preparedness, the Indian Army has signed contracts for the procurement of **130 tethered drones and 19 tank-driving simulators** under **Emergency Procurement (EP)**.

- The long-endurance tether drone systems can be used in high-altitude areas.

### Note:

- The emergency financial powers were first given to the **armed forces** after the **2016 Uri attack** to help them circumvent the slow bureaucratic system of procurement. Under these powers, the **services can ink contracts worth Rs 300 crore** each on their own.

### What are Tethered Drones and Simulators?

- **Tethered Drones:** Tethered drones are a category of **unmanned aerial vehicles (UAVs)** linked to a ground-based station via a tether.
  - These tethered drone systems, with wings that span both day and night, are **meant to be watchful protectors, sending important data and video feeds** to enhance border security continuously.
  - Beyond aviation, tethered drones are a paradigm shift in surveillance, virtually anchored to the ground while bearing vital loads like cameras and radios.
  - With their advanced sensor technology and ability to provide an uninterrupted view of vast areas, Tethered Drones can play a crucial role in **enhancing situational awareness and tactical decision-making on the battlefield**.
- **Simulators:** The simulators are supposed to **virtually help in the training of the drivers of tanks and infantry combat vehicles (ICV)** and will contribute to minimising wear and tear on tanks and ICVs during training.

### How is the Indian Army Enhancing its Preparedness in Recent Times?

- The army is observing **2023 as the 'Year of Transformation'**, and is working on several projects to reshape and remodel the functional processes to bring in a **"quantum jump in its capabilities"**.
- Since the **India-China stand-off in Eastern Ladakh in 2020**, the Army has concluded a series of contracts with Indian start-ups for small drones for surveillance and load-carrying.
- **Niche technologies** like logistic and nano drones, counter-drones, loiter munitions, **SWARM drones**, UAV-launched precision-guided missiles, and automatic spectrum monitoring systems, are being procured.
- Aligning with the larger vision of **'Atmanirbharta'**, the Army is achieving modernisation with indigenisation through various modes, such as **'Make' projects, iDEX (Innovation for Defence Excellence)**, and outreach programs like setting up of **'Army Cells'** at leading technology institutions to **promote R&D aligned with the army's requirements**.

### What are Some Initiatives to Boost Domestic Production of Defence Equipment?

- **Defence Industrial Corridors**
- **Corporatization of the Ordnance Factory Boards**
- **Defence India Startup Challenge**
- **Draft Defence Production and Export Promotion Policy 2020**
- **Innovations for Defence Excellence (iDEX)**
- **Mission Raksha Gyan Shakti**
- **Indian Navy Indigenisation Plan (INIP) 2015-2030**
- **Naval Innovation and Indigenisation Organisation (NIIO)**

Note:

***Why is it Significant  
for the Indian Army to  
Enhance its Capabilities?***

- **National Security:** Given India's complex geostrategic environment and its history of conflicts, bolstering defence capabilities is essential to safeguard its borders and citizens.
- **Deterrence:** India's robust defence forces can discourage adversaries from initiating conflicts or hostile actions, contributing to regional stability.
- **Conflict Resolution:** In the unfortunate event of a conflict, superior defense capabilities can lead to quicker and more favorable conflict resolutions.
- **Counter Terrorism:** India has faced numerous instances of terrorism and insurgent activities; enhanced defence capabilities allow for more effective counterterrorism operations.
- **Strategic Autonomy:** Strengthening defence capabilities reduces dependency on external sources for defence equipment, technology, and expertise, enhancing India's strategic autonomy.



Note:

# Art and Culture

## Highlights

- World Sanskrit Day 2023

### World Sanskrit Day 2023

#### Why in News?

In 2023, the celebration of **World Sanskrit Day** takes place on 31<sup>st</sup> August.

#### What are the Important Facts about World Sanskrit Day?

- **History:**
  - The **first World Sanskrit Day** was celebrated in 1969.
  - World Sanskrit Day or Vishwa Sanskrit Diwas is **celebrated on Purnima Tithi (Full moon)** of **Shravana** month every year.
  - It **serves as a tribute to the birth anniversary of Panini**, a distinguished Sanskrit scholar and grammarian.
- **Importance:**
  - This day is **celebrated to show gratitude and respect towards the Sanskrit language**.

#### What are Some of the Important Facts about the Sanskrit Language?

- It is an **Indo-Aryan language** and is **considered to be one of the oldest languages** and is known as the **mother of most languages of India**.
- It is **believed to have originated in India around 3500 years ago** and is often **referred to as Dev Vani** (the language of the deities).
- It is **divided into two parts** which are **Vedic and classical**.
  - Vedic Sanskrit is the older and more archaic form of Sanskrit, which is attested in the **Rig Veda, the Upanishads, and the Puranas**.
  - Classical Sanskrit is the **later and more standardised form of Sanskrit**, which is based on the grammar of Panini and **used in literature, philosophy, science, and art**.

#### Note:

- Sanskrit is among the 22 official languages included in the **Eight Schedule of the Indian Constitution**.
- It is also included among **6 Classical languages** besides Tamil, Telugu, Kannada, Malayalam, and Odia.
- In 2010, **Sanskrit was declared the second official language of Uttarakhand**.
- In **Mattur village of Karnataka** everyone speaks in the Sanskrit language.



Note:



# History

## Highlights

- Red Fort: Venue for the India's Independence Day Celebration

## Red Fort: Venue for the India's Independence Day Celebration

### Why in News?

As India proudly celebrated its **77<sup>th</sup> Independence Day**, the spotlight once again fell upon the **iconic Red Fort** in Delhi.

### What are the Series of Events Associated with Red Fort?

- **Historical Significance of Red Fort:**
  - **Under the Delhi Sultanate:** Delhi emerged as a pivotal capital during the Delhi Sultanate (1206-1506).
    - **Babur, the founder of the Mughal dynasty**, termed **Delhi** the 'capital of all Hindustan' in the 16th century.
    - Despite brief relocations (**Akbar** shifted his capital to Agra) the **Mughals, under Shah Jahan, reestablished Delhi as their capital with Shahjahanabad in 1648**, known today as Old Delhi.
- **Shah Jahan laid the foundation of his citadel, Lal-Qila or Red Fort.**
  - **Symbolic Significance of the Mughal Emperor:** By the 18th century, the **Mughal Empire had lost most of its territories and power.**
    - They were still regarded as symbolic rulers of India by some sections of society, **especially by those who opposed British colonialism.**
- The **1857 Rebellion** epitomized this connection, when people marched towards Red Fort and **declared the aged Bahadur Shah Zafar as their leader.**
  - **British Imperial Rule and Transformation of the Red Fort:**

- **British Capture of Delhi:** After subduing the 1857 Rebellion, the British intended to **erase the Mughal legacy by demolishing Shahjahanabad.**
  - While sparing the Red Fort, they stripped it of its grandeur, looted artworks, and replaced inner structures with British buildings.
  - This transformation left an indelible mark of British imperial authority on the Red Fort.
- **Utilizing Symbolic Authority:** Britishers recognized Delhi's symbolic power.
  - The **Delhi Durbar ceremonies** reinforced British dominance and proclaimed the monarch as the Emperor of India.
  - In 1911, the **British moved their capital to Delhi**, constructing a new city that embodied the Indian ethos and centralized authority.

### How Red Fort Became Venue for India's Independence Day Celebration?

- The **Indian National Army's** trials at the Red Fort in the 1940s elevated its **symbolism**. These trials sparked sympathy for the INA and **intensified nationalist sentiments against British rule**, reinforcing the Red Fort's role as a symbol of defiance.
- As India approached independence, Jawaharlal Nehru, the first Prime Minister of India, **decided to hoist the national flag at the Red Fort.**
  - On August 15, 1947, Jawaharlal Nehru hoisted the National flag "Tiranga" at **Princess Park**, followed by his historic "**Tryst with Destiny**" speech at the **Red Fort on August 16, 1947.**
  - This was a **symbolic gesture of reclaiming the fort from British colonial rule and asserting India's sovereignty and identity.** It also marked the culmination of India's long and arduous struggle for freedom.
- **Since then**, every year on 15th August, the Prime Minister of India hoists the national flag and addresses the nation from the Red Fort.

Note:

- This tradition has become an integral part of India's Independence Day celebrations and reflects its pride and patriotism.

**About Red Fort**

- The Red Fort, so called because of the **red colour of the stone** largely used in it, is **octagonal on plan**, with two longer sides on the east and west.
- The fort is a masterpiece of Mughal architecture and a symbol of their cultural and artistic achievements. It was **designated as a UNESCO World Heritage Site in 2007**.
  - Also, the fort is depicted on the reverse side of the new 500 rupee note.
- It is **currently under the management of the Archaeological Survey of India (ASI)**, which is responsible for its conservation and maintenance.
  - The ASI has also installed various facilities for visitors, such as **museums, galleries, audio guides, light and sound shows, etc.**

■■■



Note:

# Geography

## Highlights

- Equatorial Origin Cyclones and Pacific Decadal Oscillation
- El Nino Southern Oscillation
- Container Terminal Project at Deendayal Port

## Equatorial Origin Cyclones and Pacific Decadal Oscillation

### Why in News?

Equatorial-origin **cyclones** have been unusually subdued in recent decades.

- However, as per a study published in the journal **Nature Communications**, the combination of global warming and the **Pacific Decadal Oscillation (PDO)** could make such cyclones more frequent in the coming years.

