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# Current Affairs (CONSOLIDATION)

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**(PART – I)**

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# Polity and Governance

## Highlights

- Challenges Faced by Regional Connectivity Scheme
- National Handloom Day (NDH) 2023
- Healthcare Bills to Reform Nursing, Midwifery, and Dentistry
- Telecom Regulatory Authority of India Repealing Regulations, 2023
- States' Lax Response to Mob Lynching
- Cinematograph (Amendment) Bill, 2023
- Akhil Bharatiya Shiksha Samagam and ULLAS Initiative
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- Registration of Births and Deaths (Amendment) Bill, 2023
- Schemes For Farmers' Welfare

## Challenges Faced by Regional Connectivity Scheme

### Why in News?

**UDAN, a Regional Connectivity Scheme (RCS)** of the Ministry of Civil Aviation is facing challenges due to many airports built under the scheme not being able to be operationalized.

- Despite the claims of building 74 airports, only 11 greenfield airports have become operational since May 2014.

### What is the Regional Connectivity Scheme?

#### ➤ About:

- UDAN (Ude Desh Ka Aam Nagarik) was launched by the Ministry of Civil Aviation for regional airport development and **regional connectivity enhancement**.
- It is a part of the **National Civil Aviation Policy 2016**.
- The scheme is applicable for a **period of 10 years**.

#### ➤ Objectives:

- Improve the air connectivity to remote and regional areas of India.

Note:



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- Development of remote areas and enhancing trade and commerce and tourism expansion.
- Enable common people to access air travel with affordable rates.
- Employment creation in the aviation sector.

➤ **Key Features:**

- Under the scheme, airlines have to cap airfares for 50% of the total seats at Rs. 2,500 per hour of flight.
- This would be achieved through:
  - A financial stimulus in the form of concessions from Central and State governments and airport operators and
  - **Viability Gap Funding (VGF)** – A government grant provided to the airlines to bridge the gap between the cost of operations and expected revenue.
    - Regional Connectivity Fund (RCF) was created to meet the viability gap funding requirements under the scheme.
- The partner State Governments (other than UTs and NER states where contribution will be 10%) would contribute a 20% share to this fund.

**What are the Phases of UDAN Scheme?**

- **Phase 1** was launched in 2017, with the objective of connecting underserved and unserved airports in the country.
- **Phase 2** was launched in 2018, with the aim of expanding air connectivity to more remote and inaccessible parts of the country.
- **Phase 3** was launched in November 2018, with the focus on enhancing air connectivity to hilly and remote regions of the country.
- **Phase 4 of the UDAN scheme** was launched in December 2019, with a focus on connecting islands and other remote areas of the country.
- **Phase 5** was launched in April 2023, with a focus on **Category-2 (20-80 seats) and Category-3 (>80 seats) aircrafts with no restriction on the distance between the origin and the destination of the flight.**

**What are the Challenges to the RCS Scheme?**

➤ **Commercial Viability:**

- Many of the routes identified under the scheme have been **found to be commercially unviable** for airlines. The low demand for air travel on certain routes makes it difficult for **airlines to operate profitably**, even with subsidies provided under UDAN.
- Airport development under RCS involved launching 479 routes to revive under-utilized airports. However, out of these, **225 routes have ceased operations.**

➤ **Infrastructural Constraints:**

- The lack of adequate airport infrastructure in some of **the remote regions poses challenges** for airlines.
- Many airports require upgradation and improvements to meet safety standards and handle increased air traffic.

➤ **Subsidization of Air Travel:**

- The RCS aimed to make air travel affordable by providing subsidies and viability gap funding to airlines operating on selected routes. However, the scheme faced issues as some routes **were found to be commercially unviable despite the subsidies.**

➤ **High Operating Costs:**

- Airlines operating in remote areas **often face higher operating costs**, including increased fuel expenses, maintenance costs, and logistical challenges, which can affect their profitability.

➤ **Airfare Caps:**

- The cap on airfares for RCS flights can impact the **revenue potential of airlines, especially** when operational costs are high. It may discourage airlines from operating on certain routes.

➤ **Passenger Awareness:**

- Lack of awareness among potential passengers about the availability of air travel options under UDAN can **limit demand and utilization of regional air services.**

Note:

## National Handloom Day (NDH) 2023

# NATIONAL HANDLOOM DAY (NHD) 2023

Celebrated annually - 7 August (Swadeshi Movement 1905 was launched on this day)



### FIRST CELEBRATED

- 2015

### NHD 2023

- Theme - "Handlooms for Sustainable Fashion"
- Launched e-portal - "Textile and Craft Fund of India"

### INDIA'S TEXTILE & HANDLOOM INDUSTRY SCENARIO

- Rural India's **2<sup>nd</sup> largest job provider** after agriculture
- Contribution to GDP - 2%, **India's total exports** (2020-21) - **11.4%**
- Engine of '**Saree diplomacy**' and '**Khadi diplomacy**'
- **Major Export Centres:** Karur, Panipat, Varanasi & Kannur
- **Major Importers** - US, UK, Germany, Italy, France, Japan, Saudi Arabia, Australia, Netherlands and UAE

*India is the 2nd largest exporter of handloom products in the world*

### SCHEMES FOR PROMOTION

- PM MITRA Scheme (2021)
- National Technical Textile Mission (2020)
- SAMARTH Scheme (2017)
- Power-Tex India (2017)
- Amended Technology Upgradation Fund Scheme (ATUFS) (2015)
- Scheme for Integrated Textile Parks (SITP) (2005)

### CHALLENGES FACED

- **Unorganized financial support** and infrastructure
- Lack of **product diversification** in Fashion & Design
- **Low Earning** - 67% of workers earning less than Rs. 5,000/month
- **Unpatented** Handloom designs
- **Free Trade Regime** in textile under WTO
- **Competition** with Powerlooms

### REFORMING THE INDUSTRY

- Leveraging e-commerce for marketing, branding, advt and sales
- Boosting exports of Indian Textiles as "**Brand India**"
- Corporatisation and cooperatisation for better management and lucrative earnings
- Better opportunities for **patenting** and **GI Tagging**
- Collaboration with academic institutions



Note:



# Healthcare Bills to Reform Nursing, Midwifery, and Dentistry

## Why in News?

Recently, the **Lok Sabha** passed the **National Nursing and Midwifery Commission Bill (NNMC), 2023**, and the **National Dental Commission bill, 2023**.

- The Bills aim to **repeal existing acts** and bring about improvements in the **quality of healthcare in different medical fields**.

## What is the National Nursing and Midwifery Commission (NNMC) Bill, 2023?

### ➤ About:

- The NNMC Bill is a significant healthcare legislation aimed at **reforming and enhancing nursing and midwifery professions** in India.
- Establish the **National Nursing and Midwifery Commission (NNMC)** as a **regulatory body** for nursing and midwifery professionals.
- Repeal the existing **Indian Nursing Council Act, of 1947**. As the act is outdated and **does not reflect the current needs and demands** of the nursing and midwifery profession, which has evolved significantly over the years in terms of education, training, practice, and service standards.

### ➤ Key Features:

- **National Nursing and Midwifery Commission:**
  - **Composition:**
    - NNMC will consist of 29 members.
    - Chairperson with a postgraduate degree in nursing and midwifery and 20 years of field experience.
    - Ex-officio members from Department of Health and Family Welfare, National Medical Commission, Military Nursing Services, and Directorate General of Health Services.
    - Other members from nursing and midwifery professionals and charitable institutions.
  - **Functions:**
    - Framing policies and regulating standards for nursing and midwifery education.

- Providing a uniform admission process for nursing and midwifery institutions.
- Regulating nursing and midwifery institutions.
- Establishing standards for faculty in teaching institutions.

### ○ Autonomous Boards:

- **Nursing and Midwifery Undergraduate and Postgraduate Education Board:** Regulate **education and examination** at undergraduate and postgraduate levels.
- **Nursing and Midwifery Assessment and Rating Board:** Provide the framework for assessing and **rating nursing and midwifery institutions**.
- **Nursing and Midwifery Ethics and Registration Board:** Regulate **professional conduct** and **promote ethics** in the profession.

### ○ State Nursing and Midwifery Commissions:

- To be constituted by state governments.
- Will consist of **10 members**, including representatives from the health department and nursing/midwifery colleges.
- Functions include enforcing **professional conduct**, maintaining state registers, issuing certificates of specialization, and conducting skill-based examinations.

### ○ Establishment of Institutions:

- Permission from **Assessment and Rating Board** required to establish new nursing and midwifery institutions or increase seats/postgraduate courses.
- Appeals process available to National Commission and Central Government in case of disapproval.

### ○ Practicing as a Professional:

- Individuals must be enrolled in the **National or State Register to practice nursing or midwifery**.
- **Non-compliance may result in imprisonment or a fine.**

### ○ Advisory Council:

- Provides advice and support to the National Commission on Nursing and Midwifery education, services, training, and research.
- Includes representatives from each State and Union Territory, Ministry of Ayush, University Grants Commission, National Assessment and Accreditation Council, Indian Council of Medical Research, and nursing/midwifery professionals.

Note:



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## What is the National Dental Commission Bill, 2023?

### ➤ About:

- The National Dental Commission Bill focuses on the **regulation and improvement of dentistry in India.**

### ➤ Key Features:

- Establish the **National Dental Commission (NDC)** to regulate the profession of dentistry.
- Repeal the **Dentists Act of 1948.**

### ➤ Key Features:

- **National Dental Commission:**

#### ● Composition:

- Constituted by the central government with 33 members and will be chaired by an **eminent and experienced dentist.**
- Chairperson appointed by the central government upon recommendation of a **search-cum-selection committee** which is chaired by **Cabinet Secretary.**
- Ex-officio members of the commission include Presidents of three autonomous Boards, Director General of Health Services, Chief of the Centre for Dental and Educational Research, AIIMS.
- Part-time members include faculties of dentistry from government institutes and representatives of states and union territories.

#### ● Functions:

- Regulating dental education, institutions, research, and infrastructure, as well as ensuring admissions through National Eligibility-cum-Entrance Test (NEET).

- **Autonomous Boards:**

- **Undergraduate and Postgraduate Dental Education Board:** Responsible for determining education standards, developing curriculum, and granting recognition to dental qualifications.
- **Dental Assessment and Rating Board:** Responsible for determining compliance assessment procedure for dental institutions, granting permission to establish new institutions, and conducting inspections and ratings.
- **Ethics and Dental Registration Board:** Responsible for maintaining online national registers of dentists/dental auxiliaries, suspending/cancelling licenses, and regulating standards of conduct, ethics and the scope of the practice.

### ○ State Dental Councils:

- To be established within a year, responsible for maintaining registers, handling grievances, and implementing provisions.

### ○ Entrance Examinations:

- Admission to **Bachelor of Dental Surgery** through NEET, and **National Exit Test (Dental)** for **licensing and postgraduate admissions.**
- Clearing **National (Exit) Test** grants a **license to practice dentistry**, but registration in **state/national register** required before commencing practice.

### ○ Dental Advisory Council:

- Advise the Commission on education, training, research, and equitable access to dental education.
- Ex-officio members of the Commission are ex-officio members of the Council.

## Telecom Regulatory Authority of India Repealing Regulations, 2023

### Why in News?

Recently, the **Telecom Regulatory Authority of India (TRAI)** took a significant step in modernizing the regulatory landscape by issuing the **Telecom Regulatory Authority of India Repealing Regulations, 2023.**

- This regulation aimed to repeal the outdated **Regulation on quality of service of dial-up and leased line internet access service, 2001**, which had been in effect since December 10, 2001.

### What is Dial-up and Leased Line Internet Access?

- **Dial-up internet access** is a form of internet access that **uses the public switched telephone network (PSTN)** to establish a connection to an ISP via a telephone line.
  - It is the least expensive way to access the Internet, but it is also the slowest connection.
- **Leased line internet access** is a dedicated **point-to-point data circuit** that provides guaranteed bandwidth and symmetric upload and download speeds.
  - They are typically used by businesses or organizations that need **high-performance and reliable internet connectivity** for their operations.

Note:

### ***How was Dial Up and Leased Line Internet Access Regulated, and Why is it Now Outdated?***

- The Regulation on quality of service of dial-up and leased line internet access service, 2001, was initially **introduced to govern the quality of internet services provided by Basic Service Operators and Internet Service Providers (ISPs)** in India.
  - The regulation applied to all providers, including the incumbent operators such as **BSNL, MTNL, and VSNL**.
- When the regulations were introduced, **dial-up services were the predominant means of accessing low-speed internet**. However, over time, the **telecommunication networks have undergone significant transformations**.
  - The emergence of various technologies, including **FTTH, LTE, and 5G**, has made **high-speed broadband services widely available to consumers**.
- Moreover, leased line access services are now predominantly offered by **Internet Gateway Service Providers (IGSPs) to enterprises**, and these services are governed by **Service Level Agreements (SLAs)**.
  - SLAs inherently include provisions to safeguard concerns regarding service quality, **making the 2001 regulation less relevant in the current context**.
- With this regulatory burden lifted with Telecom Regulatory Authority of India Repealing Regulations, 2023, **service providers can focus more on delivering cutting-edge services** and improving customer experiences.
  - Additionally, the telecommunications sector may experience **increased competition and innovation, leading to enhanced service quality**, expanded coverage, and potential cost efficiencies.

### ***What are the Current Major Challenges Related to Telecom Sector?***

- **Financial Stress:** The telecom sector in India has been **grappling with intense competition**, low tariffs, and high debt burdens.
  - Several telecom companies were facing financial challenges, and some even **declared bankruptcy or merged with other players to stay afloat**.
- **Rural-Urban Disparity:** Although adequate tele-density has been achieved, there is a significant discrepancy in the share of telecom subscribers between **urban (55.42%) and rural (44.58%) areas of India**.

- Also, fixed broadband penetration in the country is among the lowest in the world at **only 1.69 per 100 inhabitants**.

- **Issue with Over-the-Top Platforms (OTT): OTT Communication service** platforms like **WhatsApp and Telegram** use the network infrastructure of telecom service providers to provide services such as voice calls and SMS services.
  - **Telecom Service Providers (TSPs)** allege that these features result in a **double whammy for them** as they cut into their sources of revenue (voice calls, SMS).
- **Mismanagement of E-waste:** Telecom industry impacts the environment in multiple ways, including through the generation of e-waste. In India, **more than 95% of e-waste is illegally recycled by informal waste pickers**.

## ***States' Lax Response to Mob Lynching***

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

The National Federation of Indian Women (NFIW) has filed a petition in the **Supreme Court**.

- The Supreme court seeks an explanation for the consistent failure of the Ministry of Home Affairs and six state governments (Maharashtra, Odisha, Rajasthan, Bihar, Madhya Pradesh, and Haryana) to act against lynching and mob violence on Muslims by cow vigilantes.

### ***What is Mob Lynching?***

- **Mob lynching** is an act of collective violence perpetrated by a large group of individuals, involving attacks on either a person's body or property, whether in public or private settings.
  - The group, driven by a belief that the victim has committed some perceived wrongdoing, takes matters into their own hands, disregarding legal rules and procedures in the process.

### ***What are Some Statistics Related to Lynching in India?***

Data compiled by **India Spend** website on Cow-Linked Violence in India (2010-2017):

- A total of 28 people were killed in 63 incidents of cow-linked violence during the period from 2010 to 2017.

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- Almost all of these attacks, around 97%, happened after 2014, showing a sharp increase in such incidents in the last few years.
- About 86% of the people who were killed in these incidents were Muslims, which shows that a specific religious community was being targeted.

### **What are the Causes of Mob Lynching?**

- **Perceived Threat to Culture or Identity:** Mobs engage in lynching when they believe that certain actions or behaviors of individuals or groups pose a threat to their cultural or religious identity.
  - For example: inter-caste or inter-religious relationships, consumption of certain foods, or customs that are perceived as challenging traditional norms.
- **Rumors and Misinformation:** Mob lynching incidents are often triggered by rumors or misinformation spread through social media, word of mouth, or other channels.
- **Economic and Social Tensions:** Issues related to land disputes, economic opportunities, and competition for resources can escalate into violent confrontations.
- **Political Manipulation:** Political interests and agendas may fuel mob lynching incidents.
- **Ethnic or Communal Divisions:** Long-standing ethnic, religious, or communal divisions can contribute to mob lynching.
- **Moral Vigilantism:** Individuals or groups may take the role of self-appointed moral vigilantes, enforcing their interpretation of social norms and values through violence.

### **What are the Issues Related to Mob Lynching?**

- Mob lynching is a **violation of human dignity, Article 21 of the Constitution**, and a gross infringement of the **Universal Declaration of Human Rights**.
- Such incidents **violate the Right to Equality (Articles 14) and Prohibition of discrimination, (Article 15)**
- Mob Lynching is nowhere mentioned in the law of the land and is to put it simply, it cannot be classified as murder as it has not been included in the **Indian Penal Code**.

### **What was the Supreme Court**

#### **Observation in Tahseen Poonawala Case?**

- In July 2017, the Supreme Court in the case of **Tahseen s. Poonawala v. UOI** said that it was the “sacrosanct duty” of the state to protect the lives of its citizens.
  - The Supreme Court in this case aptly **referred to mob lynching as a ‘horrendous act of mobocracy.’**

### **What are the Seven Remedial**

#### **Directions Given by the Supreme Court?**

- **Appointment of designated nodal officer:**
  - A designated nodal officer, not below the rank of Superintendent of Police, should be appointed to take measures to prevent prejudice-motivated crimes like mob violence and lynching.
- **Immediate lodging of FIR and Informing the nodal officer:**
  - If an incident of lynching or mob violence comes to the notice of the local police, they must immediately lodge an FIR.
  - The Station House Officer who registers the FIR must inform the nodal officer in the district about the incident.
- **Personal monitoring of investigation:**
  - The nodal officer must personally monitor the investigation of the crime.
- **Timely filing of chargesheet:**
  - The investigation and chargesheet should be filed within the stipulated period as per the law.
- **Scheme for victim compensation:**
  - There should be a scheme in place to compensate victims of prejudice-motivated violence.
- **Action against non-compliance:**
  - Non-compliance with the court’s directions by a police or district administration officer would be deemed deliberate negligence/misconduct, and appropriate action, beyond departmental proceedings, must be taken within six months.
- **Disciplinary action against officials:**
  - States must impose disciplinary action on officials who, despite prior knowledge, fail to prevent mob lynching incidents or delay in apprehending and initiating criminal proceedings against the culprit’s post-incident.

Note:



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### **What are the Initiatives Taken by Governments to Prevent the Issue?**

- **Law against mob lynching:**
  - As of now **only three states Manipur, West Bengal and Rajasthan have enacted laws against mob lynching.**
  - The **Jharkhand** Assembly has passed **Prevention of Mob Violence and Mob Lynching Bill, 2021** which has been returned by governor recently for reconsideration of a few provisions.
- **Awareness Campaigns:**
  - **Ranchi Police** launched a mass awareness drive across Ranchi district to prevent mob lynching through poster campaigns.
  - **Aurangabad Police** have launched an awareness campaign in all the eight districts of Marathwada to curb incidence of mob lynching.
- **Victim Compensation:**
  - **The Goa government** announced in victim compensation scheme that in case a person dies of mob violence, the family will get Rs 2 lakh.
- **Social Media Monitoring:**
  - In the southern city of Hyderabad, police are trying to stop mob violence through a social media campaign using hashtags **#HyderabadKillsRumors.**

## **Cinematograph (Amendment) Bill, 2023**

### **Why in News?**

Recently, the **Lok Sabha and Rajya Sabha** passed the **Cinematograph (Amendment) Bill, 2023**. The bill expands the scope of the law from censorship to also **cover copyright** and introduces stringent anti-piracy provisions.

- The bill aims to amend the existing **Cinematograph Act of 1952**.

### **What are the Proposed Provisions in Cinematograph (Amendment) Bill, 2023?**

- **Anti-Piracy Provisions:** The bill aims to deter piracy of films by **imposing strict penalties** on individuals involved in unauthorized audio-visual recording and distribution of copyrighted content. The provisions include:

- **Jail Term:** Imprisonment from 3 months to 3 years.
- **Fine:** From Rs. 3 lakhs to 5% of the audited gross production cost.
- **Expansion of Copyright Coverage:** It aims to extend the coverage of the Cinematograph Act, 1952, which was **primarily focused on censorship, to now encompass copyright protection.**
  - This move aligns with the evolving landscape of film distribution and aims to **safeguard the intellectual property rights** of filmmakers and content creators.
- **Government's Limited Powers over CBFC:** It emphasizes the **autonomy of the Central Board of Film Certification (CBFC).**
  - The Government no longer have **revisional powers over the CBFC's decisions**, based on the Supreme Court's judgment in the case of **K.M. Shankarappa vs Union of India (2000).**
- **Age Ratings:** The amendment bill introduces a new age rating system for films that require adult supervision. The current U/A rating, which covers a broad age range, will be split into three distinct categories:
  - **U/A 7+:** Films suitable for children above the age of 7 with parental guidance.
  - **U/A 13+:** Films suitable for children above the age of 13 with parental guidance.
  - **U/A 16+:** Films suitable for children above the age of 16 with parental guidance.
  - This new classification system aligns with the **graded-age classifications** implemented for streaming platforms under the **IT Rules, 2021** and **Shyam Benegal Committee** recommendations (2017).
- **Recertification for TV and Other Media:** Historically, films rated for adults have been prohibited on television since a 2004 Bombay High Court order.
  - As a result, broadcasters often voluntarily make cuts to films and seek re-certification from the CBFC for a U/A rating.
    - The bill formalizes this practice, allowing films to be **recertified for television and "other media."**
- **Perpetual Validity of Certificates:** The Act has been amended to **remove the 10-year validity restriction on CBFC certificates**, thereby granting them perpetual validity.

Note:

### What is the Cinematograph Act of 1952?

- The **Cinematograph Act, 1952** was enacted by the Parliament to ensure that films are exhibited in accordance with the limits of tolerance of Indian society.
  - It lays down the principles of guidance for certifying films, such as the interest of **sovereignty and integrity of India**, the **security of the State**, **friendly relations with foreign States**, **public order**, **decency or morality**, or involves defamation or contempt of court.
- Section 3 of the Act provides for the establishment of **Central Board of Film Certification (CBFC, popularly known as the censor board)**.
  - CBFC is a statutory body under the **Ministry of Information and Broadcasting**, that regulates the public exhibition of films under the provisions of the **Cinematograph Act 1952**.
- It also provides for the constitution of an **Appellate Tribunal** to hear appeals against the decisions of the Board.

## Akhil Bharatiya Shiksha Samagam and ULLAS Initiative

### Why in News?

Recently, the Prime Minister (PM) of India inaugurated **Akhil Bharatiya Shiksha Samagam** a two-day event. The event is organized to mark the **third anniversary of the National Education Policy (NEP) 2020**.

- Additionally, the Union Minister of Education launched the **ULLAS: Nav Bharat Saksharta Karyakram** mobile application.

### What are the Key Highlights of Akhil Bharatiya Shiksha Samagam?

- The PM released the **first installment of funds under the PM SHRI Scheme**, supporting the establishment of schools that nurture engaged, productive, and contributing citizens, in alignment with the NEP 2020 vision.
- The PM also released **education and skill curriculum books translated into 12 Indian languages**, enhancing learning by allowing students to **study in their mother tongue**.

### What is ULLAS:

#### Nav Bharat Saksharta Karyakram?

- **About:**
  - The **ULLAS (Understanding Lifelong Learning for All in Society)** is a transformative initiative launched by the Indian government to promote **lifelong learning and bridge the gaps in basic literacy** and critical life skills **among citizens aged 15 and above**.
  - The program aims to empower individuals with essential knowledge and skills for **personal and national development**.
  - ULLAS **User-Friendly Mobile Application** serves as a digital gateway to diverse learning resources via the **DIKSHA portal**.
- **Key Features of ULLAS: Nav Bharat Saksharta Karyakram:**
  - **Lifelong Learning Focus:**
    - Emphasizes continuous learning throughout life.
    - Fosters a culture of knowledge-sharing and personal development.
  - **Digital and Financial Literacy:**
    - Equip participants with digital literacy skills.
    - Promotes financial awareness and empowerment.
  - **Critical Life Skills:**
    - Impart important life skills such as **legal literacy and digital literacy**.
    - Enhances **citizenship and empowerment**.
  - **Incentives for Student Volunteers:**
    - Provides **credits in school/university for student volunteers**.
    - Offers appreciation through certificates, letters, and felicitations.

### 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**

Note:



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# Overhauling IPC, CrPC, Evidence Act

## Why in News?

Recently, the **Union Home Minister** introduced three bills in the **Lok Sabha** that aim to repeal and replace the **Indian Penal Code (IPC)**, the **Code of Criminal Procedure (CrPC)**, and the **Indian Evidence Act**, which were enacted during the British rule in India. The bills are:

- The **Bharatiya Nyay Sanhita Bill, 2023**, which will replace the **IPC, 1860**
- The **Bhartiya Nagrik Suraksha Sanhita Bill, 2023**, which will replace the **CrPC, 1898**
- The **Bharatiya Sakshya Bill, 2023**, which will replace the **Evidence Act, 1872**

### Note:

- **Indian Penal Code (IPC)** is the official criminal code of India drafted in 1860 in the wake of the first law commission established in **1834** under the **Charter Act of 1833**.
- **Code of Criminal Procedure (CrPC)** provides procedures for administering criminal law in India. It was enacted in 1973 and became effective on **1 April 1974**.
- The **Indian Evidence Act**, originally passed in India by the **Imperial Legislative Council in 1872**, during the **British Raj**, contains a set of rules and allied issues governing admissibility of evidence in the Indian courts of law.

## What are the Main Features of the Bharatiya Nyay Sanhita Bill, 2023?

- The bill defines **terrorism** and offenses such as **separatism**, **armed rebellion** against the government, challenging the sovereignty of the country, which were earlier mentioned under different provisions of law.
- It **repeals the offense of sedition**, which was widely criticized as a colonial relic that curbed free speech and dissent.
- It prescribes **capital punishment** as the **maximum sentence for mob lynching**, which has been a menace in recent years.

- It proposes **10 years imprisonment for sexual intercourse with women on false promise of marriage**, which is a common form of deception and exploitation.
- The bill introduces **community service as a form of punishment for specific crimes**, which can help in reforming offenders and reducing overcrowding in prisons.
- The bill fixes a **maximum limit of 180 days to file a charge sheet**, which can speed up the trial process and prevent indefinite delays.

## What are the Main Features of the Bhartiya Nagrik Suraksha Sanhita Bill, 2023?

- It promotes the **use of technology for trials, appeals, and recording depositions**, allowing video-conferencing for proceedings.
  - The bill makes **video-recording of statement of survivors of sexual violence compulsory**, which can help in preserving evidence and preventing coercion or manipulation.
- The bill mandates that **police must inform about the status of a complaint in 90 days**, which can enhance accountability and transparency.
- **Section 41A of the CrPC will be renumbered as Section 35**. This change includes an added safeguard, stipulating that **no arrest can be made without prior approval from an officer at least at the rank of Deputy Superintendent of Police (DSP)**, especially for offenses punishable by less than **3 years or for individuals above 60 years**.
- The bill requires that **police consult the victim before withdrawing a case punishable by seven years or more**, which can ensure that justice is not compromised or denied.
- It allows absconding criminals to be **tried in-absentia by court** and sentenced too, which can deter fugitives from escaping justice.
- It empowers magistrates to take **cognizance of offenses based on electronic records such as emails, SMSs, WhatsApp messages etc.**, which can facilitate evidence collection and verification.
- Mercy petitions in death sentence cases to be filed **within 30 days to the Governor** and **within 60 days to the President**.
  - No appeal shall lie against the President's decision in any court.

Note:



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### **What are the Main Features of Bharatiya Sakshya Bill, 2023?**

- The bill defines **electronic evidence** as any information generated or transmitted by any device or system that is capable of being stored or retrieved by any means.
- It lays down specific criteria for **admissibility of electronic evidence** such as **authenticity, integrity, reliability etc.**, which can prevent misuse or tampering of digital data.
- It provides for special provisions for **admissibility of DNA evidence** such as **consent, chain of custody etc.**, which can enhance accuracy and reliability of biological evidence.
- It recognises **expert opinion as a form of evidence** such as **medical opinion, handwriting analysis etc.**, which can assist in establishing facts or circumstances relevant to a case.
- It introduces the **presumption of innocence** as a **fundamental principle of criminal justice system**, which means that every person accused of an offence is presumed to be innocent until proven guilty beyond reasonable doubt.

## **Removing Animals from Drug-Testing Process**

### **Why in News?**

The Government of India has recently introduced an **amendment to the New Drugs and Clinical Trial Rules, 2023**. The amendment addresses the **ethical and scientific concerns surrounding the use of animals in research**, particularly in drug testing.

- This step authorizes researchers to utilize **innovative non-animal and human-relevant methods** for testing new drugs, ushering in an era of more accurate, efficient, and **ethically aligned drug development** processes.

### **What is the Current Drug-Development Landscape?**

- The journey of every drug from **conception to market** involves a series of **rigorous tests** to assess its efficacy and potential side effects. Traditionally, this process has involved testing candidate molecules on animals, **typically rodents like mice or rats, as well as non-rodents such as canines and primates**. However, this approach has significant limitations:

- **Species Mismatch:** Humans exhibit intricate biological variations due to factors such as **age, genetics, diet, and pre-existing diseases**.
  - Animal models, even non-rodents, **cannot fully replicate the complex human response** to drugs.
- **High Failure Rates:** The considerable divergence between animal and human responses contributes to the high failure rate of drug development.
  - Despite advancements in the pharmaceutical sector, **most drugs that pass animal testing fail during human clinical trials**.
- Recognizing these limitations, researchers globally have been exploring alternative testing methods that better replicate human biology and responses.

### **What are the Key Emerging Alternative Testing Methods?**

- **Organoids:** Organoids are **three-dimensional cellular structures** that emulate specific organs of the body.
  - These miniature organs, **developed from human cells or stem cells**, provide a more accurate representation of human physiology, enabling researchers to study drug interactions in a human context.
- **Organs-on-Chip:** Organs-on-chip are **small devices lined with human cells**, mimicking the blood flow and cellular interactions within the body.
  - These chips **replicate key physiological aspects** and allow researchers to **analyze tissue-tissue interactions** and chemical signals, providing a platform for more accurate drug testing.
- **3D Bioprinting:** **3D bioprinting technology** enables the **creation of complex human tissues and organs** using patient-specific cells.
  - This advancement allows for the **development of personalized drug testing approaches**, catering to individual variations in biology.

### **What are the Global Regulatory Shift to Accommodate Emerging Methods?**

- The European Union passed a resolution in 2021 to **transition towards non-animal testing methods**.
- The U.S. introduced the **FDA Modernization Act 2.0 in 2022**, allowing the use of human-relevant systems for drug testing.
- **South Korea and Canada** also introduced legislation to promote alternatives to animal testing.

Note:



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- In **March 2023**, India joined this global shift by amending the **New Drugs and Clinical Trial Rules 2019**, enabling the incorporation of human-based testing methods into the drug development pipeline.

#### What is the Regulatory Mechanism of Clinical Trials in India?

- The major legislations that govern clinical trials in India are: **Drugs and Cosmetics Act, 1940**, **Medical Council of India Act, 1956** and **Central Council for Indian Medicine Act, 1970**, **Guidelines for Exchange of Biological Material (MOH order, 1997)**.
- Prerequisites of conducting a clinical trial in India are:
  - Permission from the **Drugs Controller General, India (DCGI)**
  - Approval from the **Ethics Committee** established under **Drugs and Cosmetics Rules**.
  - Mandatory registration on the **ICMR** maintained website

#### What are the Challenges and Opportunities Related to Regulatory Shift for India?

- **Multidisciplinary Expertise:** Developing and implementing technologies like organoids and organs-on-chip demand **diverse expertise, ranging from cell biology and materials science to electronics and pharmacology**.
  - India must invest in multidisciplinary training and resource-building to bridge existing knowledge gaps.
- **Resource Localization:** The current reliance on **imported reagents, cell-culture materials, and instruments poses a resource challenge**.
  - To establish a self-sufficient ecosystem, India should focus on developing a robust infrastructure in areas like **cell culture, material science, and electronics**.
- **Standardization and Guidelines:** Variability in laboratory protocols can lead to inconsistent data.
  - **Clear guidelines and quality criteria** are essential to ensure reliable and comparable results across different labs.
  - Regulatory bodies must adapt to the advancements in cell-based and gene-editing-based therapeutics.

## Pradhan Mantri Uchchatar Shiksha Abhiyan

### Why in News?

14 States and Union Territories are yet to sign a Memorandum of Understanding (MoU) with the Ministry of Education, mandating the implementation of the **National Education Policy (NEP)** to avail funds for the next three years, under the **Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA)**.

### What is the Need for MoU and Concerns Raised by States?

- **Need:**
  - The MoU includes **provisions for planning, implementation, and monitoring**, aligning **State proposals with NEP** for better integration.
  - The scheme offers **flexibility for States/UTs to tailor activities** according to their needs, streamlining components for more effective resource allocation.
  - Moreover, **States can identify focus districts** based on indicators like enrollment ratios, gender parity, and population proportions of marginalized communities.
- **Concerns:**
  - Some State governments have expressed **dissatisfaction with the MoU**, as it **doesn't address the need for additional funding** to implement NEP reforms.
  - States are responsible for 40% of the PM-USHA expenses, but the MoU **doesn't provide clarity on funding mechanisms** for NEP-related changes.

### What is the PM-USHA Scheme?

- **About:**
  - In the light of the National Education Policy, **RUSA ( Rashtriya Uchchatar Shiksha Abhiyan)** Scheme has been launched as "**Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA)**" in June 2023.

Note:

- RUSA, as a **Centrally Sponsored Scheme** launched in October 2013, aiming at **providing strategic funding to higher education institutions** throughout the country.
- **It focuses on:**
  - Equity Access and inclusion in higher education
  - Developing Quality Teaching & Learning processes,
  - Accreditation of Non Accredited Institutions and improving accreditation.
  - ICT – based Digital Infrastructure.
  - Enhancing Employability through Multidisciplinary.

➤ **Objective:**

- To improve the overall quality of existing state higher educational institutions by ensuring their conformity to prescribed norms and **standards and adoption of accreditation** as a quality assurance framework.
- Ensure governance, academic, and examination reforms in the State higher educational institutions and establish backward and forward linkages with school education on one hand and employment market, on the other hand, to facilitate self-reliance and thus creating an Atma-Nirbhar Bharat
- Create an enabling atmosphere in the higher educational institutions to devote themselves to research and innovations.

➤ **Key Features:**

- **MERU Transformation:** It supports 35 accredited state universities with Rs 100 crore each to facilitate multi-disciplinary education and research.
- **Model Degree Colleges:** The scheme provides provisions for establishing new model degree colleges.
- **Enhancing Universities:** Grants are allocated to strengthen universities.
- **Focus on Remote and Aspirational Areas:** PM-USA targets remote, **Left-Wing Extremism (LWE)** affected regions, aspirational districts, and areas with low Gross Enrolment Ratio (GER).
- **Support for Gender Inclusion and Equity:** The scheme aids state governments in promoting gender inclusion and equity, as well as upgrading skills for better employability through Information and Communication Technology (ICT).

## Enhancing Water Resources Management and Conservation in India

### Why in News?

Recently, in a written reply in **Lok Sabha**, the Minister of State for Jal Shakti, provided valuable insights into **India's water resource management strategies and conservation efforts.**

- These initiatives, undertaken by the government, play a crucial role in addressing the challenges of water scarcity and ensuring sustainable utilization of this precious natural resource.

### What are India's Initiatives

#### Related to Water Resource Management?

- **National Perspective Plan for Interlinking of Rivers:**
  - Formulated to transfer water from **surplus basins to deficit areas in 1980.**
  - **National Water Development Agency (NWDA)** identified 30 interlinking projects (**16 under Peninsular Component** and **14 under Himalayan Component**) under Inter-linking of Rivers Project.
    - However, river interlinking projects are largely dependent on consensus on water sharing between participating States.
- **National Aquifer Mapping and Management Program (NAQUIM):**
  - Implemented by **Central Ground Water Board (CGWB)** under **Ground Water Management and Regulation (GWM&R) Scheme**, a **central sector scheme.**
  - Maps **aquifers (water-bearing formations)**, characterizes them, and develops Aquifer Management Plans.
  - Aims for sustainable management of groundwater resources across the country.
- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - Har Khet Ko Paani (HKKP) – Ground Water (GW):**
  - Launched to **enhance farm water access and promote efficient irrigation.**
  - Involves on-farm water use efficiency, sustainable conservation practices, and more.

Note:



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- Department of Agriculture & Farmers Welfare is implementing the **“Per Drop More Crop” component of PMKSY**.
  - The PMKSY- “Per Drop More Crop” mainly focuses on **water use efficiency at the farm level through micro irrigation (drip and sprinkler irrigation system)**.
- Operational since 2015-16, enhances water conservation at the farm level.
- **Command Area Development & Water Management (CADWM)** Programme has been brought under PMKSY – HKKP.
  - The main objective of taking up CAD works is to **enhance the utilization of irrigation potential created and improve agriculture production** on a sustainable basis through Participatory Irrigation Management (PIM).
- **Mission Amrit Sarovar:**
  - Launched as part of **Azadi Ka Amrit Mahotsav** to conserve water bodies.
  - Aims to develop and rejuvenate **75 water bodies in each district**.
- **Jal Jeevan Mission (JJM):**
  - Aims to provide potable **tap water to every rural household by 2024**.
  - Focus on tap water supply in water-scarce and drought-prone areas.
  - Includes bulk water transfer and regional water supply schemes.
- **Jal Shakti Abhiyan (JSA):**
  - Conducted in water-stressed districts for water conservation and management.
  - **“Catch the Rain” campaign** launched to cover all districts, rural and urban areas.
  - Aims to capture rainwater where and when it falls.
- **Water Use Efficiency and Performance Evaluation Studies:**
  - **Central Water Commission (CWC)** promotes studies for irrigation projects.
  - Focus on improving water use efficiency and conservation practices.
- **Atal Bhujal Yojana (ABY):**
  - Central sector scheme in water-stressed areas in 8,774 gram panchayats of 81 districts of seven States namely Haryana, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.

- Emphasizes community participation and demand-side interventions.
- **National Commission on Integrated Water Resources Development (NCIWRD):**
  - Reports on projected water requirements for different scenarios.
  - Provides insights for planning and management of water resources.
- **National Disaster Management Agency (NDMA):**
  - Utilizes **water-related data and technologies for disaster alerts** and management.
  - Uses platforms like NavIC for timely dissemination of alerts.
- **“Sahi Fasal” Campaign:**
  - Launched to encourage **water-efficient crop choices** in water-stressed areas.
  - Promotes economically viable and sustainable crop cultivation practices.

## Additional Guidelines For Health and Wellness Celebrities

### Why in News?

Recently, the Ministry of Consumer Affairs, Food and Public Distribution, has issued **Additional Influencer Guidelines For Health and Wellness Celebrities, Influencers and Virtual Influencers**, making it mandatory for them to give disclaimers while presenting as Health Experts.

- These guidelines are an extension of the previously established **“Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022”**.
- The additional guidelines aim **to deal with misleading advertisements, unsubstantiated claims and ensure transparency** in health and wellness endorsements.

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

- **Disclosure of Health Certificates:**
  - Certified medical practitioners and health & fitness experts holding certifications from recognised institutions when sharing information, promoting products or services or making any health-related claims, must **disclose that they are certified health/fitness experts** and medical practitioners.

Note:



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➤ **Must Provide Clear Disclaimer:**

- Celebrities, influencers, and virtual influencers **who position themselves as health experts or medical practitioners** need to provide clear disclaimers.
- These disclaimers must **emphasize that their endorsements should not be treated as substitutes** for professional medical advice, diagnosis, or treatment.
- Endorsers must encourage their audience to seek advice from health and wellness centers prior to making any significant alterations to their diet, exercise or medication routines.

➤ **Adequate Due Diligence:**

- Endorsers will have to conduct adequate due diligence before **endorsing any product or service**. They may, preferably, use or experience product or service to the extent **possible before endorsement**.
- Influencers and virtual influencers must refrain from **making false, misleading or exaggerated claims** that could potentially mislead their consumers.

➤ **Scope of Disclosure:**

- The requirement for disclosure or **disclaimer applies to endorsements**, promotions, and instances where health-related claims are made.
- Topics such as health benefits from **food items, nutraceuticals, disease prevention, treatment, cure, medical conditions, recovery methods, and immunity enhancement** fall within the purview of these regulations.

➤ **Exemptions for General Wellness Advice:**

- General wellness and health advice, which do not pertain to specific products, services, health conditions, or outcomes, are exempt from these regulations.
  - For instance, advice like “Drink Water and Stay Hydrated,” “Exercise Regularly,” and “Get Enough Good Sleep” are exempt.

➤ **Distinguishing Personal Views and Professional Advice:**

- Celebrities who position themselves as health experts must clearly differentiate between their personal **opinions and professional advice**.
- They are cautioned against making specific health claims without credible evidence. Encouraging audiences to **consult healthcare professionals** for accurate medical advice is strongly recommended.

➤ **Enforcement and Penalties:**

- The Department of Consumer Affairs will actively monitor and enforce these guidelines.
- Violations may lead to **penalties under the Consumer Protection Act 2019** and other relevant legal provisions.

**What are the Initiatives for Consumer Protection?**

- **Consumer Welfare Fund**
- **Central Consumer Protection Council**
- **Consumer Protection Rules, 2021**
- **Consumer Protection (E-Commerce) Rules, 2020**
- **National Consumer Day**

## **Coastal Aquaculture Authority (Amendment) Bill, 2023**

### **Why in News?**

The **Coastal Aquaculture Authority (Amendment) Bill, 2023**, recently passed by Parliament. These amendments seek to **address ambiguities, streamline administrative processes, and integrate emerging aquaculture practices**.

**What is the Coastal Aquaculture Authority Act, 2005?**

- **Coastal aquaculture** refers to the practice of cultivating and rearing aquatic organisms, such as fish, shellfish, and aquatic plants, in **marine or brackish water environments along the coastlines or in estuaries**.
  - The Act is about creating a special organization, called the **Coastal Aquaculture Authority**, to control and manage the activities related to raising seafood in areas near the coast.
- According to the Act, the government has the duty to take actions to make sure that **coastal aquaculture is done in a way that doesn't harm the environment**.

### **What are the Major Provisions Related to Coastal Aquaculture Authority (Amendment) Bill, 2023?**

- **Expanding the Scope of Coastal Aquaculture Activities:**
  - **Broaden Definition of Coastal Aquaculture:** The amendments aims to **bring all coastal aquaculture activities under the purview of the Act**, removing **ambiguities between different aspects of coastal aquaculture**.

Note:



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- **Inclusion of Emerging Aquaculture Practices:** The amendments acknowledge the **evolution of environmentally friendly aquaculture** practices beyond shrimp farming, incorporating methods like **cage culture, seaweed culture, marine ornamental fish culture, and more.**
  - These practices align with the evolving landscape and offer substantial revenue and employment opportunities for coastal communities.
- **Facilitating Aquaculture Units within the No Development Zone (NDZ):** Establishments like hatcheries, Broodstock multiplication centers (BMC), and Nucleus Breeding Centres (NBC) are now permitted to operate within **200 meters from the High Tide Line (HTL).**
  - The amendment aims to address **previous uncertainties arising from the interpretation of Section 13(8) of the original CAA Act of 2005**, which had **excluded coastal aquaculture from CRZ regulations.**
- **Simplifying Regulatory Processes and Encouraging Ease of Doing Business:**
  - **Modification of Registration:** The amendments replace the **stringent provision of imprisonment with civil penalties** for unregistered coastal aquaculture activities.
    - This shift towards civil instruments aligns with modern regulatory practices.
  - **Operational Flexibility:** The amendments introduce **provisions for modifying certificates of registration** in case of changes in ownership or activity size.
    - Additionally, they empower the **Coastal Aquaculture Authority to condone delays in renewal applications with a compounded fee**, enhancing administrative flexibility.
- **Environmental Protection and Compliance:**
  - **Standards for Emission and Effluents:** The amendments empower the Coastal Aquaculture Authority to establish **standards for emission or discharge of effluents from aquaculture units**, holding owners accountable for adhering to these standards.
  - **Polluter Pays Principle:** The amendments uphold the '**Polluter Pays Principle**,' mandating **aquaculture unit owners to bear the cost of any environment-related damage** or demolition assessed by the Authority.