### What are Equatorial-Origin or Low Latitude Cyclones?

- Equatorial origin or Low Latitudes Cyclones (LLCs) originate between 5°N and 11°N. These cyclones are much smaller in size than those in higher latitudes but **intensify more rapidly**.
  - Cyclones forming near the equator (low-latitude) is usually rare but when the waters are warm, they can gain more moisture and rise in intensity.
  - Majority of cyclones originate in the Western Pacific Ocean.
- The last major cyclone of this kind in the Indian neighbourhood was the 2017 **Cyclone Ockhi** which travelled >2000 km and **devastated Kerala, Tamil Nadu and Sri Lanka**.
- The north Indian Ocean (NIO) in the post-monsoon season (Oct-Nov-Dec) is a hotbed for LLCs that **constitute about 60% of all Tropical Cyclones** formed in the NIO (since 1951) but has received relatively less attention.

### What is Pacific Decadal Oscillation?

- **About:**

- The Pacific Decadal Oscillation (PDO) is a **long-term ocean fluctuation** of the Pacific Ocean. It is a **cyclical event that repeats every 20-30 years** and just like **ENSO**, has a 'cool' and 'warm' phase.
- **Positive (warm) PDO = cooler west Pacific Ocean** and warmer eastern side (vice versa for negative PDO).
- The term PDO was coined in about 1996 by Steven Hare.

### ➤ Impact of PDO:

- **On Global Climate:** PDO phase can have significant implications for the global climate, affecting Pacific and Atlantic hurricane activity, **droughts and flooding around the Pacific basin**, the productivity of marine ecosystems, and global land temperature patterns.
- **On Cyclones:** A warmer (positive-phased) PDO implies **fewer equatorial-origin cyclones**.
  - In 2019, the PDO entered a cooler, negative phase and which if continues, could mean more such cyclones in post-monsoon months.

### ➤ ENSO and PDO:

- ENSO with a positive PDO is generally not good, however, **ENSO with a negative PDO brings more rain to India**.
- If both ENSO and the PDO are in the same phase, it is believed that El Niño/La Nina impacts may be magnified.

### ➤ PDO vs ENSO:

- **El Nino or La Nina events** repeat in the Pacific over 2-7 years, however, **PDO has a signature for a longer time** (on the decadal scale).
- A 'positive' or 'warmer phase' of a PDO **can be known only after several years of measuring ocean temperatures** and their interaction with the atmosphere (stage of an ENSO can be determined any year).

Note:

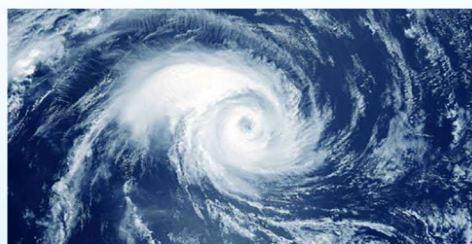


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# CYCLONE



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

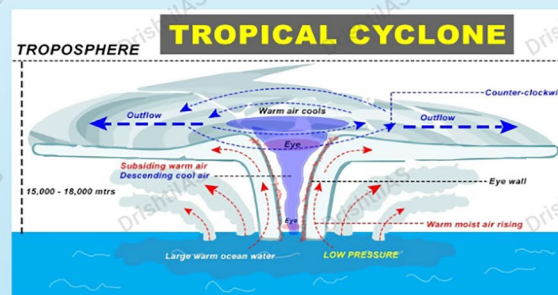


## Cyclone v/s Anticyclone

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

## Classification

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



## Conditions for Formation

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

## Different Names for Tropical Cyclones

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

## Nomenclature

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

## Cyclones in India

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

Note:



## El Nino Southern Oscillation

### El Nino Southern Oscillation (ENSO)

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

#### Significance:

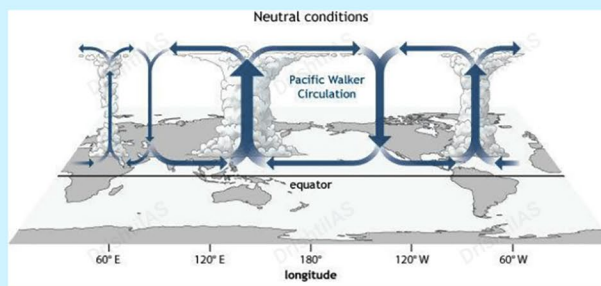
- Ability to change the global atmospheric circulation, influencing temperature and precipitation worldwide

#### States of ENSO:

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

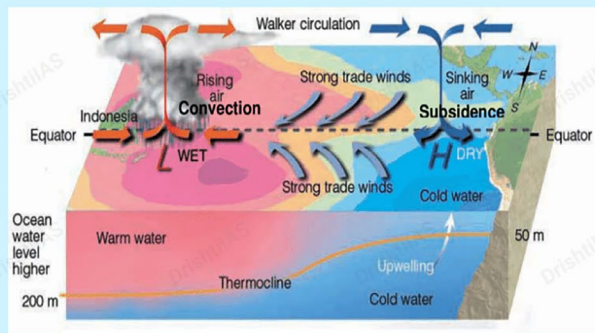
### Walker Circulation (WC)

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



### Normal (non ENSO) Conditions in the Pacific Ocean

#### NEUTRAL ENSO



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

## Container Terminal Project at Deendayal Port

### Why in News?

Recently, the **Deendayal Port Authority** and **Dubai-based DP World**, a multinational logistics company, partnered for the **Mega Container Terminal Project** at Tuna Tekra, Gujarat. The initiative was initiated by **India's Ministry of Ports, Shipping & Waterways (MoPSW)**.

- With the aim to enhance port capacity, foster multimodal logistics, and promote global connectivity, this venture signifies a pivotal step in public-private partnership.

### What are the Key Highlights of Container Terminal?

- The terminal will have an annual capacity to handle **2.19 million twenty foot equivalent units (TEUs)** with capability to handle next-generation vessels carrying more than 18,000 TEUs.

## Major Ports in India



- Ports in India are classified as **Major and Minor Ports** according to the jurisdiction of the Central and State government as defined under the **Indian Ports Act, 1908** i.e. Major Ports are owned and managed by the Central Government and Minor ports are owned and managed by the State Governments.
- The **Major Port Authorities Act, 2021** provides for regulation, operation and planning of major ports in India and provide greater autonomy to these ports. It replaced the Major Port Trusts Act, 1963.
- There are **12 major ports**. **13<sup>th</sup> Major Port** (under construction) is **Vadhavan port, Maharashtra**.

Note:

- Mega Container Terminal Project is fully compliant with the **green port guidelines**.
- The terminal will connect **Northern, Western and Central India with the Global market**.
- The project aligns with **India's Vision 2047 to quadruple port handling capacity**.
- The terminal will be a part of the **National Infrastructure Pipeline complementing PM Gati Shakti**.
- The Container Terminal is expected to transform the **economic landscape of Kutch**, with the creation of several ancillary services like warehousing, etc. and also result in the creation of **direct and indirect employment opportunities**.

#### ***What are the Key Points About Deendayal Port?***

- Deendayal Port, also known as Kandla port, is one

of the twelve **Major Ports in India** and is located on the **West Coast of India, in the Gulf of Kutch in the State of Gujarat**.

- Deendayal Port primarily services northern India, including the landlocked Jammu and Kashmir, Uttar Pradesh, Madhya Pradesh and Rajasthan.
- Deendayal Port's journey began in 1931 with the construction of **RCC Jetty by Maharao Khengarji**. After the independence of India in 1947, **Deendayal Port emerged to be India's No. 1 Port in the year 2007-08 and has retained the top position for the 14<sup>th</sup> consecutive year since then**.
- In 2016, Deendayal Port created history by handling 100 MMT cargo in a year – the first Major Port to achieve this milestone.
- It is the largest port in India by volume of cargo handled.



Note:



# Miscellaneous

## Highlights

- National Sports Day 2023
- Katchatheevu Island
- Khanan Prahari to Combat Illegal Coal Mining

## National Sports Day 2023

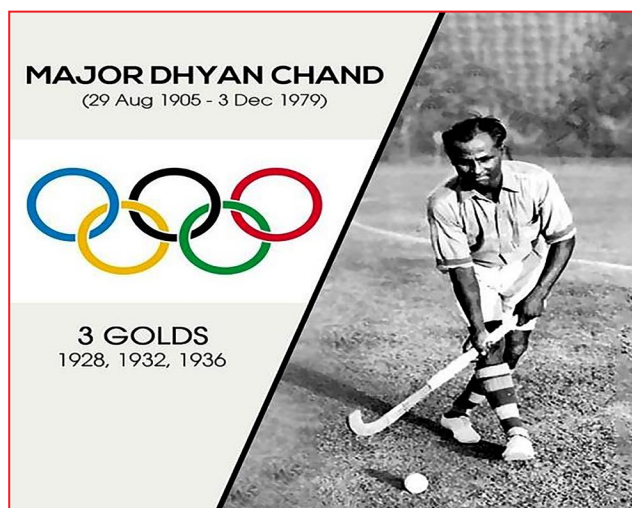
### Why in News?

12<sup>th</sup> **National Sports Day** was celebrated across India on **29 August**.

### Why is National Sports Day Celebrated?

- **Objective:** To commemorate the **birth anniversary of hockey legend Major Dhyan Chand**.
- **First NSD:** August 29, **2012**.
- **Significance:** Encourages people of all ages to **embrace physical fitness, regular exercise and a healthy lifestyle**.
  - Serves as a **catalyst for developing a robust sports culture** in India.
- **Highlights of NSD 2023:**
  - Theme - **"Sports are an enabler to an inclusive and fit society"**.
  - **National Sports Federations** portal launched (for good governance).

### Who was Major Dhyan Chand?



- Major Dhyan Chand was a field hockey player who played international hockey from **1926 to 1949**.
  - He was a **three-time Olympic gold medalist** who secured gold in the **1928, 1932, and 1936** Olympic editions.
- His exceptional skills in the game made him earn the title **'magician of hockey'**.
  - Dhyan Chand, along with his brother Roop Singh, contributed significantly to India's 35-goal tally, earning them the title of **'hockey twins.'**
  - In **1934**, Dhyan Chand was honoured with the **captaincy of the Indian team**.
- In 1956, Major Dhyan Chand retired from the army as a Major and was honoured with the **Padma Bhushan**.