- **Prohibition in Ecologically Sensitive Areas:** The amendments prohibit coastal aquaculture activities in **ecologically sensitive areas or areas with significant geo-morphological features**, enhancing protection for vulnerable ecosystems.
- **Advancing Disease Prevention and Sustainable Practices:**
  - **Antibiotic-Free Aquaculture:** By explicitly **prohibiting the use of antibiotics and pharmacologically active substances**, the amendments prioritize the health of aquatic ecosystems and promote environmentally conscious practices.

#### What is the Status of Coastal Aquaculture in India?

- India has a coastline of about **7,517 km**, and a **vast potential for coastal aquaculture development.** The major coastal aquaculture species in India are **shrimp, fish, crab, oyster, mussel, seaweed, and pearl.**
  - Over the past **9 years**, shrimp production in India surged by **267%.**
- The nation's seafood exports experienced a doubling effect, **surging from Rs 30,213 crore in 2013-14 to Rs 63,969 crore in 2022-23.**
  - Notably, the major portion of these exports is attributed to shrimp.
- Key coastal states such as **Andhra Pradesh, Gujarat, Odisha, and Tamil Nadu** played a significant role in propelling the **expansion of coastal aquaculture shrimp production and subsequent exports.**

## The CEC and Other ECs (Appointment, Conditions of Service and Term of Office) Bill, 2023

### Why in News?

Recently, the Government has introduced a bill in the Rajya Sabha aiming to alter the process of appointing the **Chief Election Commissioner (CEC)** and **Election Commissioners (ECs).**

- The Bill seeks to remove the **Chief Justice of India (CJI)** from a panel to select the CEC and ECs.
- This move has sparked discussions regarding the **composition of the selection committee and its implications** for the independence of the process.

Note:

### What is the Background?

- The **Supreme Court (SC)** in March 2023 ruled that CEC and ECs will be appointed by the President of India **on the advice of a Committee consisting of the Prime Minister, and Leader of Opposition in the Lok Sabha, and the Chief Justice of India until a law is enacted** by Parliament on their appointments.
- This ruling emerged from a **2015 Public Interest Litigation (PIL)** challenging the appointment process.

**Note:** The judgement by a bench led by Justice KM Joseph came in a **2015 PIL**, challenging the constitutional validity of the practice of the **Centre-appointed members** of the Election Commission. **In 2018, a two-judge bench** of the SC referred the case to a larger bench since it required a **close examination of Article 324 of the Constitution**.

- **Article 324(2) Reads:** The Election Commission shall consist of the Chief Election Commissioner and such number of other Election Commissioners, if any, as the President may from time-to-time fix and the appointment of the Chief Election Commissioner and other Election Commissioners shall, subject to the provisions of any law made in that behalf by Parliament, be made by the President.
- Since no parliamentary law was enacted as prescribed by **Article 324 of the Constitution**, the Court stepped in to address the “constitutional vacuum.”
  - The Bill now seeks to address this **vacuum and set up a legislative process** to make appointments to the EC.

### How are the CEC and ECs Currently Appointed?

- Currently, there is **no specific legislative process** defined in the Constitution for the appointment of the CEC and ECs. There are just five Articles (324-329) in Part XV (Elections) of the Constitution.
- **Article 324** of the Constitution vests the “superintendence, direction, and control of elections” in an Election Commission consisting of the CEC and other ECs as determined by the President from time to time.
- Before the Supreme Court ruling of March 2023, the CEC and ECs were appointed by the President on the recommendation of the government.

### What are the Key Features of the Bill?

- **Composition of the Selection Committee:**
  - The Selection **Committee will consist of,**

- The Prime Minister as Chairperson,
- The Leader of the Opposition in Lok Sabha as member
  - If the Leader of Opposition in Lok Sabha has not been recognised, **the leader of the single largest opposition party in Lok Sabha** will assume the role.
- a Union Cabinet Minister nominated by the Prime Minister as member.

### ➤ Search Committee:

- The Bill proposes the establishment of a **Search Committee** to prepare a panel of five persons for **consideration for the positions of CEC and ECs**.
- The Search Committee will be headed by the **Cabinet Secretary and will also include two members** not below the rank of Secretary who have knowledge and experience in matters related to elections.

### ➤ Can not be Invalidated due to Vacancy:

- The appointment of the CEC and other ECs will not be **invalidated due to any vacancy or defect** in the constitution of the Selection Committee.

### ➤ Repealing of Previous Act:

- The proposed Bill repeals the **Election Commission (Conditions of Service of Election Commissioners and Transaction of Business) Act, 1991**.
- The business of the Election Commission will be governed by the **new Act once it is passed**.
- The 1991 Act provides that the **salary of the ECs will be equal to that of a Supreme Court judge**.
- The Bill provides that salary, allowance, and service conditions of the CEC and other ECs **will be the same as that of the Cabinet Secretary**.

### ➤ Unanimity and Majority Decision:

- The Bill maintains the provision that the business of the Election Commission should be **transacted unanimously whenever possible**. In case of a difference of opinion, the majority's view will prevail.

### What are the Concerns?

#### ➤ Balance of Power:

- The Prime Minister and a Cabinet Minister (nominated by the Prime Minister) forming part of the three-member committee, the Leader of **Opposition is left with a minority vote even before the process begins**.

Note:



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- This raises questions about the **balance of power within the committee** and whether the selection process truly ensures independence or remains skewed in favor of the Executive.
- **Impact on Electoral Governance:**
  - The proposed changes may have **implications for the autonomy and functioning** of the ECI.
  - The independence of the Election Commission is crucial for **ensuring impartiality and integrity in the conduct** of elections. Any perceived influence of the Executive in the selection process might **raise concerns about the EC's ability to carry out** its responsibilities without bias.
- **Alignment with Framers' Intentions:**
  - The SC, in its previous ruling, emphasized that the framers of the Constitution intended for an **independent body to oversee elections**.
  - Critics of the proposed Bill raise questions about whether the new composition of the Selection Committee **aligns with the framers' objective** of creating an impartial and independent body responsible for elections.

#### What is the Role of Election Commissioners in Ensuring Free and Fair Election in India?

- **Election Commission of India:**
  - To ensure free and fair elections in India, the Election Commission of India was established in 1950.
  - The Election Commission consists of a **Chief Election Commissioner who is the Chairman** of the Election Commission and other Election Commissioners.
    - The number of other Election Commission members is fixed by the President.
- **Fair and Free Election:**
  - **Conducting Elections:** Article 324 of the Constitution provides that the power of superintendence, direction and control of elections to parliament, state legislatures, the office of **president of India and the office of vice-president of India shall be vested in the election commission**.
  - **Model Code of Conduct:** The ECI ensures that all political parties and candidates have a **level playing field during elections**.

- It does this by enforcing the **Model Code of Conduct**, which lays down guidelines for political parties and candidates to follow during elections.
- **Role with Respect to Political Parties:** To grant recognition to political parties and allot election symbols to them.
  - To act as a court for settling disputes related to granting recognition to political parties and allotment of election symbols to them.
- **Voter education:** The ECI conducts **voter education programs** to increase awareness among voters about their rights and responsibilities.
  - This includes educating them about the importance of voting and how to cast their vote.
- **Monitoring election expenditure:** The ECI monitors the **expenditure of political parties** and candidates during elections to ensure that they do not exceed the **limits set by the law**.
- **Addressing Electoral Malpractices:** The ECI takes strict action against electoral malpractices such as booth capturing, bogus voting, and intimidation of voters.

## CAG Report on National Social Assistance Programme

### Why in News?

A recent report on the performance audit of the **National Social Assistance Programme (NSAP) from 2017-18 to 2020-21** by the **Comptroller and Auditor General of India (CAG)** has revealed several irregularities and lapses in the planning, financial management, implementation and monitoring of the welfare scheme NSAP.

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

- **Misuse of Pension Funds for Publicity:**
  - The **Ministry of Rural Development (MoRD)** diverted funds allocated for NSAP, which are meant for **disbursing pensions, towards publicity campaigns for other ministry schemes**.
  - The allocated funds for NSAP were **intended for pension disbursement and administrative expenses, with 3% set aside for the latter**.

Note:



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- Instances of diversion of funds were **identified both at the ministry and state/UTs levels.**
- The MoRD initiated a **publicity campaign in 2017 through hoardings to promote various ministry programs.**
  - Rs 39.15 lakh was approved for hoardings, and Rs 2.44 crore was approved for campaigns across multiple states.
- The funds allocated for the campaign were intended to be from the **National Rural Employment Guarantee Scheme** but were sourced from **-NSAP schemes.**
- **Advertisement Discrepancies:**
  - The CAG found that the **advertisement work orders did not include NSAP schemes but highlighted schemes like Pradhan Mantri Awaas Yojana - Gramin (PMAY-G) and Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY).**
- **States Implicated in Fund Diversion:**
  - Six states - **Rajasthan, Chhattisgarh, Jammu & Kashmir, Odisha, Goa, and Bihar** - were found to have diverted funds meant for pension schemes.
- **Implications and Beneficiary Impact:**
  - Planned **Information, Education, and Communication (IEC) activities** under NSAP were adversely affected due to fund diversion.
  - Funds amounting to **Rs 2.83 crore, initially earmarked for NSAP IEC, were used for promoting other ministry schemes.**

### ***What is the National Social Assistance Programme (NSAP)?***

- **About:**
  - NSAP was launched on 15th August 1995 as a **Centrally Sponsored Scheme.**
  - NSAP represents a significant step towards the fulfilment of the **Directive Principles in Articles 41 and 42 of the Constitution of India.**
  - NSAP aims to provide support to **aged persons, widows, disabled persons and bereaved families** on the death of the **primary income producer**, belonging to **below-poverty-line households.**
- **Components:**
  - **NSAP has Five Sub-Schemes:**
    - **Indira Gandhi National Old Age Pension Scheme (IGNOAPS):** Under the scheme, BPL persons

aged 60 years or above are entitled to a monthly pension of Rs. 200/- up to 79 years of age and Rs.500/- thereafter.

- **Indira Gandhi National Widow Pension Scheme (IGNWPS):** BPL widows aged 40-59 years are entitled to a monthly pension of Rs. 200/-.
- **Indira Gandhi National Disability Pension Scheme (IGNDPS):** BPL persons aged 18-59 years with severe and multiple disabilities are entitled to a **monthly pension of Rs. 200/-.**
- **National Family Benefit Scheme (NFBS):** Under the scheme a BPL household is entitled to a lump sum amount of money on the death of a primary breadwinner aged between 18 and 64 years. The amount of assistance is Rs. 10,000/-.
- **Annapurna:** Under the scheme, **10 kg of food grains per month** are provided free of cost to those senior citizens who, though eligible, have remained uncovered under NOAPS.

### ➤ **Implementation:**

- NSAP is implemented by the **Ministry of Rural Development in collaboration with the state/ UT governments.**
- NSAP uses **Direct Benefit Transfer (DBT) mode to transfer funds** to the beneficiaries bank accounts or postal accounts.
- NSAP has a web portal that provides information on guidelines, reports, circulars, grievance redressal, etc.

### ➤ **Impact**

- NSAP has helped in **reducing poverty, improving living standards, and enhancing the dignity and empowerment of the beneficiaries.**
- NSAP has also contributed to the achievement of the **Sustainable Development Goals (SDGs) related to poverty eradication, social protection and inclusion.**
- Approximately **4.65 crore beneficiaries** relied on **old age, widow, disability pensions, and family benefits** annually between 2017-21.

### **Who is the CAG?**

- CAG is an **independent authority under the Constitution of India.**
- He is the **head of the Indian audit & account department** and chief Guardian of Public purse.

Note:



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- It is the **institution through which the accountability of the government and other public authorities (all those who spend public funds) to Parliament and State Legislatures and through them to the people is ensured.**
- The Comptroller and Auditor-General **shall not be eligible for further office either under the Government of India or under the Government of any State** after he has ceased to hold his office.
- **Article 148 provides for an independent office of the CAG.**
  - Other Provisions Related to CAG include: Articles 149-151 (Duties & Powers, Form of Accounts of the Union and the States and Audit Reports), Article 279 (calculation of net proceeds, etc.) and Third Schedule (Oath or Affirmation) and Sixth Schedule (Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram).

## Select Committee of Parliament

### Why in News?

Recently, the formation of a **Select Committee for the Delhi Services Bill**, has sparked controversy after several **Members of Parliament (MPs)** claimed that their names were included without their consent.

- However, **the Delhi Services Bill** has been passed by both the houses of Parliament.

### What is a Select Committee?

- **About:**
  - Select Committees are a category of **ad hoc or temporary committees** established with the specific purpose of examining and scrutinizing particular Bills.
    - Its membership is limited to **MPs from one House.**
    - These committees are dissolved **once their designated task has been fulfilled.**
  - Although temporary, the procedures and rules governing Select Committees are **well-defined within the Rules of Procedure of the Parliament.**

**Note:** Committees constituted for a specific purpose, with MPs from both Houses are called Joint Parliamentary Committees (JPC).

### ➤ Formation of Select Committees:

- The formation of a Select Committee can be initiated through a **motion proposed by the Minister in-charge of the Bill** or any member of the Parliament.
- This proposal is then presented to the House for adoption. If adopted, the **Committee is formed to consider and report** on the referred Bill.

### ➤ Selecting Members for a Select Committee:

- The members of a Select Committee are **specifically named in the motion that calls for the Bill to be referred** to the Committee.
  - These members are appointed by the House, and their **consent is a crucial aspect of the process.**
- While **Rajya Sabha** rules mandate that **no member can be appointed to a Select Committee** if they are not willing to serve on it, the **rules do not explicitly require the collection of signatures for proposed members.**

### ➤ Quorum:

- The composition of a Select Committee varies depending on its purpose. It operates with a **quorum of one-third of the total number of members.**
  - If there's a tie in votes, the chairman (or presiding person) has a casting vote.

### ➤ Function:

- The primary duty of a Select Committee is to meticulously review the Bill, examining its clauses to ensure they **accurately reflect the intended purpose and objectives of the measure.**
- The Committee can gather information through memoranda from experts, oral evidence, and government officials.
- After evaluating the evidence, the Committee formulates its conclusions, which may involve amending clauses to align them with the Bill's intent.
  - It can also form sub-committees to address specific aspects of the Bill.
- The committee's report, including any dissenting opinions, is presented to the House.
  - The reports of the Select Committee are **recommendatory in nature.** The government can **choose to accept or reject the committee's recommendations.**

Note:



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# Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana

## Why in News?

Recently, The **Comptroller and Auditor-General of India's (CAG)** performance audit report flagged irregularities in the **Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (PMJAY)**.

## What are the Issues Highlighted By CAG?

### ➤ Treatment of Dead Patients:

- The patients earlier shown as "dead" continued to **avail treatment under the scheme**.
  - The maximum number of such cases were in Chhattisgarh, Haryana, Jharkhand and minimum number of such cases were from Andaman & Nicobar Islands, Assam and Chandigarh.
- 88,760 patients died during treatment **specified under the Scheme**. A total of 2,14,923 claims shown as paid in the system, related to fresh treatment in respect of these patients.

### ➤ Unrealistic Household Sizes:

- There are instances where the **registered household sizes were unrealistically large, ranging from 11 to 201 members**.
  - Such discrepancies suggest a lack of **proper validation controls during the beneficiary registration process**.

### ➤ Pensioners Availing Benefits:

- Pensioners in certain states were **found to possess PMJAY cards** and were availing treatment under the scheme.
  - Delayed actions to **remove ineligible beneficiaries** from the scheme led to **ineligible individuals receiving benefits** under the PMJAY.

### ➤ Bogus Mobile Number and Aadhaar:

- It revealed that some **beneficiaries were registered with a single bogus mobile number**, potentially compromising the verification process.

- Similarly, some Aadhaar numbers were linked to multiple beneficiaries, raising questions about proper verification.

### ➤ Systemic Failures:

- CAG's report unearthed systemic issues, including **private hospitals performing public hospital-reserved procedures**, infrastructural inadequacies, equipment shortages, and medical malpractice cases.
  - Absence of **adequate validation controls**, invalid names, unrealistic date of birth, duplicate PMJAY IDs.
- In several States and UTs, the available equipment in empanelled hospitals were found to be non-functional.

### ➤ Pending Penalties:

- The report flagged pending penalties of Rs 12.32 crore from **100 hospitals across nine states**.

### ➤ Issue of data collection in the Scheme:

- It is possible that some random ten-digit number **was entered by the field level workers in some cases**.
  - Further, necessary changes have been made in the **current IT portal used by the National Health Authority (NHA)** to capture only valid mobile numbers, in case the same is possessed by the beneficiary.

## What are the Clarifications Provided by the Government?

### ➤ Mobile Numbers and Verification:

- The Ministry of Health clarified that mobile numbers were not used for beneficiary verification.
  - The scheme **primarily identifies beneficiaries through Aadhaar-based e-KYC**, and the mobile numbers were used for **communication and feedback purposes** rather than for verification.

### ➤ Authentication Options:

- **NHA provided multiple options for beneficiary verification**, including fingerprint, iris scan, face authentication, and OTP.
  - Fingerprint-based authentication is **commonly used and helps ensure the accuracy of beneficiary verification**.

Note:



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**What is Ayushman Bharat-PMJAY?****➤ About:**

- PM-JAY is the **world's largest health insurance** scheme fully financed by the government.
- Launched in February 2018, it offers a sum insured of **Rs.5 lakh per family for secondary care** and tertiary care.
  - Health Benefit Packages covers surgery, medical and day care treatments, cost of medicines and diagnostics.

**➤ Beneficiaries:**

- It is an entitlement-based scheme that targets the beneficiaries as identified by latest **Socio-Economic Caste Census (SECC)** data.
  - The National Health Authority (NHA) has provided flexibility to **States/UTs to use non- Socio-Economic Caste Census (SECC) beneficiary family databases** with similar socio-economic profiles for tagging against the leftover (unauthenticated) SECC families.

**➤ Funding:**

- The funding for the scheme is shared – **60:40 for all states and UTs** with their own legislature, 90:10 in Northeast states and Jammu and Kashmir, Himachal and Uttarakhand and 100% Central funding for UTs without legislature.

**➤ Nodal Agency:**

- The **National Health Authority (NHA)** has been constituted as an autonomous entity under the Society Registration Act, 1860 for effective implementation of PM-JAY in alliance with state governments.
- The **State Health Agency (SHA)** is the apex body of the State Government responsible for the implementation of AB PM-JAY in the State.

## Empowering Agroforestry and Natural Farming

**Why in News?**

The erstwhile **Centrally Sponsored Scheme of Sub-Mission on Agroforestry (SMAF)** has been restructured and incorporated as an **agroforestry component within the framework of the Rashtriya Krishi Vikas Yojana (RKVY)**.

- This innovative approach aligns with India's commitment to eco-friendly practices, including the promotion of **natural farming** – a chemical-free method rooted in integrated agriculture and animal husbandry.

### What are the Key Features of Restructured Agroforestry Scheme Under RKVY?

**➤ Focused Approach:**

- The revamped scheme places a strong emphasis on promoting and **ensuring the availability of Quality Planting Material (QPM)** as a crucial element in the domain of agroforestry.
- The **Indian Council of Agricultural Research-Central Agroforestry Research Institute (CAFRI)** takes on the pivotal role of being the **nodal agency** for providing technical support, capacity building, and guidance for establishing nurseries, producing, and certifying QPM.
  - The production and certification of **QPM** accorded a distinctive priority under this scheme.

**➤ AICRP Centers:**

- Under the framework of **All India Coordinated Research Project (AICRP) centers** on agroforestry, CAFRI collaborates with research centers located across the nation to foster innovation, develop sustainable practices, and disseminate knowledge.

**➤ State Nodal Departments/Agencies:**

- For effective implementation, each **State/Union Territory identifies a designated State Nodal Department/Agency**.
  - The State Nodal Department/Agency undertakes the responsibility of ensuring the **production and availability of QPM**, either independently or through collaborations with various institutions and entities.

**➤ Free Distribution to Farmers/SHGs:**

- The QPM raised through this scheme is made accessible to farmers and **Self-Help Groups (SHGs)**, either free of cost or based on decisions made by respective States/UTs.

**➤ Key Components and Activities:**

- Establishment of Nurseries for QPM Production
- **Tissue Culture** Lab for Quality Planting Material
- Skill Development and Awareness Campaign (up to 5% of allocation)
- Research & Development, Market Linking

Note:

- Project Management Unit (PMU) and **Agroforestry** Technical Support Group (TSG)
- Local Initiatives (up to 2% of Approved Annual Plan).

#### Quality Planting Material (QPM):

- QPM is an essential input in **agriculture and forestry for maximizing revenues**, improving adaptability to **adverse environmental conditions**, and meeting **quality raw material requirements** of markets.
  - The quality of planting material is **determined by origin, the authenticity of variety and stock, vegetation development, and health state.**
- QPM certification is a process of **ensuring that the planting material meets the prescribed standards of quality** and is suitable for the intended purpose.

#### What are the Government

##### Initiatives for Promoting Natural Farming?

- **Bharatiya Prakritik Krishi Paddhati (BPKP) Sub-Scheme:**
  - Launched under **Paramparagat Krishi Vikas Yojana (PKVY)** since 2019-2020, this **sub-scheme advocates chemical-free farming** through an integrated approach that involves livestock and local resources, emphasizing biomass recycling and mulching.
- **Namami Gange Program:**
  - As part of the PKVY scheme, the government is promoting chemical-free organic farming along the banks of the Ganga River. Since 2017-18, approximately 1.23 lakh hectares of land have been covered under this initiative.
- **Expansion Along the Ganga Corridor:**
  - In 2022-23, the government approved Chemical-free Natural Farming for a 1.48 lakh hectare area in 5-km wide corridors along the Ganga River in the states of Bihar, Jharkhand, Uttarakhand, and Uttar Pradesh.

#### Sub-Mission on Agroforestry (SMAF) Scheme:

- Implemented by the **Department of Agriculture, Cooperation and Farmers Welfare (DAC & FW)** since 2016-17.
- Aimed at encouraging farmers to plant **multi-purpose trees alongside agricultural crops for climate resilience and added income sources.**
- Farmers need a **soil health card** to avail benefits under the scheme.

## Digital Connectivity Infrastructure Provider Authorization

#### Why in News?

**Telecom Regulatory Authority of India (TRAI)** recently released recommendations on 'Introduction of Digital Connectivity Infrastructure Provider Authorization under Unified License (UL).

- These recommendations are in alignment with the **National Digital Communications Policy (NDCP-2018)**, which underscores the pivotal role of digital infrastructure in driving economic growth and improving the quality of life.

#### What are the Major Recommendations of TRAI?

- **Creation of DCIP Authorization:** TRAI recommends the creation of a new category of license, the **Digital Connectivity Infrastructure Provider (DCIP) Authorization.**
  - This authorization allows for the creation of both active and passive digital connectivity infrastructure.
  - The DCIP authorization is not a standalone license but falls **under the Unified License framework.** This move aims to encourage the emergence of players specialized in creating active and passive DCI.
    - Unified License offers service-wise authorizations, where licensees establish networks and use them to provide services.
- **Scope of DCIP Authorization:** The scope of the proposed DCIP authorization is extensive, covering the **ownership, establishment, maintenance, and operation** of various components such as **Wireline Access Network, Radio Access Network (RAN), Wi-Fi systems, Transmission Links** etc.
  - However, it excludes core network elements and **spectrum.**
- **Self-Regulation and Compliance:** To ensure compliance with security conditions, **Quality of Service (QoS)**, and other license obligations, TRAI proposes a principal-agent relationship between DCIPs and licensed entities.
- **Sharing of Infrastructure:** DCIP licensees are allowed to **share their infrastructure with other UL licensees and Internet Service Providers (ISPs)**, subject to certain conditions.

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- This sharing fosters increased collaboration, cost reduction, and efficient service delivery.
- **Access to Eligible Entities:** DCIP licensees are recommended to provide DCI items, equipment, and systems on **lease/rent/sale basis to entities with valid licenses under the Telegraph Act 1885** and those notified by the Government for this purpose.
- This extends to DCIP licensees who are **also licensed under the Electricity Act**, promoting access to their infrastructure on an access rights basis.

### ***What is the Significance of Digital Connectivity Infrastructure?***

- **About:**
  - In the modern age of **digital transformation**, digital connectivity infrastructure has emerged as a cornerstone of **economic growth, social progress, and technological innovation as highlighted in NDCP-2018**.
  - TRAI's recent recommendations aim to establish a framework for **integrating DCI into building development plans**, analogous to other essential services like water, electricity, and fire safety systems.
- **Significance:**
  - **Facilitating Communication and Information Flow:** Digital connectivity infrastructure, including **broadband networks and mobile services**, enables instant communication across geographical boundaries.
    - It facilitates the **exchange of information, ideas, and knowledge**, contributing to the growth of education, research, and innovation.
  - **Driving Economic Growth:** Digital connectivity is a catalyst for economic development by providing businesses with access to a global marketplace.
    - **E-commerce, online services, and digital platforms** leverage connectivity to reach customers and streamline operations, leading to increased trade and economic activity.
  - **Empowering Digital Services:** The availability of **high-speed internet and reliable connectivity** is essential for the deployment of digital services such as **telemedicine, e-governance, and online education**.
    - These services improve accessibility, efficiency, and inclusivity, enhancing overall quality of life.

- **Enhancing Innovation and Entrepreneurship:** Digital connectivity infrastructure fosters innovation by enabling **collaboration, data sharing, and remote work**.
  - Entrepreneurs can leverage online platforms to develop and launch innovative products and services, contributing to economic diversification.
- **Supporting Industry Transformation:** Industries like manufacturing, agriculture, and healthcare are undergoing digital transformation, relying on connectivity to **implement automation, IoT, and data analytics**.
  - **Smart factories, precision agriculture, and telemedicine** are just a few examples of how connectivity is revolutionizing traditional sectors.
- **Bridging the Digital and Social Divide:** Digital connectivity infrastructure helps bridge the digital divide by providing previously underserved or remote areas with access to information, education, and economic opportunities.
  - It **contributes to social inclusion and reduces inequalities** by ensuring that all segments of society can benefit from technological advancements.
- **Minimum Government Maximum Governance:** It enables the streamlined implementation of various governmental initiatives, such as **Digital India, Make in India, Ayushman Bharat Digital Mission (ABDM), and the development of Smart Cities**.
  - Digital public infrastructure is also one of **India's G-20 priorities**.

## ***Nurturing India's Cotton Sector***

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

Recently, the Union Minister of State for the Ministry of Textiles highlighted the significant strides taken to **empower cotton farmers and promote the cotton sector**.

### ***What are the Indian Government Initiatives Related to the Development of the Cotton Sector?***

- **Cotton Development Programme Under National Food Security Mission (NFSM):**
  - Implemented by the **Department of Agriculture & Farmers Welfare** in 15 major cotton-growing states: **Assam, Andhra Pradesh, Gujarat, Haryana,**

Note:



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Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Telangana, Tamil Nadu, Tripura, Uttar Pradesh & West Bengal from 2014-15.

- Aims to enhance **cotton production and productivity in major cotton-growing states**.
- Includes demonstrations, trials, distribution of plant protection chemicals, and training.
- **MSP Formula for Cotton:**
  - Introduced a formula of 1.5 times the cost of production (A2+FL) for **Minimum Support Price (MSP)** calculation.
  - Ensures economic interest of cotton farmers and availability of cotton to the textile industry.
  - Increases **MSP rates to support farmers' income**.
  - For cotton season 2022-23, **MSP of Fair Average Quality (FAQ) grade cotton had increased by about 6%** which has further been **increased by 9% to 10% for ensuing cotton season 2023-24**.
- **Cotton Corporation of India (CCI):**
  - Appointed as a Central Nodal agency for **MSP operations when Fair Average Quality grade seed cotton (kaps)** fall below the MSP rates.
  - Safeguards farmers from distress sales.
- **Branding and Traceability:**
  - Launched **Kasturi Cotton** to promote Indian cotton with a brand name.
  - Aims to ensure **quality, traceability, and branding of Indian cotton**.
- **Large-Scale Demonstrations Project:**
  - Sanctioned by the Ministry of Agriculture & Farmers Welfare under NFSM.
  - Focuses on best practices to enhance cotton productivity.
  - Focus on innovative technologies, such as **High Density Planting System (HDPS)** and the **value chain approach**.
  - Sanctioning of a project titled **"Targeting technologies to agro-ecological zones-large scale demonstrations of best practices to enhance cotton productivity."**
- **Textile Advisory Group (TAG):**
  - Constituted by the Ministry of Textiles to **facilitate coordination among stakeholders in the cotton value chain**.
  - Addresses issues related to **productivity, prices, branding, and more**.

#### ➤ **Cott-Ally Mobile App:**

- Developed to provide farmers with knowledge through a user-friendly interface.
- Key Features:
  - MSP Rate Awareness.
  - Nearest Procurement Centers.
  - Payment Tracking.
  - Best Farm Practices.

#### ➤ **Committee on Cotton Promotion and Consumption (COCPC):**

- Ensures availability of cotton to the textile industry.
- Monitors cotton scenario and advises the government on production and consumption matters.

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

- Kharif Crop which requires 6 to 8 months to mature.
- Drought-resistant crop ideal for arid climates.
- **Occupies 2.1% of the world's arable land**, meets 27% of the world's textiles needs.
- **Temperature:** Between 21-30°C.
- **Rainfall:** Around 50-100cm.
- **Soil Type:** Well-drained black cotton soil (Regur Soil) (E.g. Soil of Deccan Plateau)
- **Products:** fibre, oil and animal feed.
- **Top Cotton Producing Countries:** India > China > USA
- **Top Cotton Producing States in India:** Gujarat > Maharashtra > Telangana > Rajasthan > Andhra Pradesh
- **Four Cultivated Species of Cotton:** *Gossypium arboreum*, *G. herbaceum*, *G. hirsutum* and *G. barbadense*.
  - *Gossypium arboreum* and *G. herbaceum* are known as old-world cotton or Asiatic cotton.
  - *G. hirsutum* is also known as American cotton or upland cotton and *G. barbadense* as Egyptian cotton. These are both new world cotton species.
- **Hybrid Cotton:** Cotton made by crossing two parent strains that have different genetic characters. Hybrids are often spontaneously and randomly created in nature when open-pollinated plants naturally cross-pollinate with other related varieties.
- **Bt Cotton:** It is a genetically modified pest-resistant variety of cotton.

Note:



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## Indian Web Browser Development Challenge

### Why in News?

Recently, the Ministry of Electronics & Information Technology (MeitY) has launched the **Indian Web Browser Development Challenge (IWBCD)**, inviting developers to create an Indigenous Indian Web Browser for global use.

- A key requirement of this competition is that the browser ideas must trust the **Controller of Certifying Authorities (CCA)**, the Indian government's authority responsible for digital signatures, including **SSL (Secure Sockets Layer) certificates**.

### What is a Web Browser?

- The web browser is an application software to **explore www (World Wide Web)**. It provides an **interface between the server and the client** and requests to the server for web documents and services.
- It works as a compiler to render HTML which is used to **design a webpage**.
- Whenever we search for anything on the internet, the browser loads a web page written in HTML, including text, links, images, and other items such as stylesheet and JavaScript functions.
  - **Google Chrome, Microsoft Edge, Mozilla Firefox, and Safari** are examples of web browsers.

### What is the Indian Web Browser Development Challenge?

- **About:**
  - The IWBCD is an **Open Challenge Competition** that seeks to inspire and empower technology enthusiasts, innovators, and developers from all corners of the country to create an **indigenous web browser**.
  - **It will have its own trust store with an inbuilt Controller of Certifying Authorities (CCA) India root certificate, cutting edge functionalities and enhanced security & data privacy protection features.**
  - IWBCD is **spearheaded by MeitY, CCA and C-DAC Bangalore.**
  - The competition is **being organised and financed in collaboration** with the **IT Ministry's Research and Development division** and the **National Internet Exchange of India.**

### Objective:

- Proposed browser will focus on **accessibility and user friendliness**, ensuring **built-in support for individuals** with diverse abilities.
- Moreover, the **browser envisions the ability to digitally sign documents** using a crypto token, **bolstering secure transactions and digital interactions.**

### Significance:

- The challenge marks a significant **stride towards an Aatmanirbhar Bharat**, designed to strengthen India's digital sovereignty through the development of the Indian Web Browser.
- This challenge addresses one of the critical components – Web browser – through which the **end users accessing the Internet.**

### What are Secure Sockets Layer (SSL) Certificates?

#### About:

- An SSL certificate is a **digital certificate that authenticates a website's identity** and enables an encrypted connection.
- It is a security protocol that creates an **encrypted link** between a **web server and a web browser**.
  - Companies and organizations need to add SSL certificates to their websites to **secure online transactions** and keep customer information private and secure.

#### Role of Root certifying Authorities in Trust:

- While India has a legally valid root certifying authority called the **Root Certifying Authority of India**, established in 2000 under the CCA, the certificates issued by it are **not widely recognized by popular web browsers**.
  - The CCA has established the **RCAI under section 18(b) of the IT Act** to digitally sign the public keys of CAs in the country.
  - The RCAI is operated as per the **standards laid down under the Act.**
- This reliance on foreign authorities has raised concerns over **digital security and foreign exchange outflow.**

#### Issues with Indian SSL System:

- India lacks a root certifying authority that is trusted by **major browsers like Google Chrome, Mozilla Firefox, and Microsoft Edge.**

Note:

- This has led to Indian government and private websites **obtaining SSL certificates from foreign certifying authorities**.
- A notable incident involving the **National Informatics Centre (NIC)**, a CCA-approved organization responsible for hosting and maintaining various Union and State Government websites, underscored **trust issues in Indian certifying authorities**.
- In 2014, browsers and operating systems stopped trusting India's CCA after the NIC was linked to issuing fraudulent certificates.
- While NIC's authorization for SSL certificate issuance was revoked, **the trust in Indian certifying authorities remained compromised**.

## Interventions under National Food Security Mission

### Why in News?

Recently, the **Union Minister of Agriculture and Farmers' Welfare** provided valuable insights into the **developments under the National Food Security Mission** during a written reply in the **Lok Sabha**.

#### What is National Food Security Mission?

- **About:**
  - **National Food Security Mission (NFSM)** is a **Centrally Sponsored Scheme** launched in **2007** based on the recommendations of the agriculture sub-committee of **National Development Council (NDC)**.
  - The committee pointed out the **need for improved agricultural extension services, technology transfer and decentralized planning** as a result of which NFSM was conceptualized as a mission mode program.
  - Accordingly, a **Centrally Sponsored Scheme, 'National Food Security Mission' (NFSM)**, was launched in **October 2007**.
- **Thrust Areas:**
  - Sustainable increase in the production of targeted crops such as **rice, wheat, pulses primarily and then extended to coarse cereals, nutri-cereals, and oilseeds** as well.
  - Restoration of soil fertility and productivity at the individual farm level.
  - Rise in farm level net income.

### What are the Major Interventions

#### Under National Food Security Mission?

- **Cluster Demonstrations and Improved Practices:** Assistance is extended to farmers through States/Union Territories to conduct cluster demonstrations that **showcase improved packages of agricultural practices**.
  - These demonstrations highlight techniques for optimized crop cultivation and management.
- **Seed Production and Distribution:** **High-yielding varieties and hybrids** are developed, produced, and distributed to farmers to enhance the quality and quantity of agricultural output.
- **Farm Mechanization and Resource Conservation:** The **implementation of modern and efficient farm machinery** and resource conservation tools fosters enhanced agricultural practices while optimizing resource utilization.
  - Investments in **processing and post-harvest equipment** enhance the overall value chain and reduce post-harvest losses.
- **Plant Protection and Nutrient Management:** Measures to safeguard crops against pests and diseases, coupled with effective **nutrient management and soil amelioration strategies**, contribute to healthy plant growth.
- **Focused Approach to Oilseeds Production:** To bolster oilseed production and achieve self-sufficiency in edible oil, the **NFSM-Oilseeds initiative is designed**. It involves:
  - **Seed Subsidies and Distribution:** Financial incentives and subsidies facilitate the purchase and distribution of quality seeds, ensuring better crop yields.
  - **Demonstrations and Training:** Block demonstrations, front-line demonstrations, and cluster front-line demonstrations serve as platforms for showcasing effective oilseed cultivation practices.
  - **Infrastructure and Input Distribution:** Provision of essential resources like **water-carrying devices, plant protection equipment, soil enhancers, micro-nutrients, and bio-agents** fortifies oilseed cultivation.

#### Note:

- **National Mission on Edible Oils - Oil Palm (NMEO-OP):** To reduce edible oil imports led to the establishment of NMEO-OP in August 2021.

Note:



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- The mission emphasizes the expansion of **oil palm cultivation**, aiming to augment crude palm oil production, increase productivity, and ease the country's import burden.

➤ **Water Management for Sustainable Agriculture:**

- **Per Drop More Crop (PDMC):** Launched in 2015-16, PDMC focuses on water use efficiency through micro-irrigation systems like drip and sprinkler irrigation.
  - It also emphasizes the **adoption of location-specific scientific techniques** and modern agronomic practices.
- **Command Area Development & Water Management (CADWM):** Part of the **Pradhan Mantri Krishi Sinchayee Yojana**, CADWM aims to enhance irrigation efficiency.
  - It includes the construction of lined field channels and underground pipelines for last-mile connectivity.
- **Bureau of Water Use Efficiency (BWUE):** Established to regulate efficient water use in various sectors, the BWUE promotes strategies to improve water use efficiency in **irrigation, industries, and domestic settings**.
- **National Water Mission (NWM):** The 'SahiFasal' campaign, initiated in 2019, encourages farmers in water-stressed regions to cultivate crops that are **economically viable, water-efficient, and aligned with agro-climatic conditions**.

**What are the Major Challenges Related to Food Security in India?**

- **Agricultural Challenges:** India's agricultural sector is vulnerable to various challenges such as unpredictable weather patterns due to **climate change**, **pest infestations**, and **soil degradation**.
  - These factors can lead to reduced crop yields and contribute to food scarcity.
- **Land Fragmentation:** Subdivision of land due to **inheritance laws** has led to small and fragmented land holdings.
  - This hampers the **adoption of modern farming techniques** and technologies that could increase productivity.
- **Lack of Diversification:** Over-reliance on a few staple crops limits dietary diversity. A diverse diet is essential

for proper nutrition, and the **emphasis on a few crops like rice and wheat can contribute to malnutrition**.

- **Rising Food Prices:** Fluctuations in global and domestic food prices can make essential food items unaffordable for vulnerable populations.
  - Supply chain disruption led price volatility can lead to **sudden spikes in food insecurity**.

**Way Forward**

- **Agro-Ecological Zoning:** Create detailed agro-ecological zoning maps using advanced geospatial analysis.
  - This would help **identify the most suitable crops for specific regions based on their natural characteristics**, thus optimizing resource use and reducing the risk of crop failure.
- **Edible Landscaping in Urban Areas:** Encourage urban residents to convert their lawns and unused spaces into edible landscapes, growing fruits and vegetables.
  - This **decentralized approach** contributes to local food production and enhances community involvement.
- **Nutrient Recovery from Wastewater:** Implement systems to extract nutrients from wastewater and organic waste, then **convert these nutrients into fertilizers**.
  - This **reduces the need for synthetic fertilizers** and tackles water pollution simultaneously.
- **Artificial Intelligence Pest Detection:** Develop AI-powered cameras and sensors that can **detect pest and disease outbreaks early by analyzing subtle changes in plant health**, allowing for targeted interventions and reducing the need for widespread pesticide use.
- **Integrated Energy Farming:** Combine **agriculture with renewable energy production**.
  - Solar panels can be placed above crops, providing shade and reducing water evaporation, while generating clean energy to power agricultural equipment.

## **Dam Safety and Water Resource Management in India**

**Why in News?**

Recently, the Minister of State for Jal Shakti has shed light on India's significant strides in the realm of **dam safety and water resource management**.

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### ***What are the Highlighted Initiatives for Dam Safety Water Resource Management in India?***

- **Dam Safety Act, 2021: A Regulatory Framework:**
  - Enactment of the **Dam Safety Act, 2021**, by the Union Government.
  - Focuses on **proper surveillance, inspection, operation, and maintenance of specified dams.**
  - Aims to prevent **dam failure-related disasters** and establish an institutional mechanism for safe functioning.
  - **Institutional Mechanism:**
    - **National Committee on Dam Safety (NCDS):**
      - Formation of the National Committee on Dam Safety at the national level.
      - Responsible for **evolving dam safety policies and recommending essential regulations.**
      - Provides a strategic platform for ensuring uniform safety standards.
    - **National Dam Safety Authority (NDSA):**
      - Creation of the National Dam Safety Authority as a regulatory body.
        - ◆ Tasks include implementing policies of the National Committee on Dam Safety.
    - Offers technical assistance to **State Dam Safety Organisations (SDSO)** and resolves inter-state disputes.
    - **State-level Dam Safety Measures:**
      - Empowerment of State Governments to establish **State Committee on Dam Safety.**
      - Creation of **State Dam Safety Organisations** responsible for enforcing dam safety standards.
      - Renders crucial instructions to dam owners regarding safety protocols and remedial actions.
- **National Hydrology Project (NHP):**
  - **National Hydrology Project (NHP)** is designed with four major components: **Water Resources Monitoring System, Water Resources Information System, Water Resources Operations and Planning System, and Institutional Capacity Enhancement.**
  - The project aims to **enhance water resource management capabilities across the country.**
  - Supports **studies related to flood forecasting** undertaken by Implementing agencies.

### ***What is the State of Indian Dams?***

- India has **5745 numbers of dams** (5334 are completed and **411 are under construction**).
- India is ranked **third in the world in terms of building large dams.**
- **Tehri Dam** in Uttarakhand is the **highest dam in India** built on the Bhagirathi River.
- **Hirakud Dam** in Odisha built on river Mahanadi is the **longest dam in India.**
- **Kallanai Dam** in Tamil Nadu is the **oldest dam in India.** It is built on the **Kaveri river** and is about 2000 years old.

### ***What are the Other Related Water Resource Management Initiatives?***

- **Swachh Bharat Mission.**
- **Jal Jeevan Mission.**
- **National Water Policy, 2012.**
- **Pradhan Mantri Krishi Sinchayee Yojana.**
- **Jal Shakti Abhiyan- Catch the Rain Campaign.**
- **Atal Bhujal Yojana.**
- **Sujalam 2.0.**
- **Amrit Sarovar Mission.**

### ***What are the Challenges Associated with Dam Safety and Water Resource Management?***

- **Geological and Geotechnical Challenges:**
  - Many regions in India are **seismically active**, which poses a risk of **earthquakes that could impact dam stability.**
  - Poor soil quality and unstable geological conditions in certain areas also contribute to challenges in ensuring dam safety.
- **Ageing Infrastructure:**
  - Several **dams in India are aging** and may not **meet modern safety standards.** Maintenance and rehabilitation of these older structures are essential to prevent potential failures.
- **Climate Change and Extreme Weather Events:**
  - **Changing climate patterns** and increasing instances of extreme weather events, such as **heavy rainfall and floods**, can strain dams and their reservoirs, potentially leading to overtopping or dam failure.