### Note:

- **Awards named after Major Dhyan Chand:**
  - **Major Dhyan Chand Khel Ratna Award** (highest sporting honour of India)
  - **Dhyan Chand Award** (highest award for lifetime achievement in sports)

Sports awards in India	Awarded For
Major Dhyan Chand Khel Ratna Award	Awarded for outstanding performances in sports spanning over a period of four years.
Arjuna Award	Given out for consistent good performance over a period of four years.
Dronacharya Award	It is awarded to coaches for producing medal winners at prestigious international events.
Major Dhyan Chand Award	Presented for good performance and contributing towards the promotion of sports.

Note:



Maulana Abu I Kalam Azad Trophy	Given to the university for top performance in inter-university tournaments over the last one year.
Rashtriya Khel Protsahan Puruskar	Awarded to organisations and individuals for playing a role in the area of sports promotion and development over the last three years.
Tenzing Norgay National Adventure Award	To recognise outstanding achievements in the field of adventure activities or sports on land, sea and air.

## Khanan Prahari to Combat Illegal Coal Mining

### Why in News?

The **Ministry of Coal** has launched the Khanan Prahari mobile app, revolutionizing the **fight against illicit coal mining activities**.

### What is Khanan Prahari?

#### ➤ About:

- This innovative app allows **citizens to take an active role in reporting incidents of illegal coal mining** through the submission of **geo-tagged photographs and textual information**.
- The corresponding web portal called as **Coal Mine Surveillance & Management System (CMSMS)** has been developed in association with the **Bhaskaracharya Institute of Space Application & Geoinformatics, Gandhinagar, and Central Mine Planning and Design Institute (CMPDI), Ranchi**.
- This comprehensive approach not only leverages cutting-edge technology but also emphasizes public participation in addressing this critical issue.
  - A total of 483 complaints have been lodged through the Khanan Prahari mobile app, reflecting the public's active involvement.

#### ➤ Features:

- **Reporting Incidents:** Users can easily report incidents of illegal mining by taking photographs and providing comments on the incident.

- **Confidentiality:** The user's identity is kept confidential, **ensuring privacy and security**.
- **Complaint Tracking:** Complainants receive a **complaint number**, which they can use to easily track the status of their reported complaints.

## Katchatheevu Island

### Why in News?

Recently, the Tamil Nadu Chief Minister revived the debate over the **Katchatheevu**, a longstanding point of contention **between India and Sri Lanka**, particularly with regard to fishing rights and sovereignty over the uninhabited island.



### What are the Highlights of the Katchatheevu Issue?

#### ➤ Historical Background:

- Katchatheevu is a **285-acre uninhabited speck in the Palk Strait, between India and Sri Lanka**, an island located about 14 nautical miles off Rameswaram, India.
- In 1974, **Prime Ministers Indira Gandhi of India and Sirima R.D. Bandaranaike of Sri Lanka** signed an agreement that **recognized Katchatheevu as part of Sri Lanka's territory**, resulting in a change of ownership.
  - The agreement also allowed **Indian fishermen to fish around the island, dry their nets on it, and permitted Indian pilgrims to visit the Catholic shrine located on the island**.

Note:

➤ **Fishing Rights and Livelihood:**

- Fisherfolk from both India and Sri Lanka have historically used Katchatheevu for fishing. Though this feature was acknowledged in the 1974 agreement, the supplemental pact was signed in 1976.
  - The 1976 agreement was aimed at **defining maritime boundaries and exclusive economic zones for both countries**, while also imposing restrictions on fishing vessels and fishermen from either nation, **prohibiting fishing in each other's waters without explicit permission** from either of the two countries.

➤ **Indian Government Stance and Legal Aspects:**

- The Indian government, in 2013, stated that the **question of retrieval did not arise as no Indian territory was ceded.**

- The issue was framed as a dispute between **British India and Ceylon (now Sri Lanka), resolved through agreements in 1974 and 1976.**
- The Union government asserted that **Katchatheevu lies on the Sri Lankan side of the India-Sri Lanka International Maritime Boundary Line.**

➤ **Political and Public Sentiment:**

- The transfer of Katchatheevu triggered **opposition and debates in both Indian Houses of Parliament.**
- Leaders of Tamil Nadu have periodically raised the demand for the island's retrieval.
- The demand evolved over the years, with suggestions of a "lease in perpetuity (a lease deed in which no specified time period)" for the island.



Note:

# Rapid Fire Current Affairs

## Highlights

- Mahendragiri
- Contribution of Ernest Rutherford
- India and Kenya Signed a MoU for Collaboration in Shipbuilding
- Blotting Paper
- India's Current Account Deficit Narrows Amid Trade Shifts
- Public Declarations Not Necessary for Marriages: Supreme Court
- Exploring Consciousness in Artificial Intelligence
- Kampala Declaration on Climate Change
- Nataraja Statue Headed to G20 Summit Venue in Delhi
- Echolocation
- Durand Cup 2023
- IAF Joins Ex BRIGHT STAR-23
- Significant Declarations: Shiv Shakti, Tiranga, and National Space Day
- Rare Black Eagle Spotted at Chail Wildlife Sanctuary
- Neeraj Chopra Clinches Gold in World Athletics Championships 2023
- Dibang Multipurpose Project
- Mylara Cult
- African Union Suspends Niger from All Institutions Following Coup
- Revolutionizing Sectors with Next-Gen Photonic RF Conversion
- Annual Capacity Building Plan of Minister of Rural Development and Panchayati Raj
- GeM Achieves INR 1 Lakh Crore GMV in Record 145 Days
- Tejas LCA Successfully Fires Indigenous ASTRA Missile
- KVIC Launched Khadi Rakshasoot for Raksha Bandhan
- Diversion of Paravanar River Course
- Stockholm Syndrome
- Namoh 108 Lotus Variety
- India and the Philippines sign MoU for Enhanced Maritime Cooperation
- Chess World Cup 2023
- Ecuador Rejects Amazon Oil Drilling
- India's Foreign Exchange Reserves
- Hurricane Hilary
- Spain Clinches Women FIFA World Cup 2023
- Onam
- Nanomechanical Testing Technology
- Baghjan Oil Spill
- National Automated Fingerprint Identification System (NAFIS)
- FloodWatch Real-Time Flood Monitoring App
- Curbing Fraud with SIM Card Registration
- Anduri Utsav: Uttarakhand's Whimsical Butter Festival
- Matti Banana
- CCEA Approves 7 Multi-tracking Projects of the Ministry of Railways
- Cabinet Approves Mutual Recognition Arrangement
- Lake Titicaca
- Empowering Women Through 'Koosina Mane' Initiative
- Critical Role of Sulina Channel in Ukraine's Grain Trade
- India and WHO to launch Global Initiative on Digital Health
- A-HELP Programme
- NIPCCD Organizes a Training Programme on Poshan Bhi Padhai Bhi
- Understanding Muscle Cramps
- Navroz

## Mahendragiri

- Mahendragiri, the last **Project 17A Frigate**, will be launched on 1st September 2023.
- The ship is named after a **mountain peak in Eastern Ghats located in the state of Orissa**.
  - Project 17A Frigates are follow-ons of the **Project 17 Class Frigates (Shivalik Class)**, with improved **stealth features, advanced weapons and sensors, and platform management systems**.
- Mahendragiri is a technologically advanced warship and stands as a symbol of **India's determination to embrace its rich naval heritage**.

- Project 17A ships have been **designed in-house** by the **Indian Navy's Warship Design Bureau**.

Read more: **Project 17A and INS Taragiri**

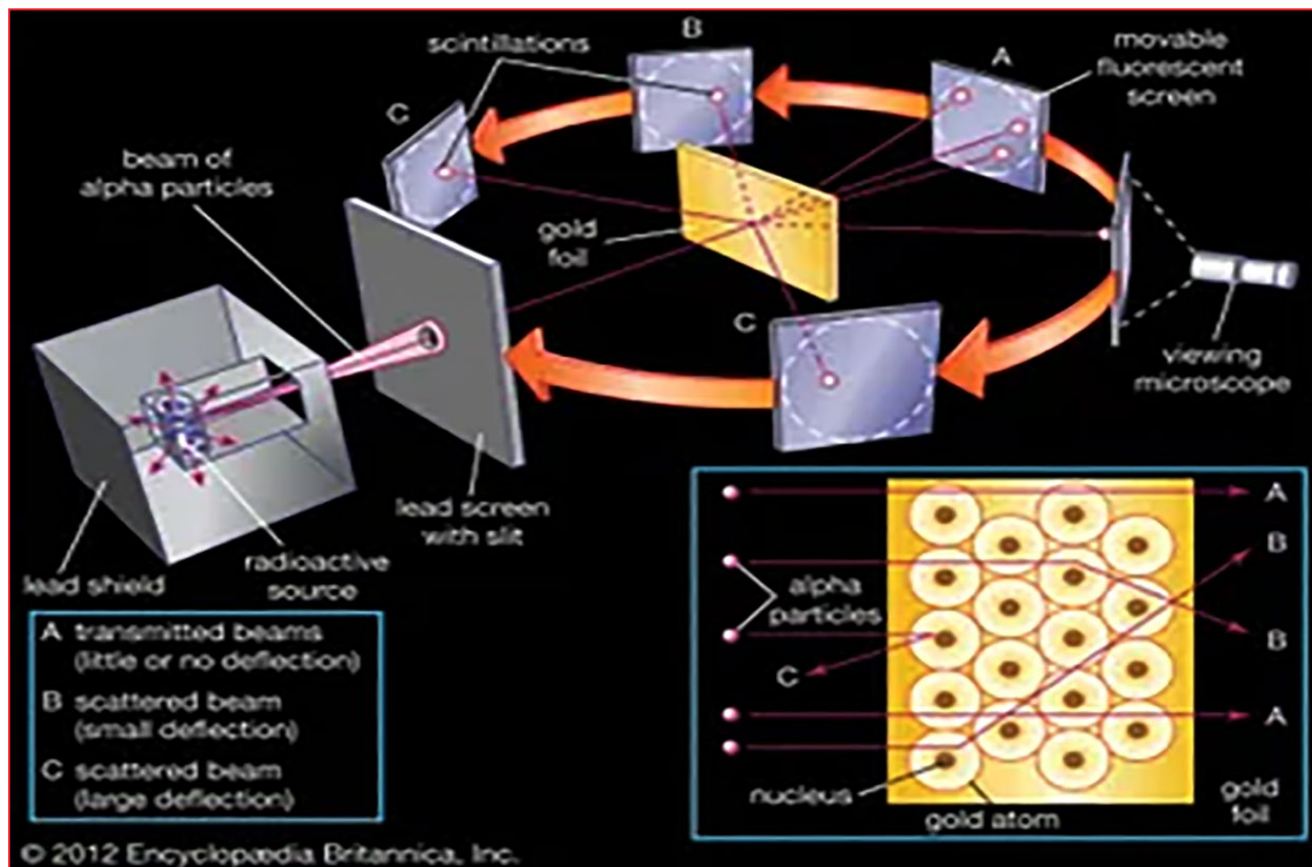
## Contribution of Ernest Rutherford

Ernest Rutherford **won the Nobel Prize for Chemistry in 1908**. He hypothesised that **helium gas** could be formed from radioactive substances.

- He **discovered that there are at least two types of radiation, alpha ( $\alpha$ ) and beta ( $\beta$ ) particles**, coming from uranium.

Note:

- His most famous experiment is the gold foil experiment:
  - A beam of **alpha particles** was aimed at a piece of **gold foil**. Most alpha particles passed through the foil, **but a few were scattered backward**.
  - This showed that **most of the atom is empty space surrounding a tiny nucleus** (positively charged and surrounded at a great distance by the negatively charged electrons).



## India and Kenya Signed a MoU for Collaboration in Shipbuilding

- On a visit to India, the Kenyan Cabinet Secretary for Defence signed an MoU with India's defence minister for **capacity building and collaboration in ship design and construction**.
- The two Ministers emphasised on the need for **deeper maritime security cooperation in IOR** and agreed for a joint training in **counter-insurgency** and **UN peacekeeping domains**.
- Kenya is located in East Africa between the **Indian Ocean and Lake Victoria**.
- Kenya is significant for India in the geopolitics of Western Indian Ocean. It is also an active member of the **African Union** with whom India has a long-established connection.



Read More: [India Kenya Ties](#), [Indian Ocean Region](#), [India Africa Relations](#)

Note:



## Blotting Paper

- Blotting paper absorbs ink through **capillary action**, a natural process where liquids **move to lower surface tension**.
  - Capillary tubes, tiny channels less than 1mm wide, when in contact with liquids, draw the **liquid upward, higher than its outside level**.
- Blotting paper, derived from **cotton linter, wood, or straw**, contains **microscopic capillaries** formed during its creation. These capillaries **quickly soak up ink or water, spreading it across the paper**.
- Capillary action also drives **plant sap upward** and helps **oil reach lamp wicks** for burning.

## India's Current Account Deficit Narrows Amid Trade Shifts

India's **Current Account Deficit (CAD)** is being influenced by shifts in trade patterns. The deficit is expected to **decrease to around USD 10 billion or 1% of the GDP** in the April-June quarter of **2023-24**, down from USD 18 billion or 2.1% in the same period of 2022-23.

- **CAD** is a crucial economic indicator that **quantifies the difference between a country's earnings from foreign trade and its expenditures on imports of goods and services**, including transfer payments.
  - A CAD arises when a **nation's imports exceed its exports**, leading to an outflow of currency and often necessitating foreign borrowing to bridge the gap.
- A low CAD can be seen as a positive economic indicator because it often implies that the **country's economy is self-sustaining** and is able to finance its external commitments without straining its resources.
  - It can also **indicate that the country is competitive in international trade** and has a balanced approach to its imports and exports.

Read more: **Current Account Deficit**

## Public Declarations Not Necessary for Marriages: Supreme Court

Recently, the **Supreme Court** has declared that **not all marriages necessitate a public declaration or**

**solemnization**. Also, the court approved a Tamil Nadu law that allowed "self-respect" marriages and affirmed that **lawyers can officiate at 'self-respect marriages'** between consenting adults.

- Through a state amendment in 1967, **Section 7-A of the Hindu Marriage Act**, applicable to Tamil Nadu, provides legal recognition to **self-respect or reformist marriages among Hindus**.
  - These marriages can be solemnized in the presence of relatives, friends, or other individuals and allow couples to marry without a formal public ceremony and empower advocates to conduct such unions in private settings.
- The court's ruling upholds an individual's right to choose a life partner without external interference, in accordance with **Article 21 of the Indian Constitution**.
- **Solemnizing marriage without a Brahmin priest** was the prime objective of the **Self Respect Movement** started by **E.V. Ramaswamy Naicker (Periyar)** in 1925.

Read more: **Hindu Marriage Act, Article 21, Supreme Court**.

## Exploring Consciousness in Artificial Intelligence

Researchers have developed a checklist based on **neuroscience-based theories** that could help assess whether an **Artificial Intelligence(AI) system is conscious**.

- The study suggests that the rapid progress in the field of AI has raised the possibility that **conscious AI systems could be built in the near future**.
  - However, human-like behaviors can make it difficult to judge the true level of engagement by AI systems.
- Being conscious means **experiencing consciousness or having the potential for it**.
  - "Conscious" is different from "sentient" which refers to having senses.
- No AI system appears to be a strong candidate for consciousness at present.
  - Microsoft's study: **GPT-4** AI can think and use common sense like humans.
- Researchers believe assessing AI consciousness is scientifically doable, and the authors provided initial evidence that many of the **indicator properties can be implemented in AI systems using current techniques**.

Read more: **India and Generative AI**

Note:



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## Kampala Declaration on Climate Change

A significant step has been taken by **48 African countries to adopt the Kampala Ministerial Declaration on Migration, Environment, and Climate Change (KDMECC)** to address the interconnection between **human mobility and climate change on the continent**.

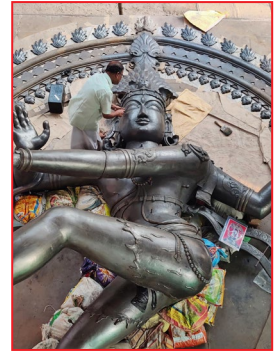
- The decision was discussed at a Conference of States co-hosted by Kenya and Uganda. The initiative was supported by the **International Organization for Migration (IOM)** and the **UN Framework Convention on Climate Change (UNFCCC)**.
  - IOM was born in 1951 out of the chaos and displacement of Western Europe following the Second World War.
- Africa is highly vulnerable to climate change's impacts, leading to increased migration due to extreme weather events.
- **KDMECC** Originally signed by **15 African states** in Kampala, Uganda, in July 2022. The KDMECC-AFRICA is expected to be signed by Member States during the **Africa Climate Summit** in Nairobi on September 4, 2023.
  - The Declaration is the **first comprehensive, action-oriented framework** led by Member States to address **climate-induced mobility** in a practical and effective manner.
  - The KDMECC-AFRICA will ensure that all voices, including those of **youth, women, and persons in vulnerable situations** are the priority of the expanded declaration.

## Nataraja Statue Headed to G20 Summit Venue in Delhi

A towering 28-feet Nataraja bronze sculpture, believed to be the world's tallest, is en route to the **G20 summit** venue in New Delhi, adding a cultural touch to the event.

- The Nataraja statue, weighing 19 tonnes, is composed of eight metals, including **gold, silver, lead, copper, tin, mercury, iron, and zinc (Ashtadhatu)**. It hails from Swamimalai, Tamil Nadu. The statue **represents Lord Shiva (Nataraja) dancing**.
- Swamimalai is believed to be **one of the six holy abodes of Lord Murugan**, known as the **Padai Veedugal**

(**Battle Camps**) of Lord Murugan. It is also renowned for its **Swamimalai Bronze Icons (Logo)**, which holds a **Geographical Indication (GI)** tag.



- Nataraja statue crafted using the 'lost-wax' casting method, it follows the Chola tradition, with molten bronze poured into clay molds.
  - Chola bronzes hold an esteemed place in the art world for their unique beauty and craftsmanship.
- Read more: [India to host G20 Summit in 2023](#)**

## Echolocation

- Echolocation is a technique used by animals and devices to understand their **surroundings** **Emitting high-frequency sound pulses**, they **listen for echoes to gauge distances and locate objects**.
  - Echolocation is a technique used by **bats, dolphins and other animals to determine the location of objects using reflected sound**.
  - This allows the animals to **navigate, hunt, recognize allies and adversaries, and steer clear of obstacles even in complete darkness**.
- Inspired by nature's echolocation, humans developed **sonar (sound navigation and ranging) and radar (radio detection and ranging) technologies**.
  - Sonar is widely used for underwater navigation and communication, while radar finds applications in **aviation, weather forecasting, and military operations**.
- More recently, engineers have used echolocation to develop **smartphone apps that can create a map of a room to help people with visual impairments navigate their environs better**.

## Durand Cup 2023

- The Durand Football Tournament was started at Shimla in 1888 by **Sir Henry Mortimer Durand, who was the Foreign Secretary to the Govt of India**.
- Durand is the **third oldest football tournament in the world and the oldest in Asia and India**.