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- **Interstate and International Cooperation:**
  - Many rivers in India are shared with neighbouring states or countries, requiring **coordinated efforts for dam safety and water management**. Disputes and lack of cooperation can impact effective dam management.
- **Emergency Response Infrastructure:**
  - Developing and maintaining effective **communication networks, evacuation plans, and emergency shelters** in the vicinity of dams is essential to manage potential disasters.
- **Community Resettlement and Rehabilitation:**
  - In cases where dam construction or operation requires the displacement of local communities, ensuring their proper resettlement and rehabilitation presents challenges.

## Initiatives Under National Education Policy 2020

### Why in News?

Recently, the **Minister of State for Education** provided valuable insights into the **initiatives taken up under National Education Policy (NEP) 2020** for the transformation of **Education Sector in India** during a written reply in the Lok Sabha.

#### What is NEP 2020?

- **About:**
  - The NEP 2020 aims at making “**India a global knowledge superpower**”. It is only the 3rd major revamp of the framework of education in India since independence.
    - The two earlier education policies were brought in **1968 and 1986**.
- **Salient Features:**
  - Ensuring **Universal Access at All Levels of schooling** from pre-primary school to **Grade 12**.
  - Ensuring quality early childhood care and education for all children between **3-6 years**.
  - New Curricular and Pedagogical Structure (**5+3+3+4**) corresponds to the age groups of **3-8, 8-11, 11-14, and 14-18 years respectively**.
    - It covers four stages of schooling: Foundational Stage (5 years), Preparatory Stage (3 years), Middle Stage (3 years), and Secondary Stage (4 years).

- **No hard separations between arts and sciences**, between curricular and extra-curricular activities, between vocational and academic streams;
- Emphasis on promoting multilingualism and Indian languages
- Setting up of a new **National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development)**
- A separate **Gender Inclusion fund and Special Education Zones** for disadvantaged regions and groups

### What are the Major Initiatives Taken Under NEP 2020?

- **PM Schools for Rising India (SHRI): PM-SHRI scheme** aims to provide high-quality education in an **equitable, inclusive, and joyful school environment**.
  - It is a **centrally sponsored scheme** launched in September 2022 for upgradation and development of more than 14500 Schools across the country.
  - Rs. 630 crore has been allocated to upgrade schools under the **PM SHRI initiative**.
- **NIPUN Bharat:** The vision of National Initiative for **Proficiency in Reading with Understanding and Numeracy (NIPUN) Bharat Mission** is to create an enabling environment to ensure the **universal acquisition of foundational literacy and numeracy**, so that every child achieves the desired learning competencies in reading, writing, and numeracy by the **end of Grade 3, by 2026-27**.
- **PM e-VIDYA:** The initiative aimed to **promote online education and digital learning** by providing various e-learning platforms like DIKSHA and offering e-books and e-contents to students across the country.
- **NCF FS and Jadui Pitara:** Launch of **National Curriculum Framework for Foundational Stage (NCF FS)** and **Jadui Pitara** for play-based learning teaching material tailored for children between the age group of 3 to 8 years
- **NISHTHA:** The **National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA)** is a capacity-building program for **teachers and school principals in India**.
- **NDEAR: National Digital Education Architecture (NDEAR)**, an architectural blueprint, that lays down a set of guiding principles and building blocks to enable the creation of digital technology-based applications pertaining to education.

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- **Academic Frameworks:** Introduction of **National Credit Framework (NCrF)** and **National Higher Education Qualification Framework (NHEQF)** to facilitate credit transfer and academic flexibility.
- **Increased Investment in Education:** The policy advocates for both the Central government and State Governments to allocate a **combined 6% of GDP to education**.
  - In alignment with this vision, the Ministry of Education has witnessed a budget of Rs. 1,12,899 crore in 2023-24, indicating a 13.68% increment from 2020-21.
- **International Campuses and Partnerships:** NEP 2020 supports Indian universities in establishing campuses abroad and inviting foreign institutions to operate in India.
  - Memoranda of Understanding (MoUs) have been signed for the establishment of **IIT campuses in Zanzibar and Abu Dhabi**, reflecting India's global educational outreach.
- **Educational Innovation in GIFT City:**
  - NEP 2020's innovative approach extends to **Gujarat's GIFT City**, where **world-class foreign universities** and institutions are permitted to offer specialized courses.
    - This move, free from domestic regulations, aims to nurture high-end human resources for financial services and technology.

### What are the Other Related Initiatives?

- **World-Class Institutions Scheme:** The **World Class Institutions Scheme**, initiated in 2017, aims to create affordable, top-notch academic and research facilities.
  - The scheme designates "**Institutions of Eminence**" (IoEs) to promote academic excellence.
  - To date, **12 institutions, including eight public and four private ones**, have been identified as IoEs, a testament to India's commitment to providing world-class education.
- **Global Initiative for Academic Network (GIAN) and SPARC:** GIAN focuses on tapping the **expertise of scientists and entrepreneurs**, including those of Indian origin, to bolster India's academic resources.
  - The **Scheme for Promotion of Academic and Research Collaboration (SPARC)** enhances research ecosystems by fostering collaborations between Indian and foreign institutions.
  - These initiatives contribute to elevating research quality and promoting knowledge exchange.

## Land Restoration and Afforestation

### Why in News?

Recently, the **Union Minister of State for Environment, Forest and Climate Change**, in a **written reply in the Lok Sabha**, shed light on the pivotal initiatives taken by India to **combat land degradation and promote afforestation**.

- The **Nagar Van Yojana (Urban Forest Scheme)**, a progressive initiative of the Ministry of Environment, Forest and Climate Change, has gained significant traction as its progress continues to illuminate India's commitment to creating vibrant urban green spaces.

### What is Nagar Van Yojana (NVY)?

- **About:**
  - The **NVY** was introduced in the year 2020 with a visionary objective – the creation of **1000 Nagar Vans (urban forests)** in cities equipped with **Municipal Corporations, Municipal Councils, Municipalities, and Urban Local Bodies (ULBs)**.
  - This ambitious initiative is designed to foster not only a holistic and healthy living environment for city residents but also to **contribute significantly to the growth of cleaner, greener, and more sustainable urban centers**.
- **Key Features:**
  - Creating **green space and aesthetic environment in an urban set-up**.
  - Creating awareness about **plants and biodiversity** and developing environment stewardship.
  - Facilitating **in-situ conservation of important flora of the region**.
  - Contributing to **environmental improvement of cities by pollution mitigation**, providing cleaner air, noise reduction, water harvesting and reduction of heat islands effect.
  - Extending **health benefits to residents** of the city and helping cities become **climate resilient**.
- **Progress and Impact of NVY:**
  - Since its inception, the **NVY** has gained remarkable momentum, with **385 projects sanctioned across the country**.
  - This impressive progress underscores India's dedication to transforming its cities into thriving, eco-conscious communities.

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## What are the Initiatives to Combat Land Degradation and Promote Afforestation?

### ➤ Government Initiatives to Boost Forest Cover:

- **National Forest Policy (NFP) 1988:**
  - The NFP 1988 sets a national goal of achieving a **minimum of one-third of the total land area under forest or tree cover**.
  - The aim is to maintain **ecological balance, conserve natural heritage, and prevent soil erosion in river, lake, and reservoir catchment areas**.
- **National Mission for a Green India (GIM):**
  - It is under the **National Action Plan on Climate Change (NAPCC)** and aims to increase forest and tree cover, restore degraded ecosystems, and enhance biodiversity.
- **Forest Fire Protection & Management Scheme (FFPM):**
  - This scheme focuses on **preventing and managing forest fires**, contributing to the overall health of forests.
- **Compensatory Afforestation Fund:**
  - This approach involves utilizing funds collected for diverting forest land for non-forest purposes to undertake afforestation and reforestation projects, thus restoring forest cover.
    - Utilized by States/UTs for compensatory afforestation to offset forest land diversion for developmental projects.
    - 90% of the Compensatory Afforestation Fund money is to be given to the states while 10% is to be retained by the Centre.
- **National Coastal Mission Programme:**
  - Under the National Coastal Mission Programme on 'Conservation and Management of Mangroves and Coral Reefs', **annual Management Action Plan (MAP) for conservation and management of mangroves are formulated and implemented in all the coastal States and Union Territories**.
- **State Specific Initiatives:**
  - **Mission Haritha Haram:**
    - It is a flagship programme of the Telangana government to increase the **green cover of the State from the present 25.16 to 33% of the total geographical area**.

### ● **Green Wall:**

- It is an initiative launched by the Haryana government to **restore and protect the Aravalli range**.
  - It is an ambitious plan to create a **1,400km long and 5km wide green belt** buffer around the Aravali Mountain range covering the **states of Haryana, Rajasthan, Gujarat and Delhi**.
- **Afforestation Achievements:**
    - **Twenty Point Programme Reporting:**
      - Over the period from 2011-12 to 2021-22, approximately **18.94 million hectares of land have been covered through afforestation efforts**.
      - These achievements result from concerted efforts by both the State Governments and central and state-specific schemes.
  - **Multi-Sectoral Approach:**
    - Afforestation activities are undertaken collaboratively across various sectors, involving departments, non-governmental organizations (NGOs), civil society groups, and corporate entities. This multi-faceted approach ensures a holistic effort to combat land degradation.
- **Measures to Combat Land Degradation:**
- **Desertification and Land Degradation Atlas:**
    - Published by the **Space Applications Centre (SAC)** of the **Indian Space Research Organisation**, this atlas provides **critical data on the extent of land degradation** and desertification in India. It helps in planning restoration efforts based on accurate information.
  - **Centre of Excellence at ICFRE:**
    - The establishment of a Centre of Excellence at the **Indian Council for Forestry Research and Education (ICFRE)** in Dehradun promotes South-South Cooperation.
      - It facilitates knowledge **exchange, best practice sharing, and capacity building for sustainable land management**.
  - **Bonn Challenge Pledge:**
    - India committed to **restoring 26 million hectares of degraded and deforested land by 2030** as part of the **voluntary Bonn Challenge**. This global initiative focuses on restoring degraded

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lands for enhanced ecosystem services and biodiversity.

○ **UNFCCC COP and UNCCD COP14:**

- India's participation in the **United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP)** and the **United Nations Convention to Combat Desertification (UNCCD) COP14** demonstrates the country's commitment to global efforts in land restoration and combating desertification.

### ***What are the Challenges Associated With Land Degradation and Afforestation?***

➤ **Challenges Associated with Land Degradation:**

○ **Soil Erosion:**

- Intense **rain and wind remove topsoil**, reducing soil fertility.
- Improper **agricultural practices and deforestation** contribute to erosion.
- **Climate change** disrupts soil health through shifting precipitation patterns and rising temperatures. Altered weather conditions, such as **intense rainfall exceeding soil absorption capacity, accelerate erosion, causing runoff and degradation.**

○ **Desertification:**

- **Arid and semi-arid areas** experience soil degradation and loss of vegetation cover.
- **Overgrazing** and unsustainable land use exacerbate desertification.

○ **Industrialization and Urbanization:**

- Urban expansion and industrial activities **lead to soil sealing, impeding water infiltration and nutrient cycling.**
- Pollution from industries can contaminate soil and water resources.

○ **Land Pollution and Contamination:**

- Improper **disposal of waste and hazardous materials** leads to soil contamination and reduced soil productivity.
- Landfills and **improper waste management** contribute to land degradation.

➤ **Challenges Associated with Afforestation:**

○ **Species Selection:**

- Choosing **suitable tree species that thrive in the local ecosystem.**

- Invasive species may outcompete native vegetation.

○ **Survival and Growth:**

- Ensuring newly planted trees survive harsh conditions and grow successfully.
- Water availability, soil quality, and climate influence tree establishment.

○ **Competing Land Uses:**

- Conflicts arise when **afforestation competes with agriculture, urbanization, or other land uses.**
- Balancing conservation goals with economic activities is challenging.

○ **Ecosystem Imbalance:**

- Rapid afforestation without considering **native species and ecosystems** may disrupt natural balances.
- Planting monocultures can lead to biodiversity loss.

○ **Community Participation:**

- Engaging local communities in afforestation efforts is crucial for long-term success.
- Inadequate community involvement may lead to resistance or unsustainable practices.

## **Amrit Bharat Stations Scheme**

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

Recently, the Indian Prime Minister has laid the foundation stone for the Redevelopment of 508 railway stations across India as a part of **Amrit Bharat Stations Scheme**, spreading across **27 states and union territories.**

- The extensive redevelopment project, estimated to cost more than RS 24,470 crores, aims to transform railway **stations into modern, well-equipped hubs.**

### ***What is the Amrit Bharat Stations Scheme?***

➤ **About:**

- The Amrit Bharat Station Scheme aims to redevelop 1309 stations nationwide.
- The redevelopment will provide **modern passenger amenities** along with ensuring well-designed traffic circulation, inter-modal integration, and signage for the guidance of passengers.
- The Scheme was launched in February 2023 by the Ministry of Railways.

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➤ **Station-wise Plans:**

- The station buildings' designs will be inspired by **local culture, heritage, and architecture**.
  - For instance, the Jaipur Railway Station will feature elements resembling the **Hawa Mahal and Amer Fort from Rajasthan**.

➤ **Integrated Approach to Urban Development:**

- The redevelopment is planned with a **holistic approach to urban development**, treating the stations as **"City Centres."**
- This approach aims to integrate **both sides of the city and create well-designed traffic circulation**, inter-modal connectivity, and clear signage for passengers' guidance.

➤ **Benefits:**

- **Passenger Amenities:** The redeveloped stations will feature **modern passenger amenities**, including upgraded waiting rooms, improved seating on platforms, and free Wi-Fi connectivity.
- **Local Involvement:** The redevelopment plans also incorporate the local community's input, aiming to represent the essence of the region in the station's design and amenities.
- **Green Energy and Emission Reduction:** LED lights will be installed in around 70,000 coaches and the substantial increase in the number of bio-toilets in trains, **contributing to environmental sustainability**.
- **Net Zero Emissions Goal:** There is an ambitious goal for India's railway network, **aiming for Net-Zero Emissions by 2030**. The emphasis on green building standards and energy-efficient practices aligns with the broader vision of environmental sustainability.

**What are a Few****Key Facts About Indian Railways?**➤ **169 Years of Heritage:**

- The Indian Railways was established on **16<sup>th</sup> April 1853**. The inaugural passenger train covered a **34-kilometer route between Mumbai's Bori Bandar and Thane**.

➤ **Unique Mascot:**

- The Indian Railways boasts its own mascot, a 'Shubhankar **named 'Bholu,'** created by the **National Institute of Design in 2002**. Bholu is an **elephant dressed** as a railway guard, introduced on the **railways' 150<sup>th</sup> anniversary**.

➤ **World's 4<sup>th</sup> Largest Rail Network:**

- The Indian Railways ranks as the **world's fourth-largest railway network**, encompassing a track **length of 67,368 km**. Only the US, China, and Russia have larger networks. **It's also the world's second-largest network** managed under a single administration, spanning 115,000 km.

➤ **UNESCO World Heritage Sites:**

- The Indian Railways takes pride in owning four **UNESCO-recognized world heritage sites**,
  - Darjeeling Himalayan Railway, Chhatrapati Shivaji Terminus in Mumbai, Nilgiri Mountain Railway, and Kalka Shimla Railway.

➤ **Longest Platform:**

- Hubli Junction's Platform number 1, also known as **Shree Siddharoodha Swamiji Hubballi Junction in Karnataka**, holds the record for the **world's longest railway platform at 1,505 meters**.

➤ **Longest and Shortest Train Rides:**

- The longest train ride in India is the **Vivek Express**, traveling from Kanyakumari to Dibrugarh, covering a distance of 4,189 kilometers with 56 stops in 82 hours and 30 minutes.
- The shortest train ride is just 3 kilometers, running between **Nagpur and Ajni**.

➤ **World's Highest Rail Bridge:**

- India is home to the **Chenab Rail Bridge**, the world's highest railway bridge, located in Dharot, Jammu, and Kashmir.

➤ **Nagpur's Diamond Crossing:**

- Nagpur, Maharashtra, **hosts the famous Diamond Crossing**, where two railway tracks form a square-like diamond shape, with two lines going North-South and two lines going East-West.

## Digital India RISC-V (DIR-V) Program

### Why in News?

Recently, the **Union Minister of Electronics & IT** addressed the **Digital India RISC-V (DIR-V) Symposium** organized by IIT Madras in Chennai.

- The one-day symposium, organized by IIT Madras, emphasized the government's vision for DIR-V which currently aims to build a robust **ecosystem for RISC-V** with effective **public-private partnerships** and collaborations with premiere academic institutions.

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## What is the Digital India RISC-V (DIR-V) Program?

- **About:**
  - The DIR-V Program is a forward-looking initiative that aims to **uplift India's semiconductor ecosystem**.
  - Its primary goal is to promote **indigenous innovation in the field of microprocessors**, laying the foundation for self-reliance.
  - The program emphasizes three key principles: **innovation, functionality, and performance**, shaping its direction for the future.
- **Navigating Complex Digital Realities:**
  - The program acknowledges the increasing demand for **silicon chips in today's digitized world**.
  - As emerging technologies like **5G and 6G** reshape the **digital landscape**, DIR-V anticipates finding applications in various areas such as **cloud services, Internet of Things (IoT)**, and sensors.
- **Integral Role in High-Performance Computing:**
  - DIR-V is positioned at the heart of India's aspirations for high-performance computing.
  - Collaborations with organizations like the **Center for Development of Advanced Computing (C-DAC)** and public-private partnerships will ensure that DIR-V plays a pivotal role in these ambitious goals.

### RISC-V:

- The term RISC stands for "**reduced instruction set computer**" which executes few computer instructions whereas '**V**' stands for the **5th generation**.
- It is an **open-source hardware ISA (instruction set architecture)** used for the development of **custom processors targeting a variety of end applications**.
- It also enables designers to **create thousands of potential custom processors**, facilitating **faster time to market**. The commonality of the processor IP also saves on **software development time**.
- RISC-V processors find versatile applications in **wearables, IoT, smartphones, automotive, aerospace**, and more, offering power efficiency, performance customization, and security. They excel in space-constrained designs and complex computational tasks.
  - The RISC was invented by **Prof. David Patterson around 1980 at the University of California, Berkeley**.

## Centre for Development of Advanced Computing (C-DAC):

- It is the leading R&D institution under the **Ministry of Electronics and Information Technology (MeitY)**, specializing in IT, Electronics, and related areas.
- Established in 1988 to counter the denial of supercomputer imports, C-DAC's journey began with the development of **India's first Supercomputers PARAM**.
- C-DAC plays a pivotal role in **India's IT revolution by continuously innovating and leveraging its expertise** to develop and deploy IT products and solutions aligned with the nation's policies and market needs.

## Digital Health Incentives Scheme

### Why in News?

- National Health Authority (NHA)** has announced an extension of its **Digital Health Incentives Scheme (DHIS)** under the **Ayushman Bharat Digital Mission (ABDM)**.
- The DHIS, offering incentives of up to Rs. 4 crores, has been extended till **December 31, 2023**.

## What is the Digital Health Incentives Scheme?

- **About:**
  - Under the **Digital Health Incentives Scheme (DHIS)**, hospitals, diagnostic labs, and digital health solution providers are **incentivized to embrace transformative digitization practices**.
  - The scheme operates with the goal of fostering a digitally inclusive healthcare ecosystem that aligns with the larger vision of **Ayushman Bharat Digital Mission**.
- **Eligibility:**
  - Health facilities (hospitals, diagnostic labs) and registered Digital Solution Companies (DSCs) under **ABDM's Health Facility Registry (HFR)** are eligible to participate in the scheme.
- **Incentive Calculation:**
  - The financial incentives are based on the **number of digital health records** created and linked to **Ayushman Bharat Health Account (ABHA)** numbers of patients.

Note:



➤ **Achievements:**

- **Incentive Recipients:** As of June 2023, a total of **1205 health facilities have registered under the DHIS**, including 567 public and 638 private hospitals, clinics, and diagnostic labs.
- **Digital Solution Companies:** Among the 25 registered digital solution companies, **22 are from the private sector**, demonstrating diverse participation.

**What is Ayushman Bharat Digital Mission?**➤ **About:**

- 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)**.

➤ **Objective:**

- It aims to provide **digital health IDs for all Indian citizens** to help hospitals, insurance firms, and citizens access health records electronically when required.
  - The **National Health Authority (NHA)** under the Ministry of Health and Family Welfare is the implementing Agency.

➤ **Unified Health Interface (UHI):**

- Under ABDM, UHI is envisioned as an open protocol for various digital health services. UHI Network is an open network of **End User Applications (EUAs)** and participating Health Service Provider (HSP) applications.
  - UHI enables a wide variety of digital health services between patients and health service providers (HSPs) including **appointment booking, teleconsultation, service discovery and others**.

➤ **Ayushman Bharat Digital Mission Sandbox:**

- The Sandbox, established under the mission, serves as a platform for testing technology and products.
  - It aids organizations, including private entities, in becoming **Health Information Providers or Users**.

**What are the Major Challenges****Related to Digital Healthcare in India?**

- **Infrastructure and Connectivity:** Despite advancements, **a significant portion of India still lacks reliable internet connectivity** and necessary digital infrastructure.
  - This hampers the ability to access and deliver digital healthcare services in remote and rural areas.
- **Digital Literacy:** Many people, especially in rural areas and older populations, may **not be familiar with technology or lack the necessary digital literacy skills** to effectively use digital healthcare platforms and services.
- **Data Privacy and Security:** Maintaining patient data privacy and security is a significant concern in **digital healthcare**. Ensuring that sensitive medical information remains confidential and protected from unauthorized access is crucial.
- **Telemedicine Regulations:** While telemedicine has gained popularity, **regulatory clarity regarding the practice, prescription of medications**, and teleconsultation across state lines has been a challenge.

**BharatNet Project****Why in News?**

Recently, the Union Cabinet has approved Rs 1.39 lakh crore for the **Modernization of the BharatNet project**.

**What is BharatNet Project?**➤ **About:**

- **National Optical Fibre Network (NOFN)** was launched in October 2011 and was renamed as **Bharat Net Project in 2015**.
- It is the **world's largest rural broadband connectivity programme** using **Optical Fiber**. And also a flagship mission implemented by **Bharat Broadband Network Ltd. (BBNL)**.
  - BBNL is a Special Purpose Vehicle (SPV) set up by the Government of India under the **Companies Act, 1956**.
  - It is being implemented by the Department of Telecommunication under the Ministry of Communications.
- This project involves altering the **execution strategy and employing Village Level Entrepreneurs**

Note:



**(Udyamis)** to provide fiber connections to the last mile, thereby **accelerating the connectivity process** over the next 2.5 years.

- It is financed by the **Universal Service Obligation Fund (USOF)**.
  - **USOF** ensures that there is **universal non-discriminatory access** to quality ICT (Information and Communications Technology) services at **economically efficient prices** to people in rural and remote areas.
  - It was created under the Ministry of Communications in 2002.

➤ **Objective:**

- The project aims to **compete with private operators like Jio and Airtel** by leveraging its presence in rural areas where these private operators are less prominent.
- The quality of service provided by BharatNet is **expected to play a role in attracting users**.
- It aims to **connect all 640,000 villages** across India with high-speed internet access.
- It seeks to bring broadband internet connectivity to each of the more than 2.5 lakh gram panchayats across the country.
- The government intends to provide a minimum of **100 Mbps bandwidth at each Gram Panchayat through BharatNet** so that everyone, especially those in rural India, can access online services.

➤ **Revamped Approach:**

- Similar to private telecom companies like **Airtel and Jio**, the revamped BharatNet model will **collaborate with Village Level Entrepreneurs (VLEs)** for the implementation of **fiber connections**.
- Under this approach, the **government will bear the cost of extending the infrastructure** to homes, while the entrepreneurs **will contribute to the maintenance** and operation of home connections.
  - This partnership will work on a **50:50 revenue-sharing basis**.

➤ **Phases of the Project:**

- **First Phase:**
  - Provide more one lakh gram panchayats with broadband connectivity by laying **underground Optic Fibre Cable (OFC)** lines by December 2017.
- **Second Phase:**

- Provide connectivity to all the gram panchayats in the country using an optimal mix of underground fibre, fibre over power lines, radio and **satellite media by March 2019**.

○ **Third Phase:**

- From 2019 to 2023, a state-of-the-art, future-proof network, **including fibre between districts and blocks**, with ring topology to provide redundancy would be created.

### ***What are the Progress and Milestones of BharatNet Project?***

- Previously, the challenge was to **extend fiber-based internet connections to households** after laying the infrastructure under the BharatNet project.
- To address this, a successful pilot was conducted in 60,000 villages, involving local partners to connect households.
- This success paved the way for the **involvement of Udyamis** in the project, expected to generate employment opportunities for around 250,000 people.
- Up to this point, the government has connected approximately 194,000 villages, providing internet **access to around 567,000 households**.
- Notably, 351,000 fiber connections have been established using the new BharatNet Udyami project.

### ***What are the Challenges to the BharatNet Project?***

- **Slow Progress and Implementation Delays:**
  - The project has faced significant delays in implementation, with the pace of progress being slower than anticipated.
  - Despite the government's efforts to connect villages, **only about 194,000 out of the targeted 640,000 villages** have been connected so far. This slow progress has hindered the **project's ability to bridge the Digital Divide** in rural areas.
- **Infrastructure and Connectivity Issues:**
  - The challenging terrain, **lack of proper roads, and logistical difficulties** have all contributed to delays in connecting villages. Connectivity issues have also led to poor service quality and interrupted internet access in some areas.
- **Technical and Operational Issues:**

Note:



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- Technical challenges such as signal quality, bandwidth limitations, and network downtime **have affected the overall user experience.**
- Moreover, managing the operations, maintenance, and complaint resolution processes in a decentralized manner involving local entrepreneurs has proven to be complex and requires effective coordination.
- **Competition from Private Operators:**
  - The presence of private telecom operators like Jio and Airtel in some rural areas poses a challenge for BharatNet. These private operators have established their own network infrastructure and services, making it important for BharatNet to offer competitive pricing and reliable service quality to attract users.

## India Implements Import Restrictions on Laptops, Computers, and Their Components

### Why in News?

Recently, India's **Directorate General of Foreign Trade (DGFT)** has announced that from **November 1, 2023**, it will restrict the import of laptops, computers, and their components, focusing on items under **Harmonised System of Nomenclature (HSN) Code 8471**. Restriction shall not be applicable to imports under baggage rules.

**Note:** Data processing machines are classified under HSN code 8471.

### What are the Reasons for Imposing Import Restrictions on Electronic Devices?

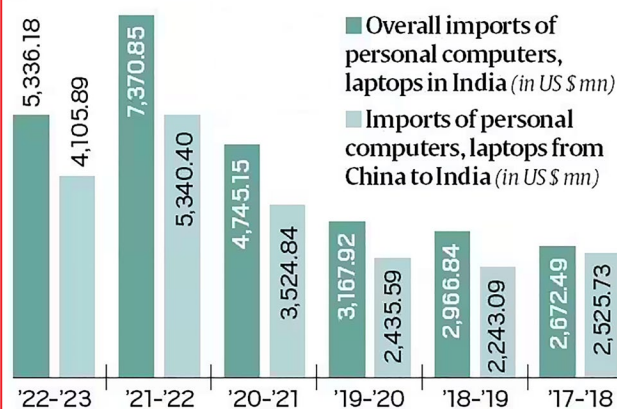
- These restrictions aim to **boost domestic manufacturing**, reduce reliance on **foreign imports**, particularly imports from China, and enhance **self-reliance in India's technology sector**.
- It aligns with government efforts to strengthen domestic production through the revitalized **production-linked incentive (PLI) scheme for IT hardware**.
- The restrictions aim to prevent the **entry of electronic hardware with potential security vulnerabilities** that could **compromise sensitive personal and enterprise data**.

- By restricting imports, the government aims to create a conducive environment for indigenous manufacturers to expand their **global footprint**.

### How will this Restriction affect the Market and Consumers?

- The import restrictions on laptops and related devices may lead to **disruptions in the supply chain**, potentially affecting the **availability** of certain laptop models in the market.
  - The policy will likely create a **supply crunch** in the short term, as importers will have to **apply for licenses** and wait for approvals. This could lead to **higher prices and lower availability** of laptops, tablets, personal computers, and servers in the market.
- **Domestic manufacturers might benefit** from the restrictions, as consumers might turn to locally produced laptops if imports become limited.
  - The restrictions could incentivize the development of **domestic laptop manufacturing capabilities**, eventually leading to more advanced and competitive products.
- The policy will also affect the existing players in the laptop market, such as Dell, HP, Lenovo, Acer, Asus, and Apple, who have been importing most of their products from China, Vietnam, Taiwan, and other countries. They will have to **either shift their production to India or source from local manufacturers** who meet the quality standards.
- The policy will also create opportunities for **new entrants and local manufacturers**, who can leverage the PLI scheme and offer competitive products at affordable prices.

### WHY THIS CAN AFFECT CHINA



Source: Ministry of Commerce and Industry

Note:

### What is the Harmonised System of Nomenclature?

- The HSN is a system that assigns a **unique code** to **every product** that is traded internationally.
- The HSN code is used by **customs authorities** around the world to identify and **assess tariffs on imported goods**.
  - It is also used by **traders and exporters** to declare their goods and comply with the rules of origin.
- The HSN code was developed by the **World Customs Organization (WCO)** in 1988 and is updated every five years.

#### Directorate General of Foreign Trade (DGFT):

- DGFT is a government body under the **Ministry of Commerce and Industry** that implements the **country's foreign trade policy**.
- DGFT was established in **1991 as a successor to the Chief Controller of Imports & Exports (CCI&E)**.
- DGFT is headed by the **Director General of Foreign Trade** at the headquarters in **New Delhi** and regional offices across the country.
- DGFT regulates and promotes **foreign trade through various schemes and measures, such as issuing licences, authorisations, certificates, incentives, etc.**
- DGFT also provides guidance and **assistance to exporters and importers**, and coordinates with other ministries, departments, agencies, and stakeholders on trade-related issues.

## Revised Good Manufacturing Practices Standards

### Why in News?

Recently, the government of India has directed all pharmaceutical companies to implement the **Revised Good Manufacturing Practices (GMP)**, bringing their processes at par with Global Standards.

- Larger companies with a turnover of over Rs 250 crore have been asked to **implement the changes within six months**, while medium and small-scale enterprises with turnover of less than Rs 250 crore have been asked to do so within a year.

### What are Good Manufacturing Practices (GMP)?

- About:
  - GMP is a system for ensuring that **products are consistently produced and controlled** according to **quality standards**.
  - It is designed to **minimize the risks involved** in any pharmaceutical production that cannot be **eliminated through testing the final product**.
- The Main Risks:
  - Unexpected contamination of products
  - Causing damage to health or even death
  - Incorrect labels on containers, which could mean that patients receive the wrong medicine
  - Insufficient or too much active ingredient, resulting in ineffective treatment or adverse effects.
- **WHO (World Health Organization)** has established detailed guidelines for GMP. Many countries have formulated their own requirements for GMP based on WHO GMP.
- Others have harmonized their requirements, for example in the Association of South-East Asian Nations (ASEAN), in the European Union and through the Pharmaceutical Inspection Convention.
- The GMP system was first incorporated in India in 1988 in **Schedule M of the Drugs and Cosmetics Rules, 1945**, and the last amendment was done in June 2005. WHO-GMP standards are now part of the revised Schedule M.

### What are the Major Changes in Revised GMP Guidelines?

- **Pharmaceutical Quality System and Risk Management:**
  - The new guidelines introduce a **pharmaceutical quality system**, which emphasizes the establishment of a comprehensive **quality management system throughout** the manufacturing process.
  - Companies are now required to **implement quality risk management practices** to identify potential risks to the quality of their products and take appropriate preventive measures, also **regular quality reviews** of all products are **mandated to ensure consistency** in quality and processes.
- **Stability Studies:**
  - Companies are now required to **conduct stability studies based** on climate conditions. This involves maintaining **drugs in stability chambers** at specified

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temperatures and humidity levels to assess their stability over time. Additionally, accelerated **stability tests may be conducted** to assess the product's stability under accelerated conditions.

➤ **GMP-Related Computerized Systems:**

- The new guidelines emphasize the use of computerized systems to **manage GMP-related processes**.
- These systems are designed to prevent data tampering, unauthorized access, and omission of data. They also automatically record all steps and checks to ensure adherence to processes without any tampering.

➤ **Investigational Products for Clinical Trials:**

- The new **schedule M** also lists out the requirements for additional types of products, including biological products, **agents with radioactive ingredients**, or plant-derived products.
- The new guidelines lay out requirements for **investigational products being manufactured** for clinical trials. This ensures that the products used in clinical trials meet the **necessary quality and safety standards**.

**What is the Need for Revised GMP Guidelines?**

➤ **Alignment with Global Standards:**

- Implementation of the new norms will bring the Indian industry **on par with global standards**.

➤ **Incidents of Contamination:**

- There have been a **string of incidents where other countries have reported alleged contamination** in India-manufactured syrups, eye-drops, and eye ointments.
- The **deaths of 70 children in the Gambia**, 18 children in Uzbekistan, three persons in the United States, and six deaths in **Cameroon have been linked to these products**.

➤ **Deficiencies in Current Practices:**

- Risk-based inspection found numerous deficiencies in 162 manufacturing units in India.
  - Deficiencies include inadequate testing of raw materials, lack of product quality review, infrastructure issues, and missing qualified professionals.
- There are only 2,000 of the 10,500 drug manufacturing units in India at **present that meet global standards**, being WHO-GMP certified.

- The improved standards will **ensure that pharmaceutical companies follow standard processes**, quality control measures, and do not cut corners, improving the quality of medicines available in India as well as sold in the global market.

➤ **Confidence to Regulators from Other Countries:**

- Instituting the same quality across the industry will give confidence to regulators from other countries.
- In addition, it will improve the **quality of drugs in the domestic markets**. Most of the 8,500 manufacturing units that are not WHO-GMP certified supply medicine within India.

## River Devika Rejuvenation Project

### Why in News?

Recently, Union Minister of State (Independent Charge) Science & Technology sheds light on the progress of the **River Rejuvenation Project, Devika**.

- The Devika Rejuvenation Project is **nearing completion as of August 2023**, with substantial progress achieved in restoring the Devika River's ecological and cultural vitality.
- This initiative, inspired by the **Namami Ganga campaign**, aims to safeguard the **sacred Devika River's purity and health**.

### What is the River Devika Rejuvenation Project?

➤ **Comprehensive Waste Management:**

- Focuses on **Liquid Waste Management**.
- Establishes a **network of pipes and manholes connecting households**.
- The primary goal is to ensure the **efficient disposal of liquid waste**, preventing pollution and maintaining the river's sanctity.

➤ **Complementary Solid Waste Management:**

- In addition to liquid waste, the project also encompasses the crucial aspect of **Solid Waste Management**.
  - This entails the responsible **collection, disposal, and management of solid waste materials generated by local communities**.
- Proper solid waste management is essential for preventing environmental degradation and

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maintaining the overall health of the river and its surroundings.

- **Financial Allocation Breakdown:**
  - The project receives **investments exceeding Rs 190 crores.**
  - Allocation is shared between **Central and Union Territory (UT) at a 90:10 ratio.**
- **Empowering Communities through PRIs:**
  - **Panchayati Raj Institutions (PRIs)** play a crucial role in ensuring the success of the project at the grassroots level.
  - The involvement of PRIs enhances community engagement, fosters ownership, and promotes sustainable development practices.

### ***What are the Key Facts about the Devika River?***



- **Origin:**
  - Devika River originates from the hilly Suddha Mahadev temple in the **Udhampur district of Jammu and Kashmir** and flows down towards **western Punjab (now in Pakistan)** where it merges with the **Ravi River.**
- **Cultural Significance:**
  - The river **holds religious significance** as it is revered by **Hindus as the sister of the river Ganga.**
  - It is believed that Devika River is a manifestation of the Goddess Parwati herself to benefit the people of **Mader Desha** that covers areas between river Ravi and **Chenab.**

## **National Initiative for Developing and Harnessing Innovations**

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

Recently, in a written reply in the **Rajya Sabha**, the **Union Minister of State for Science and Technology** highlighted achievement in India's innovation landscape through the **NIDHI (National Initiative for Developing and Harnessing Innovations).**

- The **Department of Science & Technology (DST)** launched the **NIDHI program in 2016.** NIDHI also involves collaboration with other key entities to encourage startups.

### ***What is the National Initiative for Developing and Harnessing Innovations (NIDHI)?***

- **About:**
  - The NIDHI is a groundbreaking initiative designed to drive innovation, support startups, and create a thriving **entrepreneurial ecosystem** in India.
  - NIDHI comprises various components that provide a comprehensive framework for promoting and accelerating **innovation-driven enterprises across the nation.**
- **Components of NIDHI Program:**
  - **NIDHI-PRAYAS (Promoting and Accelerating Young and Aspiring Innovators and Startups):**
    - Focuses on **converting innovative ideas into tangible prototypes.**
    - Offers mentoring and financial support at the **Proof-of-Concept level.**
  - **NIDHI Entrepreneurs-In-Residence (EIR) Program:**
    - Provides **fellowships** to students pursuing entrepreneurship.
    - Aims to **nurture and encourage** young entrepreneurs.
  - **NIDHI Seed Support Program:**
    - Offers **early-stage seed funding to startups.**
    - Enables startups to embark on their innovation journey.
  - **NIDHI Accelerator Program:**
    - **Speeds up the investment readiness** of startups.

Note:



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- Equips startups with the resources needed for growth and scaling.
- **Technology Business Incubators (TBIs) and Centres of Excellence (CoE):**
  - Establishes state-of-the-art infrastructure for incubating startups.
  - Fosters innovation in technology sectors.
- **NIDHI-Inclusive Technology Business Incubators (iTBI) program:**
  - Strengthens the innovation and startup incubation ecosystem in **Tier II and Tier III cities**.
  - The iTBI program has helped increase entrepreneurial inclusiveness in **terms of geographies, gender and persons with special abilities**.
- **Key Players and Collaborators:**
  - **Council of Scientific and Industrial Research (CSIR):**
    - NIDHI collaborates closely with CSIR to shape and develop **cutting-edge incubation facilities**.
      - Plays an active role in conceptualizing and developing advanced incubation facilities.
    - Supports translating technology and products, benefiting society, industry, and the country.
  - **Department of Biotechnology (DBT) through Biotechnology Industry Research Assistance Council (BIRAC):**
    - NIDHI joins hands with **DBT and BIRAC** to encourage startups, entrepreneurs, and innovators in the **biotechnology domain**.
    - Through strategic collaboration, they drive translational research and facilitate the **creation of affordable biotech solutions**.
    - Supports startups, entrepreneurs, and innovators in developing affordable products and technologies.
    - The progress made through **BIRACs incubation program include setting up of 75 Incubation Centers** supported through BIRAC's BioNEST and E-YUVA (Empowering Youth for Undertaking Value Added Innovative Translational Research) schemes of BIRAC across the country, around 900 innovative projects supported under **Biotech Ignition Grant (BIG)**.
  - **Ministry of Defence (MoD):**

- Collaborating with MoD's **Innovations for Defence Excellence (iDEX)**, NIDHI contributes to a dynamic ecosystem for innovation.
- This partnership engages **industries, startups, and R&D** institutes to drive **advancements in defence and aerospace technologies**.
- **Ministry of Electronics & Information Technology (MeitY):**
  - NIDHI's partnership with MeitY in the **Technology Incubation and Development of Entrepreneurs (TIDE 2.0) Scheme** empowers tech-driven startups.
  - Together, they provide financial and technical support to foster technology-based entrepreneurship.
- **Indian Council of Agricultural Research (ICAR):**
  - Collaborating with ICAR's **National Agriculture Innovation Fund**, NIDHI empowers agri-tech startups.
  - Their joint efforts establish **Agri-business Incubator (ABIs) centres**, driving innovative solutions in agriculture.

#### Department of Science and Technology:

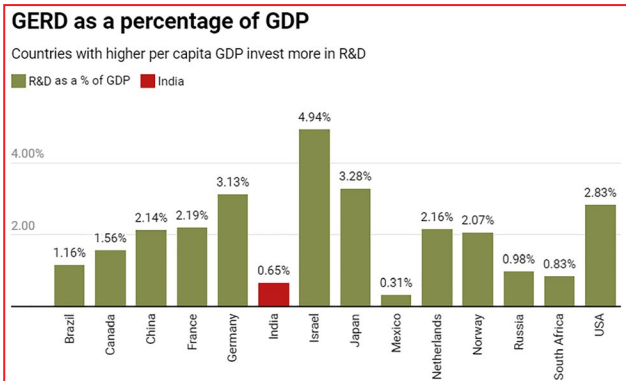
- The foundation of DST was laid on **3<sup>rd</sup> May 1971** along the model of National Science Foundation (NSF), USA.
- It provides **funding and also makes policies** and co-ordinates scientific work with other countries.
- It empowers scientists and scientific institutions and also works with a highly distributed system permeating stakeholders ranging from school college, PhD, Postdoc students, young scientists, startups and NGOs working in Science & Technology.

#### What is the Status of India's Innovation and Startup Ecosystem?

- India is ranked 40th out of 132 among the top innovative economies globally as per the **Global Innovation Index (GII) 2022**.
- India has emerged as the **3rd largest ecosystem for startups globally** as of 31st May 2023.
- As of June 2023, India is home to **108 Unicorns** with a total valuation of **USD 340.80 Bn**.
  - Out of the total number of unicorns, **44 unicorns were born in 2021** and **21 unicorns were born in 2022**.

Note:

- **India's Gross Domestic Expenditure on R&D (GERD)** as a percentage of GDP was **0.65%** in **2017-18**, which is lower than the **global average of 2.2%** and much lower than the leading innovators such as **Israel (4.9%)**, **South Korea (4.5%)**, and **Japan (3.2%)**.
- India faces issues such as **funding, revenue generation, and supportive infrastructure** in its innovation and startup journey.
- India's **public sector accounts for about three-fourths of the total R&D expenditure** in the country, while the **private sector contributes only about one-fourth**. This is in contrast to the global trend, where the private sector plays a dominant role in R&D spending.



### What are the Other Initiatives Related to Encourage Startup and Innovation in India?

- **Fund of Funds for Startups (FFS) Scheme.**
- **Credit Guarantee Scheme for Startups (CGSS).**
- **Startup India Hub.**
- **Startup India Seed Fund Scheme (SISFS).**
- **Centres of Excellence.**
- **Startup India Action Plan (SIAP).**

## Excess Cane Payments

### Why in News?

In a significant move, the Government of India has taken a step to **provide relief to cooperative sugar mills** by allowing them to **claim excess cane price payments made to farmers as "business expenditure."**

### What is the Issue of Excess Cane Payments?

- Sugarcane is a major crop in India, especially in states like **Maharashtra, Uttar Pradesh, Karnataka, and Tamil Nadu**.

- The Centre fixes a **fair and remunerative price (FRP)** for sugarcane every year, which is the **minimum amount that sugar mills have to pay to farmers** for procuring their cane.
- However, some cooperative sugar mills, especially in Maharashtra, **pay more than the FRP** to farmers as an incentive or bonus. This is called **excess cane payment**.
- The excess cane payment has resulted in tax disputes between the cooperative sugar mills and the Income Tax Department.
  - The mills claim the **excess payment as business expenditure**, while the **department treats it as a distribution of profits and disallows it as a deduction**.

### How has the Government of India Resolved the Issue of Excess Cane Payments?

- In the **2015-16 Union Budget**, the Government of India introduced an amendment to the **Finance Act** that allowed cooperative sugar mills to claim excess cane payment as deduction for computing their business income. However, **this was applicable only from the 2016-17 assessment year onwards**.
- In the **2023-24 Union Budget**, the Government of India extended the **benefit of deduction to all financial years prior to 2015-16**. This was done by amending **Section 155 of the Income Tax Act**.
- The move is expected to provide relief of almost Rs 10,000 crore to cooperative sugar mills, against pending tax demands and litigation in respect of payments made before the 2015-16 financial year.

### What is the FRP?

- **About:**
  - FRP is the **price set by the government** that sugar mills are obligated to **pay to farmers for the sugarcane procured** from them.
- **Payment and Agreement:**
  - Mills are legally required to pay the FRP to farmers for their cane.
  - Mills can choose to sign agreements with farmers, allowing them to pay the FRP in installments.
  - **Delayed payments can attract interest charges of up to 15% per annum**, and the **sugar commissioner can recover unpaid FRP by attaching properties of the mills**.

Note:

➤ **Governing Regulations:**

- The pricing of sugarcane is governed by the statutory provisions of the Sugarcane (Control) Order, 1966 issued under the **Essential Commodities Act (ECA), 1955**.
- According to the regulations, the FRP must be paid within 14 days of cane delivery.

➤ **Determination and Announcement:**

- The FRP is determined based on the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**.
- The **Cabinet Committee on Economic Affairs (CCEA)** announces the FRP.

➤ **Factors Considered:**

- The FRP takes into account various factors, including the **cost of sugarcane production**, **returns from alternative crops**, trends in agricultural commodity prices, availability of sugar to consumers, selling price of sugar, sugar recovery from cane, and income margins for cane growers.



### Prices of Sugarcane are determined by Central and State Government.



#### Fair and Remunerative Price (FRP)

- The Central Government announces FRP which are determined on the recommendation of the CACP and announced by the Cabinet Committee on Economic Affairs (CCEA).
  - The FRP is based on the Rangarajan Committee report on reorganising the sugarcane industry.



#### State Advised Prices (SAP)

- The SAP is announced by the Governments of key sugarcane producing states.
  - The price is calculated by the experts, who calculate the entire economics of the crop by taking input cost and then suggest to the government, which may agree or not.

#EconomyAndEndeavour

### What are Agro-ecological Specifications of Sugarcane?

- **Temperature:** Between 21-27°C with hot and humid climate.
- **Rainfall:** Around 75-100 cm.
- **Soil Type:** Deep rich loamy soil.

- **Top Sugarcane Producing States:** Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Bihar.
- India is the **second largest producer** of sugarcane after Brazil.
- It can be grown on all varieties of soils ranging from **sandy loam to clay loam** given these soils should be well drained.
- It needs manual labour from sowing to harvesting.
- It is the main source of **sugar**, gur (jaggery), khandsari and molasses.
- Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU) and **National Policy on Biofuels** are two of the government initiatives to support sugarcane production and the sugar industry.

## Finger Minutiae Record - Finger Image Record (FMR-FIR) Modality

### Why in News?

Recently, the **Unique Identification Authority of India (UIDAI)** has rolled out an in-house **Artificial Intelligence/Machine Learning (AI/ML)** technology-based **Finger Minutiae Record-Finger Image Record (FMR-FIR)** modality.

- This technology, specifically designed to enhance **Aadhaar-enabled Payment System (AePS)** transactions, aims to tackle **fraudulent activities**, including the misuse of cloned fingerprints.

### What is Finger Minutiae Record-Finger Image Record (FMR-FIR) Modality?

#### ➤ About:

- The **FMR-FIR modality** is an **advanced AI/ML-based technology** developed by the UIDAI to bolster security measures within the **Aadhaar-enabled Payment System (AePS)**.

#### ➤ Key Features and Functionality:

- **Hybrid Authentication:**
  - FMR-FIR combines the analysis of two distinct components – **finger minutiae** and **finger image** – to establish the **authenticity of fingerprint biometrics during Aadhaar authentication**.
- **Liveness Detection:**

Note:

- The modality's primary function lies in assessing the liveness of the captured fingerprint.
- It can differentiate between a genuine, "live" finger and a cloned or fake fingerprint, thereby preventing spoofing attempts.
- **Real-time Verification:**
  - FMR-FIR operates in real-time, providing instant verification results during the authentication process.
- **Robust Fraud Prevention:**
  - By detecting and deterring the use of cloned fingerprints, the technology significantly reduces the risk of AePS frauds.
- **Rationale and Implementation:**
  - **Addressing Emerging Threats:** The emergence of fraudulent activities involving cloned fingerprints necessitated the development of a sophisticated solution to safeguard AePS transactions.
    - Payment-related frauds have surged in India, with **over 700,000 reported in FY21**.
    - The figures dramatically **escalated to nearly 20 million in FY23**, according to data from supervised entities of the **Reserve Bank of India (RBI)**.
    - While many cases go unreported due to limited awareness about cyber frauds, instances of financial frauds remain significant.
  - **Silicone-based Fraud:** Instances of unauthorized money transfers through **fake fingerprints created using silicone** prompted the need for a more secure and technologically advanced approach.
  - **Integration of AI/ML:** The integration of **artificial intelligence** and **machine learning technologies** enhances the accuracy and effectiveness of fingerprint authentication.
- **Advantages and Implications:**
  - UIDAI's FMR-FIR technology bolsters security, mitigates vulnerabilities, boosts transaction confidence, and exemplifies technological innovation for societal welfare.

#### What is the Unique Identification Authority of India?

- **Statutory Authority:** The UIDAI is a **statutory authority established** on 12th July 2016 by the Government of India under the jurisdiction of the Ministry of Electronics and Information Technology, following the provisions of the **Aadhaar Act 2016**.

- The UIDAI was **initially set up by the Government of India in January 2009**, as an attached office under the aegis of the **Planning Commission**.
- **Mandate:** The UIDAI is **mandated to assign a 12-digit unique identification (UID)** number (Aadhaar) to all the residents of India.
- As of 31st October 2021, **UIDAI had issued 131.68 crore Aadhaar numbers**.

#### What is AePS?

- The AePS is a bank-led model that allows **online interoperable financial transactions at Point of Sale (PoS) or micro-ATMs** through the **Business Correspondent (BC)** of any bank using the **Aadhaar authentication**.
- It was taken up by the **National Payments Corporation of India (NPCI)** - a joint initiative of the **Reserve Bank of India (RBI)** and the **Indian Banks' Association (IBA)**.
- The AePS is meant to provide **easy and secure access to banking services** for the poor and marginalized sections of society, especially in rural and remote areas.
- It **eliminates the need for OTPs, bank account details**, and other financial information.
- Transactions can be carried out with only the **bank name, Aadhaar number, and captured fingerprint during Aadhaar enrollment**.

## Vivad se Vishwas-II

#### Why in News?

Recently, the Ministry of Finance launched the scheme, "**Vivad se Vishwas II**" to effectively settle the pending **contractual disputes of government** and government undertakings.

- The scheme was announced in the **Union Budget 2023-24** by the Union Finance Minister.

#### What is the Vivad Se Vishwas-II Scheme?

- **About:**
  - It is a **voluntary settlement scheme** to resolve long-standing contractual disputes involving government agencies.
  - It is designed **specifically for disputes where the Arbitral Award** is under challenge in a court.
    - Arbitral Award is an award that brings **finality to the arbitral proceeding**.

Note:



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- Under the scheme, standardised terms will be introduced, and **graded settlement options will be provided** based on the level of pendency of the dispute.

➤ **Objectives:**

- The Scheme aims to provide a platform for **resolving contractual disputes** efficiently and promptly, promoting ease of doing business with the government and encouraging fresh investments in the country.

➤ **Implementation:**

- It will be implemented through an online functionality on the **Government e-Marketplace (GeM)** portal.

➤ **Coverage:**

- The scheme will cover all disputes with Central government agencies, including autonomous bodies, public sector banks and financial institutions, central public sector firms, union territories, and the National Capital Territory of Delhi, along with their respective agencies.
- However, organizations such as metro corporations, where the **Centre holds a 50% stake**, can choose to opt out of the scheme at their discretion, provided they secure board approvals.

➤ **Settlement Amount:**

- For cases involving Court awards, the settlement amount offered to the **contractor will be up to 85% of the net amount awarded** or upheld by the court, while the same threshold will be “up to” **65% of the net amount in case of arbitral awards**.

**Note:** Earlier, the Ministry of Finance launched the scheme, “**Vivad se Vishwas I – Relief to MSMEs**” for providing relief to **Micro, Small and Medium Enterprises (MSMEs)** for **Covid-19** period.

## City Investments to Innovate, Integrate and Sustain 2.0

### Why in News?

Recently, the Government has approved the ‘**City Investments to Innovate, Integrate and Sustain 2.0 (CITIIS 2.0)**’.

### What is CITIIS 2.0?

➤ **About:**

- It is a part of the **Smart Cities Mission** and aims to promote integrated waste management and climate-oriented reform actions.
- CITIIS will **consider Smart City Projects in the following four themes:**
  - Sustainable Mobility.
  - Public Open Spaces.
  - Urban E-governance and ICT.
  - Social and Organisational Innovation for Low-Income Settlements.
- The program will run **for a period of four years, i.e., from 2023 till 2027.**

➤ **Objective:**

- The program envisages to support **competitively selected projects promoting circular economy** with focus on **integrated waste management** at the city level, **climate-oriented reform actions** at the State level, and institutional strengthening and knowledge dissemination at the National level.
- CITIIS 2.0 aims to leverage and scale up the learnings and **successes of CITIIS 1.0.**
  - **CITIIS 1.0 was launched jointly in 2018 and consisted of three components:**
    - 12 city-level projects selected through a competitive process.
    - Capacity-development activities in the State of Odisha.
    - Promoting integrated urban management at the national level through activities undertaken by, **National Institute of Urban Affairs (NIUA)**, which was the Program Management Unit (PMU) for CITIIS 1.0.

➤ **Funding:**

- The funding for CITIIS 2.0 would include a loan from AFD and KfW and a technical assistance grant from the EU.

➤ **Components:** CITIIS 2.0 has three major components:

- Financial and technical support for **up to 18 Smart Cities** for projects promoting **circular economy** with focus on **Integrated Waste Management**.
- Support to all States/Union Territories (UTs) for **Climate action**.
- Interventions at National level to support **scale-up across all cities and towns**.

Note:



➤ **Significance:**

- CITIIS 2.0 will supplement the climate actions of Government of India through its ongoing **National programs (National Mission on Sustainable Habitat, AMRUT 2.0, Swachh Bharat Mission 2.0 and Smart Cities Mission)**, as well as contributing positively to India's **Intended Nationally Determined Contributions (INDCs)** and **Conference of the Parties (COP26)** Commitments.

**Smart Cities Mission (SCM)**

- The Government launched the SCM with the aim of boosting economic growth and enhancing people's quality of life through local development and the use of technology to achieve smart results that benefit citizens.
  - **Launched:** 2015
  - **Nature:** Centrally Sponsored
  - **Nodal Ministry:** Ministry of Housing & Urban Affairs
  - **Implemented through:** A Special Purpose Vehicle (SPV) at city level
  - **Mission Deadline:** Extended to June 2023
  - **Coverage:** Developing 100 selected cities as Smart Cities.

**What Initiatives are Taken by Government of India's for Urban Development?**

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

## Sub-Categorisation of OBCs

**Why in News?**

The **Justice G. Rohini-headed Commission for the sub-categorisation of Other Backward Classes (OBC)** caste groups submitted its long-awaited report to the **Ministry of Social Justice and Empowerment** after nearly six years of work.

- The **details of the recommendations have not been made public yet**, and the government is expected to deliberate on the report before any implementation.

### What are the Terms of Reference of the Rohini Commission?

➤ **About:**

- The commission was set up on **2nd October, 2017** under **Article 340 of the Constitution (President's power to appoint a Commission to investigate the conditions of the backward classes).**

➤ **Terms of Reference:**

- Examine the inequitable distribution of benefits among OBCs listed in the Central List.
- Propose a scientific approach and parameters for sub-categorisation within OBCs.
- Identify and classify the respective castes or communities into their respective sub-categories.
- Study the entries in the Central List of OBCs and recommend corrections for repetitions, ambiguities, inconsistencies, and errors in spelling or transcription.

### What is the Need for Sub-categorisation of OBCs?

- **OBCs get 27% reservation** in central government jobs and educational institutions, but it is perceived that only a **few dominant caste groups among them benefit from this quota.**
- In 2018, the **commission analyzed the data of 1.3 lakh central government jobs and OBC admissions** to central higher education institutions over the preceding years, **revealing that 97% of benefits went to 25% of OBC castes.**
- **Around 983 OBC communities (37% of the total) had zero representation in jobs and educational institutions**, highlighting the need for sub-categorisation.
- Sub-categorisation aims to **create quotas within the 27% reservation to provide more opportunities for historically underrepresented and crowded-out OBC communities.**

### What is the Historical Evolution of the OBC Reservation Status in India?

- The journey began with the establishment of the **Kalelkar Commission in 1953**, which marked the **first instance of recognizing backward classes beyond the Scheduled Castes (SCs) and Scheduled Tribes (STs)** on a national level.

Note:



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- In 1980, the **Mandal Commission Report** estimated that the **OBC population constituted 52% and identified 1,257 communities as backward**.
  - To address the inequity, it **suggested an increase in the existing quotas** (which were previously applicable only to SC/ST) **from 22.5% to 49.5%, extending the reservation to include OBCs**.
  - Following these recommendations, the **central government implemented the reservation policy, reserving 27% of seats in union civil posts and services for OBCs under Article 16(4)**.
    - This policy was also enforced in central government educational institutions under **Article 15(4)**.
- In 2008, the Supreme Court intervened and directed the **central government to exclude the "creamy layer" (advanced sections) among the OBCs** from benefiting from the reservation policy, ensuring that it reaches the most disadvantaged.
- In 2018, **102<sup>nd</sup> Constitution Amendment Act** granted **constitutional status to the National Commission for Backward Classes (NCBC)**.
  - This elevated the **NCBC from its previous status as a statutory body under the Ministry of Social Justice and Empowerment**, giving it more authority and recognition in safeguarding the interests of backward classes, including the OBCs.

## Offshore Areas Mineral (Development and Regulation) Amendment Bill, 2023

### Why in News?

The Rajya Sabha recently passed the **Offshore Areas Mineral (Development and Regulation) Amendment Bill, 2023**, aiming to introduce crucial reforms in **India's offshore mining sector**.

- This amendment seeks to modify the existing **Offshore Areas Mineral (Development and Regulation) Act, 2002**, to enable the auction as the method of **allocating operating rights in offshore areas**.

### What are the Key Features of the Amendment Bill?

- **Introduction of Auction Regime:**

- Two types of operating rights, production lease, and composite licence, to be granted through auction by competitive bidding exclusively to the private sector.
- **Operating rights to be granted to PSUs** in the mineral bearing areas reserved by the Central Government. PSUs will be **exclusively granted operating rights** for atomic minerals.
  - Atomic minerals include **mainly minerals containing uranium**, thorium, rare metals, viz. niobium, tantalum, lithium, beryllium, titanium, zirconium, and **Rare Earth Elements (REEs)** as well as beach sand minerals.
- **Fixed Period for Production Lease:**
  - The provision for renewal of production **leases has been removed**.
  - The production lease period is set at **50 years, aligning with the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**.
- **Area Acquisition Limit:**
  - A limit has been imposed on the **total area** one entity can acquire offshore.
  - The maximum **acquisition area is restricted to 45 minutes latitude by 45 minutes longitude** for any mineral or prescribed group of associated minerals under one or more operating rights.
- **Non-lapsable Offshore Areas Mineral Trust:**
  - To ensure funds for exploration, disaster relief, research, and benefits to affected parties, a **non-lapsable Offshore Areas Mineral Trust** will be established.
  - The trust will be funded by an **additional levy on mineral production**, not exceeding one third of the royalty, with the exact rate prescribed by the Central Government.
- **Ease of Business and Timelines:**
  - Provisions for easy transfer of composite licence or production lease.
  - Timelines for commencement of production and dispatch after execution of **production lease to ensure timely start of production**.
- **Revenues:**
  - Royalty, auction premium, and other revenues from mineral production in offshore areas will accrue to the Government of India.

Note:

### **What is the Need for Such an Amendment Bill?**

- **Lack of Activity in Offshore Areas:**
  - Despite the enactment of the **Offshore Areas Mineral (Development and Regulation) Act, 2002**, there has been no mining activity in offshore areas.
  - This indicates a lack of interest or effective utilization of the vast maritime resources available to India.
  - The Amendment Bill seeks to **address the underlying issues and incentivize exploration** and mining in these offshore areas.
- **Discretion and Lack of Transparency:**
  - The current Act suffers from the problem of discretion and lacks transparency in the allocation of **operating rights for mining in offshore areas**.
  - The Amendment Bill aims to introduce a **transparent auction mechanism** to allocate operating rights, inspired by the successful amendments to the **MMDR Act for onshore areas**.
- **Harnessing Maritime Resources:**
  - India holds a unique **Maritime Position**, with an **Exclusive Economic Zone (EEZ)** covering over two million square kilometers, rich in recoverable resources. Geological Survey of India (GSI) estimates **significant reserves of lime mud, construction-grade sand, heavy mineral placers, phosphorite, and polymetallic ferromanganese nodules** and crusts in various offshore areas.
  - However, the potential of these resources remains largely untapped. The Amendment Bill seeks to **harness the full potential of these maritime resources** to support India's high-growth economy by promoting exploration and mining through the participation of both the public and private sectors.

## **Modernization of Fire Services**

### **Why in News?**

Recently, the Ministry of Home Affairs, Government of India has launched a **"Scheme for Expansion and Modernization of Fire Services in the States"** under the **National Disaster Response Fund (NDRF)** for strengthening fire services in the States.

### **What is the Scheme for Expansion and Modernization of Fire Services in the States?**

- **About:**
  - The Scheme finds its origin from the recommendation of the **Fifteenth Finance Commission (XV-FC)** which allows an allocation of 12.5% of each of the NDRF and **State Disaster Response Fund (SDRF)** for the **Funding Window of Preparedness and Capacity Building**.
- **Objective:**
  - It aims to expand and **modernize Fire Services in the States** with a view that activities for strengthening of fire services at the State-level through preparedness and capacity-building **components of the NDRF will be ensured**.
- **Measures under the Scheme:**
  - Setting up of new fire stations
  - Strengthening of State Training Centres and capacity building
  - Provisions for modern fire-fighting equipment
  - Strengthening of State Headquarters and Urban Fire Stations
  - Technological upgradation and installation and augmentation of online systems.
- **Fund Allocation:**
  - Fund allocation under the scheme is on a cost sharing basis of **75:25 with the States, except for North Eastern Hill States** which is in the ratio of 90:10.
  - While the Centre will provide **Rs. 5000 crore to the States for identified activities, the States' contribution will be of Rs. 1387.99 Crore**.
    - An amount of Rs. 500 crore, out of the total central outlay of Rs. 5000 crore will be available for incentivizing the States for adoption of legal and infrastructure-based reforms.

### **What are the Government Initiatives for Disaster Risk Reduction?**

- **National Disaster Management Plan**
- **Aapda Mitra Scheme**
- **Common Alerting Protocol based Integrated Alert System (Sachet).**
- **School Safety Programme (SSP) of NDRF**
- **National Cyclone Risk Mitigation Project (NCRMP)**

Note:



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- NGO-Coordination Centres at States/UTs and District levels.
- NDRF Mock Exercises scheme on community disaster Awareness.
- NDMA Guidelines for Management of Disaster Risks.
- **National Cyclone Risk Mitigation Project (NCRMP)**

## The Mines and Minerals (Development and Regulation) Amendment Bill, 2023

### Why in News?

The Rajya Sabha has passed the **Mines and Minerals (Development and Regulation) Amendment Bill, 2023** for making amendments to the **Mines and Minerals (Development and Regulation) (MMDR) Act, 1957**.

### What is the Background?

- The MMDR Act, 1957 was **amended in 2015** to introduce auction-based mineral concession allocation

### What are the Key Provisions under the Bill?

Key Provisions	MMDR Act 1957	MMDR Amendment Bill
<b>Private Sector to Mine Atomic Minerals</b>	The Act allows the <b>only State agencies</b> in the exploration of the atomic minerals such as lithium, beryllium, niobium, titanium, tantalum and zirconium.	The Bill allows the private sector to mine <b>six out of 12 atomic minerals</b> such as lithium, beryllium, niobium, titanium, tantalum and zirconium.  When it becomes an Act, Centre will have powers to <b>auction mining lease</b> and composite licence for critical minerals such as gold, silver, copper, zinc, lead, nickel etc..
<b>Auction for Exploration Licence</b>		The exploration licence will <b>be granted by the state government</b> through competitive bidding.  The central government will <b>prescribe details such as manner of auction</b> , terms and conditions, and bidding parameters for exploration licence through rules.
<b>Maximum Area in which Activities are Permitted</b>	Under the Act, a prospecting licence allows activities in an area up to 25 square kilometres, and a single reconnaissance permit allows activities in an area up to 5,000 square kilometres.	The Bill allows activities under a single exploration licence in an area up to 1,000 square kilometres.  After the first three years, the licensee will be allowed to retain up to <b>25% of the originally authorised area</b> .

for transparency, create **District Mineral Foundation (DMF)** for the welfare of affected communities, establish **National Mineral Exploration Trust (NMET)** to promote exploration, and impose stricter penalties for illegal mining.

- The Act was further amended in **2016 and 2020 to address specific emergent issues** and was **last amended in 2021** to bring further reforms in the sector, such as, removing the distinction between captive and merchant mines, etc.
- However, the mineral sector required more reforms particularly for **increasing exploration and mining of Critical Minerals** that are essential for economic development and national security in the country.
- The lack of availability of the critical minerals or concentration of their extraction or processing in a few geographical locations may **lead to supply chain vulnerabilities and even disruption** of supplies.
  - Critical minerals have gained significance in view of **India's commitment towards energy transition** and achieving **Net-Zero emission by 2070**.

Note:



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### Incentive for exploration Licence

If the resources are proven after exploration, the state government must conduct an auction for mining lease within six months of the submission of the report by the exploration licensee. The licensee will receive a share in the auction value of the mining lease for the mineral prospected by them.

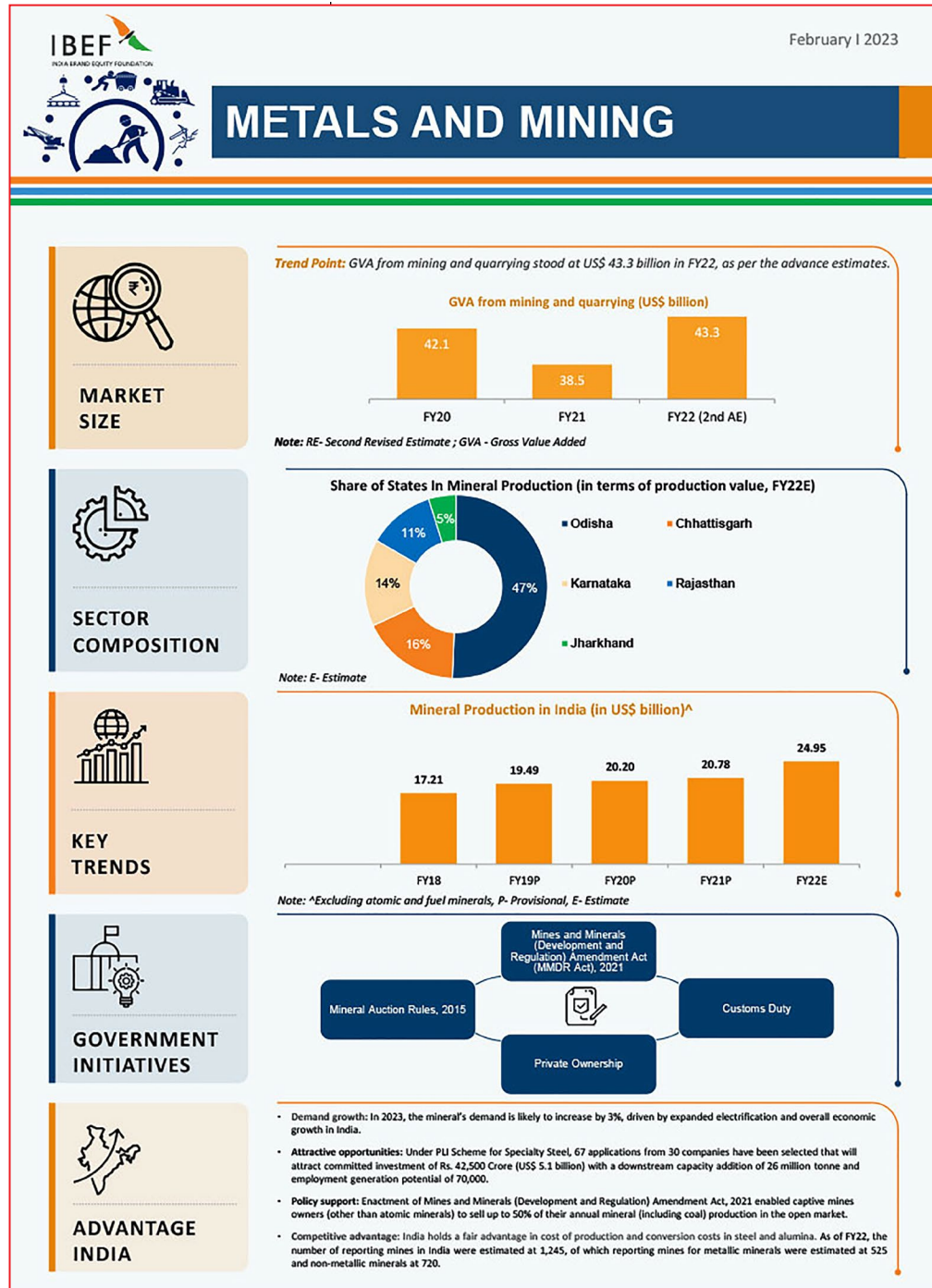
### What is the Scenario of the Mining Sector in India?

#### ➤ Backbone of Manufacturing:

- Mining industry plays a crucial role in the country's economy, serving as the **backbone for manufacturing and infrastructure** sectors.
- According to the Ministry of Mines, the total value of **mineral production** (excluding atomic and fuel minerals) during **2021-22 amounted to Rs 2,11,857 crore**.

#### ➤ Scope:

- India ranks **4<sup>th</sup> globally** in terms of **iron ore production** and is the world's **2<sup>nd</sup> largest coal producer** as of 2021.
- Combined Aluminium production (primary and secondary) in India stood at 4.1 MT per annum in FY21 becoming the 2nd largest in the world.



Note:



- In 2023, the mineral's demand is likely to increase by 3%, driven by expanded electrification and overall economic growth in India.
- India holds a **fair advantage in production and conversion costs** in steel and alumina. Its strategic location enables export opportunities to develop as well as fast-developing Asian markets.

## Enhancing Social Security for Unorganized Workers

### Why in News?

Recently, the Union Minister of State for Labour and Employment shed light on the significant strides made in the realm of **Social Security for Unorganized Workers** during a written reply in the **Lok Sabha**.

- Aligned with the **Unorganised Workers' Social Security Act, 2008**, the government has formulated a range of welfare programs, spanning life and disability coverage, health benefits, maternity support, and old age protection.
- Unorganized Workers constitute about **93% of the total workforce or around 43.7 crore workers in India**.
- **Social Security Code, 2020** aims to regulate the organized/unorganized (or any other) sectors and extend social security benefits, during sickness, maternity, disability, etc. to all employees and workers across different organizations.

### What are the Various Initiatives Related to Social Security for Unorganized Workers?

- **Life and Disability Cover:**
  - **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):** Offers a life cover of Rs. 2.00 Lakh for insured individuals, regardless of the cause of death, at an annual premium of Rs. 436/-.
  - **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** Available to the people in the age group of 18 to 70 years with a bank/post office account. Provides accidental death or disability cover of Rs. 2.00 Lakh and Rs. 1.00 Lakh respectively, at a nominal premium of Rs. 20/- per annum.
    - Over **16.92 crore beneficiaries enrolled under PMJJBY** and **36.17 crore beneficiaries under PMSBY** nationwide.

### Health and Maternity Benefits:

- **Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):** Ensures health insurance coverage of up to Rs. 5.00 lakhs per family for secondary and tertiary care hospitalization.
  - As of July 2023, **Verified approx. 24.19 crore beneficiaries** and created Ayushman Cards across the country.

### Old Age Protection:

- **Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM):** Launched in 2019, provides a monthly minimum assured pension of Rs. 3000/- for workers aged 60 or above with a monthly income of Rs. 15000/- or less.
  - Beneficiary contributes 50% monthly, matched by equal contribution from the Central Government.
  - Enrolled around 49.47 lakh beneficiaries nationwide.

### eShram Portal:

- Launched by the Ministry of Labour & Employment in 2021.
- Aims to create a comprehensive database of unorganized workers.
- Approx. 28.97 crore workers registered on **eShram Portal**, including details like name, occupation, address, education, skills, and family information.

### Additional Schemes for Unorganized Workers:

- **One Nation One Ration Card:** Public Distribution System under the National Food Security Act.
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):** Provides employment opportunities.
- **Deen Dayal Upadhyay Gramin Kausal Yojana:** Skill development programs.
- **Pradhan Mantri Awas Yojana:** Affordable housing scheme.
- **Pradhan Mantri Gareeb Kalyan Rojgar Yojana:** Employment generation during the pandemic.
- **Mahatma Gandhi Bunkar Bima Yojana:** Provides enhanced insurance cover to the **handloom weavers in the case of natural as well as accidental death** and in cases of total or partial disability.
- **Deen Dayal Antyodaya Yojana:** Promotion of multiple livelihoods and improved access to financial services for rural poor households across the country.

Note:

- **Pradhan Mantri Kaushal Vikas Yojana:** Vocational training and certification of Indian youth for a better livelihood and respect in society.

#### Unorganised Workers' Social Security Act, 2008

- The Act defines **unorganized workers** as those who **work in the informal sector or households**, without any regular employment or social security benefits.
- The Act empowers the **Central Government and the State Governments** to frame schemes for **providing various social security benefits** to unorganized workers, such as life and disability cover, health and maternity benefits, old age protection, education, housing, etc.
- The Act also provides for the constitution of a **National Social Security Board** and **State Social Security Boards** for unorganized workers, which will advise and monitor the implementation of the schemes.
- The Act mandates the **registration of unorganized workers** by the **District Administration** and the issuance of **identity cards** to them.
- The Act also envisages the establishment of **workers facilitation centers** to provide information and facilitate access to the schemes.

#### Code on Social Security, 2020

- The Code on Social Security, 2020 aims to extend **social security to all employees and workers either in the organized or unorganized or any other sectors** and for matters connected therewith or incidental thereto.
- The Code can be applied to **establishments subject to size-threshold through notification by the central government**.
- Separate **Social Security Funds will be set up by the Central and State Governments** for unorganized workers, gig workers, and platform workers.
- Registration provisions are specified for **unorganized workers, gig workers, and platform workers**.
- A **National Social Security Board** will be established to recommend and monitor schemes for these categories of workers.
- Funding for schemes of gig workers and platform workers may **come from contributions by central and state governments, as well as aggregators**.

- Penalties for certain offenses have been reduced, including obstructing inspectors and unlawfully deducting contributions from wages.
- During an **epidemic**, the central government may defer or reduce employer and employee contributions (under **Employee State Insurance (ESI)** and **Provident Fund (PF)** for up to three months.

## WHO Report on Tobacco Control

### Why in News?

The **World Health Organisation (WHO)** recently released a comprehensive report on **tobacco control measures**. The report evaluates the progress made globally since the introduction of the **MPOWER measures** - a set of strategies developed by WHO to combat tobacco use and its detrimental effects on health.

### What are MPOWER Measures?

- In 2008, the WHO established **MPOWER**, a plan consisting of the six most important and effective tobacco control methods. The six MPOWER strategies include:
  - M: Monitor tobacco use and prevention policies
  - P: Protect people from tobacco smoke
  - O: Offer help to quit smoking
  - W: Warn about the dangers of tobacco
  - E: Enforce bans on tobacco advertising, promotion and sponsorship
  - R: Raise taxes on tobacco

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

- **Global Tobacco Control Progress:**
  - Worldwide, there has been a **decline in smoking prevalence from 22.8% in 2007 to 17% in 2021**, resulting in 300 million fewer smokers today.
  - The **WHO's MPOWER measures** have played a vital role in tobacco control over the past 15 years, **protecting 5.6 billion people (71% of the global population) with at least one measure**.
  - The **number of countries implementing at least one MPOWER measure has risen from 44 in 2008 to 151 in 2022**, and four countries - **Brazil, Turkiye, Netherlands, and Mauritius** - have successfully implemented all measures.

Note:



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➤ **Addressing the Challenges:**

- The report also sheds light on the challenges that need to be addressed for more effective tobacco control.
- **At least 44 countries still do not implement any MPOWER measure, and 53 countries do not have a complete ban on smoking in healthcare facilities.**
  - Additionally, **only half of the countries enforce smoke-free workplaces and restaurants.**
- WHO emphasizes the **dangers of e-cigarettes, noting that the tobacco industry's aggressive promotion of e-cigarettes** as a safer alternative undermines progress.
  - E-cigarettes pose risks to both users and those around them, especially in indoor environments.

➤ **Second-hand Smoking:**

- Of the estimated **8.7 million tobacco-related deaths annually, 1.3 million are non-smokers exposed to second-hand smoke.**
- Second-hand smoke is **linked to almost 400,000 deaths due to heart disease.** Moreover, second-hand smoke **adversely affects children**, leading to **severe asthma**, respiratory tract infections, and sudden infant death syndrome.
  - Around **51,000 deaths in children and adolescents under 20 years** are attributed to exposure to second-hand smoke.

➤ **India's Progress in Tobacco Control:**

- **India excels in implementing health warning labels** on tobacco products and providing tobacco dependence treatment.
- **About 85% of cigarette packs in India carry health warnings** on both the front and back, placing the country among the **top 10 in terms of warning label size.**
- **India has also banned the sale of e-cigarettes** and implemented smoking bans in healthcare facilities and educational institutions.
- Bengaluru has seen significant progress in tobacco control due to hundreds of enforcement drives, **'No Smoking' sign displays**, and extensive awareness campaigns about the hazards of smoking and second-hand smoke.
  - The city's efforts have **led to a commendable 27% reduction in smoking in public places.**

**What is the Status of Tobacco Consumption in India?**➤ **About:**

- Nearly **267 million adults (15 years and above) in India (29% of all adults)** are users of tobacco, according to the **Global Adult Tobacco Survey India, 2016-17.**
  - The most prevalent form of tobacco use in India is **smokeless tobacco.**
- It is one of the major causes of death and disease in India and accounts for nearly **1.35 million deaths every year.** India is also the **second largest consumer and producer of tobacco.**

➤ **Related Government Initiatives:**

- **National Tobacco Control Programme**
- **Promulgation of the Prohibition of Electronic Cigarettes Ordinance, 2019**
- **Cigarettes and other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Amendment Rules, 2023.**
- **National Tobacco Quitline Services (NTQLS)**
- The Union Finance Minister of India announced a **16% increase in National Calamity Contingent Duty (NCCD) on cigarettes** in the **Budget 2023-24.**
- The Union Health Ministry of India has announced **new regulations requiring Over-The-Top (OTT) platforms to display tobacco-related health warnings** during streamed content.

**Inclusion of Communities in Jammu and Kashmir's Scheduled Tribes List****Why in News?**

The Indian government has introduced the **Constitution (Jammu and Kashmir) Scheduled Tribes Order (Amendment) Bill, 2023**, aiming to include four communities in the **Scheduled Tribes (ST)** list in Jammu and Kashmir.

- The proposed inclusion of the **"Gadda Brahmin," "Koli," "Paddari Tribe," and "Pahari Ethnic Group"** has sparked apprehensions regarding the distribution of reservation benefits.

Note:



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## What is the Process and Criteria of Inclusion in the ST List?

- **Criteria for Inclusion in the Scheduled List:** Determining whether a community qualifies as a Scheduled Tribe is based on several criteria, including:
  - **Ethnological Traits:** The community's distinct and identifiable ethnological traits are considered to establish its tribal identity.
  - **Traditional Characteristics:** Traditional practices, customs, and way of life are examined to assess the community's adherence to tribal culture.
  - **Distinctive Culture:** The presence of a unique and distinctive culture that sets the community apart from other groups.
  - **Geographical Isolation:** The community's geographical isolation is taken into account to assess its historic and continuous presence in specific regions.
  - **Backwardness:** Socio-economic backwardness is considered to evaluate the level of disadvantage faced by the community.
    - However, The **Constitution of India** does not define the criteria for recognition of STs.
- **Process of Adding a Community to the ST List:**
  - The **process initiates at the State or Union Territory level**, where the concerned government or administration recommends the inclusion of a specific community.
  - The proposal is sent to the **Union Ministry of Tribal Affairs** for examination and further deliberations.
  - After this, the Ministry of Tribal Affairs, through its own deliberations, examines the proposal, and sends it to the **Registrar General of India (RGI)**.
    - Once approved by the RGI, the proposal is sent to the **National Commission for Scheduled Tribes**, following which the proposal is sent back to the Union government.
  - The inclusion of any community in the Scheduled Tribes list takes effect only after the **President assents to a Bill that amends the Constitution (Scheduled Tribes) Order, 1950**, following its passage in both the Lok Sabha and Rajya Sabha.

## What is the Status of Scheduled Tribes in India?

- **Constitutional; Provisions:**
  - **Article 366(25):** It only provides a process to define STs: "STs means such tribes or tribal communities

or parts of or groups within such tribes or tribal communities as are deemed under **Article 342 to be Scheduled Tribes for the purposes of this Constitution.**"

- **Article 342(1):** The President with respect to any State/UT (after consultation with the Governor in case of state) may specify the tribes/tribal communities/part of or groups within tribes/tribal communities as a Scheduled Tribe in that State/UT.
- **Fifth Schedule:** It lays out provisions for the Administration and Control of Scheduled Areas and STs in states other than 6th Schedule States.
- **Sixth Schedule:** Deals with the **administration of the tribal areas in Assam, Meghalaya, Tripura and Mizoram.**
- **Current Number of Officially Recognized Scheduled Tribes:**
  - As per **Census 2011**, there are **705 ethnic groups** officially listed as Scheduled Tribes under Article 342.
  - The STs constitute **8.6% of the total population** and **11.3% of the rural population.**
- **Related Legal Provisions:**
  - **Protection of Civil Rights Act, 1955**
  - **Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989.**
  - **Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996.**
  - **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.**
- **Related Government Initiatives:**
  - **Eklavya Model Residential School (EMRS)**
  - **Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY)**
  - **Pradhan Mantri Jan Jatiya Vikas Mission (PMJVM)**
  - **Development of Particularly Vulnerable Tribal Groups (PVTGs)**

## Registration of Births and Deaths (Amendment) Bill, 2023

### Why in News?

The **Lok Sabha** has recently approved the **Registration of Births and Deaths (Amendment) Bill, 2023**, which introduces a significant shift towards **digital birth certificates.**

Note:



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- These certificates are poised to serve as a comprehensive document for a multitude of purposes, ranging from educational admissions to government applications.

### **What is the Registration of Births and Deaths (Amendment) Bill, 2023?**

#### ➤ **About:**

- The Registration of Births and Deaths (Amendment) Bill, 2023 seeks to **amend the Registration of Births and Deaths Act, 1969**.
  - The Registration of Births and Deaths Act, 1969 provides for the **regulation and registration of births and deaths**. The registration of births and deaths **falls under the Concurrent List**, giving powers to **both Parliament and state legislatures** to make laws on the subject.

#### ➤ **Key Features:**

- **Digital Birth Certificates:** The bill introduces the concept of digital birth certificates, intended to serve as a comprehensive document for multiple purposes, **reducing the need for multiple documents to prove birth details**.
- **Aadhaar Details:** The Bill proposes linking **Aadhaar details of parents and informants to birth certificates**.
  - Expands the scope of Aadhaar inclusion to **various reporting authorities, including medical officers, jailors, and managers of institutions**.
- **Centralized Database:** A centralized database will be established to **manage birth and death records**, facilitating efficient service delivery and maintaining accurate and up-to-date information.
  - Apart from birth certificates, the centralized database will also update the **National Population Register (NPR)**, **ration cards**, and **property registrations**.
  - The Bill proposes to make it obligatory for **States to register births and deaths on the Centre's Civil Registration System (CRS) portal**, and to share the data with the **Registrar General of India** which functions under the Union Home Ministry.

#### ➤ **Benefits:**

- The centralized database is expected to **enhance administrative efficiency** by providing a reliable and unified source of information.

- Citizens will experience **streamlined access to various services such as educational admissions, government jobs, passports, and more, using a single digital birth certificate**.

- The bill aligns with **India's digital transformation** efforts, reflecting a commitment to modernize administrative processes for improved citizen services.

#### ➤ **Concerns:**

- The Bill's provisions may potentially conflict with **constitutional rights**, such as the **right to education and the right to privacy**.
  - Denying admission to schools **based on the absence of birth certificates** could infringe upon the **fundamental right to education**.
  - The bill has sparked a debate about striking a balance between leveraging technology for administrative efficiency and safeguarding citizen's **right to privacy**.
- The bill has faced opposition on grounds of transparency, with critics questioning the **government's approach to data collection and usage**.
- Critics also argue that digital birth certificates may inadvertently exclude **individuals who lack access to digital platforms**, creating potential disparities in accessing services.
- The Bill's requirements may not **align with provisions of the Juvenile Justice Act, 2015**, and other relevant legislations.

## **Schemes For Farmers' Welfare**

### **Why in News?**

Recently, the Ministry of Agriculture & Farmers Welfare has informed Lok Sabha that a comprehensive range of **Central Sector** and **Centrally Sponsored Schemes** have been implemented for Farmers Welfare.

#### **What are the Central Sector and Centrally Sponsored Schemes?**

##### ➤ **Central Sector Scheme:**

- Central sector schemes are based on **subjects from the union list**, and they are formulated by the centre.

Note:

- These schemes are designed, planned and completely funded by the central government.
  - Pradhan Mantri Mudra Yojana, Pradhan Mantri Ujjwala Yojana, Khelo India Scheme are some examples of the Central sector schemes.

➤ **Centrally Sponsored Scheme:**

- Centrally Sponsored Schemes (CSS) are schemes that are funded **partially by both the Central and State Governments**.
- It is basically a channel which the **central government uses to help the states** run their plans financially.
- In these schemes, **a certain percentage of the funding is provided by the states**, although most of it rests with the centre.
  - The amount of state participation varies from state to state.
- Their implementation rests on the Union territories and the States.

**What are the Key Government Schemes For Farmers Welfare?**

➤ **The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):**

- The PM-KISAN Scheme aims to provide income support to **all landholding Farmers' families** across the country to enable them to take **care of expenses related to agriculture** and allied activities as well as domestic needs.
- The Scheme provides a payment of Rs.6000/- per year for the farmers' families with cultivable land holding, subject to certain exclusions.

➤ **Farmer Producer Organizations (FPOs):**

- The Government launched the **Central Sector Scheme (CSS)** for "Formation and Promotion of 10,000 FPOs" in the year 2020.
- Formation & promotion of FPOs are to be done through Implementing Agencies (IAs), which further engage **Cluster Based Business Organizations (CBBOs)** to form & provide **professional handholding support to FPOs** for a period of 05 years including preparation and execution of business plan for the concerned FPOs.

➤ **Agriculture Infrastructure Fund (AIF):**

- Rs 1 lakh crore Agri Infra Fund was launched in July 2020 under Aatmanirbhar Bharat Abhiyan.
- The AIF is a **medium - long term debt financing facility** for investment in viable projects for post-harvest management infrastructure and community farming assets through interest subvention and credit guarantee support.

➤ **National Mission on Edible Oil-Oil Palm (NMEO-OP):**

- It is a Centrally Sponsored Scheme, launched in 2021 to promote **oil palm cultivation** for making India **Atma Nirbhar in edible oils** with special focus on **North-Eastern States and A&N Islands**.
- The Mission will bring an additional area of 6.5 lakh ha under Oil Palm plantation with 3.28 lakh ha in north-eastern states and 3.22 lakh ha in the rest of India in next **5 years from 2021-22 to 2025-26**.