Note:



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- The ongoing **132<sup>nd</sup> edition (3rd August to 3<sup>rd</sup> September 2023)** is organized by India's Armed Forces.
- The tournament format comprises two stages: **the group stage and the knockout rounds**.
- The Durand Cup tournament is unique wherein the **winning team walks away with three trophies**, i.e. the **Durand Cup (a rolling trophy and the original prize)**, the **Shimla Trophy (also a rolling trophy and first given by the residents of Shimla in 1904)** and the **President's Cup (for permanent keep and first presented by Dr. Rajendra Prasad, India's first President, in 1956)**.

## IAF Joins Ex BRIGHT STAR-23

An **Indian Air Force (IAF)** contingent is participating in **Exercise BRIGHT STAR-23**, a **multilateral, tri-service exercise** hosted biennially at **Cairo (West) Air Base, Egypt**.

- It marks the **IAF's debut in Ex BRIGHT STAR-23**, this multinational event features participation from the **United States of America, Saudi Arabia, Greece, and Qatar**.
- Beyond the exercise's primary objective of refining joint operation planning and execution, **the event fosters international bonds and bolsters strategic relations among participating nations**.

## Significant Declarations: Shiv Shakti, Tiranga, and National Space Day

Recently, **Indian Prime Minister** offered his felicitations to the **ISRO scientists** for their remarkable achievement of **Chandrayaan-3** and announced that **23rd August would be commemorated as the 'National Space Day'** in India.

- Also, the touchdown site of **Vikram Lander** has been named as **'Shiv Shakti'** and the crash site of Chandrayaan-2's lander in 2019 as **'Tiranga'**.

Read more: **Chandrayaan-3**

## Rare Black Eagle Spotted at Chail Wildlife Sanctuary

A **rare black eagle** has been sighted for the **first time** in **Chail wildlife sanctuary** located in the **Solan district, Himachal Pradesh**. This specific type of black eagle has been observed in the **Chamba region** on prior occasions.

- This eagle is part of the **Accipitridae family** and stands as the sole member of the **Ictinaetus genus**.



- They are notable for their substantial size and unique characteristics, often seen in **forested mountainous and hilly regions**.
  - They are found in the Indian states of **Himachal Pradesh** and **Jammu & Kashmir**, as well as in the **forests of the Eastern and Western Ghats** in peninsular India.
- As per the **IUCN**, their **conservation status** is categorised as **"Least Concern"**.
- The **Chail Wildlife Sanctuary** is home to a variety of animals, including **rhesus macaques, leopards, Indian muntjacs, gorals, porcupines, wild boars, langurs, and Himalayan black bears**. It has contributed to the preservation of several **endangered species** of reptiles and birds.



## Neeraj Chopra Clinches Gold in World Athletics Championships 2023

Indian athlete **Neeraj Chopra** has once again etched his name in history, seizing the gold medal in the men's javelin throw event at the **2023 World Athletics Championships in Budapest, Hungary**. He achieved a remarkable throw of **88.17m**.

Note:



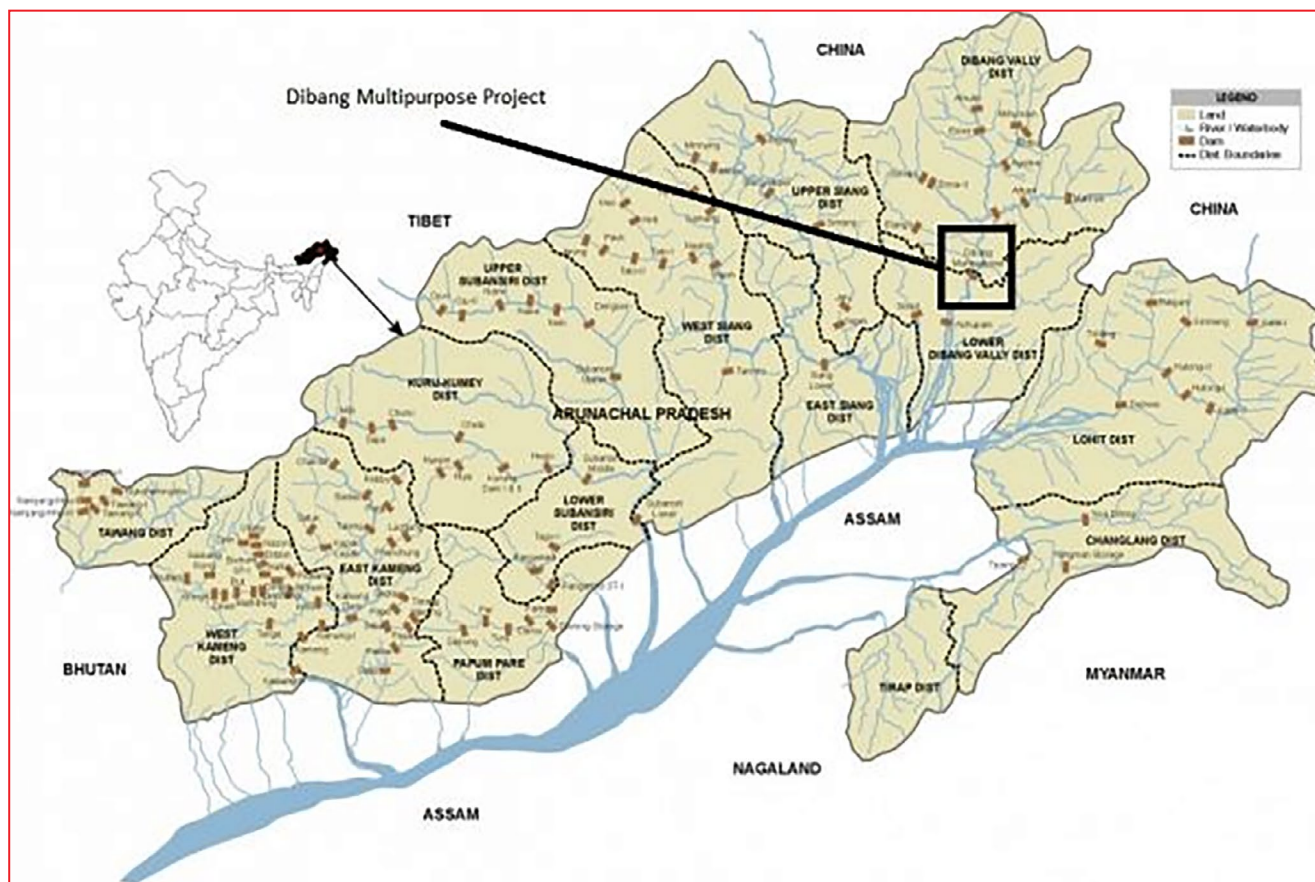
- Before his recent victory in Budapest, Neeraj Chopra had already claimed the distinction of being the first Indian track and field athlete to clinch **gold at**

the **Olympics (Tokyo 2020)**, secure the Diamond League title (2022), and conquer the junior world championships (2016).

## Dibang Multipurpose Project

**NHPC Limited**, India's premier **hydropower company**, has signed an **MoU with RITES**, a **Miniratna Schedule 'A' Central Public Sector Undertaking** under the **Ministry of Railways**, for construction of **railway siding at Pasighat, Arunachal Pradesh**, for **NHPC's 2,880 MW Dibang MultiPurpose Project**.

- Leveraging its core strength, **RITES** will provide comprehensive and efficient solutions for developing **rail infrastructure facilities** for **NHPC Dibang** and other upcoming projects in **Arunachal Pradesh**.
- **Dibang Multipurpose Project** is a **flood control cum hydroelectric power project** planned to be developed on the **Dibang River**, a tributary of **Brahmaputra River**, in **Arunachal Pradesh**.
- It is being developed by India's state-run **National Hydroelectric Power Corporation (NHPC)**.



Read More: [Dibang Hydel Project](#)

## Mylara Cult

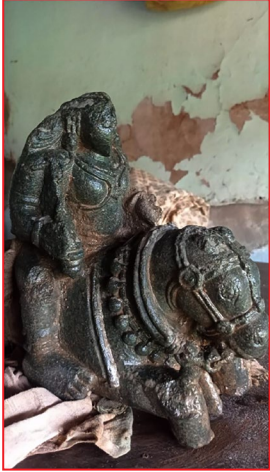
The discovery of two ancient sculptures in Basrur, Karnataka, has led to the revelation that the **Mylara cult** existed in the coastal region.

- Two sculptures resembling those from the 15th and 17th centuries were found in Basrur (historical trading city of the Medieval period).
  - A unique sculpture depicting a **royal hero sitting on a horse holding a sword and a bowl** was found in a well.

Note:



- Another stone tablet containing **Mylara and Mylaladevi sitting on an ornate horse and holding swords** was found in a tank.
- The Mylara cult was a religious tradition in the **Deccan region during the medieval period**.
- The cult is centered around the **worship of a goddess named Mylara, believed to be a form of Lord Shiva**.

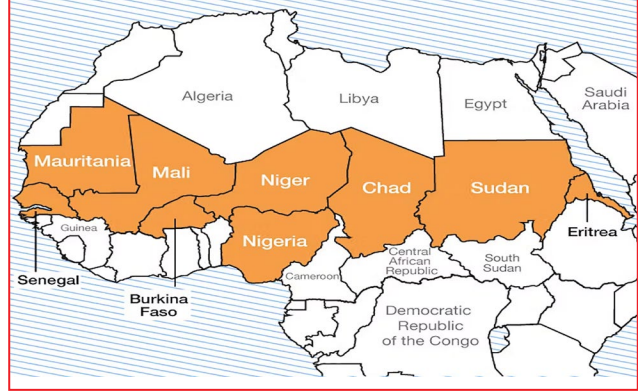


## African Union Suspends Niger from All Institutions Following Coup

The **African Union (AU)** has suspended **Niger** from all of its institutions and activities following the recent **coup** that overthrew the democratically elected president of Niger.