➤ **National Beekeeping & Honey Mission (NBHM):**

- It is a Central Sector Scheme, launched in 2020 under AtmaNirbhar Bharat Abhiyan for its implementation in the field for **overall promotion and development of scientific beekeeping** & to achieve the goal of **Sweet Revolution**.



Note:

# Economic Scenario

## Highlights

- Semiconductors
- AMC Repo Clearing Limited
- Self-Reliant India Fund for MSMEs
- Concerns of Over Deflation in China
- Medium-Term Expenditure Framework
- State of Formal Employment In India

## Semiconductors

# SEMICONDUCTORS

Semiconductors are materials having conductivity between conductors and insulators

### EXAMPLES

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

### SIGNIFICANCE

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

### SEMICONDUCTORS AND INDIA

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

#### SCHEMES

- **Production-Linked Incentive (PLI) scheme**
- **Design Linked Incentive (DLI) Scheme**
- Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECs)

#### OBJECTIVES

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

## INDIA'S SEMICONDUCTOR MISSION (ISM)

### VISION

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

### LAUNCHED

- 2021

### NODAL MINISTRY

- Ministry of Electronics and Information Technology (MeitY)

### TOTAL FINANCIAL OUTLAY

- Rs 76,000 crore

### COMPONENTS

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



Note:

## AMC Repo Clearing Limited

### Why in News?

Recently, the Ministry of Finance inaugurated the Limited Purpose Clearing Corporation (LPCC) called **AMC Repo Clearing Limited (ARCL)**.

### What is AMC Repo Clearing Limited (ARCL)?

- **About:**
  - ARCL is a **Limited Purpose Clearing Corporation** that provides clearing and settlement services to all trades made in corporate debt securities on the **National Stock Exchange (NSE)** and **Bombay Stock Exchange (BSE)**.
  - It received in-principle approval from the **Securities and Exchange Board of India (SEBI)** under the **Stock Exchanges and Clearing Corporations (SECC) Regulations, 2018**.
    - Also, ARCL has been granted **Certificate of Authorization by RBI under Payment and Settlement Systems (PSS) Act, 2007** to offer **Central counterparty clearing house (CCP) services** for repo transactions in corporate debt securities.
- **Functions:**
  - ARCL offers **triparty repo services** and **central counterparty services** to facilitate repo transactions in **corporate bonds**, which are short-term borrowings backed by **securities** as collateral.
  - ARCL will help to **widen and deepen the corporate bond repo market**, which is currently underdeveloped and illiquid compared to the government bond repo market.
  - It **allows holders of bonds to meet short-term liquidity needs without liquidating their assets**, providing flexibility to market participants.
  - ARCL will also reduce the **counterparty risk, operational risk and settlement risk for the participants** in the corporate bond repo market.

### Note:

- **Secondary Market:** The **secondary market**, also known as the **aftermarket**, refers to the financial market where **previously issued financial instruments**, such as stocks, bonds, derivatives, and other securities, **are bought and sold among investors**.
- **Corporate Bond:** Corporate bonds are debt securities issued by corporations to raise capital for various purposes, such as **expanding operations, funding projects, or refinancing existing debt**.
- **Triparty Repo Services:** Triparty repo services are financial transactions where a **third party, often a custodian or clearing agent**, acts as an intermediary between the two parties involved in a **repurchase agreement (repo)**.

## Self-Reliant India Fund for MSMEs

### Why in News?

Recently, the **Minister of State for Micro Small and Medium Enterprises** provided valuable insights into the **Self Reliant India Fund** during a written reply in the Lok Sabha.

### What is Self-Reliant India (SRI) Fund?

- **About:**
  - As part of the **Atmanirbhar Bharat package**, the Indian government announced the **allocation of Rs. 50,000 crores for equity infusion in MSMEs** through the **Self-Reliant India (SRI) Fund**.
  - SRI fund operates through a **mother-fund and daughter-fund structure** for equity or quasi-equity investments.
  - The **National Small Industries Corporation (NSIC) Venture Capital Fund Limited (NVCFL)** was designated as the **Mother Fund** for the implementation of the SRI Fund.
    - It was registered as a Category-II **Alternative Investment Fund (AIF)** with **SEBI**.
- **Objectives of the SRI Fund:**

Note:



- To provide **equity funding to viable and high-potential MSMEs**, fostering their growth and transformation into larger enterprises.
- To bolster the MSME sector's contribution to the Indian economy by promoting **innovation, entrepreneurship, and competitiveness**.
- To create an **environment conducive to technological upgradation**, research and development, and increased market access for MSMEs.

➤ **Composition of the SRI Fund:**

- The Rs. 50,000 crore SRI Fund comprises:
  - Rs. 10,000 Crore from the Government of India to initiate **equity infusion in select MSMEs**.
  - Rs. 40,000 Crore sourced through **Private Equity (PE) and Venture Capital (VC) funds**, leveraging private sector expertise and investment.

**Note:**

- **Equity Infusion:** It refers to the process of **injecting fresh capital or funds into a company** by issuing additional shares to existing shareholders or new investors.
- **Venture Capital Fund:** It is a type of investment fund that **provides capital to early-stage and startup companies** with high growth potential.
  - The primary objective of a venture capital fund is to **identify promising startups and invest in them in exchange for equity** (ownership) in the company.
- **SEBI:** It is a Statutory Body established on **12th April, 1992** in accordance with the provisions of the **Securities and Exchange Board of India Act, 1992**.
  - The basic functions of SEBI is to **protect the interests of investors in securities** and to **promote and regulate the securities market**.

**What is the Status of MSME Sector in India?**

➤ **About:**

- MSME stands for Micro, Small, and Medium Enterprises. The MSME sector of India contributes around **33% of the country's total GDP** and is predicted to contribute worth **USD 1 trillion to India's total exports by 2028**.

**Revised Classification applicable w.e.f 1st July 2020**  
**Composite Criteria: Investment in Plant & Machinery/ equipment and Annual Turnover**

Classification	Micro	Small	Medium
Manufacturing Enterprises and Enterprises rendering Services	Investment in Plant and Machinery or Equipment: Not more than Rs.1 crore and Annual Turnover; not more than Rs. 5 crore	Investment in Plant and Machinery or Equipment: Not more than Rs.10 crore and Annual Turnover ; not more than Rs. 50 crore	Investment in Plant and Machinery or Equipment: Not more than Rs.50 crore and Annual Turnover; not more than Rs. 250 crore

➤ **Significance:**

- **Employment Generation:** MSMEs provide about 110 million jobs which is **22-23% of the total employment in India**.
  - It contributes to **reducing unemployment and underemployment**, supporting inclusive growth and poverty reduction.
- **Promotion of Entrepreneurship and Innovation:** The MSME sector fosters a culture of entrepreneurship and innovation.
  - It encourages individuals to **start their own businesses, promotes indigenous technologies**, and contributes to the development of new products and services.
- **Boon for Rural Development:** Compared with large-scale companies, **MSMEs aided in the industrialisation of rural areas** at minimal capital cost.

➤ **Challenges:**

- **Infrastructure and Technology:** **Outdated infrastructure and limited access to modern technology** due to limited finance and expertise can hinder the growth and efficiency of MSMEs.
  - The lack of **proper transportation, power supply, and communication** networks affects their ability to compete on a global scale.
- **Complex Regulatory Environment:** Cumbersome and complex regulations can be challenging for small businesses to navigate.

Note:



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- Compliance with various laws related to **taxation, labor, environmental norms, etc., requires time, effort, and expertise.**
- **Inadequate Working Capital Management:** Many MSMEs struggle with managing their working capital effectively.
- **Late payments from customers and long payment cycles** with suppliers can create cash flow issues.
- **Vulnerability to Economic Fluctuations:** The MSME sector is particularly vulnerable to economic downturns, as they **may not have the financial buffers or scale** to withstand challenging economic conditions.
- **Government Initiatives for the MSME Sector:**
  - **MSME Champions Scheme:** Comprising **MSME-Sustainable (ZED), MSME-Competitive (Lean), and MSME-Innovative (for incubation, IPR, Design, and Digital MSME)**, this scheme provides financial assistance to MSMEs to enhance their competitiveness and innovation capabilities.
  - **Infusion in Credit Guarantee Fund:** As part of the **Budget 2023-24**, the government announced an infusion of Rs. 9,000 crore in the corpus of **Credit Guarantee Fund Trust for Micro & Small Enterprises.**
  - **Raising and Accelerating MSME Performance (RAMP):** This initiative focuses on strengthening institutions and governance of MSME programs at both the central and state levels.
  - **Amendment in Income Tax Act:** The Finance Act 2023 brought about an amendment in **Section 43B of the Income Tax Act, 1961**, to offer more favorable tax provisions for MSMEs.

## Concerns of Over Deflation in China

### Why in News?

Recently, China's National Bureau of Statistics reported that the **Consumer Price Index (CPI)** had declined in July 2023 by 0.3% compared to a year earlier, causing **Deflation** in the Country.

### What is Deflation?

- **About:**

- Deflation is the **opposite of Inflation**. It refers to a **sustained and general decrease** in the **overall price levels** of goods and services in the economy.
- In a deflationary environment, **consumers can buy more goods** and services for the same amount of money over time.
- However, **deflation can occur for various reasons**, such as reduced consumer demand, oversupply of goods, technological advancements that lower production costs, or tight monetary policies by central banks.
  - In China's case, reduced consumer demand and economic slowdown are the reasons.
- **Impact:**
  - **Positive:**
    - **Lower Interest Rates:** In a deflationary environment, central banks may lower interest rates to **encourage borrowing and spending**. Lower interest rates can lead to **reduced borrowing costs for businesses and consumers**, potentially stimulating investment, consumption, and economic activity.
    - **Improved Savings Incentives:** Deflation can encourage saving because the value of money increases over time. Savers are more **likely to see the value of their money grow**, which can incentivize them to save more for the future, contributing to long-term financial stability.
    - **Economic Efficiency:** Deflation can prompt businesses to become more **efficient and streamline** their operations. Falling prices can encourage companies to **reduce costs, innovate, and become more competitive** in order to maintain profitability. This focus on efficiency can lead to productivity gains and long-term economic growth.
    - **Favorable for Fixed-Income Beneficiaries:** People who rely on fixed-income investments, such as retirees with pension plans or fixed annuities, may benefit from deflation. Since the value of money increases, **their fixed income becomes relatively more valuable**, providing them with a stable and reliable source of income.
  - **Negative:**
    - **Downward Spiral of Economic Contraction:** When consumers expect **prices to fall further**, they **delay purchases**, leading to decreased

Note:



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demand for goods and services. This reduction in demand can **lead to lower production, reduced business revenues**, and even layoffs, which in turn further **reduce consumer spending**.

- This cycle can create a **downward spiral of economic contraction**, job losses, and financial instability.
- **Drive Down Business Revenue:** Lower prices **drive down business revenues**, leading to lower profits, less investment, and potentially higher unemployment as companies pare back on production in the face of decreased demand.
- **Expensive Service Debt:** Deflation can increase the **real burden of debt**. As prices fall, the value of debt remains constant or **even increases in real terms**. This can make it more difficult for individuals, businesses, and governments to **manage their debt obligations**.
  - In times of deflation, the relative **purchasing power of every dollar spent on debt repayment is higher** than it was before prices began falling.
- However, economic situations can be complex, and **the actual effects of deflation can vary depending on the specific circumstances of an economy**.

### ***What Caused Deflation in China?***

- **Zero-Covid Policy:**
  - The Chinese economy has been **struggling for more than a year**. The most prominent was a **heavy-handed Zero-Covid policy** that saw entire cities shut down, **sometimes for weeks at a time**, in an effort to prevent the spread of the coronavirus.
- **Slowdown in Property and Banking Sector:**
  - The property sector, which in recent years **accounted for between 20% and 30% of GDP (Gross Domestic Product)**, has suffered a **severe slowdown**, with a number of major developers **unable to service their Debts**, and many projects left incomplete.
  - The banking sector is also **burdened by bad loans**, many of which were made to local government agencies that have experienced sharp declines in revenue.
- **Unemployment:**
  - Increasing unemployment among **younger workers is also a problem**, with the official jobless rate for

**people ages 16 to 24 at 21%**, and some experts expressing concern that the **real number is significantly higher**.

### ***How can China's Deflation Impact India and the World?***

- **India:**
  - **Positive Effect:** If investment in the Chinese economy is lowered owing to the increasing **slowing rate of their economy**, and now deflation, India could potentially **emerge and take over as the manufacturing hub** for the developed economies.
    - For India, if economic reforms are accelerated, India can **become the next manufacturing hub**.
  - **Negative Effect:** China remains one of the biggest **importers of iron ore from India**. The east Asian country imports **almost 70% of Iron-ore from India**.
    - Therefore, a slower economy for China would mean the amount of import into **China could fall, spelling somewhat doom from India's economy**.
- **World:**
  - **Global Supply Chains:**
    - Many global supply chains **are intricately linked with China**. If China's export engine is **sputtering due to deflation and weak demand**, disruptions in supply chains could affect industries worldwide, including those in India that rely on intermediate goods from China.
  - **Global Growth:**
    - China is the **world's second-largest economy**, and its economic health has a significant **impact on global growth**.
    - A sharp decline in China's economic activity due to deflation could lead to **reduced demand for goods and services worldwide**, contributing to a slowdown in global economic growth.
  - **Central Banks and Monetary Policy:**
    - Central banks in various countries might face challenges in managing monetary policy in response to deflation in China.
    - Lower global demand could lead to reduced inflationary pressures and impact the effectiveness of interest rate policies.

Note:

## Medium-Term Expenditure Framework

### Why in News?

Recently, the Ministry of Finance has conveyed its inability to release the **Medium Term Expenditure Framework (MTEF) statement**, mandated by the **Fiscal Responsibility and Budget Management (FRBM) Act of 2003**.

- The ministry had cited “unprecedented global uncertainties that may adversely affect medium-term projections” to justify not placing fiscal projections for 2024-25 and 2025-26 in Parliament at the time of presenting the **Union Budget**.

### Why is the Ministry of Finance Unable to Release MTEF?

- Since the presentation of the Union Budget for FY 2023-24 in February, there has not **been any significant and favourable change** in global headwinds and associated risks.
  - Therefore, amidst aforesaid facts, the medium term **projections are not feasible**.
- The Finance Ministry emphasized the need for the government to **maintain flexibility in fiscal management** to effectively manage exogenous shocks and global uncertainties.
  - This flexibility is seen as indispensable for the government to retain the necessary fiscal firepower to address unforeseen contingencies that may arise **during periods of economic ambiguity**.

### What is Medium-Term Expenditure Framework (MTEF)?

- **About:**
  - The MTEF statement **sets a three-year rolling target** for expenditure indicators, along with **specifications of underpinning assumptions and risks**.
    - This statement is presented in Parliament under **Section 3 of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003**.
  - The statement provides an **estimate of expenditure for various sectors**, including education, health, rural development, energy, subsidies and pension, and so on.

- This statement is presented in the **session after the one in which the Budget is presented** — usually, that is the monsoon session.

#### ➤ Expenditure Commitments:

- Data such as expenditure commitments spread across the various central ministries on salaries and pensions, major programmes, grants-in-aid for creation of capital assets, defence expenditure, interest payment and major subsidies, etc, besides other commitments of the government are **considered while formulating this statement**.

#### ➤ Objective:

- The objective of MTEF is to **facilitate a closer integration between FRBM statements and the Union Budget**.

### What is the Fiscal Reduction and Management Act (FRBM)?

#### ➤ About:

- The FRBM Act is an act of the Parliament which **was enacted in 2003 with the aim of ensuring fiscal discipline**, transparency and accountability in government spending.
- The act requires the **government to ensure that the Fiscal Deficit** is reduced **over a period of time** and to eliminate revenue deficit, which is the excess of government's total expenditure over its total revenue.
  - It limited the fiscal deficit to 3% of the GDP.

#### ➤ Provisions:

- **Fiscal Deficit Targets:** The act requires the government to reduce its fiscal deficit to a specified target over a period of time. The fiscal deficit would be brought down to below 4.5 per cent by 2025-26.
- **Elimination of Revenue Deficit:** The act requires the government to eliminate its revenue deficit, which is the excess of government's total expenditure over its total revenue.
- **Medium-term Fiscal Strategy:** The act requires the government to formulate and implement a medium-term fiscal strategy, which outlines the government's plans for reducing its fiscal deficit over a period of three years.
- **Annual Fiscal Reports:** The act requires the government to present an annual fiscal responsibility statement to Parliament, which outlines the government's progress in achieving its fiscal consolidation targets.

Note:



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### ➤ Statements:

- **Macro-Economic Framework Statement:** The Macro-Economic Framework Statement provides a detailed outline of the macroeconomic assumptions that form the basis of the budget estimates.
  - It includes key economic indicators and projections that influence revenue and expenditure decisions. These assumptions help in understanding the economic context within which the budget is framed.
- **Medium-Term Fiscal Policy Statement:** This section outlines the government's medium-term fiscal policy objectives and the strategies to achieve them over a specific period (usually the next three years).
  - It highlights the intended direction of fiscal policy, the rationale behind fiscal targets, and how these targets align with broader economic goals.

## State of Formal Employment In India

### Why in News?

**Employees Provident Fund's (EPF)** data indicates net increases in contributors, but this contradicts ground reports of Unemployment and Job Scarcity in India.

- The Indian government has been using the EPF's data to measure the **Formal Employment** creation since 2017.

### What is Formal Employment?

#### ➤ About:

- Formal employment refers to a type of employment where the terms and conditions of **work are regulated and protected by labor laws** and employment contracts.
- It is characterized by **certain features that distinguish it from informal or casual employment.**

#### ➤ Key Features:

- **Written Contracts:** Formal employment typically involves a **written employment contract that outlines the terms of employment**, including job responsibilities, working hours, compensation, benefits, and other terms and conditions.

- **Social Security:** Formal employees are **often entitled to social security benefits** such as health insurance, retirement funds, Provident fund, unemployment benefits, and other **forms of financial protection.**
- **Labor Rights:** Formal employees have specific **Labor Rights protected by law, such as the right to join trade unions**, collective bargaining, protection against unfair dismissal, and access to legal recourse in case of disputes.
- **Regular Payment:** Formal employees **receive regular wages or salaries**, usually on a fixed schedule, which provides a stable income source.

#### ➤ Informal Employment:

- Informal employment refers to work that is **not regulated or protected by labor laws**, lacks formal employment arrangements, and often operates outside the scope of government oversight.
- Informal employment can lead to **precarious working conditions** and hinder economic growth as it may result in lower productivity and higher income inequality.

### What does the EPF

### Data Say about Formal Jobs?

- EPFO's annual reports **show a stagnant or declining number of regular contributors**, those with **consistent PF contributions**, in recent years.
  - Between 2012 and 2022, the number of regular contributors to the EPF increased from 30.9 million to 46.3 million.
  - Between 2017 and 2022, the **number of regular contributors increased only from 45.11 million to 46.33 million**, showing a slowdown in growth during this period.
- Total EPF enrollments increased significantly, but the **corresponding increase in regular contributors was minimal.**
  - Between 2017-2022, overall EPF **enrollments increased from 210.8 million to 277.4 million.**
  - The difference between the total number of EPF enrollments (277.4 million) and the number of regular contributors (46.33 million) indicates that a **significant portion of enrollments is not resulting in regular contributions.**
- The majority of EPF enrollments are linked to temporary or casual jobs with **irregular PF contributions.**

Note:



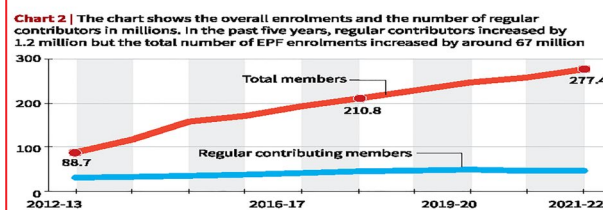
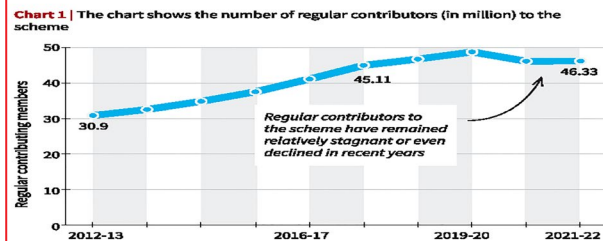
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## Mirage of formal job creation

The charts are based on data collated from the Employees' Provident Fund Organisation's annual reports



**Providing social security:** Employees line up at the EPFO regional office in Hyderabad to withdraw money from their accounts.  
NAGARA GOPAL



### ➤ Factors Leading to the Decline in Contributors:

- The EPFO **disputed its own data and stopped publishing monthly reports** on regular contributors.
- The **Pandemic** further worsened the situation, leading to a **decline in EPF contributors**.
- The Indian government neglected other sources of formal employment data, like the **Directorate General of Employment and Training (DGET)**, which has not been published since 2013.

## What is the Scenario of the Job Crisis in India?

### ➤ Unemployment Rate:

- According to **the National Statistical Office's (NSO) Periodic Labour Force Survey (PLFS)** report for the year 2021-22, the unemployment rate for 2021-22 **was 4.1%**.

### ➤ Low Labor Force Participation Rates (LFPR):

- According to the **Centre for Monitoring Indian Economy (CMIE)**, India's LFPR fell to 39.5% in the financial year (2022-23).
  - This is the lowest LFPR reading since 2016-17.
- The LFPR for men stood at a **seven-year low of 66%** while that of women was pegged at a mere 8.8%.

- The LFPR is the share of the working-age population (aged 15 years and above) that is employed or unemployed, willing and looking for employment.

## What are the Causes of Low Employment in India?

### ➤ Absence of Formal and Quality Job:

- The absence of formal, well-paid, and regular employment **inhibits the expansion of India's middle class**, unlike China's growth model.
- Lack of quality jobs leads to over-qualified youth competing for limited job openings, raising concerns about claims of strong economic growth.

### ➤ Social Factors:

- In India, the caste system is prevalent. The work is **prohibited for specific castes in some areas**.
- In big joint families having big business, many such persons will be available who **do not do any work** and depend on the joint income of the family.

### ➤ Dominance of Agriculture:

- In India nearly half of the **workforce is dependent on Agriculture**. However, Agriculture is underdeveloped in India. Also, it provides seasonal employment.

### ➤ Fall Small industries:

- The industrial development had **adverse effects on cottage and small industries**.
- The production of cottage industries began to fall and many artisans became unemployed.

### ➤ Limitations in Education System:

- Jobs in the capitalist **world have become highly specialized** but India's education system **does not provide the right training** and specialization needed for these jobs.
- Thus, many people who are willing to work become unemployed **due to lack of skills**.

## How are the Rights of Labour Protected in India?

### ➤ Constitutional Framework:

- Under the Constitution of India, **Labour as a subject is in the Concurrent List** and, therefore, both the Central and the State governments are competent to enact legislations subject to certain matters being reserved for the Centre.

Note:



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➤ **Judicial Interpretation:**

- In the case of *Randhir Singh vs Union of India*, the Supreme Court stated that “Even though the principle of ‘Equal pay for Equal work’ is not defined in the Constitution of India, it is a goal which is to be achieved through Article 14, 16 and 39 (c) of the Constitution of India.

➤ **Legislative Framework:**

- There have been several legislative and administrative initiatives taken by the government to improve working conditions and simplify labour laws. Most recent is the consolidated sets of 4 labour codes.
  - **Code of Wages, 2019**
  - **Industrial Relations Code, 2020**
  - **Social Security Code, 2020**

- **Occupational Safety, Health and Working Conditions Code, 2020.**

**What are Government's Initiatives to Curb Unemployment?**

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



Note:

# International Relations

## Highlights

- *Economic Community of West African States*

- *China's Stapled Visas*

## Economic Community of West African States

### Why in News?

Recently, the **Economic Community of West African States (ECOWAS)**, has emerged at the forefront of international attention due to its active involvement in addressing the aftermath of the **coup in Niger**.

- This coup, which ousted the **democratically elected President** and ushered in a **military coup**, has raised alarm bells globally.

### What is the Economic Community of West African States (ECOWAS)?

#### ➤ About:

- The ECOWAS, also known as CEDEAO in French, is a **regional intergovernmental organization established in 1975**.
- Created through the **Lagos Treaty**, ECOWAS aims to foster **economic integration, cooperation, and development among West African nations**.
- The Secretariat, headquartered in **Abuja, Nigeria**.

#### ➤ Member States:

- ECOWAS consists of 15 member states: **Benin, Burkina Faso, Cape Verde, Cote d' Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, and Togo**.

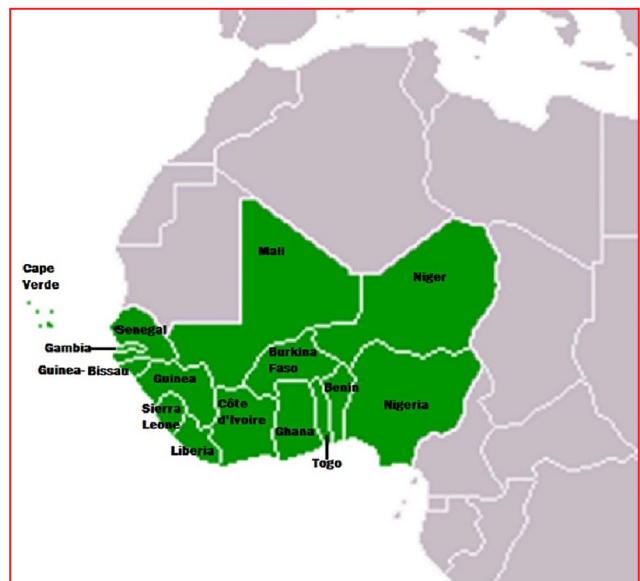
#### ➤ Primary Goals and Objectives:

- Promoting **economic integration among member states**.
- Facilitating the **free movement of people, goods, and services**.

- Enhancing **regional cooperation** in various sectors, including industry, transport, energy, and finance.
- Fostering a **borderless region governed by democratic principles, the rule of law, and good governance**.
- Addressing security and political challenges through collaboration and conflict resolution.

#### ➤ Achievements and Initiatives:

- The establishment of a regional peacekeeping force known as the **Economic Community of West African States Monitoring Group (ECOMOG)**, which played pivotal roles in resolving conflicts in **Liberia and Sierra Leone during the 1990s and early 2000s**.
- Launching the **ECOWAS Single Currency Initiative to create a common currency**, fostering economic integration and trade.
- Supporting efforts to combat terrorism, human trafficking, and organized crime through joint initiatives and collaboration.



Note:



## China's Stapled Visas

### Why in News?

Recently, India withdrew its eight-athlete 'Wushu' martial arts athletes contingent from the Summer World University Games in Chengdu, China. The move came in response to China's issuance of stapled visas to three athletes from the Indian team, all of whom were from Arunachal Pradesh.

- The practice of issuing **stapled visas started around 2005**, and China has consistently issued such visas to residents of Arunachal Pradesh and Jammu and Kashmir.

### What are Stapled Visas?

- A stapled visa is an **unstamped piece of paper attached to a passport** with staples or a pin.
- Unlike regular visas that are **affixed and stamped directly on the passport**, stapled visas are detachable.
- The issuance of stapled visas is part of **China's ongoing territorial disputes with India** over Arunachal Pradesh.
- The **stapled visas are considered valid by China**, but **India refuses to accept** them as legitimate travel documents.

#### Note:

- Passports and visas enable authorized, secure international travel, reflecting nation-state sovereignty and control over borders.
  - Passports signify identity and citizenship, while **visas grant entry permissions to specific destinations**.
  - A passport is issued by the **birth country or current country of residence**. A visa is issued by an **Embassy/Consulate representing a foreign country**.

### Why did China Issue Stapled Visas?

- **Dispute Over Sovereignty:**
  - China disputes India's sovereignty over Arunachal Pradesh and challenges the **legitimacy of the McMahon Line**, the boundary **between Tibet and British India**, agreed upon in the **Simla Convention of 1914**.
  - The disagreement over the **Line of Actual Control (LAC)** lies at the heart of Chinese claims on the disputed territory and leads to repeated transgressions into Indian territory.
- **Unilateral Claim to Indian Territory:**
  - China claims approximately **90,000 sq km of Arunachal Pradesh** as part of its territory, **referring to it as "Zangnan" or "South Tibet"** in Chinese maps.
  - It issues lists of **Chinese names for places in Arunachal Pradesh** and periodically underlines its unilateral claim to Indian territory.
- **Undermining India's Sovereignty:**
  - Issuing stapled visas to Indian nationals from Arunachal Pradesh and Jammu and Kashmir is part of **China's efforts to undermine India's sovereignty over these regions**.
  - China's actions are seen as **attempts to challenge India's control** and authority over parts of its own territory.

### What are the Impacts and Concerns Regarding Stapled Visas?

- Stapled visas create confusion and uncertainty for travelers, as their validity and acceptance vary.
- India consistently rejects the validity of stapled visas and protests against their issuance.
- These actions by China contribute to diplomatic tensions between the two nations and complicate bilateral relations.



# Social Issues

## Highlights

- World Tribal Day 2023
- Barrier to Women's Labor Force Participation
- State of Elementary Education in Rural India 2023
- Organ Donation in India
- POCSO Act
- World Breastfeeding Week 2023

## World Tribal Day 2023

# WORLD TRIBAL DAY 2023

"International Day of World's Indigenous People"

- About:** Celebrated annually on 9<sup>th</sup> August since 1994, declared by the UN
- Theme 2023:** "Indigenous Youth as Agents of Change for Self-determination."

### Tribal Population in India

India has the 2<sup>nd</sup> largest tribal population in the world after Africa

- Major Tribes:** Bhils (Largest), Gonds, Munda, Santhals, Toto, Warli, Andamanese (smallest)
- Famous Dances:** Santhali (Santhal), Dhimsa (Porja), Bhagoriya (Bhils), Elelakkaradi (Irular)
- Constitutional Provisions:**
  - 5<sup>th</sup> Schedule:** Tribes' Advisory Council in States having Scheduled areas
  - 6<sup>th</sup> Schedule:** Administration of tribal areas (Assam, Meghalaya, Tripura and Mizoram)

ARTICLES	PROVISION FOR TRIBALS
Article 342 (1)	President's power to specify tribes as ST
Article 15(4)	Special provisions for OBCs (including STs)
Article 29	Protection of the Interests of Minorities (including STs)
Article 330	Reservation for STs in the Lok Sabha
Article 332	Reservation for STs in State Legislature
Article 243	Reservation in Panchayats
Article 275	Allocation of special funds for states for the welfare of STs with a better administration

### Related Initiatives:

- PM PVTG Mission (Budget 2023-24)
- Anamaya - Tribal Health Collaborative (2021)
- 1000 Springs Initiative (2020)
- Pradhan Mantri Van Dhan Yojana (2018)
- Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY) (2009-10)
- Eklavya Model Residential Schools (1997-98)
- TRIFED (1987)

### Related Committees:

- Kaka Kalelkar Commission, 1953 (First Backward Classes Commission)
- Elwin Committee, 1959
- U.N. Dhebar Commission, 1961
- The Lokur Committee, 1965
- The Shilu Ao Committee, 1966
- The Bhuria Committee, 1991 (Recommended PESA Act, 1996)
- Xaxa Committee, 2013



Note:

## Barrier to Women's Labor Force Participation

### Why in News?

Recently, the Tamil Nadu government has launched the **Kalaigal Magalir Urimai Thogai Thittam**, a women's basic income scheme, recognizing **Women's Unpaid Labor**. The scheme will provide Rs 1,000 per month to women in eligible households

- In Marriages, the wife bears and rears children and minds the home, and therefore bears the brunt of unpaid care and domestic work, hindering their **Participation in Labor Force**.

### What are the Causes of Lower Women Participation in the Labour Force?

- **Patriarchal Social Norms:**
  - Deep-rooted patriarchal norms and **traditional gender roles often limit women's access to education** and employment opportunities.
  - Societal expectations may prioritize **women's roles as caregivers and homemakers**, discouraging their active participation in the labor force.
- **Gender Wage Gap:**
  - Women in India often face **wage disparities compared to men** for similar work.
    - According to **World Inequality Report, 2022**, men in India **capture 82%** of labour income, while women **earn just 18%**.
  - This wage gap can **discourage women from seeking formal employment opportunities**.
- **Unpaid Care Work:**
  - The burden of unpaid care and domestic work **falls disproportionately on women**, limiting their time and energy for paid employment.
    - Married women in India spend over **7 hours per day on unpaid care** and domestic work, while men spend less than 3 hours.
    - This trend is consistent **across income levels and caste groups**, leading to a significant **Gender Disparity** in domestic responsibilities.
  - This unequal distribution of household responsibilities can be a significant barrier to women's participation in the labor force.

### ➤ Social and Cultural Stigma:

- In some communities, there may be stigma or resistance associated with women working outside the home, leading to lower labor force participation rates.

### What are the Statistics Regarding Unpaid Care of Women?

#### ➤ Female Labor Force Participation Rate (LFPR):

- Despite a surge in the enrollment rate for girls in **Class 10**, India's **Female LFPR** has declined from **30% to 24%** over the past two decades.
- The burden of domestic work is a **key factor contributing to lower female LFPR**, even among educated women.
  - India's female LFPR (24%) is the **lowest among BRICS countries** and select **South Asian countries**.
  - **China**, with the highest female population, boasts the **highest female LFPR at 61%**.

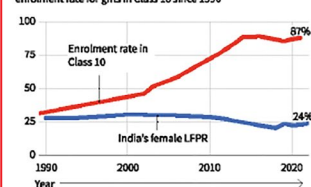
#### ➤ Impact on Women's Employment:

### An unequal burden

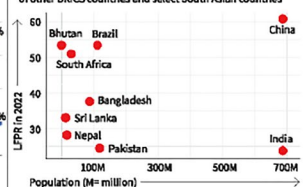
The charts are based on data collated from the World Bank website and the Time Use Survey (2019) by the National Sample Survey Office



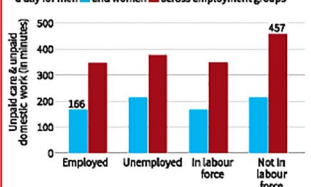
**Chart 1** | The chart shows female LFPR in India and the enrolment rate for girls in Class 10 since 1990



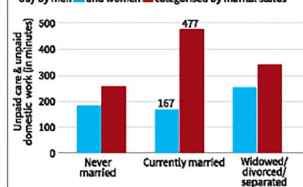
**Chart 2** | The chart compares India's 2022 female LFPR to that of other BRICS countries and select South Asian countries



**Chart 3** | Average time (in minutes) spent on unpaid care during a day for men and women across employment groups



**Chart 4** | Average time spent (in minutes) on unpaid care in a day by men and women categorised by marital status



Anushka Kataruka and Hashika Sharma are interns with The Hindu Data Team

Note:



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- Women not in the labor force **spend the most time on unpaid domestic/care work**, averaging 457 minutes (7.5 hours) per day.
- Employed women follow closely, spending **348 minutes (5.8 hours) per day on such chores**, impacting their **ability to engage in paid work**.

### ***How can Higher Women Labor Participation Impact the Society at Large?***

- **Economic Growth:**
  - Women's participation in the labor force is **directly linked to economic growth**. When a significant portion of the female population remains **underutilized**, it results in a **loss of potential productivity** and economic output.
  - Increased women's labor force participation can **contribute to higher GDP (Gross Domestic Product)** and overall economic prosperity.
- **Poverty Reduction:**
  - When women have access to income-generating opportunities, **it can lift households out of poverty**, leading to better living standards and improved well-being for families.
- **Human Capital Development:**
  - Educated and economically active women can **positively influence the education and health outcomes** of their children, leading to intergenerational benefits.
- **Gender Equality and Empowerment:**
  - Higher women's participation in the labor force can **challenge traditional gender roles and norms**, promoting gender equality.
  - Economic empowerment enables women to have greater control over their lives, decision-making power, and autonomy.
- **Fertility and Population Growth:**
  - Studies have shown that as women's labor force participation increases, fertility rates tend to decline.
  - This phenomenon, known as the "fertility transition," is associated with improved access to education, healthcare, and family planning, leading to more sustainable population growth.
- **Reduced Gender-Based Violence:**
  - Economic empowerment can enhance women's bargaining power and reduce their **vulnerability to gender-based violence** and abusive relationships.

### ➤ **Labor Market and Talent Pool:**

- Increasing women's participation in the labor force can help **address skill shortages and labor market imbalances**, leading to a more efficient allocation of talent and resources.

### **What are the Government Schemes Related to Women Empowerment?**

- **Beti Bachao Beti Padhao Scheme**
- **One Stop Centre Scheme**
- **SWADHAR Greh**
- **NARI SHAKTI PURASKAR**
- **Mahila police Volunteers**
- **Mahila Shakti Kendras (MSK)**
- **NIRBHAYA Fund.**

## **State of Elementary Education in Rural India 2023**

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

Recently, the Ministry of Education has released the **State of Elementary Education in Rural India - 2023** report, highlighting the **Prevalence of Smartphone Usage** among students.

- The report was based on a survey conducted by the **Development Intelligence Unit (DIU)**, a collaboration between NGO Transform Rural India and Sambodhi Research and Communications.
- The survey gathered responses from **6,229 parents of schoolchildren aged 6–16 in rural communities across 21 States**.

### ***What are the Key Findings of the Survey?***

- **Smartphone Usage and Entertainment:**
  - 49.3% have **access to smartphones**. 76.7% of parents indicated that their children **primarily use smartphones for playing video games**, indicating a **preference for entertainment over educational activities**.
  - Additionally, 56.6% of students use smartphones to **download and watch movies**, while 47.3% use them to download and listen to music.
  - In contrast, only **34% of students use smartphones for study-related downloads**, and a mere 18% access online learning via tutorials.

Note:



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### Aspiring for higher education

The table shows parental expectations of a child's educational attainment. About 78% of parents aspire for their girls to attain graduation or higher degrees



**Dropping out:** Parents of a section of girls said their daughters dropped out of school to help out in the family's earnings R. RAGU

Expected level of education of child	Boy (%)	Girl (%)	Total (%)
Up to elementary	4.4	3.9	4
Up to secondary	2.4	2.8	3
Higher secondary	11.1	15.2	13
Graduation	49.6	50.3	50
Postgraduation/Ph.D.	32.5	27.8	30

■ About 80% of parents aspire for their children to become graduates or attain higher degrees

■ The survey included responses of 6,229 parents across 21 States of India.

Source: State of Elementary Education in Rural India report

- **Differential Access Based on Class:**
  - Smartphone access **varies across different class levels**. Students in higher classes (Class VIII and above) have greater access to smartphones (58.32%), while even **younger students (Classes I-III) show considerable access (42.1%)**.
  - This indicates that smartphone **usage for entertainment is prevalent** across age groups, potentially impacting their educational engagement.
- **Parental Aspirations and Engagement:**
  - 78% of parents aspire for their **children to attain graduation-level education** or above, however, there is a **gap in parental engagement**.
  - Only 40% of parents **have daily conversations with their children** about their school learning, while 32% engage in such **conversations a few days a week**.
- **Reasons for School Dropout:**
  - **For girls**, 36.8% of parents mentioned that the need to contribute to family **earnings led to their daughters dropping out**.
    - Meanwhile, 31.6% attributed the **dropout to their child's lack of interest in studies**, and 21.1% believed household responsibilities played a role.
  - **For boys**, the primary reason for dropping out was a lack of interest in studies, cited by 71.8% of respondents, followed by **48.7% stating the need for boys to contribute to family earnings**.
- **Parent-Teacher Meetings and Learning Environment:**
  - 84% of parents reported regular attendance. Nonetheless, the two main reasons for non-attendance, are short notice and a lack of willingness.
  - Additionally, the availability of age-appropriate reading materials other than textbooks was **reported by 40% of parents**, highlighting the need for further resources to support children's learning at home.

### What are the Recommendations?

- The findings emphasize the **need for targeted efforts to enhance the educational environment at home** and promote a balanced use of smartphones for both entertainment and learning purposes.

## Organ Donation in India

### Why in News?

Recently, the **critical shortage of organ donations**, particularly **deceased donations**, has led to a dire situation in India, with thousands of patients waiting for transplants and a significant number losing their lives daily.

- The **Ministry of Health and Family Welfare** has earlier modified **National Organ Transplantation Guidelines**, allowing those above **65 years of age to receive an organ** for transplantation from deceased donors.
- In India, **the Transplantation of Human Organs Act, 1994** provides various regulations for the removal of human organs and their storage. It also regulates the transplantation of human organs for therapeutic purposes and for the prevention of commercial dealings in human organs.

### What is the Status of Organ Donation in India?

- **Growing Demand and Persistent Shortage:**
  - Over **300,000 patients** are on the waiting list for organ donations in India.
  - The supply of organ donors has not kept up with the increasing demand.
  - Approximately **20 individuals die daily while awaiting organ transplants** due to the shortage.
- **Slow Growth in Donor Numbers:**
  - Donor numbers, including **both living and deceased**, **have shown slow growth over the years**.
  - From **6,916 donors in 2014**, the count increased to about **16,041 in 2022**, indicating a modest rise.
  - The **deceased organ donation rate** in India has remained **consistently below one donor per million population** for a decade.
- **Deceased Organ Donation Rate:**
  - Urgent efforts are required to raise the deceased organ donation rate to address the shortage.
  - Countries like **Spain and the United States** have achieved significantly higher donation rates, ranging from 30 to 50 donors per million population.

Note:



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➤ **Prevalence of Living Donors:**

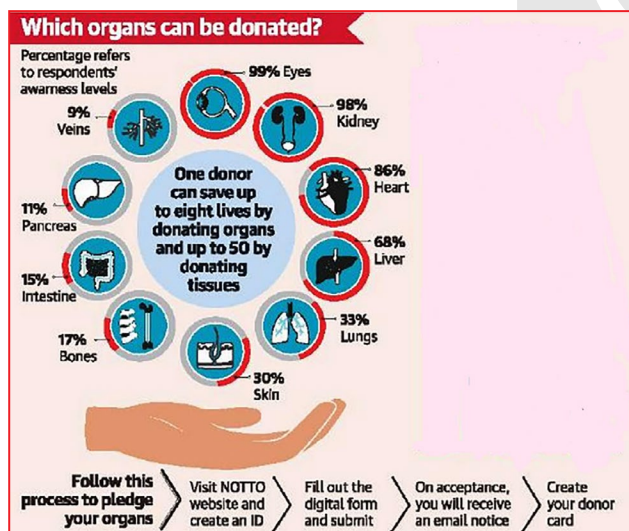
- Living donors constitute the majority, **accounting for 85% of all donors in India.**
  - However, deceased organ donations, especially for **kidneys, liver, and heart, remain considerably low.**

➤ **Regional Disparities:**

- Disparities in organ donation rates exist among different states in India.
  - Telangana, Tamil Nadu, Karnataka, Gujarat, and Maharashtra have reported the highest number of deceased organ donors.
  - Delhi-NCR, Tamil Nadu, Kerala, Maharashtra, and West Bengal are prominent regions with a high number of living donors.

➤ **Kidney Transplants:**

- Kidney transplantation in India faces a significant disparity between demand and supply.
- Annual demand for **200,000 kidney transplants is met with only around 10,000 transplants each year**, creating a substantial gap.



**What are the Challenges Regarding Organ Donation?**

➤ **Lack of Awareness and Education:**

- Limited awareness among the **general public about organ donation** and its impact.
- Insufficient education among medical professionals to **identify potential donors and counsel families effectively.**

➤ **Family Consent and Decision-Making:**

- Family reluctance to give consent for organ donation, even when the **deceased individual had expressed a willingness to donate.**
- **Emotional and ethical dilemmas** that families face when making decisions about organ donation.

➤ **Organ Trafficking and Black Market:**

- Illegal **organ trafficking and the existence of a black market for organs.**
- Criminal activities exploiting the demand for organs and undermining legitimate donation processes.

➤ **Medical Eligibility and Compatibility:**

- Matching **suitable donors and recipients based on medical compatibility** and organ availability.
- Limited availability of compatible organs, leading to prolonged waiting periods for patients.