- The AU is a continental body consisting of the **55 member states that make up the countries of the African Continent**.
- In 1963, African states established the **Organisation of African Unity** to enhance cooperation.
- In 2002, the **Organisation of African Unity** was succeeded by the **AU**, with one of its goals to accelerate the “**economic integration of the continent**”.
- The AU called on member nations and the international community to reject the **unconstitutional change of government**.
  - This action could impact **diplomatic relations and foreign forces’ activities** in Niger.
- The West African regional bloc **Economic Community of West African States (ECOWAS)** demanded the **reinstatement of the President**.

### Sahel region, Africa



Read more: **Coup in Niger**

## Revolutionizing Sectors with Next-Gen Photonic RF Conversion

The **Next-Generation Photonic Analog-to-Digital Converters (NG-PADC)** project has developed new prototypes with the capability to instantly measure, generate, and transport **Radio Frequency (RF)** signals using optical methods.

- This **breakthrough technology** has the potential to revolutionize the way RF signals are transported through optical means.
  - It can also facilitate **faster digital communication, improved satellite communication, better medical imaging, and photonic radars**.
- **Radio frequency** refers to the range of electromagnetic frequencies that are commonly **used for wireless communication** and various other applications.
  - RF signals typically range from around 3 kilohertz (kHz) to 300 gigahertz (GHz).
  - They are used for transmitting and receiving wireless signals, such as those used in **radio broadcasting, television and cellular communication**.

## Annual Capacity Building Plan of Minister of Rural Development and Panchayati Raj

Recently, the **Minister of Rural Development and Panchayati Raj** launched the **Annual Capacity Building**

Note:



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**Plan (ACBP)** of the Department of Rural Development, Department of Land Resources and Ministry of Panchayati Raj.

- It is a plan document that is developed based on the competency enhancement requirements of the officials of the **Ministry/Department/Organization (MDO)**, that is ascertained through carrying out **Competency Need Analysis (CNA)**.
    - The ACBP aligns itself closely with the **Vision of New India @2047** and is designed under the guidance of the **Capacity Building Commission**.
  - This framework follows a triad of lenses, focusing on **National Priorities, Citizen Centricity, and Emerging Technology**.
    - It is complemented by the three pillars of **Individual, Organizational, and Institutional** development/
- Read more: **Mission Karmayogi**

## GeM Achieves INR 1 Lakh Crore GMV in Record 145 Days

**Government e-Marketplace (GeM)** has reached a significant milestone, crossing **Rs. 1 lakh crore in Gross Merchandise Value (GMV)** within just 145 days in FY 2023-24. GeM is also **integrated with e-Gram Swaraj** for Panchayat-level procurement.

- Government e-Marketplace (GeM) is an online public procurement portal developed to **streamline the acquisition of goods and services by government departments, agencies, and public sector undertakings**.
- Launched in **August 2016 as part of the "Digital India" initiative**, GeM aims to enhance transparency, efficiency, and cost-effectiveness in public procurement while promoting the use of digital technology.

Read more: **Government e-Marketplace**

## Tejas LCA Successfully Fires Indigenous ASTRA Missile

Recently, **Tejas, the Light Combat Aircraft (LCA)** launched the **ASTRA indigenous Beyond Visual Range (BVR) air-to-air missile** off Goa's coast.

- The ASTRA missile, a state-of-the-art creation aimed at **engaging and neutralizing highly agile supersonic aerial targets**.

- It is designed and developed by **Defence Research and Development Laboratory (DRDL), Research Centre Imarat (RCI)** and other laboratories of DRDO.
- The **LCA programme** is a project initiated by the Government of India in 1984 to develop and produce a light combat aircraft for the Indian Air Force and Navy.
  - It is managed by the **Aeronautical Development Agency (ADA)**

Read more: **LCA Tejas, ASTRA**

## KVIC Launched Khadi Rakshasoot for Raksha Bandhan

- **Khadi and Village Industries Commission (KVIC)** launched 'Khadi Rakshasoot' (Khadi-Rakhi) to commemorate Raksha Bandhan.
  - **KVIC is a statutory body** established under the Khadi and Village Industries Commission Act, 1956. It **functions under the Ministry of MSMEs**.
- The Rakshasoot was created by dedicated spinner sisters from across rural India who spin multiple threads on the charkha.
- The Rakhi is entirely **natural and free of any chemical additives, with some being made from sacred cow dung and seeds of basil, tomato and brinjal**.
  - The conception behind its making is rooted in the notion that, when disposed of into the earth, **it will sprout up into basil, tomato, and brinjal plants**.
- The 'Khadi Rakshasoot' is being introduced as a 'Pilot Project' initiative available exclusively at Khadi Bhavan in New Delhi.

Read more: **Gramodyog Vikas Yojana and Village Industries**

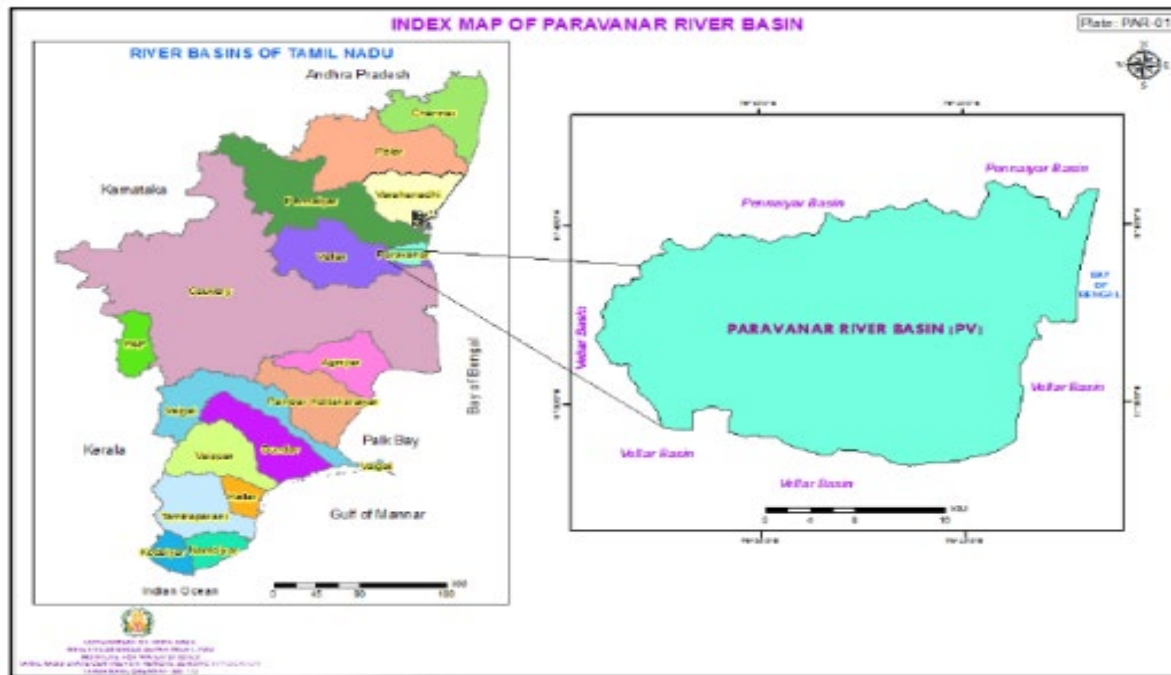
## Diversion of Paravanar River Course

**Neyveli Lignite Corporation India Limited (NLCIL)** has successfully accomplished the **permanent diversion of the Paravanar River course** to safeguard **habitats and agricultural fields from inundation**, benefiting local communities and irrigation prospects.

- NLCIL is a **Navratna company** Central Public Sector Undertaking under the administrative control of the Ministry of Coal.

Note:

- Paravanar River Basin which is a leaf-shaped river basin and the **second smallest river basin of Tamil Nadu** lies within the **Cuddalore District of Tamil Nadu**.
- The Paravanar River is **not a mature river and is seasonal and ephemeral (lasting or used for only a short period of time)**.



Index map of Paravanar River Basin

## Stockholm Syndrome

- **Stockholm syndrome** is a psychological phenomenon that occurs when **hostages or victims of abuse develop positive feelings towards their captors or abusers**, and negative feelings towards the authorities or anyone who tries to help them escape.
- The term was coined after a **bank robbery in Stockholm, Sweden, in 1973**, when four hostages refused to testify against their captors and even raised money for their defense.
  - Stockholm syndrome is **not a recognized mental disorder**, but rather a coping mechanism that some people use to deal with a traumatic situation.
- It is thought to result from a combination of factors, such as **power imbalance, emotional isolation, gratitude for small kindnesses, and survival instinct**.

## Namoh 108 Lotus Variety

- Recently, the Union Minister of Science & Technology, unveiled the innovative '**Namoh 108**' **lotus variety**, developed by the **Council of Scientific & Industrial Research -National Botanical Research Institute (CSIR-NBRI), Lucknow**.
- Having been discovered in **Manipur several years ago**, this lotus variety boasts 108 petals, leading to its designation as '**NBRI Namoh 108**,' a name derived from both its **petal count and its religious significance**.
  - Blossoms from **March to December**, rich in nutrients.



Note:



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- The flower's genome was sequenced, making it the **only Indian lotus variety with a sequenced genome**.
- The flower's characteristics were **modified to facilitate cultivation outside Manipur**.

## India and the Philippines sign MoU for Enhanced Maritime Cooperation

- Indian Coast Guard has signed a Memorandum of Understanding (MoU) with Philippine Coast Guard (PCG) on enhanced maritime cooperation.
- The MoU seeks to enhance the professional linkage between the two Coast Guards in the domain of **Maritime Law Enforcement (MLE), Maritime Search & Rescue (M-SAR) and Marine Pollution Response (MPR)**.
  - The implementation of this MoU will enhance bilateral maritime cooperation between the two nations for ensuring safe, secure and clean seas in the region.
- **India and the Philippines** are **two democratic countries in the Indo-Pacific region that share a common approach towards the Indo-Pacific**, emphasizing the **importance of a free, open, and stable region**.



Read more: **India- Philippines Ties**

## Chess World Cup 2023

- Grandmaster **Rameshbabu Pragganandhaa** wins over World No. 3 Fabiano Caruana in the tie-breaker round of the **World Cup 2023, chess** tournament at Baku, Azerbaijan.
- The World Cup 2023 is organised by the **International Chess Federation (FIDE)**, the governing body of chess in the world.
  - It's constituted as a non-governmental institution.
- FIDE currently has its **headquarters in Lausanne (Switzerland)**, but it was initially founded in 1924

Note:



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in Paris under the motto “Gens Una Sumus” (Latin for “We are one Family”).

- Pragganandhaa, the **youngest Indian grandmaster and the youngest international master** is among the most promising talents in the world of chess.

- He achieved significant victories such as **winning the World Youth Chess Championship (under-18) in 2019** and **emerging victorious in the Asian Continental Chess Championship (open) in 2021**.

Read more: **The Rising Popularity of Chess in India**

## Ecuador Rejects Amazon Oil Drilling

Ecuadorians have spoken out **against the oil drilling** of a protected Amazon area housing **uncontacted tribes** and remarkable biodiversity.

- Over 90% of ballots rejected oil exploration in the area located within the renowned **Yasuni National Park, a global biodiversity hotspot**.
- This area is the habitat of the **isolated Tagaeri and Tarmenani tribes**, and its significance led to its designation as a **UNESCO world biosphere reserve** in 1989.



Read more: **Biodiversity hotspot**

Note:

## India's Foreign Exchange Reserves

India's **foreign exchange reserves** have increased by USD 708 million to **USD 602.16 billion** for the week ended 11th August 2023, according to the latest data from the **Reserve Bank of India**.

- Foreign exchange reserves are assets held on reserve by a central bank in foreign currencies, which can include bonds, treasury bills and other government securities.
- **India's Forex Reserve include:**
  - **Foreign Currency Assets, Gold reserves, Special Drawing Rights, and Reserve position with the International Monetary Fund (IMF).**
    - FCAs are assets that are **valued based on a currency other than the country's own currency.**
- The country's **forex reserves** reached an all-time high of **USD 645 billion in October 2021.**

Read more: **Forex Reserves**

## Hurricane Hilary

- **Hurricane Hilary** is a major **Category 4 hurricane** that formed in the **eastern Pacific Ocean** on 16th August 2023.
- Hurricanes are categorized on the **Saffir-Simpson Hurricane Wind Scale**, which rates them on a scale of 1 to 5 based on wind speed.
  - Hurricanes that reach category three or higher are classified as major hurricanes.
- It is the first tropical storm to hit Southern California since 1939.
  - Hurricane Hilary is heading towards California because of a combination of factors, such as a **high-pressure system over the western U.S., a low-pressure system over the eastern Pacific, and an El Niño event that warms the ocean water near the equator.**
  - These factors create a favorable environment for tropical cyclones to form and move northward along the coast of Mexico and Central America.
- However, most of these storms weaken or turn westward before reaching California, because of the **cold water, cold currents, and unfavorable winds along the U.S. West Coast.**

- **Hilary is an exception** because it has maintained its strength and followed a more northerly track than usual.

## Spain Clinches Women FIFA World Cup 2023

The **Women FIFA World Cup 2023** jointly hosted by **Australia and New Zealand**, featuring 32 teams concluded recently.

- The final match was held on 20 August 2023 where **Spain defeated England 1-0** to lift their first-ever **World Cup** trophy. With this win, Spain also became only the **second nation** to clinch both the men's and the women's World Cups after **Germany**.
- The competition has seen four past champions: **USA, Germany, Japan and Norway.**

Read more: **FIFA World Cup Qatar 2022**

## Onam

The exciting and colorful **Onam** festival has started in **Kerala**, bringing happiness, unity, and a lot of cultural beauty. The festival spans 10 days, commencing on **Atham (the first day of Onam)** and **culminating on Thiruvonam (the final day).**

- It is a major **harvest festival in Kerala** and is celebrated to honour the **home-coming of Asura king Mahabali** who brought about peace and prosperity in Kerala.
- It is also one of the three major festivals of Kerala, celebrated during the month of **Chingam**, the first month in the **Malayalam calendar, Kollavarsham.**
  - The other two major festivals of the state are Vishu and Thiruvathira.
- A central aspect of Onam involves crafting **Pookkalam**, intricate flower rangolis. Alongside, a variety of rituals enrich the festivities, including **Vallam Kali** (boat races), **Pulikali** (tiger dances), **Kummattikali** (mask dances), and **Onathallu** (martial arts), among other captivating traditions.

Read more: **Onam**

## Nanomechanical Testing Technology

An Indian scientist, Dr. Sudharshan Phani has developed a novel method for precise **nanomechanical testing of materials** at extremely small scales.

Note:

- The new technique enhances the precision and accuracy of **nanindentation testing**, allowing for high throughput testing at higher rates.
  - **Nanoindentation** has widespread applications, including measuring semiconductor device strength and understanding material properties in various fields such as **cancer cell** research and **Meteorite** formation.
- The approach involved extensive modeling and simulation to understand material responses during indentation tests, leading to tailored improvements in precision and accuracy.
- The new methodology sets the stage for high precision and high accuracy nanoindentation measurements at faster rates, impacting diverse scientific research areas related to material strength measurement.

Read more: **Nanotechnology and Health**

## Baghjan Oil Spill

The **National Green Tribunal (NGT)** ordered the **Assam** government to provide interim compensation to victims of **Baghjan oil and gas leak**. This site belongs to **OIL India Ltd** near **Dibru Saikhowa National Park**.

- NGT-formed **committee led by Justice BP Katakey** found **environmental violations**, declaring Baghjan oil and gas field illegal.
- **Maguri Motapung Beel** (also known as Maguri Motapung Bill, Maguri Bill and Maguri Beel) is a wetland and lake located near to **Dibru-Saikhowa National Park** and Motapung Village of Tinsukia district in Assam.

Read more: **Assam Gas Leak**

## National Automated Fingerprint Identification System (NAFIS)

**National Automated Fingerprint Identification System (NAFIS)** of **National Crime Records Bureau (NCRB)**, won the **Gold Award** under the Excellence in Government Process Reengineering for **Digital** Transformation Category-1 of **Department of Administrative Reforms and Public Grievances (DARPG)**.

- **NAFIS**, a nationwide database managed by NCRB, swiftly stores crime-related fingerprints and assigns a **unique 10-digit National Fingerprint Number (NFN)** to apprehended criminals within 24 hours.

- NFN remains with the offender for life, connecting various crimes under different FIRs to the same ID.
- ID comprises state code (first two digits) and sequential number, specific to states.
- NAFIS swiftly identifies persons of interest, linking their names to warrants, warnings, and related criminal data in police reference systems.
- Operates from New Delhi's **Central Fingerprint Bureau(CFPB)**.
- NAFIS aims to collect fingerprint data of criminals from all Indian states and Union Territories, offering a web-based platform for real-time uploading, tracking, and retrieval of information by law enforcement agencies.

Read more: <https://www.drishtiias.com/printpdf/35-th-inception-day-of-ncrb>

## FloodWatch Real-Time Flood Monitoring App

Recently, the **Central Water Commission (CWC)** under the **Ministry of Jal Shakti**, launched the mobile application "**FloodWatch**" for disseminating flood-related information in real-time.

### Key Features of FloodWatch:

- Real-time flood monitoring **provides up-to-date flood situations across the country**.
- App utilizes near **real-time river flow data from various sources** to enhance accuracy.
- Interactive Map feature enables users to check **CWC Flood Forecast (24 hours) or Flood Advisory (7 days)** by selecting stations directly from the map or using the search box.
- "FloodWatch" incorporates advanced technologies like **satellite data analysis, mathematical modelling, and real-time monitoring** to ensure accurate flood forecasts.

Read more: **Central Water Commission (CWC)**

## Curbing Fraud with SIM Card Registration

The **Department of Telecommunications (DoT)** in India has introduced new measures to combat cyber fraud and scam calls related to SIM cards, these include **mandatory registration and verification of SIM dealers**, with the goal of curbing fraudulent activities and strengthening mobile security.

Note:



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- Recent efforts have led to the **blacklisting of 67,000 SIM dealers and 52 lakh connections, with over 300 First Information Reports (FIR) registered.**
- The rollout of the **Sanchar Saathi portal(SSP)** complements these efforts, solidifying India's commitment to combatting telecommunications-related fraud.
  - The SSP, developed by the **Centre for Development of Telematics (C-DOT)** under the DoT, addresses prevalent telecom frauds like identity theft and banking fraud.
    - Over **40 lakh fraudulent connections were identified, and 36 lakhs disconnected using the portal.**
  - Protects against identity theft, **forged KYC, mobile device theft, and banking fraud.**

Read more: **World Telecom Day**

## Anduri Utsav: Uttarakhand's Whimsical Butter Festival

The **Anduri Utsav**, popularly known as the **Butter Festival**, celebrated at **Dayara Bugyal** of Uttarkashi district of **Uttarakhand** culminated recently.