➤ **Donor Incentives and Compensation:**

- Debates over the **ethical implications of offering financial incentives or compensation to organ donors.**
- Balancing the need for increasing donation rates with ensuring ethical practices.

➤ **Infrastructure and Logistics:**

- Inadequate **infrastructure and resources for organ retrieval, preservation, and transplantation.**
- Challenges in the timely transportation of organs from donors to recipients, especially across different regions.

**What are the Highlights of the New National Organ Transplantation Guidelines?**

➤ **Removed Age Cap:**

- Age limit for organ recipients eliminated due to improved life expectancy.
- **NOTTO (National Organ and Tissue Transplant Organization)** guidelines previously prohibited end-stage organ failure **patients above 65 years from registering for organ transplants.**

➤ **No Domicile Requirement:**

- Domicile requirement waived for organ recipient registration.
- **'One Nation, One Policy'** approach allows patients to register for organ transplants in any state.

➤ **No Registration Fees:**

- Removal of registration fees for organ recipient registration.
- States, including Gujarat, Telangana, Maharashtra, and Kerala, no longer charge fees for patient registration.

Note:

**Note:**

- NOTTO is set up under the **Directorate General of Health Services**, Ministry of Health and Family Welfare, located in New Delhi.
- National Network division of NOTTO functions as the apex centre for all Indian activities for procurement, distribution and registry of organs and tissues donation and transplantation in the country.

## POCSO Act

### Why in News?

Recently, the Ministry of Women and Child Development has informed the **Lok Sabha** that the **Protection of Children from Sexual Offences (POCSO) Act, 2012**, is one of the crucial legislations enacted by the Government to protect children from Sexual Abuse.

### What is the POCSO Act?

#### ➤ About:

- **POCSO Act** came into effect on 14<sup>th</sup> November 2012 which was enacted in consequence to India's ratification of the **UN Convention on the Rights of the Child in 1992**.
- The aim of this special law is to address **offences of sexual exploitation and sexual abuse** of children, which were either not specifically defined or in adequately penalised.
- The Act defines **a child as any person below the age of 18 years**. The Act provides **punishment as per the gravity of offence**.
  - The Act was further reviewed and **amended in 2019** to Introduce more stringent punishment including the death **penalty for Committing sexual crimes on children**, with a view to deter the perpetrators & prevent such crimes against children.
  - The Government of India has also notified the **POCSO Rules, 2020**.

#### ➤ Features:

- **Gender-Neutral Nature:**
  - The Act recognizes that both girls and boys can be victims of sexual abuse and that such abuse is a **crime regardless of the gender** of the victim.

- This is in line with the **principle that all children have the right to protection from sexual abuse** and exploitation, and that laws should not discriminate based on gender.

#### ○ Ease in Reporting Cases:

- There is sufficient general awareness **now to report cases of sexual exploitation of children** not only by individuals but also by institutions as non-reporting has been made a specific **offence under the POCSO Act**. This has made it comparatively difficult to hide offences against children.

#### ○ Explicit Definition of Terms:

- The storage of child pornography material has been **made a new offence**.
- Further, the offence of 'sexual assault' has been defined in explicit terms (with increased minimum punishment) unlike an abstract definition of 'outraging modesty of a woman' in the **Indian Penal Code**.

#### ➤ POCSO Rules 2020:

##### ○ Interim Compensation and Special Relief

- Rule-9 of the POCSO Rules allows the **Special Court to order interim compensation** for the child's needs related to relief or rehabilitation after the FIR's registration. This compensation is adjusted against the final compensation, if any.

##### ○ Immediate Payment of Special Relief:

- Under the POCSO Rules, the **Child Welfare Committee (CWC)** may recommend immediate **payment for essential needs** like food, clothes, and transportation, using funds from the District Legal Services Authority (DLSA), the District Child Protection Unit (DCPU), or funds maintained under the **Juvenile Justice Act 2015**.
- The payment must be made within a week of receiving the CWC's recommendation.

##### ○ Support Person for the Child:

- The POCSO Rules **empower the CWC to provide a support person** to assist the child throughout the **investigation and trial process**.
- The support person is **responsible for ensuring the child's best interests**, including physical, emotional, and mental well-being, access to medical care, counseling, and education.

Note:



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They also inform the child and their parents or guardians about court proceedings and developments related to the case.

**Note:** In furtherance to the **Criminal law (Amendment) Act, 2018**, Department of Justice has started a Centrally Sponsored Scheme in October, 2019 for setting up of a total of 1023 **Fast Track Special Courts (FTSCs)** (including 389 exclusive POCSO Courts) Across the country.

- As on May 31, 2023, a total of 758 FTSCs including 412 Exclusive POCSO (e-POCSO) Courts are functional in 29 States/UTs across the country.

### **What are the Issues and Challenges with the POCSO Act?**

#### ➤ **Issue with the Investigation:**

##### ○ **Low Representation of Women in the Police Force:**

- The POCSO Act provides for **recording the statement of the affected child by a woman sub-inspector** at the child's residence or place of choice.
- But it is practically **impossible to comply with this provision** when the number of women in the police force is **just 10%**, and many police stations hardly have women staff.

##### ○ **Lapses in the Investigation:**

- Though there is a provision to record statements using **audio-video means**, however, there are still reports of **lapses in the investigation** and preservation of crime scenes in some cases,

- In **Shafhi Mohammad vs The State of Himachal Pradesh (2018)**, the **Supreme Court** held in cases of heinous crimes, it is the duty of the investigating officer to photograph and videograph the scene of crime and to preserve the same as evidence.

##### ○ **No Examination by Judicial Magistrates:**

- Another provision of the act mandates the recording of the statement of the **prosecutrix by a judicial magistrate**.
- Though such statements are recorded in most cases, judicial magistrates are neither **called for cross-examination during trial** nor are those who retract their statement punished. In such a scenario, such statements get nullified.

#### ➤ **Issue of Age Determination:**

- Though age determination of a juvenile delinquent is guided by the **Juvenile Justice (Care and Protection of Children) Act 2015** no such provision exists under the POCSO Act for juvenile victims.

- In **Jarnail Singh vs State of Haryana (2013) case**, the SC held that the given statutory provision should also be the basis to help determine age even for a child who is a victim of crime.

- However, in absence of any change in the law or even specific directions, the investigating officers (IOs) **continue to rely on the date of birth recorded in school admission-withdrawal registers**.

#### ➤ **Delays in the Filing of Charges:**

- As per the POCSO Act, the investigation of a case under the act is to be **completed within a period of one month** from the date of the commission of the offence, or from the date of the reporting of the offence.

- However, in practice, the **completion of investigation often takes longer** than one month due to various reasons such as lack of adequate resources, delays in obtaining forensic evidence, or the complexity of the case.

#### ➤ **No Conditions to Prove Recent Intercourse:**

- Courts are required to presume that the accused committed the **offence under the POCSO Act**.
- The POCSO Act **does not impose any conditions** on the prosecution, contrary to the **Indian Evidence Act**, which clearly requires the prosecution to establish recent intercourse, as well as the consent of the prosecutrix.
- However, it has been observed that even after the minor age of the victim is **proved, no such presumption is taken up** by the court during trial.
  - Under such circumstances, the expected increase in the conviction rate is unlikely to be achieved.

### **What are the Initiatives to Curb 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**
- **POCSO Courts under Special Fast Track Courts.**

Note:



## World Breastfeeding Week 2023

### Why in News?

On the occasion of **World Breastfeeding Week 2023**, the **United Nations Children's Fund (UNICEF)** and the **World Health Organization (WHO)** lauded the progress made by **several countries in increasing exclusive breastfeeding rates**, while also highlighting the potential for further advancements if breastfeeding is protected and supported, particularly in the workplace.

### What is World Breastfeeding Week?

- **World Breastfeeding Week**, observed annually during the first week of August in commemoration of the **1990 Innocenti Declaration**.
  - In 1990, the Innocenti Declaration was signed by government policymakers, UN health agencies, and other organisations **to protect, promote, and support breastfeeding**.
- In **1991**, the **World Alliance for Breastfeeding Action (WABA)** was formed as a global network, and since **1992**, the world has marked **Breastfeeding Week**, annually.
  - Since 2016, WBW has been aligned with the **Sustainable Development Goals (SDGs)**.
    - Breastfeeding can help achieve many of the 17 SDGs, including goals on **poverty, hunger, health, education, gender equality, and sustainable consumption**.
- **Theme 2023: "Let's make breastfeeding at work, work"**.

- **UNICEF and WHO** called on governments, donors, civil society and the private sector to step up efforts to help eliminate barriers women and families face to achieving their breastfeeding goals and **reach the global 2030 target of 70%**.

### What is the Progress in

#### Exclusive Breastfeeding Rates?

- Exclusive breastfeeding involves **feeding babies only breast milk and excluding all other foods, liquids, infant formula, or water**, except for necessary medications or vitamin and mineral supplements.
- The practice of exclusive breastfeeding offers vital health benefits to infants, including **protection against common infectious diseases** and bolstering their immune systems, ensuring they receive essential nutrients for optimal growth and development.
  - Over the past decade, the global rate of exclusive breastfeeding has risen by an impressive 10% points, **reaching 48%**.

### What are the Indian

#### Government Initiatives Relates to Breastfeeding?

- **MAA - "Mothers Absolute Affection"**
  - MAA is a nationwide programme of the **Ministry of Health and Family Welfare** to promote breastfeeding.
- **Vatsalya – Maatri Amrit Kosh**
  - Vatsalya, a **National Human Milk Bank and Lactation Counselling Centre** has been established in collaboration with the Norwegian government



Note:

# Science & Technology

## Highlights

- Space Debris
- Akira Ransomware
- Post-Quantum Cryptography
- Nuclear Rocket for Space Travel
- Connection Between Dinosaurs and Birds
- Same-Sex Behavior in Rhesus Macaques
- Genetic Diversity in the Indian Population
- LK-99: The Quest for a Room-Temperature Superconductor
- Lymphatic Filariasis
- Cell-Free DNA

## Space Debris

### Why in News?

Recently, **ISRO's (Indian Space Research Organization)** Rocket Debris was found on the shores of Western Australia.

- In November 2022, large fragments of **China's Long March 5B rocket** plunged uncontrolled into the south-central **Pacific Ocean**. These fragments were stages of the rocket used to deliver the third and final module of the Tiangong space station.
- In May 2021, a large chunk of a **25-tonne Chinese rocket** fell into the **Indian Ocean**.

### What is Space Debris?

- **About:**
  - Space debris refers to **man-made objects in Earth's orbit** that no longer serve a useful purpose.
  - This includes **defunct satellites, spent rocket stages**, and fragments of debris from collisions or other events.
- **Threats from Space Debris:**
  - **Threat to Marine Life:**
    - Even when falling into the oceans, which is more likely since 70% of the earth's surface is ocean, **large objects can be a threat to marine life**, and a source of pollution.
  - **Threat for Operational Satellites:**
    - The floating space debris is a potential hazard for operational satellites and colliding with them can leave the satellites dysfunctional.
      - This overpopulation of space with objects and debris is referred to as **Kessler Syndrome**.

### Reduction of Orbital Slots:

- The accumulation of space debris in specific orbital regions can limit the availability of desirable orbital slots for future missions.

### Space Situational Awareness:

- The increasing amount of space debris makes it more challenging for satellite operators and space agencies to accurately track and predict the orbits of objects in space.

### What are the Challenges in Tackling Space Activities?

#### ➤ More Satellite Launches by Various Countries:

- Countries like the **United States, China, India, and Japan** are actively engaged in space activities, including manned missions, lunar exploration, and resource exploitation.
  - Satellite launches have exponentially **increased in the past decade**, with 210 launches in 2013, 600 in 2019, 1,200 in 2020, and 2,470 in 2022.
- Valuable metals in asteroids and planets have **attracted international interest in the** absence of an **agreed international framework** on space resource exploration that poses challenges in dealing with space activities.

#### ➤ Coordination and Space Traffic Management:

- The current coordination of space traffic is fragmented, **with different countries and regional entities employing varying standards** and practices.
- This **lack of coordination** can lead to potential **collisions and accidents in space**, posing risks to operational spacecraft and increasing space debris.

#### ➤ Technological Challenges:

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- Developing and deploying space missions requires cutting-edge technology, which can be expensive and prone to technical failures. Space agencies and private companies must address these challenges to ensure the success of their missions.

➤ **Geopolitical Tensions:**

- As more countries become spacefaring nations, **there is potential for geopolitical tensions** in outer space.
- Competing interests and territorial claims can create diplomatic challenges and hinder international cooperation.

**What are the Initiatives to Deal with Space Debris?**

➤ **India:**

- In 2022, ISRO set up the **System for Safe and Sustainable Operations Management (IS 4 OM)** to continually monitor objects posing collision threats, predict the evolution of space debris, and mitigate the risk posed by space debris.
- ISRO also carried out 21 collision avoidance manoeuvres of Indian operational space assets in 2022 to avoid collisions with other space objects.
- ISRO has also set up a Centre for Space Debris Research to monitor and mitigate the threat of space debris.
- **'Project NETRA'** is also an early warning system in space to detect debris and other hazards to Indian satellites.

➤ **Global:**

- The **Inter-Agency Space Debris Coordination Committee (IADC)**, an international governmental forum, was established in 1993 to coordinate efforts between spacefaring nations to address the issue of space debris.
- The **United Nations** has established the Committee on the Peaceful Uses of Outer Space (COPUOS) to develop guidelines for the long-term sustainability of outer space activities, including the mitigation of space debris.
- The **European Space Agency (ESA)** has launched the Clean Space initiative, aimed at reducing the amount of space debris and promoting sustainable space activities.

**What are the UN's**

**Five Treaties to Deal with Space Activities?**

➤ **The Outer Space Treaty 1967:**

- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

➤ **Rescue Agreement 1968:**

- Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.

➤ **Liability Convention 1972:**

- It deals mainly with **damage caused by space objects to other space assets**, but it also applies to damage caused by **falling objects on earth**.
- The Convention makes the **launching country "absolutely liable"** to pay **compensation for any damage** caused by its space object on the earth or to a flight in air. The country where the junk falls **can stake a claim for compensation** if it has been damaged by the falling object.

➤ **The Registration Convention 1976:**

- Convention on Registration of Objects Launched into Outer Space.

➤ **The Moon Agreement 1979:**

- Agreement Governing the Activities of States on the **Moon and Other Celestial Bodies**.
- India is a signatory to all five of these treaties but has ratified only four. India did not ratify the Moon agreement.

## Akira Ransomware

### Why in News?

Recently, the Indian government's **Computer Emergency Response Team (CERT-In)** issued a warning about the Akira ransomware, which has emerged as a significant **cybersecurity threat**, targeting both Windows and Linux devices.

- Ransomware is a type of **malware that hijacks computer data and then demands payment** (usually in bitcoins) in order to restore it.

### What is Akira Ransomware?

➤ **About:**

- It is **malicious software** that poses a significant threat to **data security**.

Note:

- It targets **both Windows and Linux devices**, encrypting data and demanding a **ransom for decryption**.
- **Key Characteristics of Akira Ransomware:**
  - Designed to **encrypt data and create a ransomware note** with a unique **“.akira” extension** appended to encrypted filenames.
  - Capable of deleting Windows Shadow Volume copies and shutting down Windows services to prevent interference during encryption.
  - Exploits **VPN services and malicious files** to infect devices, making it challenging to detect and prevent.
- **Mode of Operation:**
  - Akira ransomware spreads through various methods, including spear phishing emails with **malicious attachments, drive-by downloads, and specially crafted web links** in emails.
  - **Insecure Remote Desktop connections** are another avenue for ransomware transmission.
- **Implications of an Akira Attack:**
  - Once infected, Akira ransomware **steals sensitive data and encrypts it, rendering it inaccessible to the victim**.
  - Attackers then demand a ransom for decryption and threaten to leak the stolen data on the dark web if their demands are not met.
- **Protection Measures Against Akira Ransomware:**
  - Regularly **maintain up-to-date offline backups to prevent data loss** in case of an attack.
  - Keep **operating systems and networks updated**, including virtual patching for legacy systems, to address potential vulnerabilities.
  - Implement **security protocols such as Domain-based Message Authentication, Reporting, and Conformance (DMARC), Domain Keys Identified Mail (DKIM), and Sender Policy for email validation**.
  - Enforce strong **password policies and Multi-Factor Authentication (MFA)** to enhance user authentication.
  - Establish a strict policy for **external device usage and ensure data-at-rest and data-in-transit encryption**.
  - Block attachment file types with suspicious extensions like .exe, .pif, and .url to avoid downloading malicious code.
  - Educate users to be cautious about clicking on suspicious links to prevent malware downloads.

- Conduct regular security audits, especially for critical systems like database servers, to identify and address vulnerabilities.

#### What is CERT-IN?

- Computer Emergency Response Team - India is an **organisation of the Ministry of Electronics and Information Technology** with the objective of securing Indian cyberspace.
- It is a **nodal agency which deals with cybersecurity threats** like hacking and phishing.
- It collects, analyses and disseminates information on cyber incidents, and also **issues alert on cybersecurity incidents**.
- CERT-IN provides **Incident Prevention and Response Services** as well as Security Quality Management Services.

## Post-Quantum Cryptography

### Why in News?

Computation has transformed various facets of human civilization, from banking to warfare, however, the emergence of **Quantum Computing** has raised concerns about its impact on **Computer Security in the Future**.

### What is Quantum Computing?

- **About:**
  - Quantum computing is a **rapidly emerging technology** that harnesses the **laws of quantum mechanics** to solve problems that are too complex for classical computers.
  - Quantum mechanics is a **subfield of physics that describes the behavior of particles** — atoms, electrons, photons, and almost everything in the molecular and sub molecular realm.
  - It is an exciting new technology that will **shape our world tomorrow** by providing us with an edge and a myriad of possibilities.
  - It is a fundamentally different way of processing information compared to today's classical computing systems.
- **Features:**
  - While today's classical computers store information as **binary 0 and 1 states**, quantum computers draw on the fundamental laws of nature to carry out calculations using **quantum bits (Qubits)**.

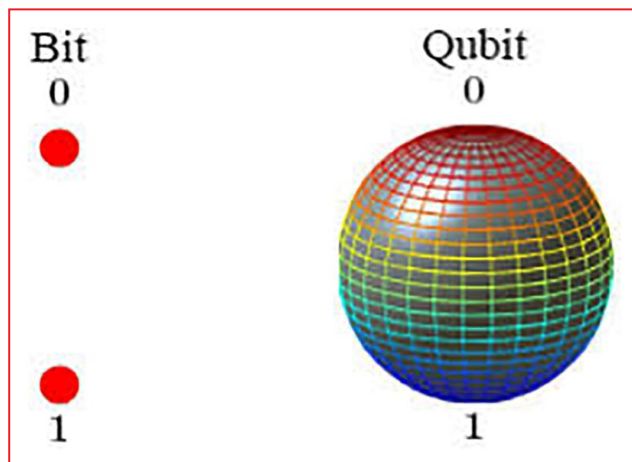
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- Unlike a bit that has to be a **0** or a **1**, a qubit can be in a combination of states, which allows for exponentially **larger calculations and gives them the potential to solve complex problems** which even the most powerful classical supercomputers are not capable of.



#### ➤ Significance:

- Quantum computers can tap **into the quantum mechanical phenomenon** to manipulate information and are **expected to shed light** on processes of molecular and chemical interactions, address difficult optimization problems, and boost the power of artificial intelligence.
- These could open the door to new scientific discoveries, life-saving drugs, and **improvements in supply chains**, logistics and the modeling of financial data.

### What are the Post

#### Quantum Concerns of Quantum Computing?

#### ➤ Vulnerabilities in Current Security Techniques:

- Current security measures, such as **RSA (Rivest-Shamir-Adleman)**, **ECC (Elliptic Curves Cryptography)**, and Diffie-Hellman key exchange, rely on “hard” mathematical problems that could be broken with using **Shor’s Quantum Algorithm**.
  - In 1994, **Peter Shor** developed a **quantum algorithm** that (with certain modifications) can break all of these security measures with ease.
- As quantum computing progresses, the security measures will eventually become **vulnerable**, **necessitating the exploration of alternative techniques**.

#### Note:

- **RSA** is a widely used cryptographic algorithm and **one of the fundamental building blocks of modern computer security**. RSA is primarily used for secure communication and data encryption, providing confidentiality and authentication in various applications.
- **Elliptic Curve Cryptography (ECC)** is a modern and widely used cryptographic technique that provides **security and efficiency for various computer security applications**.
- **Diffie-Hellman (DH)** is a key exchange algorithm used to establish a **shared secret key between two parties** over an insecure channel. It was introduced by **Whitfield Diffie** and Martin Hellman in 1976 and is considered one of the **fundamental building blocks of modern public-key cryptography**.

#### ➤ Scalability and Practicality:

- Quantum Cryptography systems can be **challenging to implement and scale to large networks** due to the requirement for specialized hardware and tight environmental constraints.

#### ➤ Quantum Key Distribution Over Long Distances:

- Quantum Cryptography systems like QKD face limitations in terms of **the distance over which secure keys** can be distributed. Extending the range of secure key distribution is a significant challenge for **Quantum Cryptography researchers**.

#### ➤ Quantum Network Infrastructure:

- Building a robust quantum network infrastructure to support Quantum Cryptography is a **complex task**.
- This involves developing reliable quantum repeaters, quantum routers, and quantum memory, among other components, to ensure the secure transmission of quantum information.

#### ➤ Quantum Cryptography in a Hybrid World:

- As the transition to post-quantum cryptography progresses, hybrid communication scenarios will arise **where both classical and quantum communication systems coexist**.
- Ensuring seamless integration and secure communication between these systems presents a challenge.

Note:



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# Nuclear Rocket for Space Travel

## Why in News?

**NASA** in collaboration with the **United States Defense Advanced Research Projects Agency (DARPA)** is seeking a nuclear propulsion system that could potentially **cut down the travel time to Mars by half**.

- This ambitious initiative, known as the **Demonstration Rocket for Agile Cislunar Operations (DRACO)** and the launch is scheduled for **late 2025 or early 2026**.

## What is DRACO?

- **About:** The DRACO project is offering the prospect of shorter travel times between celestial bodies and improved fuel efficiency. Central to DRACO's vision is a **nuclear reactor that utilizes the energy derived from the fission of uranium atoms**.
- **Significance:** DRACO hold the potential to revolutionize space travel in numerous ways:
  - **Acceleration and Speed:** Unlike traditional rocket engines that rely on chemical reactions (fuel like hydrogen or methane with oxygen), **nuclear reactions generate far more energy**, enabling the spacecraft to accelerate continuously throughout its journey.
    - This acceleration could significantly **shorten travel times to distant destinations like Mars**.
  - **Enhanced Fuel Efficiency:** Nuclear propulsion systems **yield greater fuel efficiency**, reducing the need to carry excessive propellant.
    - This advantage can drastically lower the duration of interplanetary voyages.
  - **Minimized Exposure:** Expedited travel times translate to **reduced exposure of astronauts to the harsh conditions** of deep space.
    - The potential risks associated with extended space travel, such as **radiation exposure and isolation**, could be mitigated through quicker journeys.
  - **Military Applications:** Beyond its application in space exploration, DARPA's involvement hints at the potential for nuclear propulsion to facilitate rapid **maneuvers of military satellites in Earth's orbit**.
- **Concern:**
  - **Safety Concerns:** One of the primary concerns with using nuclear fuel in space is the potential

for accidents or malfunctions that could release **radioactive material into space or back to Earth**.

- Such incidents could have severe environmental and health consequences.
- **Launch Risks:** Launching spacecraft with nuclear fuel on board presents risks, as there is **always a chance of a launch failure or explosion**, leading to the **dispersion of radioactive material over a wide area**.

## What is the Historical Context of Nuclear Propulsion and How DRACO is Different?

- Projects like **Orion, Rover, and NERVA** explored nuclear-powered propulsion systems, although these initiatives were not fully realized.
  - Notably, **Project Orion considered using atomic bomb explosions** for acceleration, while **Project NERVA aimed to develop nuclear-thermal engines** akin to the DRACO engine.
- DRACO marks a significant evolution from its predecessors due to several key differentiators:
  - **Fuel Enrichment:** Unlike Project NERVA, which used **weapons-grade uranium**, DRACO employs a **less-enriched form of uranium**.
    - This shift enhances safety and minimizes the risks associated with the use of radioactive materials.
  - **In-Space Activation:** The nuclear reactor within the DRACO engine remains **dormant until it reaches space**.
    - This precautionary measure mitigates the potential for radioactive accidents during launch or on Earth.

### Note:

- **Atomic Bomb Explosions:** Atomic bomb explosions involve the **rapid and uncontrolled release of nuclear energy** through a chain reaction of nuclear fission.
  - The core of the bomb contains fissile material, like **uranium-235 or plutonium-239**.
- **Nuclear-Thermal Engines:** Nuclear-thermal engines are propulsion systems that use a nuclear reactor to heat a propellant, **usually hydrogen**, to high temperatures.
  - The heated propellant is then expelled through a nozzle at high velocity, creating thrust according to **Newton's third law of motion**.

Note:

## Mars

- **About:** Mars is the fourth planet from the Sun in our solar system. It is often referred to as the “**Red Planet**” due to its reddish appearance caused by **iron oxide (rust) on its surface**.
- **Atmosphere:** Mars has a thin atmosphere primarily composed of **carbon dioxide (95.3%)**, with traces of **nitrogen and argon**.
- **Major Surface Features:**
  - **Olympus Mons:** The largest known volcano in the solar system.
  - **Valles Marineris:** A massive canyon system.
  - **Polar Ice Caps:** Ice caps made of water and frozen carbon dioxide (dry ice) at the poles.
  - **Dusty Surface:** The surface is covered in fine dust and rocks.
  - **Liquid Water:** Liquid water is rare, but evidence suggests past liquid flows.

### What are the Major Mars Missions?

- **Perseverance Rover - NASA**
- **India's Mars Orbiter Mission (MOM) or Mangalyaan (2013)**
- **ExoMars rover (2021) (European Space Agency)**
- **Tianwen-1: China's Mars Mission (2021)**
- **UAE's Hope Mars Mission (UAE's first-ever interplanetary mission) (2021)**
- **Mars 2 and Mars 3 (1971) (Soviet Union)**

## Connection Between Dinosaurs and Birds

### Why in News?

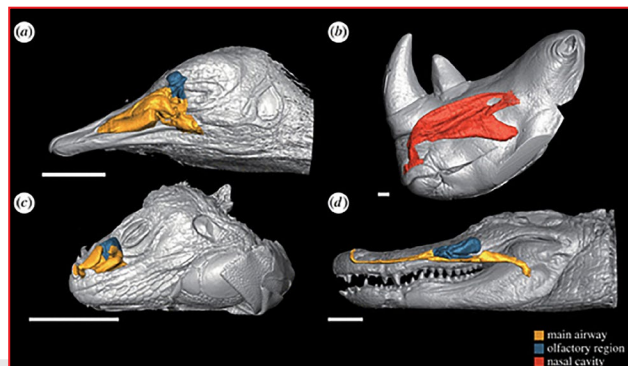
Recently, a study published in the journal Royal Society Open Science, suggests a connection between **Birds and Dinosaurs**.

### What is the Methodology of Research?

- The Researchers employed **cutting-edge techniques**, including Computed Tomography (CT) scans and 3D reconstruction, to analyze the **nasal cavities of 51 present-day species**.
  - These species encompassed birds, mammals, reptiles (including crocodiles and turtles), and lizards. Additionally, the researchers digitally

reconstructed the nasal cavity of a velociraptor, a type of theropod dinosaur, based on fossils.

- They focussed primarily on the **nasal cavity to enhance understanding** of the cranial evolution (changes in organism's skull over time) from dinosaurs to birds.
- They explored the possibility that the **nasal cavity played a crucial role in brain cooling and regulation**.



### What are the Key Findings of the Study?

- **Nasal Cavity Size and Warm-Bloodedness:**
  - Endothermic (Warm-blooded) animals, including birds and mammals, had **larger nasal cavities relative to their head sizes** compared to cold-blooded animals.
  - This size difference indicated a **potential link between warm-bloodedness** and nasal cavity dimensions.
- **Respiratory Turbinates and Brain Cooling:**
  - Warm-blooded animals **exhibited a complex structure known as the respiratory turbinate** within their nasal cavities. One of the **primary functions of this structure** was brain cooling.
    - This discovery challenged the previously held belief that **larger nasal cavities primarily facilitated whole-body metabolism**.
- **Evolutionary Implications for Dinosaurs and Birds:**
  - The cooling mechanism **might have provided an advantage for warm-blooded creatures, including birds and mammals**, influencing their evolution.
  - In contrast, the reconstructed **nasal cavity of the velociraptor** indicated a lack of a developed cooling system, suggesting differences in thermoregulation between theropod dinosaurs and modern birds.
- **Influence of Maxilla on Nasal Passage:**
  - The shape of the **nasal passage in the velociraptor was influenced by the maxilla, the lower jaw bone**.

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- They proposed that a **reduction in the maxilla in the theropod lineage** led to the nasal cavity becoming a crucial apparatus for their thermal regulation strategy.

### What is the Significance of the Study?

- While the study provided novel insights into the

potential function of respiratory turbinates in brain cooling, the researchers emphasized the need for more comprehensive research to validate their hypotheses.

- Understanding the complex interplay between anatomical adaptations and environmental factors remains a key focus for future studies.

### What are Warm Blooded and Cold Blooded Animals?

Aspect	Warm-Blooded Animals (Endotherms)	Cold-Blooded Animals (Ectotherms)
<b>Metabolism</b>	High metabolic rate	Low metabolic rate
<b>Body Temperature</b>	Maintain a relatively constant body temperature independent of the environment	Body temperature varies with the external environment
<b>Energy Source</b>	Rely on internal heat production (metabolism) to maintain body temperature	Depend on external sources of heat for thermoregulation
<b>Activity Levels</b>	Can be active in a wide range of environmental conditions	Activity levels influenced by temperature; often more active in warmer conditions
<b>Adaptability to Environments</b>	Can inhabit diverse environments due to their ability to regulate body temperature	Limited in their habitat choices by temperature preferences
<b>Reproductive Rate</b>	Generally have lower reproductive rates due to high energy demands	May have higher reproductive rates due to lower energy demands
<b>Examples</b>	Mammals (including humans), birds	Reptiles (such as snakes, lizards), amphibians, most fish, invertebrates (except some insects)

### What is the Theory of Evolution by Charles Darwin?

#### ➤ About:

- Charles Darwin's theory of evolution is a **foundational concept in biology** that explains how **species change over time** and how new species arise.
- Darwin's ideas revolutionized the **understanding of life on Earth** and provided a comprehensive explanation for the diversity of species.

#### ➤ Key Elements:

- **Descent with Modification:** Darwin proposed that all species share common ancestors and that species **change gradually over time through a process called descent with modification**, meaning that new species arise from existing ones.
- **Natural Selection:** The central mechanism of Darwin's theory is **natural selection**. He observed that in every generation, more **offspring are produced** than can survive due to limited resources, leading to a struggle for survival.
- **Variation:** Within any population, there is **variation in traits among individuals**. Some of these variations are **heritable, meaning they can be passed down to offspring**.
- **Adaptation:** As natural selection acts on the variations in a population, individuals with traits that are **better suited to their environment become more successful** at surviving and reproducing.
- **Speciation:** Over long periods of time and **through the accumulation of gradual changes**, populations can become so different from each other that they can **no longer interbreed**. This leads to the **formation of new species**.

Note:



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**What is Computed Tomography (CT)?**

- It is a medical imaging technique that **uses X-rays and advanced computer processing** to create detailed **cross-sectional images of the body**.
- Like an X-ray, it shows **structures inside the body**. But instead of creating a flat, 2D image, a **CT scan takes dozens to hundreds of images** of the body.
- Healthcare providers use CT scans to see things that regular X-rays can't show.
  - For example, body structures overlap on regular X-rays and many things aren't visible.
  - A CT shows the details of each of the organs for a clearer and more precise view.

## Same-Sex Behavior in Rhesus Macaques

**Why in News?**

A recent study conducted by researchers from Imperial College London, titled *"Genetics, Social Environment and Evolution of Male Same-Sex Behavior in Rhesus Macaques,"* has challenged conventional beliefs about **same-sex behaviour (SSB)** in animals.

- The engagement of animals in SSB has been considered a '**Darwinian paradox**': if **reproduction is critical to evolution, then SSB – which is non-reproductive – should have ceased to exist**.
- This recent study found that **male SSB in rhesus macaques is very common** and doesn't harm evolution.

**What are the Key Findings from the Study?**

- **Male Same-Sex Behavior (SSB) in Monkeys:**
  - The study focuses on **male same-sex** mounting behaviour observed in **rhesus macaques, a common monkey model, in Cayo Santiago, an island east of Puerto Rico**.
    - 72% of observed male rhesus macaques engaged in same-sex mounting.
    - Only 46% participated in different-sex mounting.
  - It challenges the notion that SSB contradicts principles of evolution due to its non-reproductive nature.
- **Role of Non-Genetic Factors:**
  - The study considers external factors like **social interactions** and the environment.

- These non-genetic elements contribute to the expression of SSB behaviour in male rhesus macaques.
  - SSB-engaging monkeys form coalitions against common enemies.
  - Male SSB could serve as a form of emotional communication and regulation.

➤ **No Trade-off with Reproductive Fitness:**

- The study disputes the assumption that **SSB reduces reproductive opportunities**, as **sexually active males engage in both SSB and different-sex sexual behaviour (DSB)**.
- There is no direct correlation between SSB engagement and reduced offspring count in the macaque population.

➤ **Future Research:**

- Female SSB and other monkey species require further investigation to broaden understanding.
- The findings cannot be directly extrapolated to humans due to cultural and social influences.

## Genetic Diversity in the Indian Population

**Why in News?**

Recently, a study by Institute for Human Genetics, University of California, has found stark genetic differences between **people from different regions of the Indian subcontinent**.

**What is the Methodology of the Study?**

- The researchers collected **DNA (Deoxyribonucleic Acid)** from around 5,000 individuals, mainly people from across India, Pakistan, and Bangladesh. This cohort also contained DNA from some Malay, Tibetan, and other South-Asian communities.
- They performed **Whole-Genome Sequencing** to **identify all the instances** where the DNA either showed a change, was missing, or had additional base-pairs, or 'letters'.

**What are the Key Findings of the Study?**

- **Endogamous Practices:**
  - There is **little mixing between individuals from different communities in the Indian subcontinent**.

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- Endogamous practices, such as caste-based, region-based, and **consanguineous (Closed Relatives) marriages**, contributed to conserved **genetic patterns** at the community level.
  - In an ideal scenario, there would have been random mating in a population, leading to greater genetic diversity and lower frequency of variants, which are linked to disorders.
- **Regional Trend:**
  - Compared to a relatively outbred population, like that of **Taiwan**, the **South Asian cohort** – and within it, the South-Indian and Pakistani subgroups – showed a **higher frequency of homozygous genotypes**, possibly due to cultural factors.
    - Humans typically have **two copies of each gene**. When an individual has two copies of the same variant, it is called a Homozygous Genotype.
    - Most genetic variants linked to **major disorders are recessive in nature** and exert their effect only when present in two copies. (Having different variants – i.e. being heterozygous – is usually protective.)
  - The South-Indian and **Pakistani subgroups were estimated to have a high degree of inbreeding** while the Bengali subgroup showed **significantly lower inbreeding**.
    - Not only did the South Asian cohort have a higher number of variants that could disrupt the functioning of genes, there were also **unique variants that were not found in European individuals**.
- **Risk of Higher Frequency of Homozygous Variants :**
  - The presence of rare homozygous variants increased the risk of disorders like **cardiovascular diseases, diabetes, cancers**, and mental disorders.

### ***What are the Other Studies on Genetic Diversity?***

- In 2009, a study in Nature Genetics by the group of Kumarasamy Thangaraj, at the Centre for Cellular and Molecular Biology, Hyderabad, revealed that a small group of **Indians are prone to cardiac failure** at relatively young ages.
- The DNA of such individuals **lacked 25 base-pairs in a gene crucial for the rhythmic beating** of the heart (scientists call it a 25-base-pair deletion).

- This deletion was **unique to the Indian population** and, barring a few groups in Southeast Asia, was not found elsewhere.
- This **deletion arose around 30,000 years ago**, shortly after people began settling in the subcontinent, and **affects roughly 4% of the Indian population** today.
  - Identifying such genetic novelties **helps understand population-specific health risks** and vulnerabilities.

### ***What is the Significance of Such Studies on Genetic Diversity?***

- Studies have shown that specific genetic novelties are **linked to the health of India's populace**. Understanding these genetic variations **can lead to better interventions for major health concerns**.
- Conducting genetic studies within the country can protect **vulnerable communities from potential exploitation** by multinational companies and foreign research organizations.

### ***What is the Importance of a Detailed Map of the Indian Genome?***

- India's incredible diversity necessitates a **detailed Map of the Indian Genome** for various reasons, including economic, matrimonial, and geographical factors.
- Such a map can aid in **understanding the genetic basis of health disparities** and guide population health interventions.

## **LK-99: The Quest for a Room-Temperature Superconductor**

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

A group of South Korean scientists have recently claimed the **discovery of a material they named LK-99**. According to their reports, **LK-99 is a superconductor at room temperature and pressure**.

- This groundbreaking claim has piqued the interest of the scientific community and could potentially **revolutionize the world of electrical conductivity and technology**.

### ***What does the Claim on Discovery of LK-99 Suggest?***

- **Exploring Apatite Materials:** The South Korean group's discovery involved a rather unexpected material called **apatite**.

Note:



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- Apatites are minerals with a phosphate scaffold in a tetrahedral or pyramidal motif (one phosphorus atom is surrounded by four oxygen atoms).
- The scientists started with lead apatite and substituted some of the lead atoms with copper, **resulting in copper-substituted lead apatite, which they named LK-99.**
- **Evidence of Superconductivity:** The group reported that at **10% copper substitution, LK-99 exhibited the characteristics of a superconductor.**
- The material also maintained superconductivity in the presence of an external magnetic field, up to a certain critical threshold, a behavior consistent with known superconductors.
- **The Implications of LK-99:** If the claims of LK-99 being a room-temperature superconductor are confirmed, it could usher in a new era for electrical conductivity and technology.
- The widespread application of superconductors in everyday devices could lead to increased **energy efficiency, reduced power losses, and the development of revolutionary technologies.**

### What are Superconductors?

- **About:**
  - Superconductors are **materials that exhibit zero electrical resistance** when cooled to extremely low temperatures. This property allows them to **conduct electricity with no loss of energy.**
    - **Example:** Lanthanum-Barium-Copper Oxide, Yttrium-Barium-Copper Oxide, Niobium-Tin etc.
- **Discovery:**
  - In **1911 Kamerlingh Onnes** discovered that the electrical resistance of **mercury completely disappeared at temperatures a few degrees above absolute zero.**
    - The phenomenon became known as **superconductivity.**
- **Applications of Superconductors:**
  - **Energy Transmission:** Superconducting cables can transmit electricity without losses, making them ideal for long-distance power transmission.
  - **Magnetic Resonance Imaging (MRI):** Superconducting magnets are used in **MRI machines** to create strong and stable magnetic fields, enabling detailed medical imaging.

- **Particle Accelerators:** Superconducting magnets are crucial components in particle accelerators like the **Large Hadron Collider (LHC)**, allowing particles to reach high velocities.
- **Electric Motors and Generators:** Superconducting materials can enhance the efficiency and power density of electric motors and generators.
- **Maglev Trains:** Superconducting magnets enable **magnetic levitation (maglev) trains to float above tracks**, reducing friction and enabling high-speed travel.
- **Quantum Computing:** Some superconducting materials are being explored for their **potential in quantum computing** due to their ability to exhibit quantum states.

## Lymphatic Filariasis

### Why in News?

Recently, the Union Health Minister inaugurated the **second phase of the Annual Nationwide Mass Drug Administration (MDA) initiative for Lymphatic Filariasis.**

- **India aims to eliminate Lymphatic Filariasis by 2027**, three years ahead of the global target, through a mission-driven strategy.

### What is Lymphatic Filariasis?

- **About:**
  - Lymphatic filariasis, commonly known as **elephantiasis**, is a **neglected tropical disease** caused by **parasitic infection** which is transmitted through the **bite of infected mosquitoes.**
  - This impacts millions of individuals in tropical and subtropical regions across the globe.
- **Causes and Transmission:**
  - **Lymphatic filariasis** is caused by **infection with parasites classified as nematodes (roundworms)** of the family Filarioididea.
  - **There are 3 types of these thread-like filarial worms:**
    - **Wuchereria bancrofti**, which is responsible for 90% of the cases,
    - **Brugia malayi**, which causes most of the remainder of the cases,
    - **Brugia timori**, which also causes the disease.

Note:

### ➤ Symptoms:

- Lymphatic filariasis infection involves asymptomatic, acute, and chronic conditions.
  - In chronic conditions, it leads to **lymphoedema (tissue swelling) or elephantiasis (skin/tissue thickening) of limbs** and hydrocele (scrotal swelling).

### ➤ Treatment:

- The **World Health Organization (WHO)** recommends three drug treatments to accelerate the global elimination of lymphatic filariasis. The treatment, known as **IDA**, involves a combination of **ivermectin, diethylcarbamazine citrate and albendazole**.
  - The plan is to administer these drugs for two consecutive years. The **life of the adult worm is hardly four years, so it would die a natural death without causing any harm to the person.**

### ➤ Global Threat and Preventive Measures:

- Over **882 million people in 44 countries face the threat of lymphatic filariasis** and require preventive chemotherapy.
- Preventive measures involve **mass drug administration (MDA)** to the at-risk population using safe medicine combinations.
- More than **9 billion treatments have been administered since 2000 to halt infection spread.**

### ➤ Progress and Achievements:

- Successful MDA efforts have reduced transmission and infection prevalence.
- **740 million people no longer require preventive chemotherapy.**
- In 2018, 51 million people were infected, marking a 74% reduction since the initiation of global elimination efforts.

### ➤ Vector Control and WHO's Approach:

- Mosquito control, such as insecticide-treated nets and indoor residual spraying, supplements preventive chemotherapy.
- WHO's **Global Programme to Eliminate Lymphatic Filariasis (GPELF)** launched in 2000 with a mission to eradicate the disease.
  - GPELF aims to validate **elimination in 80% of endemic countries by achieving sustained low infection rates and providing care.**
  - The program strives for post-MDA surveillance in all endemic countries and ultimately reduces the population needing MDA to zero.

- The strategy focuses on stopping infection spread and providing essential care to affected individuals.

### **What are India's Initiatives for Lymphatic Filariasis Eradication?**

- Nationwide **Mass Drug Administration** campaigns administer preventive medicines in endemic areas.
- Collaboration with various stakeholders, sectors, and NGOs enhances the initiative's impact.
- **"Through Jan Bhagidaari and 'Whole of Government' and 'Whole of Society' approach, India shall be able to eliminate this disease from the country".**
- **Second phase of the MDA initiative targets 81 districts in 9 endemic states for targeted intervention. (Assam, Bihar, Chhattisgarh, Jharkhand, Karnataka, Maharashtra, Odisha, Telangana and Uttar Pradesh).**
- State-central collaborations enhance healthcare, surveillance, prevention, and treatment.
- Encouraging medication consumption in the presence of healthcare workers promotes adherence.

## **Cell-Free DNA**

### **Why in News?**

A notable advancement in medical science has emerged in recent years **through the discovery of cell-free Deoxyribonucleic Acid (cfDNA)**, carrying significant implications for **disease detection, diagnosis, and treatment.**

- cfDNA stands poised to reshape the entire landscape of medical science.

### **What is Cell-Free DNA (cfDNA)?**

#### ➤ About:

- cfDNA refers to **fragments of DNA that exist outside of cells**, specifically in various body fluids. Unlike the majority of **DNA which is enclosed within cells.**
- Scientists have been aware of **cfDNA since 1948, but only in the last two decades have they figured out what to do with it.**
- cfDNA is released into the **extracellular environment** under different circumstances, including **cell death or other cellular processes.**
- These cfDNA fragments contain **genetic information** and can offer insights into a person's health status, potential diseases, and genetic variations.

Note:



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➤ **Applications:**○ **Non-Invasive Prenatal Testing (NIPT):**

- Cell-free DNA serves as a valuable tool for **screening chromosomal abnormalities** in developing fetuses, such as **Down syndrome**.
- NIPT replaces invasive procedures such as amniocentesis, minimizing risks for both expectant mothers and fetuses.
- Analysis of **cfDNA in maternal blood** provides crucial information about the **fetus's genetic health**.

○ **Early Cancer Detection:**

- Identifying **cancers at their initial stages** for prompt treatment.
- The '**GEMINI**' test utilizes **cfDNA sequencing to detect lung cancer with high accuracy**.
- Combining cfDNA analysis with existing methods enhances overall cancer detection.

○ **Monitoring Organ Transplants:**

- Donor-derived cfDNA offers a promising approach to monitor the **health and acceptance of transplanted organs**.
- Fluctuations in cfDNA levels can **indicate organ rejection or acceptance** before other markers become evident.

- Early detection of rejection allows for timely intervention and improved outcomes in organ transplantation.

○ **Neurological Disorder Biomarkers:**

- Investigating cfDNA's potential as a **biomarker for neurological disorders**.
- Aiding in the **diagnosis and monitoring of conditions like Alzheimer's disease**, neuronal tumours, and stroke.

○ **Metabolic Disorder Insights:**

- Exploring cfDNA's role as a biomarker for metabolic disorders.
- Detection and management of conditions such as **type-2 diabetes** and **non-alcoholic fatty liver disease**.

○ **Advancing Disease Research:**

- Researchers use cfDNA analysis to study disease mechanisms, monitor treatment effectiveness, and gain insights into disease pathways.
- The versatility of cfDNA applications contributes to a deeper understanding of complex diseases and their underlying genetic factors.



Note:

# Environment & Ecology

## Highlights

- Mangroves in India
- International Tiger Day 2023: Indian Tiger Conservation
- Heat Waves and Heat Index
- India's Wind Energy Potential
- Small Modular Reactors for Decarbonization
- World Lion Day
- Addressing Air Pollution Through Technological Innovations
- Co-Firing Biomass Pellets in Thermal Power Plants
- 505-Million Year Old Jellyfish Fossils
- Carbon Capture and Storage
- Himalayan Vulture: Gyps Himalayensis
- Forest Cover in India: Progress and Initiatives
- Urban Flooding
- Plastic Overshoot Day

## Mangroves in India

### Why in News?

On the **International Day for the Conservation of the Mangrove Ecosystem**, West Bengal, which is home to **approximately 40% of India's mangrove forests**, unveiled plans to establish a dedicated '**Mangrove Cell**' to streamline mangrove management efforts.

### International Day for the Conservation of the Mangrove Ecosystem

- The **International Day for the Conservation of the Mangrove Ecosystem** is celebrated every year on **26 July** and aims to raise awareness of the importance of mangrove ecosystems as "**a unique, special and vulnerable ecosystem**" and to promote solutions for their sustainable management, conservation and uses.
- This International Day was adopted by the General Conference of the **UN Educational, Scientific and Cultural Organization (UNESCO)** in 2015.

### What is the Status of Mangroves in India?

- **About:**
  - Mangroves are a unique type of coastal ecosystem found in **tropical and subtropical regions**. They are dense forests of salt-tolerant trees and shrubs

that thrive in **intertidal zones**, where land meets the sea.

- These ecosystems are characterized by their ability to withstand harsh conditions, such as **saline water, tidal fluctuations, and muddy, oxygen-poor soils**.

### Characteristics:

- **Mangroves exhibit Viviparity mode of reproduction**, where seeds germinate within the tree before falling to the ground. This is an adaptive mechanism to overcome the challenge of germination in saline water.
- Some mangrove species **secrete excess salt through their leaves**, while others block the absorption of salt at their roots.
- **Mangrove plants have special roots like prop roots and pneumatophores**, which help impede water flow and provide support in the challenging tidal environment.

### Mangrove Cover in India:

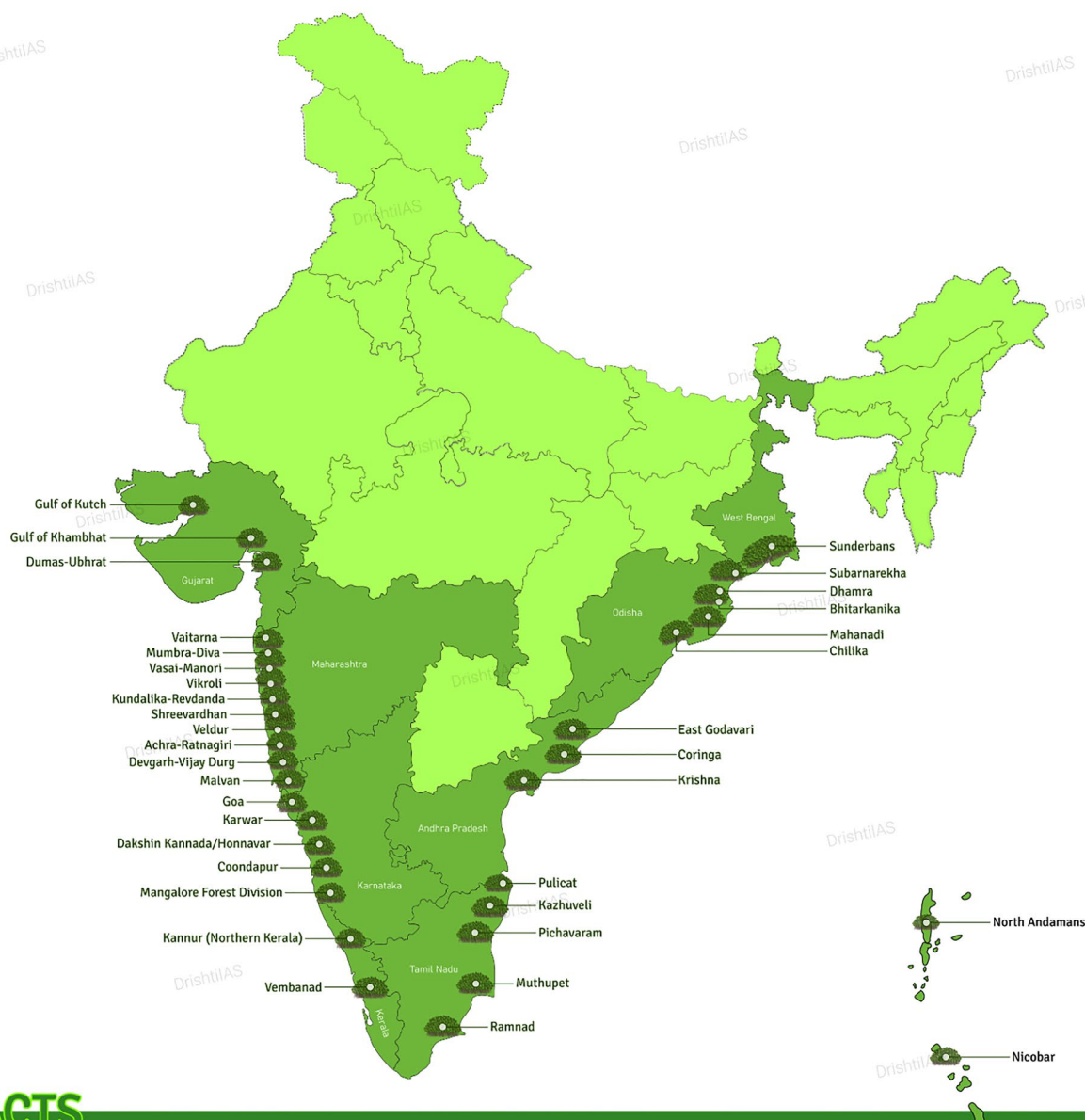
- According to the **Indian State Forest Report 2021**, Mangrove cover in India is 4992 sq. Km which is **0.15% of the country's total geographical area**.
- **Sundarbans** in West Bengal are the largest mangrove forest regions in the world. It is listed as a **UNESCO World Heritage Site**.
- Besides the Sundarbans, the Andamans region, the Kachchh and Jamnagar areas in Gujarat too have substantial mangrove cover.

Note:



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# MANGROVES IN INDIA



## FACTS

- \* UNESCO observes July 26 as the International Day for the Conservation of the Mangrove Ecosystem.
- \* As per ISFR 2021, the mangrove cover in India is 4,992 sq km, which is 0.15% of the country's total geographical area.
- \* West Bengal>Gujarat>A&N Islands>Andhra Pradesh>Maharashtra, have the largest Mangrove cover in India (ISFR 2021).
- \* In India, mangroves are protected by the Environmental (Protection) Act 1986 and Coastal Zone Regulations.
- \* Sunderbans, a UNESCO World Heritage Site, is the world's largest single patch of Mangrove Forests.
- \* Sundarbans is the first Mangrove forest in the world, which was brought under scientific management, as early as in 1892.
- \* The emergence of shrimp farms is responsible for at least 35% of the overall loss of mangrove forests.



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Note:



➤ **Significance:**

- **Biodiversity Conservation:** Mangroves provide a unique habitat for a wide variety of plant and animal species, serving as **breeding, nursery, and feeding grounds** for numerous marine and terrestrial organisms.

- For example, sundarban hosts the **Royal Bengal tiger, Irrawady Dolphin, Rhesus macaque, Leopard cats, Small Indian civet.**
- **Coastal Protection:** Mangroves act as **natural buffers** against **coastal erosion, storm surges, and tsunamis.**

# MANGROVES

*\*Diverse group of salt-tolerant plant communities found in the (tropical/subtropical) coastal intertidal zone\**

## CHARACTERISTICS

- Survive under **hostile environments** (high salt, low oxygen)
- Their roots (**pneumatophores**) absorb oxygen from atmosphere
- Thick **succulent leaves** to store fresh water

## MANGROVE COVER

- **Global:** Asia > Africa > North and Central America > S America
- **India (ISFR 2021):** West Bengal > Gujarat > A&N Islands > Andhra Pradesh > Maharashtra

**Sunderbans - World's largest single patch of Mangrove forests**

## SIGNIFICANCE

- **Stabilise the coastline** and reduce soil erosion
- Protection against **cyclones**
- **Improve water quality** by absorbing nutrients
- Important **carbon sink**

## THREATS

- **Commercialisation** of coastal areas
- Emergence of **shrimp farms**
- **Temperature fluctuations** (Mangroves can't survive freezing temperatures)

## CONSERVATION MEASURES

### Global

- Inclusion of Mangroves in Biosphere Reserves and UNESCO Global Geoparks
- Mangroves for the Future Initiative (IUCN & UNDP)
- Mangrove Alliance for Climate (UNFCCC COP27)

### India

- National Mangrove Committee (1976)
- Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) (Union Budget 2023-24)

International Day for Conservation of the Mangrove Ecosystem - July 26 (UNESCO)



Note:



- Their dense root systems and tangled network of prop roots stabilize shorelines and reduce the impact of waves and currents.
- During hurricanes and cyclones, **mangroves can absorb and dissipate a significant amount of energy**, protecting inland areas and human settlements from devastating damage.
- **Carbon Sequestration:** Mangroves are **highly efficient carbon sinks**, sequestering large amounts of carbon dioxide from the atmosphere and storing it in their biomass and sediments.
- **Fisheries and Livelihoods:** Mangroves support fisheries by providing **nursery areas for fish and shellfish**, enhancing fishery productivity and contributing to livelihood and local food security.
- **Water Quality Improvement:** Mangroves act as **natural filters**, trapping and removing **pollutants and excess nutrients** from coastal waters before they reach the open ocean.
  - Their role in purifying water contributes to the **health of marine ecosystems** and helps maintain the balance of fragile coastal ecosystems.
- **Tourism and Recreation:** Mangroves offer recreational opportunities such as **eco-tourism, birdwatching, kayaking, and nature-based activities**, which can promote sustainable economic growth for local communities.
- **Challenges:**
  - **Habitat Destruction and Fragmentation:** Mangroves are often cleared for various purposes, including **agriculture, urbanization, aquaculture, and infrastructure development**.
    - Such activities lead to the fragmentation and loss of mangrove habitats, disrupting their ecosystem functioning and biodiversity.
    - The **conversion of mangroves into shrimp farms** and other commercial uses is a significant concern.
  - **Climate Change and Sea Level Rise:** Rising sea levels due to climate change pose a significant threat to mangroves.
    - Climate change also brings about extreme weather events, such as cyclones and storms,

which can cause **severe damage to mangrove forests**.

- **Pollution and Contamination:** Pollution from **agricultural runoff, industrial discharges, and improper waste disposal** contaminate mangrove habitats.
  - **Heavy metals, plastics, and other pollutants** adversely affect the flora and fauna of these ecosystems.
- **Lack of Integrated Management:** Often, mangroves are managed in isolation, without considering their interconnectedness with adjacent ecosystems like **coral reefs and seagrass beds**.
  - Integrated management approaches that consider the **broader coastal ecosystem** are necessary for effective conservation.
- **Government Initiatives Related to Mangrove Conservation:**
  - **MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes)**
  - **Sustainable Aquaculture In Mangrove Ecosystem (SAIME) initiative**

## International Tiger Day 2023: Indian Tiger Conservation

### Why in News?

Recently, on **International Tiger Day 2023**, two significant reports have brought attention to the state of **tiger conservation in India** and the **challenges it faces**.

- The **Management Effectiveness Evaluation (MEE) of tiger reserves in India, 2022 (Fifth Cycle)** report for **Indian tiger reserves** prepared by the **Wildlife Institute of India** and the **National Tiger Conservation Authority** revealed a mixed picture of **progress and challenges**.
- On the other hand, a study by **Panthera**, the **global wild cat conservation organization**, and the **Chinese Academy of Sciences** highlights the **alarming situation of tiger poaching and trafficking in Bangladesh**.
- Concerns are emerging as **India's wild tiger population has increased to a healthy 3,167 in 2022 from just 1,400 in 2006**, prompting discussions about the nation's forest capacity to sustain these numbers.

Note:

**What is International Tiger Day 2023?**

- 29th July is observed as **International Tiger Day (ITD)** to promote the conservation of the striped cat as well as to advocate a global system for protecting its natural habitats.
- ITD was established in **2010 at St Petersburg Tiger Summit in Russia** to raise awareness about the decline of wild tiger numbers, leaving them on the brink of extinction, and to encourage the work of Tiger Conservation.

# TIGER

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

## Subspecies of Tiger

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

## Habitat

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

## Countries Where Tiger Population Is Found

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

## Protection Status

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

## Threats

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

## Conservation Efforts

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

## Tigers In India

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



# 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 Srisaileam (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).



### What are the Key

### Highlights of the MEE Report?

- **Overall Management Performance Improvements:**
  - The report evaluated **51 tiger reserves** using **33 parameters** for the analysis.

- The results were divided into **four groups based on the percentage** of the maximum score. Among the Tiger Reserves, **12 achieved the 'Excellent' category** (scoring  $\geq 90\%$ ), **21 were classified as 'Very Good'** (scoring 75-89%), **13 as 'Good'** (scoring 60-74%), and **5 as 'Fair'** (scoring 50-59%) categories.

Note:



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- The mean score for management performance in tiger reserves indicates an **overall mean score of 78.01% (ranging between 50% to 94%)** for 51 Tiger Reserves.
- **Climate Action Identified as Weakest Area:**
  - The report identifies **climate change and carbon capture** efforts as the **weakest performing area** for Indian tiger reserves, receiving the lowest **score of 60% in the current cycle**.
  - Climate change poses a major concern for tiger reserves, particularly those affected by **high-intensity climatic impacts like the Sundarbans**.
- **Fund Flow Hinders Conservation Efforts:**
  - **Inadequate funds** from the Union and state governments, as well as other donors, pose significant challenges for tiger reserve management.
  - Three parameters related to fund flow rank among the five poorest performing areas in tiger reserves.
  - Actual fund allocation for **tiger conservation has decreased since 2018-19, with a surge in 2022-23 but limited actual fund release**.
    - Complex requisition and release processes have further slowed down the fund flow, causing delays in conservation efforts.
  - Lack of funds **affects infrastructure maintenance, village relocation, and human-wildlife conflict management**.
- **Resilience in Landscape Integration and Human-Wildlife Conflicts:**
  - Landscape integration and countering human-wildlife conflicts were found to be the **better-performing indicators, scoring over 85% marks**.
- **Top-Performing and Poorly Performing Reserves:**
  - **Periyar Tiger Reserve in Kerala** stands out as the **best performer with a MEE score of around 94%** followed by **Satpura in Madhya Pradesh** and **Bandipur in Karnataka**.
  - **Sundarbans in West Bengal**, the only tiger forest in the world with mangroves, continued to be in the **'very good' category and got a rank position of 32nd**.
  - **Dampa in Mizoram** is identified as the **poorest performing tiger reserve with only 50%** followed by **Indravati in Chhattisgarh** and **Nameri in Assam**.
  - Overall, **29 tiger reserves have improved their status** compared to the previous assessment, while two reserves deteriorated.

#### ➤ Significance of MEE:

- The report has been prepared based on a detailed analysis involving top-notch Indian wildlife experts and follows a framework by the **International Union for Conservation of Nature's World Commission on Protected Areas**.
  - It identifies gaps in conservation efforts and helps adopt more effective strategies for the long-term survival of tigers.

#### *What are the Key Highlights of Research Conducted by Panthera?*

- The study conducted by Panthera highlighted **Bangladesh as a major hub for the illicit poaching and trafficking of endangered tigers**.
- It identified a **growing class of Bangladeshi elite** both within the country and abroad, driving the **demand for tiger parts for medicinal, spiritual, and ornamental purposes**.
- The research revealed that tiger parts from Bangladesh were being supplied to **15 countries, including India, China, and Malaysia**, as well as developed **G20 nations like the United Kingdom, Germany, Australia, and Japan**.
- The **Sundarbans**, a vital tiger habitat in Bangladesh, witnessed infiltration by **pirate groups involved in tiger poaching**, leading to a significant decline in the tiger population.
- The study identified four source sites for tiger poaching, including the **Sundarbans in India and Bangladesh, Kaziranga-Garampani Parks in India, Myanmar's Northern Forest Complex, and Namdapha-Royal Manas Parks in India**.
- Traders involved in tiger trafficking concealed illegally sourced tiger parts easily by owning logistics companies and holding licenses for legal wildlife trade.
- The research suggested a problem-oriented approach by the Bangladesh government, targeting specific players, trade routes, and poaching issues.

#### *What are the Concerns about India's Forest Capacity Reaching its Limit to Support Tigers?*

- **Roaming Outside Protected Areas:** Almost **30% of the tiger population roams outside protected areas** and regularly **enters human habitations**, leading to human-tiger conflicts.

Note:



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- With the increasing tiger population, questions arise about whether India's forests are nearing their carrying capacity to sustain these apex predators.
- **Shrinking Tiger Corridors:** The construction of **linear infrastructure, such as railway lines, highways, and canals**, has resulted in the **shrinking of tiger corridors**, essential patches that connect two large forest areas.
- **Foraging into Human-Dominated Landscapes:** Tigers are believed to **leave forests in search of herbivores** that increasingly venture into human-dominated landscapes. This behavior is driven by the takeover of **natural flora by invasive species like lantana**, which **disrupts the natural ecosystem** and forces herbivores to seek food in areas inhabited by humans.
- **Inequitable Population Distribution:** While India has 53 tiger reserves spread over 75,000 sq km, just 20 reserves cover one-third of the area for tiger conservation, leading to inequitable population distribution.

## Heat Waves and Heat Index

### Why in News?

India has witnessed a **significant decline in heat-related deaths** in recent years, reflecting the country's efforts to combat the adverse effects of **heatwaves**.

- The **India Meteorological Department (IMD)** plays a vital role in this endeavor, issuing timely forecasts and warnings to mitigate the impact of severe weather events, including heatwaves.
- Recently, **IMD introduced the Heat Index**, a valuable tool that considers **humidity's influence on temperatures**.

### What are Heat Waves?

- **About:**
  - Heat waves are **prolonged periods of excessively hot weather that can cause adverse impacts on human health, the environment, and the economy**.
  - India, being a tropical country, is **particularly vulnerable to heat waves**, which have become more frequent and intense in recent years.
  - **IMD Criteria for Declaring Heat Wave in India:**
    - Heat wave is **considered if the maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions**.

### ■ Based on Departure from Normal:

- ◆ Heat Wave: Departure from **normal is 4.5°C to 6.4°C**.
- ◆ Severe Heat Wave: Departure from **normal is >6.4°C**.

### ■ Based on Actual Maximum Temperature:

- ◆ Heat Wave: When actual **maximum temperature  $\geq 45^\circ\text{C}$** .
- ◆ Severe Heat Wave: When actual **maximum temperature  $\geq 47^\circ\text{C}$** .

### ➤ IMD's Initiatives and Tools to Combat Heat Waves:

- Timely issuance of heat wave forecasts to keep the public informed.
- Warnings provided to disaster management authorities for necessary preparedness.
- IMD offers Seasonal outlook and extended range forecast offering additional insights into temperature trends.
- Daily forecasts for the next five days with real-time updates.
- **Color-coded warnings** for severe weather events, including heat waves.
- Cooperation with **National Disaster Management Authority (NDMA)** and local health departments for heat action plans.
- Implementation of plans in vulnerable regions to minimize heat-related risks.

Heat wave Scenario		40°C	30°C
Maximum Temperature		Plains	Hills
Heat wave conditions prevail when...		Severe heat wave conditions prevail when....	
Normal maximum temperature	Deviation from normal	Normal maximum temperature	Deviation from normal
Above	4-5°C or more	Above	6°C or more
At or below	5-6°C or more	At or below	7°C or more
40°C		40°C	
40°C		40°C	

### What is Heat Index?

- **About:**
  - The Heat Index is a parameter that considers **both temperature and humidity to calculate the apparent temperature or "feel like" temperature for human beings**.

Note:

- It helps in understanding the **impact of humidity on high temperatures** and how it contributes to human discomfort during hot weather.
- The Heat Index has been launched on an **experimental basis by the Indian Meteorological Department (IMD)**.
- It aims to provide general guidance for regions experiencing higher apparent temperatures causing discomfort to people.
- **Indication of Heat Stress:**
  - High Heat Index values indicate a **greater risk of heat-related stress and health issues**.
  - It serves as a warning for potential heat-related illnesses and dangers.
- **Categorization of Heat Levels:**
  - The Heat Index categorizes the apparent temperature into different levels using color codes:
    - **Green:** Experimental heat Index **less than 35°C**.
    - **Yellow:** Experimental heat Index in the **range 36-45°C**.
    - **Orange:** Experimental heat Index in the **range 46-55°C**.
    - **Red:** Experimental heat Index **greater than 55°C**.
- **Useful Tool for Public Health:**
  - By understanding the Heat Index, individuals and communities can take **proactive steps to protect public health** during heatwaves.
  - It assists in **making informed decisions** and formulating heat action plans to ensure the well-being of the population.

## India's Wind Energy Potential

### Why in News?

Recently, the Ministry of New and Renewable Energy unveiled noteworthy insights into **India's wind energy potential**. This revelation sheds light on **key states with the highest wind power potential** and emphasizes the nation's dedication to sustainable energy practices.

- Additionally, the Ministry outlined innovative strategies aimed at enhancing wind power utilization and ensuring eco-friendly practices in the sector.

### What is the Wind Power Potential in India?

- India ranks **4<sup>th</sup> globally** after China, the United States

and Germany, in terms of installed wind energy capacity, with **42.8 GW (onshore wind)** as of April 2023.

- Wind resource assessment by the **National Institute of Wind Energy** reveals an estimated wind **power potential of approximately 695.5 GW at 120 meters** and **1,164 GW at 150 meters** above ground level across the nation.
- **Best Performing States:**
  - **Wind Power Potential (in GW) at 120 m Above Ground Level:**
    - Gujarat (142.56), Rajasthan (127.75), Karnataka (124.15), Maharashtra (98.21), and Andhra Pradesh (74.90).
  - **Wind Power Potential (in GW) at 150 m Above Ground Level:**
    - Rajasthan (284.25), Gujarat (180.79), Maharashtra (173.86), Karnataka (169.25), and Andhra Pradesh (123.33).

### What are the Government Initiatives for Wind Energy Development?

- **Policy for Repowering of the Wind Power Projects, 2016:**
  - This policy incentivizes wind power project repowering by providing an **additional interest rate rebate of 0.25% over existing rebates for new wind projects** financed by the **Indian Renewable Energy Development Agency (IREDA)**.
- **Guidelines for Disposal of Fiber Reinforced Plastic (FRP):**
  - The **Central Pollution Control Board (CPCB)** issued specific guidelines for the proper disposal of FRP, including Sheet Moulding Compound (SMC), **used in wind turbine blades**. These guidelines ensure environmentally responsible waste management.
- **National Wind-Solar Hybrid Policy, 2018:**
  - The main objective is to provide a **framework for promotion of large grid connected wind-solar PV hybrid systems** for optimal and efficient utilization of wind and solar resources, transmission infrastructure and land.
- **National Offshore Wind Energy Policy:**
  - Objective is to develop offshore wind energy in the Indian **Exclusive Economic Zone (EEZ)** along the Indian coastline of 7600 km.

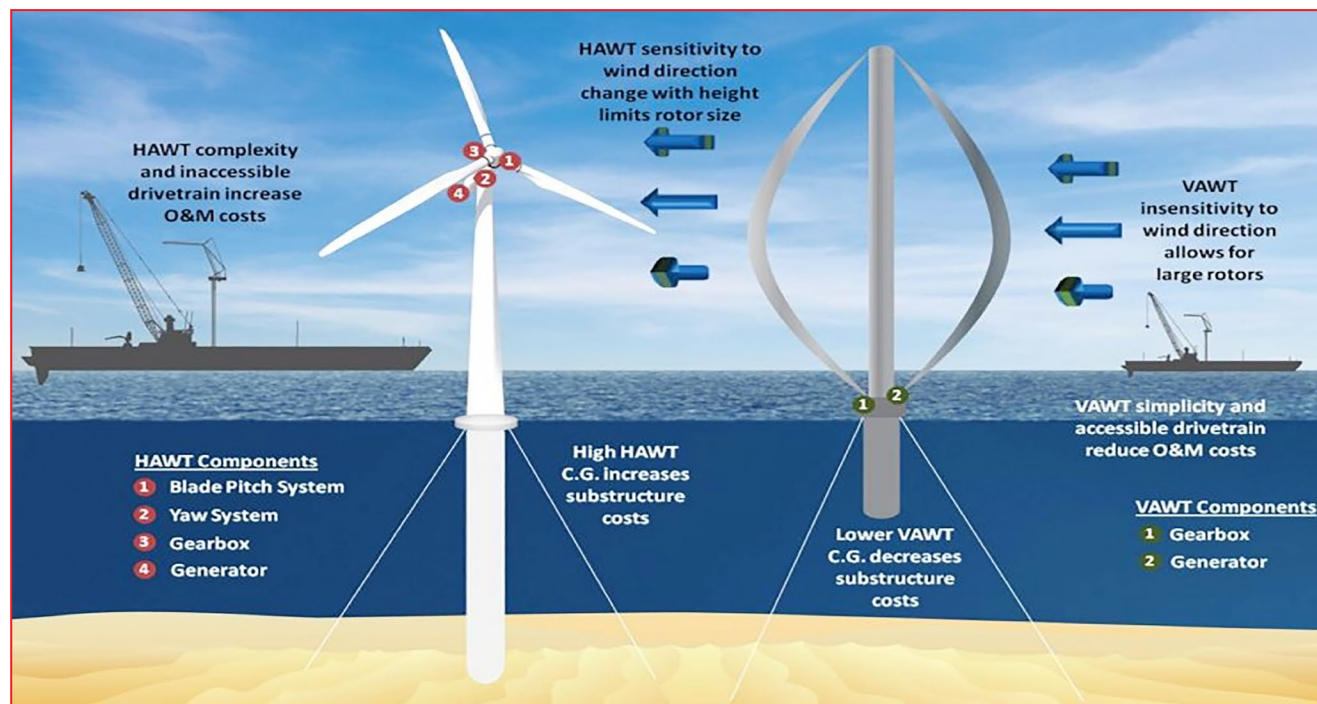
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## Different Types of Turbine Used in the Wind Power:

Aspect	Vertical-Axis Wind Turbines (VAWT)	Horizontal-Axis Wind Turbines (HAWT)
<b>Blade Orientation</b>	Blades are vertical and perpendicular to the ground.	Blades are horizontal and parallel to the ground.
<b>Blade Configuration</b>	Blades are attached to the top and bottom of a vertical rotor.	Blades are like airplane propellers, extending outward.
<b>Common Type</b>	Darrieus wind turbine is a well-known design.	Three-bladed turbines are the most common type.
<b>Performance</b>	Generally less efficient compared to HAWT.	Typically more efficient in converting wind energy.
<b>Electricity Generation</b>	Typically lower electricity generation capacity.	Higher electricity generation capacity.
<b>Application</b>	Limited use due to lower performance.	Widely used in the wind energy industry.
<b>Wind Direction Sensitivity</b>	Less sensitive to wind direction due to omnidirectional rotation.	Needs to adjust to wind direction for optimal efficiency.



Note:

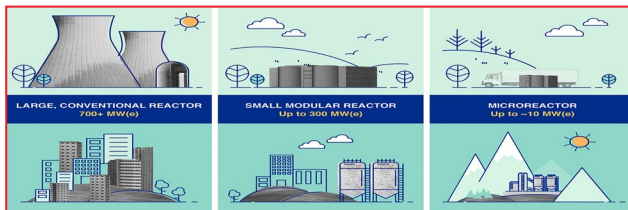


## Small Modular Reactors for Decarbonization

### Why in News?

The rise in coal consumption despite increased solar and wind power underlines the need for Low-Carbon Electricity Resources such as **Small Modular Reactors (SMRs)** to ensure Deep **Decarbonization**.

- Conventional **NPPs (Nuclear Power Plants)** have generally suffered from **time and cost overruns**. As an alternative, several countries are developing (SMRs) – nuclear reactors with a maximum capacity of **300 MW** – to complement conventional NPPs.



### What is Decarbonization?

- **About:**
  - Decarbonization refers to the process of reducing the **Carbon Dioxide (CO<sub>2</sub>) Emissions** produced by human activities, particularly those related to the burning of fossil fuels such as **Coal, Oil, and Natural gas**.
- **Need:**
  - The global pursuit of decarbonization aligns with the **UN Sustainable Development Goal 7**, which emphasizes **affordable and sustainable energy access**.
    - However, the world's heavy reliance on fossil fuels, **constituting 82% of energy supply**, necessitates the urgent decarbonization of the power sector.
  - The rise in coal consumption in Europe despite increased solar and **Wind Power** underlines the need for reliable low-carbon electricity resources to ensure deep decarbonization, grid stability, and energy security.
- **Challenges of Decarbonization:**
  - **Clean Energy Transition Challenges:** The shift from **coal to clean energy** is a complex challenge

globally. Several nations concur that relying solely on solar and wind energy would not suffice **reliable and affordable energy** access for all.

- In decarbonized power systems dominated by renewables, introducing at least one **stable power source enhances grid reliability and reduces expenses**, contributing to a balanced energy mix.
- **Critical Minerals Demand and Complexities:** The **International Energy Agency (IEA)** predicts a potential 3.5x surge in demand for **critical minerals** like **lithium, nickel, cobalt**, and **Rare Earth Elements** by 2030, essential for clean energy technologies.
  - However, this demand **escalation raises multiple global issues**, including the large capital investments to develop new mines and processing facilities.
- **Challenges in the Mineral Supply Chain:** Rapid development in countries like **China, Indonesia, Africa, and South America**, coupled with concentration of mineral extraction and processing capacities, presents **environmental, social, geopolitical**, and supply risks.
  - Addressing these challenges becomes critical for sustainable clean energy advancement.

### What are Small Modular Reactors (SRMs)?

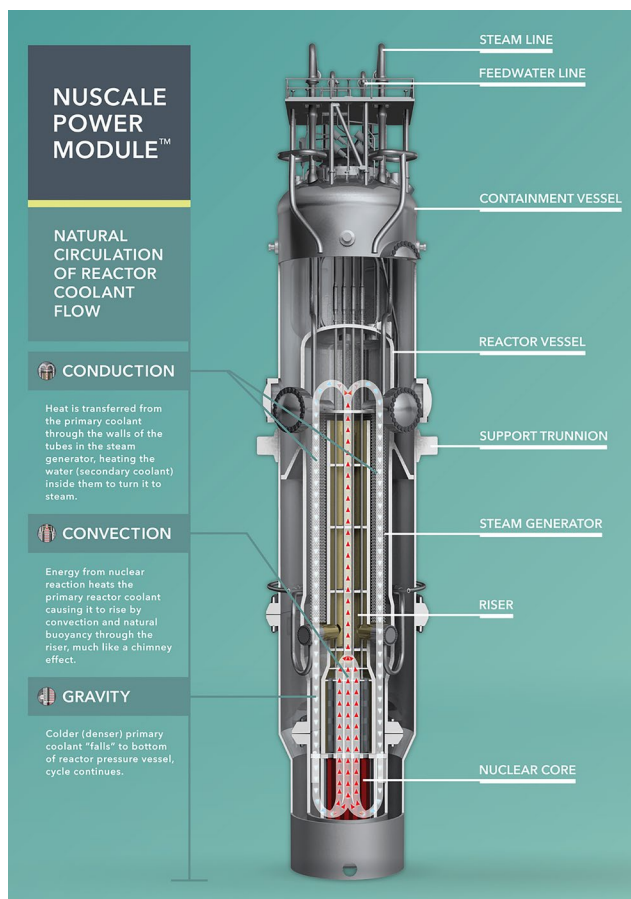
- **About:**
  - SMRs are **advanced nuclear reactors** that have a power capacity of up to **300 MW(e) per unit**, which is about one-third of the generating capacity of traditional **nuclear power reactors**.
  - SMRs, which can produce a large amount of low-carbon electricity, are,
    - **Small:** Physically a fraction of the size of a conventional nuclear power reactor.
    - **Modular:** Making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
    - **Reactors:** Harnessing nuclear fission to generate heat to produce energy.
  - Their designs incorporate **enhanced safety features**, reducing the risk of uncontrolled radioactive material release.
    - SMRs are designed to operate for **40-60 years** with **capacity factors exceeding 90%**.

Note:



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#### ➤ Advantages:

##### ○ Reliable Low-carbon Electricity Source:

- As the demand for electricity is projected to surge by **80-150% by 2050**, SMRs could provide a **reliable 24/7 low-carbon electricity** source that complements intermittent renewables.
- This is crucial for achieving **grid reliability and reducing costs in decarbonized** electricity systems.

##### ○ Minimized Land Acquisition Challenges:

- SMRs generate less spent nuclear fuel and can be safely operated in existing brownfield sites, minimizing land acquisition challenges.
- SMRs are also simpler to design and manufacture, with potential for cost reduction through serial manufacturing.

##### ○ Alternatives to Critical Minerals:

- The transition to clean energy requires **Critical Minerals** for technologies like **lithium-ion batteries**, leading to concerns about geopolitical risks and environmental impacts.

- SMRs offer an alternative, as they require **low-enriched uranium**, which is more widely distributed than critical minerals.
- **Integration with India's Energy Strategy:**
  - For India, which aims to achieve net-zero emissions by 2070, SMRs can play a pivotal role. As coal-based thermal power plants and variable renewable energy sources **contribute significantly to the energy mix**, SMRs can enhance energy security and grid stability.
  - India's **Central Electricity Authority** envisions SMRs as a crucial element in meeting electricity demands, while private sector investments, including public-private partnerships, are vital for expansion.

#### **How can Low-Carbon Electricity Resources be Promoted for Decarbonization?**

- An efficient regulatory regime comparable to that in the civil aviation sector – which has more stringent safety requirements – is important if **SMRs are to play a meaningful role in decarbonising** the power sector.
- This can be achieved if all countries that accept nuclear energy **direct their respective regulators to cooperate amongst themselves** and with the **International Atomic Energy Agency (IAEA)** to harmonize their regulatory requirements and expedite statutory approvals for SMRs based on standard, universal designs.
- To facilitate SMR deployment, India needs to amend the **Atomic Energy Act, 1962** to allow private sector involvement.
- While maintaining government control over nuclear fuel and waste, an independent regulatory board should oversee the entire nuclear power cycle.
- The **India-US '123 agreement'** provides opportunities for India to reprocess spent fuel from SMRs under IAEA safeguards, contributing to resource sustainability.
  - It also permits India to set up a facility to reprocess spent fuel from SMRs under safeguards of the IAEA.

## **World Lion Day**

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

**World Lion Day** is celebrated every year on **August 10** to raise awareness about the conservation of lions and their habitats. It was first established in **2013** by Big

Note:

**Cat Rescue**, the world's largest accredited sanctuary dedicated to lions.

- Recent studies have revealed that **lions were once present in the Arabian Peninsula**, significantly influencing Arab culture.

- It is noted that **Arabic dialects and literature contain an extensive array of almost 700 distinct names or expressions** referring to the lion.

What does the Recent Research Suggest?

- **Lions**, often associated with the vast **savannas of East and Southern Africa**, and the **Gir forest in Kathiawar, India** but they were **once an integral part of the deserts of the Arabian Peninsula**.

- The evidence of the lion's presence, though now extinct, resounds through historical accounts, archaeological findings, and linguistic nuances.

- Research reveals that lions occupied a vast and diverse range spanning the **Arabian Peninsula, North Africa, Eurasia, and parts of India**.

- The **lion's habitat extended from latitudes as far south as 15°N (Yemen) to 18°N (Mali, Chad)** and as far north as **45-48°N (Bulgaria, Ukraine, Hungary)**.

- It is noteworthy that lions thrived in various environments, including **deserts, steppes, and maritime coasts**.

- Lions exhibited remarkable adaptability, dwelling in the arid deserts of the Arabian Peninsula, including Sinai, Sahara, and Yemen.

- This presence is supported by **Neolithic rock engravings** found in Saudi Arabia and Oman.

- By the early **20th century, evidence of the lion's presence had faded**. Observations in 1920 showed no records of lions in **Afghanistan, Balochistan, or southern Arabia**.

#### What are the Major Facts About Lions?

- **Scientific Name:** *Panthera leo*

- The lion is divided into two subspecies: the **African lion (*Panthera leo leo*)** and the **Asiatic lion (*Panthera leo persica*)**.

- **Characteristics:**

- Lions are known for their **distinctive appearance**, including a tawny coat, a tufted tail, and a prominent mane in males.
- They are social animals and **live in groups called prides**. A pride typically consists of multiple females, their offspring, and a few adult males.

#### ➤ Distribution and Habitat:

- Lions are found in **sub-Saharan Africa** and a small population exists in the **Gir Forest National Park** in the Indian state of Gujarat.

#### ➤ Protection Status:

- **IUCN Red List:**

- **African Lion: Vulnerable (Globally)**
- **Asiatic Lion: Endangered.**

- **CITES:** Appendix I for populations of India, all other populations are included in Appendix II.

- **Wildlife (Protection) Act 1972:** Schedule I

#### ➤ Conservation Efforts in India:

- **Project Lion**
- **Asiatic Lion Conservation Project**

## Addressing Air Pollution Through Technological Innovations

### Why in News?

Recently, the **Minister of Environment, Forest and Climate Change** provided valuable insights into the projects related to deploying various **technologies to address Air Pollution in India** during a written reply in the Lok Sabha.

#### What is Air Pollution?

- Air pollution refers to the **contamination of the Earth's atmosphere** by harmful substances beyond their natural levels, due to human activities and natural processes.
- It originates from sources like **industrial emissions, vehicle exhaust, agricultural practices, and natural events**, and it can have wide-ranging negative effects on **air quality, human well-being, ecosystems, and the overall health of the planet**.
- **Common air pollutants include: PM2.5, PM10, Nitrogen Dioxide (NO<sub>2</sub>) and Nitric Oxides (NO<sub>x</sub>), Sulfur Dioxide (SO<sub>2</sub>), Carbon Monoxide (CO) etc.**

### What are Various Technology

#### Based Projects Deployed to Curb Air Pollution?

- **Pariyantra Filtration Units on Buses:** A pilot study was initiated where **30 buses were retrofitted with Pariyantra Filtration** units installed on their rooftops.

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- These units were designed to **effectively capture dust particles (through filters fitted on vehicles) from the surrounding environment**, thereby minimizing the contribution of vehicular movement to air pollution levels.
- **It does not require any power to operate** and is equivalent to the filtration provided by 6 room air filters.
- **WAYU Air Purification Units at Traffic Intersections:** A total of **54 WAYU Air Purification Units** were strategically installed at **major traffic intersections in Delhi**.
  - These units, designed to **purify the air in the immediate vicinity**, played a crucial role in reducing the impact of vehicular emissions on air quality.
  - The WAYU units acted as **localized air purifiers**, offering a potential solution to combat the adverse effects of traffic-related pollution.
- **Ionisation Technology for Ambient Air Pollution Reduction:** This technology aimed to **neutralize pollutants through ionization processes**, thereby enhancing air quality in the target areas.
  - The study evaluated the **feasibility and impact of ionization technology**, potentially opening new avenues for pollution reduction.
- **Installation of Medium/Large-Scale Smog Towers:** These towers, acting as **substantial air purifiers**, targeted the **reduction of particulate matter and pollutants on a broader scale**.
- **Retrofitting Emission Control Devices in In-Use Vehicles:** Older vehicles, especially those adhering to **older emission standards like BS III**, contribute substantially to air pollution.
  - A pilot project was undertaken to **assess the feasibility and effectiveness of retrofitting emission control devices** in such vehicles.
    - The project aimed to provide recommendations for emission reduction from these vehicles, aligning with broader efforts to improve air quality.
- **Indigenous Photonic System for Air Quality Monitoring:** A project by the **Department of Science and Technology (DST)** focused on developing an **indigenous photonic system** for real-time remote monitoring of air quality parameters.
  - This initiative aimed to **enhance the accuracy and accessibility of air quality data**, enabling more

informed decision-making in pollution management strategies.

- **Advancements in Electric Vehicle (EV) Autonomous Technology:** An autonomous navigation foundation focused on EV-based autonomous vehicles was established under the **DST National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS)**.
  - The integration of autonomous technology in EVs presents an opportunity to **optimize driving patterns, reduce traffic congestion, and subsequently lower greenhouse gas emissions**.

#### ***What are the Other Government Initiatives to Curb Air Pollution?***

- **Graded Response Action Plan (Delhi)**
- **National Clean Air Programme (NCAP)**
- **BS-VI vehicles**
- **Air Quality and Weather Forecasting and Research (SAFAR)**
- **Dashboard for Monitoring Air Quality**
- **National Air Quality Index (AQI)**

## **Co-Firing Biomass Pellets in Thermal Power Plants**

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

Recently, the Union Minister for Power and New & Renewable Energy provided valuable insights into the **Revised Biomass Policy** and **47 Thermal Power Plants** that have successfully incorporated the **co-firing of coal with biomass pellets** derived from agro residues during a written reply in the Rajya Sabha.

- According to **Ministry of Power**, approximately **1,64,976 Metric Tonnes** of agri residues-based biomass has been co-fired in 47 coal based thermal power plants till May 2023

### ***What is the Revised Biomass Policy?***

- **About:**
  - The Ministry of Power and Ministry of New & Renewable Energy (MNRE) have taken significant steps towards **integrating agro residue-based biomass pellets into the operations of Thermal Power Plants (TPPs)**.