- Dayara Bugyal, **situated at an altitude of 11,000 feet above sea level**, is one of the pristine meadows in the state.
- It is also known as **Butter Holi**, as people smear each other with **butter, milk and buttermilk** in a playful manner.
- The festival is a way of expressing gratitude to **Lord Krishna**, who is believed to have **protected the cattle from evil forces while they were grazing in the bugyal.**

## Matti Banana

Matti banana, a native variety of Kanniyakumari district, Tamil Nadu, was recently granted the Geographical Indication (GI) tag for its unique features and qualities.

- Matti banana has **six types that differ in colour, aroma, taste, and texture**, and are suitable for baby food and medicinal use.
- This Banana is commonly known as '**Baby Banana**'.
- It grows best in the specific climate and soil of Kanniyakumari.

Read more: **Geographical Indication (GI)**

## CCEA Approves 7 Multi-tracking Projects of the Ministry of Railways

The **Cabinet Committee on Economic Affairs (CCEA)** approved Seven projects of the Ministry of Railways.

- The proposals of Multi-tracking will ease operations and reduce **congestion**, providing the much-required **infrastructural development** on the **busiest sections across Indian Railways.**
- The projects **covering 35 districts in 9 states** will expand the existing Indian Railways **network by 2339 kms** and will generate **employment for approximately 7.06 crore man-days** for the people of these states.
  - These are essential routes for the transportation of varied baskets of commodities such as **foodgrains, fertilizers, coal, cement, fly-ash, iron and finished steel, clinkers, crude oil, limestone, edible oil etc.**
- These projects align with the fostering **climate goals, regional self-reliance**, and creating a **versatile workforce**, enhancing **employment opportunities.**
- The projects are the result of the **PM-Gati Shakti National Master Plan**, facilitating seamless connectivity for people, goods, and services through integrated planning.

Read more: **Budget 2022-23: PM GatiShakti**

## Cabinet Approves Mutual Recognition Arrangement

Recently, the **Union Cabinet** has granted approval for the **Mutual Recognition Arrangement (MRA)** between the **Central Board of Indirect Taxes and Customs (CBIC)**, Department of Revenue, Government of India, and the Department of Home Affairs incorporating the **Australian Border Force of the Australian Government.**

- This significant arrangement seeks to offer **reciprocal advantages to accredited and trusted exporters from both nations in the streamlined customs clearance of goods.**
  - Aligned with the **World Customs Organisation's Framework of Standards to Secure and Facilitate Global Trade (SAFE Framework)** of Standards, this MRA strengthens global trade security while enhancing trade facilitation.

Note:



- By bringing the **Australian Trusted Trader Program (ATTP)** and the **Indian Authorized Economic Operator Program (IAEOP)** under mutual recognition, the arrangement aims to bolster trade relations between India and Australia.

**Read more: India-Australia Economic Cooperation and Trade Agreement**

## Lake Titicaca

Lake Titicaca is facing a **serious threat from climate change and drought**. It is the **largest freshwater lake in South America** and the **highest of the world's largest lakes**.

- The lake, which lies on the **border between Bolivia and Peru**, has seen its water levels drop to near-record lows.
- The **lack of rainfall and the increased evaporation due to rising temperatures** have reduced the inflow and volume of the lake.
  - This has resulted in **stranded boats, exposed shorelines, and diminished fish populations**.
- The lake is also **home to more than 500 species of plants and animals**, some of which are endemic and endangered.



## Empowering Women Through 'Koosina Mane' Initiative

Karnataka's '**Koosina Mane**' initiative, introduced in its 2023-24 Budget, marks a progressive stride towards

enhancing **women's labor force participation** and addressing **gender disparities**.

- This initiative aims to **establish childcare centers across 4,000 gram panchayats**, supporting working mothers under the **MGNREGA** and others nearby.
- It addresses the "triple burden" women face by **redistributing childcare responsibilities, potentially enabling sustained employment and upskilling**.
- It will **address the issue of the 'motherhood penalty'**, which is considered to be one of the reasons why women drop out of the labor force.

**Read more: MGNREGA, Gender Parity.**

## Critical Role of Sulina Channel in Ukraine's Grain Trade

- In a sequence of overnight **drone strikes**, Russia directed its assaults towards **ports and grain storage sites** located along **Ukraine's Danube River**.
  - **Ukraine**, known as the "**breadbasket of Europe**,". Its economy relies significantly on exporting agricultural products.
- The **Danube River** is the **second-longest river in Europe**, flowing through ten countries and serving as a **vital transportation route and natural resource** for the region.
- Following **Russia's recent departure from the Black Sea grain agreement**, Ukraine adopted the **Danube delta** as its fresh pathway for moving grain.
- The **Sulina Channel** is a crucial part of this "**new**" trade route. It's a **63 km** long offshoot of the **Danube River** that links important **Ukrainian ports** on the river to the **Black Sea**. This channel is entirely within **Romania's borders**.

**Read More: Russia-Ukraine Conflict**

## India and WHO to launch Global Initiative on Digital Health

- **India** and the **World Health Organization (WHO)** will introduce the **Global Initiative on Digital Health** during the ongoing **G-20 summit** in **Gandhinagar, Gujarat**.

Note:

- This **global initiative** focuses on bringing together **health data, connecting health platforms, and investing in digital health worldwide**.
- The **summit** is also aiming to establish a vital **interim Medical Countermeasure (MCM)**. This involves a '**network of networks approach**' to be prepared for future health emergencies.
- The worldwide digital platform will have three main parts:
  - An investment tracker.
  - An ask tracker (to find out what products and services are needed by different people).
  - A collection of existing digital health platforms.
- **Digital health** innovations and solutions will aid **universal health convergence** and improve **healthcare service delivery**.

Read More: **National Digital Health Mission**

## A-HELP Programme

Recently, the Union Minister for Animal Husbandry and Dairying inaugurated the '**A-HELP**' (**Accredited Agent for Health and Extension of Livestock Production**) programme.

- A-HELP programme is part of the **Azadi Ka Amrit Mahotsav initiative, Pashudhan Jagrati Abhiyaan, and Rashtriya Gokul Mission's** goals, fostering livestock enhancement.
  - **Pashudhan Jagrati Abhiyaan** focuses on critical aspects of **livestock health, disease management, and animal infertility**.
  - **Rashtriya Gokul Mission** focuses on enhancing **bovine productivity sustainably using advanced technologies, high genetic merit bulls, and doorstep artificial insemination** while promoting the scientific conservation of indigenous cattle and buffalo.
- The 'A-HELP' programme **enlists trained women agents for disease control, artificial insemination, animal tagging, and livestock insurance**.
- Focuses on critical areas of **livestock health, disease management, and animal infertility**.
- By empowering women and enhancing livestock, the 'A-HELP' program contributes to the **socio-economic progress of rural communities**.

Read more: **Rashtriya Gokul Mission**

## NIPCCD Organizes a Training Programme on Poshan Bhi Padhai Bhi

The **National Institute of Public Cooperation and Child Development (NIPCCD)** conducted a two-day Training Programme on "**Poshan Bhi Padhai Bhi**" in Madhya Pradesh for State Level Master Trainers.

- **The objectives of the program were as follows:**

- Promoting early stimulation during the first thousand days and facilitating **Early Childhood Care and Education (ECCE)** for children aged 3 to 6 years.
- Enhancing the capacities of Anganwadi workers by providing them with a **foundational understanding of ECCE curricula and pedagogical approaches**. This enables them to **deliver high-quality play-based ECCE at the grassroots level**.
- **Anganwadi** is a type of rural child care center in India. It was established as part of the **Integrated Child Development Services (ICDS)** program.
- To enable Anganwadi Workers to focus on the domains of development (**physical and motor, cognitive, socio-emotional-ethical, cultural/artistic**), and the development of **Foundational Literacy and Numeracy (FLN)**, as well as related assessments.
- To reinforce Anganwadi workers' understanding of nutrition, including **Poshan 2.0** and **Saksham Anganwadi**, innovations in **Poshan, Poshan Tracker, feeding practices, micronutrient deficiencies etc.**

Read more: **Early Childhood Care and Education**

## Understanding Muscle Cramps

**Muscle cramps**, also known as muscle spasms, are sudden and involuntary contractions of one or more muscles. It can occur in any muscle but is most commonly experienced in the legs, especially in the calf muscles.

- It can stem from multiple causes including **metabolic imbalances, extreme cold, reduced blood flow, and mineral deficiencies**.
  - These triggers **send sensory impulses to the spinal cord**, initiating reflexive muscle contractions that intensify due to a positive feedback loop.

Note:



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- Massage addresses cramps by employing “**reciprocal inhibition,**” effectively **stretching cramped muscles.**
  - This process aids in overcoming cramps by enhancing blood circulation, which helps **eliminate accumulated metabolites causing nerve irritation.**

## Navroz

The **Indian Parsi community** is garnering attention as they celebrate **Navroz on 16th August**, a festivity that heralds the onset of the **Persian New Year.**

- **Navroz, also known as Nowruz or Parsi New Year,** is a globally celebrated festival that heralds the arrival of spring and the rejuvenation of nature.

- While Navroz is celebrated globally in **March**, India showcases a **unique tradition due to the Parsis' observance of two calendars.** In Maharashtra and Gujarat, states with a substantial Parsi population, **vibrant Navroz celebrations take center stage.**
  - However, the calendar intricacy results in **Navroz being celebrated around 200 days later in India,** specifically during **August.**
  - In India, Navroz is also known as **Jamshed-i-Navroz,** after the Persian King, **Jamshed.**
- Interestingly, India's celebration occurs twice annually: **first according to the Iranian calendar, and secondly, according to the Shahenshahi calendar, also followed in Pakistan.**

Read more: **Navroz**



Note:

## Key Points

## Details

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## Summary



**Key Points**

**Details**


**Summary**

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