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- This marks a crucial step towards **transitioning the energy sector to a more sustainable and environmentally friendly** direction.
- **Revised Policy:**
  - On June 16, 2023, the **Ministry of Power** issued a modification to the **biomass policy dated October 8, 2021**.
    - The revised policy **mandates a 5% biomass co-firing in Thermal Power Plants (TPPs)** starting from the fiscal year **2024-25**.
    - The biomass co-firing obligation will further increase to **7% from the fiscal year 2025-26**.

### ***What are the Government Interventions Related to Biomass Co-firing?***

- **Financial Assistance:**
  - The **MNRE and Central Pollution Control Board (CPCB)** have introduced Finance Assistance Schemes to support biomass pellet manufacturing units.
  - The **Reserve Bank of India (RBI)** has approved 'Biomass pellet manufacturing' as an **eligible activity under Priority Sector Lending (PSL)**, fostering financial viability for such endeavors.
- **Procurement and Supply Chain:**
  - A dedicated **Procurement Provision of Biomass Category** has been established on the **Government e-Marketplace (GeM) portal**.
  - Ministry of Power has introduced a **Revised Model Long-Term Contract for Biomass Supply**, ensuring a consistent supply chain.
  - The **provision of Udyam Aadhaar on the National Single Window System** streamlines administrative processes for biomass-related projects.
    - The Udyam Aadhaar registration process is based on the concept of **self-declaration**, enabling MSMEs to **register themselves for free and obtain the Udyam Aadhaar number**.

### ***What is Biomass Co-Firing?***

- **About:**
  - Biomass co-firing is a process in **which biomass-based fuels are combusted together with traditional fossil fuels (such as coal, oil, or natural gas)** in the same power plant or industrial boiler to generate energy.

### **➤ Advantages of Co-firing Coal with Biomass Pellets:**

- **Carbon Emission Reduction:** The concept behind biomass co-firing is to **reduce the environmental impact** of energy generation by **substituting** a portion of the fossil fuel with biomass, **which is considered carbon-neutral over its lifecycle**.
  - Substituting **5-7 % of coal with biomass** in coal-based power plants can save 38 million tonnes of carbon dioxide emissions.
- **Renewable Energy Integration:** Co-firing helps in integrating **renewable energy sources** (biomass) with conventional energy sources (coal), **aiding in the transition to a cleaner energy mix**.
- **Economic and Regulatory Benefits:** Co-firing can help power plants meet environmental regulations and carbon reduction targets without requiring significant infrastructure changes.
- **Utilization of Biomass Waste:** Co-firing provides a valuable use for agricultural and forestry residues that **might otherwise go to waste**.
- **Agro Residues for Biomass Pellet Production:** The Ministry of Power has identified various surplus agro residues that can be utilized for biomass pellet production. These include:
  - **Crop Residues:**
    - Agro-residues from crops such as Paddy, Soya, Arhar, Gwar, Cotton, Gram, Jawar, Bajra, Moong, Mustard, Sesame, Til, Maize, Sunflower, Jute, Coffee, etc.
  - **Shell Waste:**
    - Waste products like Groundnut Shell, Coconut Shell, Castor Seed Shell, etc.
  - **Additional Biomass Sources:**
    - **Bamboo and its by-products**, horticulture waste, and other biomass materials like Pine Cone/Needle, Elephant Grass, Sarkanda, etc.

## **505-Million Year Old Jellyfish Fossils**

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

Recently, researchers have unveiled a **collection of jellyfish fossils from the Cambrian period**, providing a unique glimpse into their distant past.

Note:



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- These preserved fossils, found in the **Burgess Shale**—a renowned fossil-rich site in the **Canadian Rockies**, offer an improbable pathway to preservation.

### What are the Major Findings of the Research?

- **Special Features of the Fossils:**
  - The newly discovered jellyfish fossils retained remarkable features, such as over **90 fingerlike tentacles** protruding from their bell-shaped bodies.
  - Some specimens even contained stomach contents and gonads, providing invaluable insights into their anatomy and behavior.
  - These things help scientists learn about how the jellyfish looked and acted.
- **Link with Old Fossils from a Quarry:**
  - In the 1990s, scientists dug up over 170 jellyfish fossils in a place called **Raymond Quarry in British Columbia**. These fossils were kept for a long time.
  - Researchers re-examined the specimens from the excavation and identified that the fossils actually belonged to a **previously unknown species**.
    - This newly discovered species was named **Burgessomedusa phasmiformis**. The species falls under the **medusozoans** category.

### What are Jellyfish?

- **About:**
  - Jellyfish are **members of the phylum Cnidaria**, a group of animals that includes **corals**, **sea anemones**, **hydroids**, and siphonophores.
    - Cnidarians are characterized by having **radial symmetry**, a **central mouth surrounded by tentacles**, and **specialized stinging cells called cnidocytes** that can inject venom into their prey or predators.
  - Jellyfish tend to just **follow the currents of the ocean**, they can be found around the world in every type of ocean water.
    - They are considered to be **one of the earliest branches of the animal tree of life**.
- **Characteristics:**
  - Despite their name, jellyfish do not have much characteristics of a fish, they are **invertebrates**, or **animals with no backbones**.
    - Jellyfish are also among the simplest animals in terms of body organization and nervous system, **lacking a brain, a heart, or a skeleton**.

- However, some jellyfish have evolved remarkable adaptations, such as **eyes**, **bioluminescence**, and **complex behaviors**.

#### ➤ **Prey:**

- They dine on **fish, shrimp, crabs and tiny plants**. They have tiny stinging cells in their tentacles to **stun or paralyze their prey** before they eat them.

#### ➤ **Challenge of Jellyfish Fossilization:**

- Jellyfish, composed of **95% water**, pose a considerable challenge when it comes to fossilization. Their delicate structure makes them prone to rapid deterioration, leaving behind minimal traces in the fossil record.

## Carbon Capture and Storage

### Why in News?

The UK government has reasserted its commitment to **advancing projects aimed at capturing and storing carbon dioxide (CO<sub>2</sub>) emissions** as a crucial component of its strategy to achieve net-zero emissions.

### What is Carbon Capture and Storage (CCS)?

#### ➤ **About:**

- It is a process designed to **mitigate the emissions of carbon dioxide (CO<sub>2</sub>)** generated from industrial processes and the burning of fossil fuels, particularly in power plants.
- The goal of CCS is to prevent a significant amount of CO<sub>2</sub> from entering the atmosphere and contributing to **global warming and climate change**.

#### ➤ **Approaches: Carbon capture and storage (CCS)** encompasses two primary approaches:

- The **first method** is known as **point-source CCS**, which involves capturing CO<sub>2</sub> directly at the site of its production, such as industrial smokestacks.
- The **second method, direct air capture (DAC)**, focuses on removing CO<sub>2</sub> that has already been emitted into the atmosphere.
- The recent UK initiatives **specifically target point-source CCS**.

#### ➤ **Mechanisms of Point Source- CCS:** The process of carbon capture and storage encompasses several distinct steps, each contributing to the effective containment of CO<sub>2</sub> emissions:

Note:



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- **Capture:** CO<sub>2</sub> is isolated from other gases generated during industrial processes or power generation.
- **Compression and Transportation:** Once captured, CO<sub>2</sub> is compressed and transported to designated storage sites, frequently through pipelines.
- **Injection:** The CO<sub>2</sub> is then injected into subterranean rock formations, often situated at depths of one kilometer or more, **where it remains stored for extended periods, sometimes lasting decades.**

➤ **Applications:**

- **Mineralization:** Captured carbon can be reacted with **certain minerals to form stable carbonates**, which can be stored safely underground or used in construction materials.
  - This process, known as **mineral carbonation**, **offers a long-term and secure method of carbon storage.**
- **Synthetic Fuels:** Captured CO<sub>2</sub> can be combined with hydrogen (often produced via electrolysis using renewable energy) **to produce synthetic fuels such as synthetic natural gas, synthetic diesel, or even synthetic jet fuel.**
- **Greenhouses and Indoor Agriculture:** Captured carbon dioxide can be supplied to greenhouses and indoor farming facilities to enhance plant growth.
- **Dry Ice Production:** Captured carbon dioxide can be used to produce dry ice, which is **solid carbon dioxide at extremely low temperatures.**
  - Dry ice has various applications, including **shipping and transportation of perishable goods, medical and scientific purposes**, and special effects in the entertainment industry.

**Note:**

- In India, two National Centres of Excellence in Carbon Capture and Utilization are being established.
  - **National Centre of Excellence in Carbon Capture and Utilization (NCoE-CCU)** at Indian Institute of Technology (IIT) Bombay, Mumbai
  - **National Centre in Carbon Capture and Utilization (NCCCU)** at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru.

➤ **Challenges:**

- **Cost and Economics:** CCS involves **high initial capital costs** for building capture, transportation, and storage infrastructure.

- The cost of capturing CO<sub>2</sub> from **flue gases** or industrial processes can be significant, affecting the overall viability of CCS projects.
- **Geological Storage Suitability:** Identifying and securing suitable geological formations for long-term CO<sub>2</sub> storage is a challenge.
  - Not all geological formations are appropriate for CO<sub>2</sub> storage **due to potential risks of leakage or seismic activity.**
- **Extended Lifespan of Fossil Fuel Companies:** Certain environmental organizations raise concerns regarding the effectiveness of CSS, suggesting that its implementation might **unintentionally prolong the operational viability of fossil fuel companies.**
  - This potential consequence could inadvertently **hinder the speed of transitioning to more sustainable and cleaner energy** sources.

## Himalayan Culture: Gyps Himalayensis

### Why in News?

Recently, the **Assam State Zoo in Guwahati** has achieved a groundbreaking feat by successfully **breeding the elusive Himalayan vulture (*Gyps himalayensis*) in captivity for the first time in India.**

- Additionally, the Union Ministry of Health and Family Welfare's decision to prohibit the **manufacture, sale, and distribution of ketoprofen and aceclofenac** has sparked optimism among vulture conservationists and experts.

### What are the Key

#### Highlights of the Himalayan Vulture?

- **Conservation Status:**
  - **International Union for Conservation of Nature (IUCN) Red List:** Near Threatened.
  - **CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora):** Appendix II.
- **Distinctive Characteristics:**
  - The Himalayan vulture is one of the **largest Old World vulture species**, boasting an **impressive wingspan and formidable presence.**

Note:



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- Its plumage is dominated by **shades of black and brown**, which aid in its **camouflage** against the **rugged mountain terrain**.
- The vulture's powerful hooked beak and keen eyesight make it a **proficient scavenger**, playing a crucial role in the ecosystem by cleaning up carrion.
- **Habitat and Range:**
  - The Himalayan vulture is aptly named, as it primarily inhabits the towering **peaks and valleys of the Himalayan mountain range**.
    - It is a common winter migrant to the Indian plains.
  - Its range extends across several countries, **including India, Nepal, Bhutan, and China**, where it thrives in challenging high-altitude environments.
- **Ecological Significance:**
  - As a top predator and scavenger, the Himalayan vulture plays a vital role in maintaining the **health of its habitat by efficiently disposing of animal remains**.
  - Its scavenging behavior helps **prevent the spread of diseases that could arise from decaying carcasses**, thus contributing to the overall balance of the ecosystem.
- **Challenges and Conservation Efforts:**
  - Breeding the Himalayan vulture in captivity posed challenges due to its **natural breeding habits in snow-clad mountains**.
  - Successful breeding at the zoo was made possible through long-term captivity and acclimatization to the tropical environment.
  - Factors such as **habitat loss, food scarcity, and accidental poisoning from veterinary drugs** have contributed to its vulnerable status.
  - Conservation breeding centers, such as the **Vulture Conservation Breeding Centre (VCBC)** at Rani, Assam, are instrumental in safeguarding vulture species.



### What are Ketoprofen and Aceclofenac, and How Do They Impact Vultures?

- Ketoprofen and aceclofenac are two types of **non-steroidal anti-inflammatory drugs (NSAIDs)** that are used to **treat pain and inflammation** in animals, especially cattle.
- Prescribed for arthritis, injuries, and post-surgery pain.
- However, these drugs have been found to be **harmful to vultures**, as they cause **kidney failure** and **death** when the **vultures feed on the carcasses of animals** treated with these drugs.

### Vultures in India:

Sr. No.	Name of the Vulture Species	IUCN status	Pictorial Representation
1.	Oriental White-backed Vulture (Gyps Bengalensis)	Critically Endangered	
2.	Slender-billed Vulture (Gyps Tenuirostris)	Critically Endangered	
3.	Long-billed Vulture (Gyps Indicus)	Critically Endangered	
4.	Egyptian Vulture (Neophron Percnopterus)	Endangered	
5.	Red-Headed Vulture (Sarcogyps Calvus)	Critically Endangered	
6.	Indian Griffon Vulture (Gyps Fulvus)	Least Concerned	
7.	Himalayan Griffon (Gyps Himalayensis)	Near Threatened	
8.	Cinereous Vulture (Aegypius Monachus)	Near Threatened	
9.	Bearded Vulture or Lammergeier (Gypaetus Barbatus)	Near Threatened	

Note:

## Forest Cover in India: Progress and Initiatives

### Why in News?

Recently, the **Union Ministry of Environment, Forest and Climate Change** provided valuable insights into the **various initiatives to boost forest cover in India** during a written reply in the Lok Sabha.

### What are the Major Forest Conservation Initiatives in India?

- **About Forest Cover in India:**
  - The **Forest Survey of India (FSI)**, Dehradun has been conducting **biennial (once every two years)** assessments of **forest cover since 1987**, and the findings are published in the **India State of Forest Report (ISFR)**.
  - As per the latest assessment in **ISFR 2021**, India's total forest and tree cover stands at **8,09,537 square kilometers, which accounts for 24.62%** of the country's geographical area.
  - Notably, this represents an **increase of 2261 square kilometers compared to the ISFR 2019 assessment**, indicating positive strides in forest conservation efforts.
- **Government Initiatives to Boost Forest Cover:**
  - **Green India Mission (GIM)**: Started in the Financial Year 2015-16, GIM focuses on afforestation activities.
    - Over the last five years, **Rs. 755.28 Crores** has been released to seventeen States and one union territory to support afforestation efforts.
  - **National Afforestation Programme**: Implemented for regeneration of degraded forests and adjoining areas.
    - **The National Afforestation Programme is now merged with Green India Mission.**
  - **Nagar Van Yojana (NVY)**: Launched in 2020, NVY aims to create **600 Nagar Vans and 400 Nagar Vatika in urban and peri-urban areas** by 2024-25.
    - The initiative intends to enhance the **green cover, preserve biological diversity, and improve the quality of life** for urban dwellers.
  - **Compensatory Afforestation Fund (CAMPA)**: Utilized by States/UTs for compensatory afforestation to offset forest land diversion for developmental projects.

- **90% of the CAF money is to be given to the states** while 10% is to be retained by the Centre..

- **Multi-Departmental Efforts**: Apart from the central initiatives, afforestation activities are taken up under various programs and schemes of line Ministries, State Governments/UT Administrations, Non-Government Organizations, Civil Society, and Corporate bodies.

- Some notable efforts include participation in the **Mahatma Gandhi National Rural Employment Guarantee Scheme, National Bamboo Mission, and Sub-Mission on Agroforestry.**

- **Draft National Forest Policy**: The policy focuses on **integrating climate change mitigation and adaptation measures into forest management practices**. It emphasizes building resilience to climate change, particularly among forest-dependent communities.

## Urban Flooding

### Why in News?

There has been an increased incidence of high intensity **Rainfall** in short duration, causing **Urban Flooding** which is further compounded by **unplanned growth, encroachment of natural water bodies**, and Poor Drainage System.

### What is Urban Flooding?

- **About:**
  - Urban flooding is the **inundation of land or property in a built environment**, particularly in more densely populated areas (like cities), caused by rainfall overwhelming the capacity of drainage systems.
  - Unlike **Rural floods** (Heavy rain over a flat or low-lying area), urban flooding is not only caused by just higher precipitation but also unplanned urbanisation (catchments) that:
    - Increases the flood peaks from 1.8 to 8 times
    - Increases the flood volumes by up to 6 times.
- **Causes:**
  - **Encroachments on Drainage Channels**: Due to **increased land prices and less availability of land** new developments have come up in low-lying areas of cities, such as encroachments **over lakes, Wetlands** and riverbeds.

Note:



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- Ideally, the natural drains should have been widened to accommodate the higher flows of stormwater.
- But on the contrary, there have been large **scale encroachments without widening** the natural drains, leading to decrease in the capacity of the **natural drains resulting in flooding**.
- **Climate Change:** Climate **Change** has caused an **increase in the frequency** of short duration heavy rainfall leading to higher water run-off.
  - Whenever the rain bearing clouds pass over the urban heat island, the hot air pushes the clouds up, **resulting in highly localised rainfall** which may sometimes be of high intensity.
- **Uninformed Release of Water from Dams:** Unplanned and **sudden release of water from dams** and lakes lead to floods in an urban area, without giving the public enough time to respond.
  - **Example:** Chennai Floods 2015 due to release of water from Chembarambakkam Lake.
  - **The July 2023 flood in Delhi** was magnified by 2 lakh cusecs of **water discharged from the Hathnikund Barrage** into the Yamuna river.
- **Illegal Mining:** Illegal **mining** of river sand and quartzite for use in building construction **deplete the natural bed of the rivers** and lakes.
  - It causes soil erosion and reduces the water retention capacity of the waterbody increasing the speed and scale of water flow.
  - Example: Jaisamand Lake- Jodhpur, Cauvery river- Tamil Nadu.

### ***What are the Implications of Urban Flooding?***

- **Loss of Life and Property:**
  - Urban floods are often **associated with loss of life and physical injury** either directly due to the effect of floods or indirectly due to infections by water-borne diseases spreading during the inundated period.
- **Ecological and Environmental:**
  - Trees and plants are **washed away during extreme flood** events and **riverbank erosion** is caused by high-speed flood water.
- **Impact on Animal and Human Health:**
  - Stagnation of stormwater in the localities, and **Contamination of consumable water** leads to

various health problems resulting in plagues/ epidemics.

- The **sewage and solid waste** washing into houses and neighborhoods also causes a variety of diseases to spread.
- **Psychological Impacts:**
  - Loss of shelter and relatives creates emotional turmoil in the mental health of the stranded. The recovery process in case of such incidents is a tiresome process and time consuming that often leads to long lasting psychological trauma.

### **What are the Government Initiatives to Curtail Urban Flooding?**

- **Jal Shakti Abhiyan (JSA)**
- **Amrit Sarovar Mission**
- **Atal Bhujal Yojana**
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0**
- **Model Building Bye Laws (MBBL), 2016**
- Standard Operating Procedures (SoPs) on Urban Flooding by MInistry of Housing and Urban Affairs.

## **Plastic Overshoot Day**

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

Recently, the **Earth** witnessed **Plastic Overshoot Day** on July 28, 2023. This marks the point in the year **when the amount of plastic waste generated exceeds the global waste management capacity**.

- The Plastic Overshoot Day Report by Swiss-based research consultancy **Earth Action (EA)** sheds light on the alarming issue of plastic pollution and its implications on the environment.

### ***What are the Major Findings of the Report?***

- **About:**
  - Plastic Overshoot Day is determined based on a country's **Mismanaged Waste Index (MWI)**. The gap in waste management capacity and plastic consumption is called MWI.
- **Plastic Pollution Crisis:** The report highlights that an additional **68,642,999 tonnes of plastic waste will enter nature in 2023**, indicating a severe plastic pollution crisis.

Note:



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- The report identifies 12 countries responsible for **52% of the world's mismanaged plastic waste**. India is among them, alongside **China, Brazil, Indonesia, Thailand, Russia, Mexico, the United States, Saudi Arabia, the Democratic Republic of Congo, Iran, and Kazakhstan**.
- The three countries with the highest mismanaged waste percentages—**Mozambique (99.8%), Nigeria (99.44%), and Kenya (98.9%)** belong to Africa.
  - India ranks **fourth in the MWI**, with 98.55% of generated waste.
- **Short-life Plastics:** Short-life plastics, including plastic packaging and **single-use plastics**, make up approximately **37% of the total plastic used annually**. These categories pose a higher risk of leakage into the environment.
- **India's Plastic Overshoot:** Plastic Overshoot Day for India occurred on **January 6, 2023**, when the country's plastic waste generation outweighed its waste management capacity.
  - **India's per-person consumption is 5.3 kg**, significantly lower than the global average of **20.9 kg**.

### ***What is the Major Significance of Plastic?***

- **Food Preservation:** Plastics are widely used in food packaging, which helps **extend the shelf life of perishable goods**, reducing **food waste** and enabling efficient transportation of goods.
- **Medical Applications:** Plastics play a crucial role in **modern medicine**. They are used in medical devices, such as **syringes, catheters, and artificial joints**, which improve patient care and quality of life.
- **Safety in Transportation:** Plastics are used in automotive applications to make **vehicles lighter**, which can lead to improved fuel efficiency and reduced emissions, contributing to a greener environment.
- **Insulation:** Plastic materials are **excellent insulators for electrical and thermal purposes**. They help improve energy efficiency in buildings and electronic devices.
- **Water Conservation:** Certain types of plastics, like those used in pipes and irrigation systems, help

**conserve water by reducing leakages** and improving water distribution efficiency.

### ***What are the Issues***

#### ***Associated with Plastic-Waste in India?***

- **Poor Waste Management Infrastructure:** One of the major problems is the inadequate waste management infrastructure in India.
  - The majority of **municipal authorities lack proper facilities for segregation**, collection, transportation and recycling of plastic waste.
  - As a result, **a significant portion of plastic waste ends up in landfills**, open dumpsites, or even littered in the environment, leading to severe pollution.
  - According to the Centre for Science and Environment's report, **India recycles 12.3% of its plastic waste and incinerates 20%**.
- **Single-Use Plastic Products:** The widespread use of single-use plastic products, such as **bags, bottles, straws, and packaging**, exacerbates the plastic waste problem.
  - These **items are convenient but are discarded after one use**, contributing significantly to the accumulation of plastic waste.
- **Marine Pollution:** India's coastal areas are particularly affected by plastic waste. Rivers and other water bodies **act as conduits for plastic waste to reach the oceans, resulting in marine pollution**.
  - This pollution harms marine life, ecosystem health, and can even have economic impacts on coastal communities reliant on fishing and tourism.
- **Health Impacts:** Improper plastic waste disposal and the burning of plastic can **release harmful chemicals and toxins**, leading to adverse health effects for communities living near waste disposal sites or engaged in informal recycling activities.

### ***What are Government Initiatives***

#### ***Related to Plastic Waste Management?***

- **National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management**
- **Plastic Waste Management Amendment Rules, 2022**
- **Project REPLAN**



Note:



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# Security

## Highlights

- *Inter-Services Organisation (Command, Control & Discipline) Bill 2023*

## Inter-Services Organisation (Command, Control & Discipline) Bill 2023

### Why in News?

Lok Sabha recently passed the **Inter-Services Organisation (Command, Control & Discipline) Bill - 2023** with the aim to bolster the efficiency, discipline, and jointness among the Armed Forces.

### What is the Inter-Services Organisation (Command, Control & Discipline) Bill 2023?

#### ➤ Background:

- Currently, the **Armed Forces** operate under **distinct Service Acts** – the **Army Act 1950**, **Navy Act 1957**, and **Air Force Act 1950**.
  - However, the diverse nature of these acts has sometimes posed challenges in **maintaining uniform discipline, coordination, and expeditious proceedings** across the inter-services establishments.
- The **Inter-Services Organisation (Command, Control, & Discipline) Bill - 2023**, addresses these concerns with its forward-looking provisions.
- ISO Bill 2023 **does not propose any alteration to the existing Service Acts, Rules, or Regulations** that have stood the test of time and judicial scrutiny over several decades.

#### ➤ Salient Features:

- **Applicability:** The bill is applicable to **all regular Army, Navy, and Air Force personnel**.
  - Also, the central government **holds the right to designate any force established and maintained within India** to which the provisions of the bill will apply.
- **Inter-services Organisation:** Existing **Inter-services Organisations** will be deemed to have been constituted under the Bill. These include the **Andaman and Nicobar Command**, the **Defence Space Agency**, and the **National Defence Academy**.

- The central government may constitute an Inter-services Organisation **which has personnel belonging to at least two of the three services: the army, the navy, and the air force.**

#### Note:

- **Joint command in Andaman and Nicobar Islands** is the first **Tri-Service theatre command of the Indian Armed Forces**, based at Port Blair in Andaman and Nicobar Islands of India.
  - The **Indian armed forces currently have 17 commands**. There are **7** commands each of the Army and the Air Force. The Navy has **3** commands.
  - Each command is headed by a 4-star rank military officer.
- **Expanded Command and Control Authority:** One of the central tenets of the bill is the extension of command and control authority to the **Commander-in-Chief or Officer-in-Command of an Inter-services Organisation**.
  - Unlike the existing structure, **where these officers lack disciplinary and administrative powers** over personnel from other services, the bill empowers them to exercise full command and control.
  - This includes maintaining discipline and ensuring the proper execution of duties by service personnel.
- **Commanding Officer:** The bill introduces the concept of a Commanding Officer, **responsible for overseeing a unit, ship, or establishment**.
  - This officer, in addition to their unit-specific duties, also carries out tasks assigned by the Commander-in-Chief or Officer-in-Command of the Inter-services Organisation.
- **Central Government Authority:** The superintendence of an Inter-services Organisation will be vested in the central government.
  - The government may also issue directions to such organizations on grounds of **national security, general administration, or public interest.**

Note:



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# Geography

## Highlights

- Monsoon, El Nino And Their Impact on Agriculture

## Monsoon, El Nino And Their Impact on Agriculture

### Why in News?

The **2023 southwest monsoon season** in India started late, with the initial two weeks experiencing a **significant rainfall** deficiency of **52.6% below the normal long-period average (LPA)**.

- However, as of July 30, 2023 there was an overall **6% surplus rainfall**. This **turnaround has positively impacted kharif crop plantings**. However, concerns persist regarding the **potential impact of the approaching El Nino** phenomenon on rabi crops.

### What is the Long-Period Average (LPA) of Rainfall?

- The IMD defines the “LPA of rainfall” as the **average rainfall recorded over a specific region for a long period**, like **30 or 50 years**. Based on this, the IMD classifies rainfall into five categories on an all-India scale:
  - **Normal or near normal:** Rainfall between 96-104% of LPA.
  - **Below normal:** Rainfall between 90-96% of LPA.
  - **Above normal:** Rainfall between 104-110% of LPA.
  - **Deficient:** Rainfall less than 90% of LPA.
  - **Excess:** Rainfall more than 110% of LPA.

### What are Kharif and Rabi Crops?

- **Kharif Crops:**
  - Kharif crops are sown during the **monsoon season**, from **June to October**, and harvested in the **late summer or early autumn**.
  - They depend on the **southwest monsoon for irrigation and growth**.

- Major Kharif crops include rice, maize, sorghum, pearl millet (bajra), finger millet (ragi), groundnut and pulses like **pigeon pea (arhar)** and **green gram (moong)**.
- They account for about **55% of the total foodgrain production in India**.

### ➤ Rabi Crops:

- These crops are sown around the **Retreating Monsoon and Northeast monsoon season**, which begins in October and are called rabi or winter crops.
- The harvest for these crops happens typically during April and May, during the summer season.
- Major Rabi crops are **wheat, gram, peas, barley etc.**
- A warm climate is required for seed germination and cold climate for the growth of crops.

### What is the Impact of Monsoon on Indian Agriculture?

#### ➤ Positive Impacts:

- **Increased Crop Production:** A **major portion of the country's crop area is completely dependent on Monsoon rains** as they're not equipped with methods of manual irrigation.
  - Adequate rainfall during the monsoon season leads to **increased soil moisture and promotes the growth of crops**, resulting in higher agricultural output.
    - The availability of water supports the cultivation of a variety of crops, including **rice, wheat, millets, and pulses**.
- **Economic Boost:** Successful monsoon seasons contribute to **rural prosperity by providing income to farmers and laborers**, which, in turn, stimulates **demand for goods and services in the rural economy**.

Note:



- This increased economic activity has a positive impact on overall national growth.
- **Recharge of Groundwater:** The monsoon helps recharge **groundwater resources**, which is crucial for sustainable agricultural practices in regions where water scarcity is a challenge.
- **Negative Impacts:**
  - **Erratic Monsoon Patterns:** The monsoon's timing, intensity, and distribution are unpredictable, leading to **uncertainties in agricultural planning and crop management**.
    - Delayed or early monsoons can **disrupt planting schedules** and affect crop yields.
  - **Droughts and Floods:** Monsoon failure or **excess rainfall** can lead to **droughts or floods**, respectively.

- Both scenarios can be disastrous for agriculture. **Droughts** result in **water shortages**, crop failures, and reduced yields, **while floods** can **damage crops**, wash away fertile topsoil, and lead to livestock losses.
- **Crop Losses:** Prolonged and excessive monsoon rains can cause **crop diseases**, **reducing crop quality and yield**. These conditions also hinder farmers' ability to conduct agricultural operations effectively.
- **Soil Erosion:** Heavy rainfall can lead to soil erosion, **which depletes soil fertility and affects agricultural productivity** in the long run.
  - Soil erosion also impacts water bodies and can lead to **siltation in reservoirs**, reducing their storage capacity.

## El Niño and La Niña

### El Niño

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

#### Impacts

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

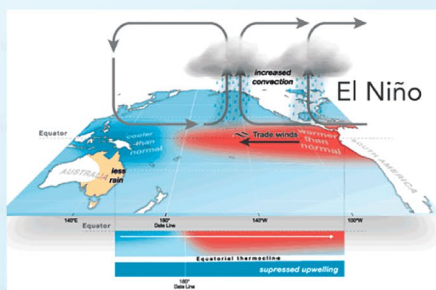


Fig. 1 - Depiction of El Niño Phenomenon

### La Niña

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

#### Impacts

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

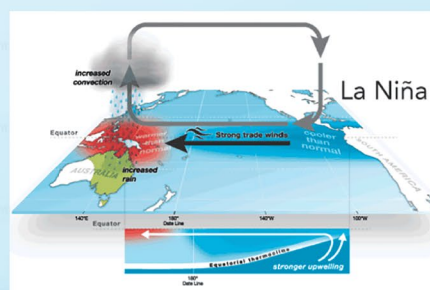


Fig. 2 - Depiction of La Niña Phenomenon

### Oceanic Nino Index (ONI)

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

- **Food Price Inflation:** Inconsistent monsoon patterns can affect crop production and **lead to shortages, resulting in food price inflation.**
- This can have **adverse effects on the economy, especially for low-income households** that spend a significant portion of their income on food.

### ***What is El Nino and Its Implications on Agriculture?***

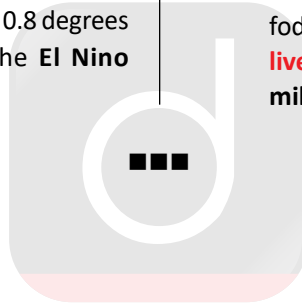
#### ➤ **About:**

- **El Nino** is a climate phenomenon that occurs irregularly in the tropical **Pacific Ocean**, characterized by the **warming of sea surface temperatures.**
- It can have significant impacts on weather patterns around the world, including India.
- The **Oceanic Nino Index (ONI)** reached 0.8 degrees Celsius in **June, 2023** surpassing the **El Nino** threshold of 0.5 degrees.

- Global weather agencies forecast El Nino to persist and strengthen through the 2023-24 winter.

#### ➤ **Impacts:**

- **Temperature Extremes:** El Nino is often associated with **higher temperatures in some parts of India.**
- Elevated temperatures can adversely impact crops, leading to heat stress and reduced yields, especially for sensitive crops like fruits and vegetables.
- **Pest and Disease Outbreaks:** El Nino conditions can create a **conducive environment for certain pests and diseases** that affect crops.
- Warmer temperatures and altered precipitation patterns can lead to increased pest populations, posing additional challenges to farmers.
- **Impact on Livestock:** Reduced availability of fodder and water scarcity during El Nino can affect **livestock** and animal husbandry, **leading to lower milk and meat production.**



Note:

# Miscellaneous

## Highlights

- CBI Academy Joins Interpol Global Academy Network
- World University Games
- India's Strategic Petroleum Reserves
- Coup in Niger
- Henrietta Lacks: HeLa Cells
- Palaeo Proxies

## CBI Academy Joins Interpol Global Academy Network

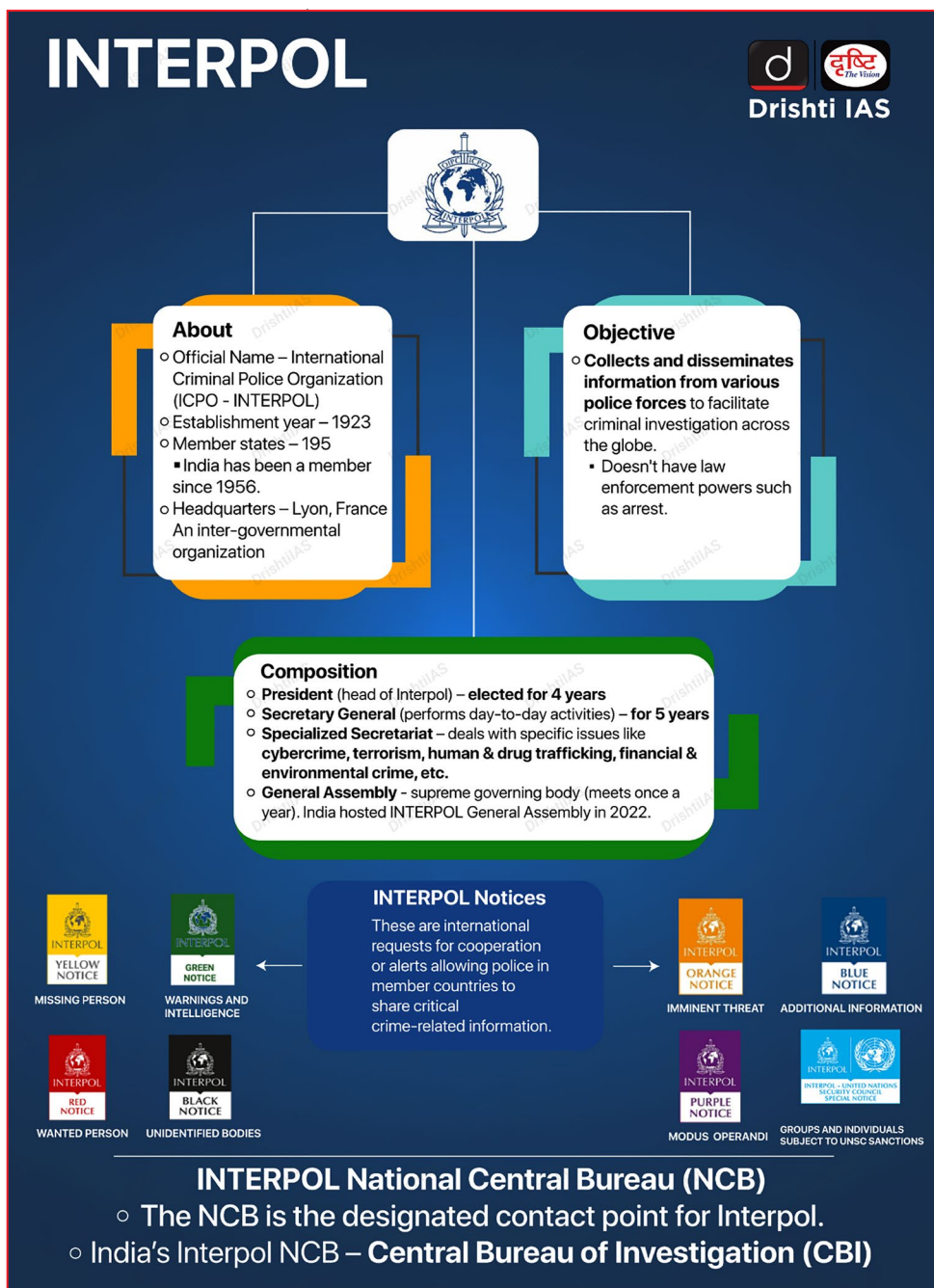
### Why in News?

The **Central Bureau of Investigation (CBI) Academy**, a key player in crime investigation and law enforcement training, has joined the **Interpol Global Academy Network** as its 10th member.

- This significant move enhances the academy's global influence and paves the way for impactful joint initiatives and capacity building.

### What is the Interpol Global Academy Network?

- It is an initiative launched by **Interpol** in 2019 to support **Interpol** in leading a global approach to law enforcement training.
- The network aims to foster academic collaboration among law enforcement training institutions by



Note:

developing and delivering joint training programmes and research projects, sharing best practices and resources, and facilitating the exchange of expertise and knowledge.

- The network also seeks to promote academic excellence and **innovation in law enforcement training** by establishing quality standards, accreditation mechanisms, and recognition systems.

### What is the CBI Academy?

- The CBI Academy is a training institution for the CBI, which is the premier investigative agency of India.
- The CBI Academy was established in **1996 and is located in Ghaziabad, Uttar Pradesh.**
- It aims to **attain higher levels of professionalism, impartiality, uprightness, and dedication to the service of the nation.**
- It conducts various training programmes on topics such as **cybercrime, financial crime, counter-terrorism, environmental crime, anti-corruption, human rights, forensic science, etc.**
- It collaborates with foreign agencies and international organisations such as US Department of Homeland Security, French Embassy, and Interpol for joint training programmes and research project.
- It has also established three Regional Training Centres (RTCs) at **Kolkata, Chennai, and Mumbai to expand its training infrastructure and outreach.**

### Central Bureau of Investigation

- The CBI was established in **1963** by a **resolution of the Ministry of Home Affairs** and later transferred to the **Ministry of Personnel, Public Grievances and Pensions, currently functioning as an attached office.**
- Its establishment was recommended by the **Santhanam Committee on Prevention of Corruption.**
- The **CBI operates under the Delhi Special Police Establishment (DSPE) Act, 1946.** It is neither a **constitutional nor a statutory body.**
- It investigates cases related to bribery, governmental corruption, breaches of central laws, multi-state organized crime, and multi-agency or international cases.

## World University Games

### Why in News?

Recently, the 31<sup>st</sup> World University Game was held in Chengdu, China, where India has won a total of 26 medals across **4 disciplines with highest medal count at the World University Games.**

- Many of the athletes who won the Medals come from **Khelo India Scheme** and **Target Olympic Podium Scheme (TOPS).**
- It had to be held in 2021, the **World University Games** had to be rescheduled twice due to the Covid-19 pandemic.

### What is the World University Game?

- **About:**
  - World University Games," also known as "**Universiade**," is an international multi-sport event specifically for university athletes.
  - It is organized by the **International University Sports Federation (FISU).**
    - **FISU** is the governing body that **oversees and organizes the Universiade events.** FISU is responsible for coordinating the host cities and ensuring that the games are conducted in accordance with the organization's principles and regulations.
  - The Universiade is **held every two years and features a wide range of sports** similar to the **Olympic Games.**
  - It includes both **summer and winter editions,**
    - With the **summer Universiade typically featuring** sports like athletics, swimming, basketball, soccer, and more,
    - While the **winter Universiade includes sports** like skiing, ice hockey, figure skating, and others.
- **Previous Edition:**
  - The previous edition, held in Naples in 2019, saw Japan emerge as the dominant nation, securing the highest position on the medal table.
- **Future Events:**
  - Next Winter World University Games will be held in 2025 in Rhine-Ruhr, Germany.

Note:



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### What is the Khelo India Scheme?

#### ➤ About:

- Khelo India, which translates to 'Let's play India', was proposed by the government of India in 2017 to revive **India's sporting culture** by engaging with children at the grassroots level.
  - It is implemented by the Ministry of Youth Affairs and Sports.
- Under this movement, the **Khelo India Youth Games (KIYG)**, the Khelo India University Games (KIUG) and the Khelo India Winter Games were set up as annual national sports competitions where youngsters, representing their states and universities, respectively, showcased their skills and competed for medals.

#### ➤ Objective:

- The Khelo India scheme is a **flagship government-funded program** that aims to **identify and nurture sporting talent** in India.
  - The scheme has been very successful in recent years, and the athletes who have been selected for the World University Games are some of the best young talents in the country.

**Note:** To improve India's performance at Olympics and Paralympics, the Ministry of Youth Affairs and Sports (MYAS) started the **Target Olympic Podium Scheme (TOPS)** in September 2014. This was revamped in April 2018 to establish a technical support team for managing the TOPS athletes and providing holistic support.

- The TOPS sponsored athletes gained relative success at the 2016 Rio Olympics and the 2018 **Commonwealth Games**.

## India's Strategic Petroleum Reserves

### Why in News?

Recently, the Ministry of Petroleum & Natural Gas provided valuable insights into the **Strategic Petroleum Reserve Programme** during a written reply in the Lok Sabha.

### What are Strategic Petroleum Reserves?

#### ➤ About:

- **Strategic petroleum reserves (SPRs)** are stockpiles of **crude oil** maintained by countries ensuring a

stable supply of crude oil even during times of geopolitical uncertainty or supply disruptions.

- These underground storage facilities play a crucial role in **maintaining a steady flow of energy resources for the nation's growth** and development.

#### Note:

- As per the terms of the **International Energy Programme (I.E.P.) agreement**, every nation belonging to the **International Energy Agency (IEA)** is required to maintain **emergency reserves of oil amounting to a minimum of 90 days'** worth of their net oil imports.
- In case of a severe oil supply disruption, IEA members may decide to release these stocks to the market as part of a collective action.
- In **2017**, India attained the **status of an associate member within the International Energy Agency**.

#### ➤ Current SPR Infrastructure and Capacity in India:

- **Indian Strategic Petroleum Reserves Ltd. (ISPRL)** was created by the Government of India as a **Special Purpose Vehicle** under the Ministry of Petroleum & Natural Gas in **2004**.
- India's existing underground SPR facilities have a combined capacity of **5.33 Million Metric Tonnes (MMT) of crude oil**. These storage sites are strategically positioned across two states:
  - Visakhapatnam, Andhra Pradesh - 1.33 MMT capacity
  - Mangaluru, Karnataka - 1.5 MMT capacity
  - Padur, Karnataka - 2.5 MMT capacity

#### ➤ Filling Strategy:

- Leveraging the opportunity presented by low crude oil prices in April/May 2020, India successfully filled its existing SPR facilities to full capacity.
  - This tactical move resulted in **substantial notional savings, estimated at around INR 5000 crore**.

#### ➤ Expansion Plans and Commercial-Cum-Strategic Facilities

- In July 2021, the Indian Government granted approval for the establishment of two additional commercial-cum-strategic SPR facilities.
  - Chandikhol, Odisha - 4 MMT capacity
  - Padur, Karnataka - 2.5 MMT capacity (expansion)
  - These facilities, totaling a storage capacity of 6.5 MMT, will operate under a **Public Private Partnership (PPP) mode**.

Note:

### ➤ Transfer and Timeline:

- At the conclusion of the 60-year Concession Period, the concessionaire will transfer the SPR, along with associated infrastructure such as **Single Mooring Points (SPMs) and onshore/offshore pipelines**, back to the Government of India.

### ➤ History of Reserve:

- In 1990, during the **Gulf War in West Asia**, India was grappling with a significant energy crisis, with its **existing oil reserves deemed sufficient for only a mere three days**.
  - Although India successfully averted the crisis at that time, the persistent risk of energy disruptions remains a tangible and ongoing concern.

- In an effort to tackle this **energy insecurity**, the administration led by **Atal Bihari Vajpayee** put forward the idea of establishing strategic petroleum reserves in **1998**.

- In the present day, as India's consumption of energy continues to rise, the rationale for developing such reserves becomes increasingly compelling.

### ➤ Biggest Global Strategic Petroleum Reserves in the World:

- United States- 714 million barrels
- China- 475 million barrels
- Japan- 324 million barrels

## Strategic Petroleum Reserves

### SPR-I

Gol has set up 5.33 MMT of strategic crude oil storages in SPR Phase-I at following 3 locations:

Vishakhapatnam, AP

Mangalore, Karnataka

Padur, Karnataka

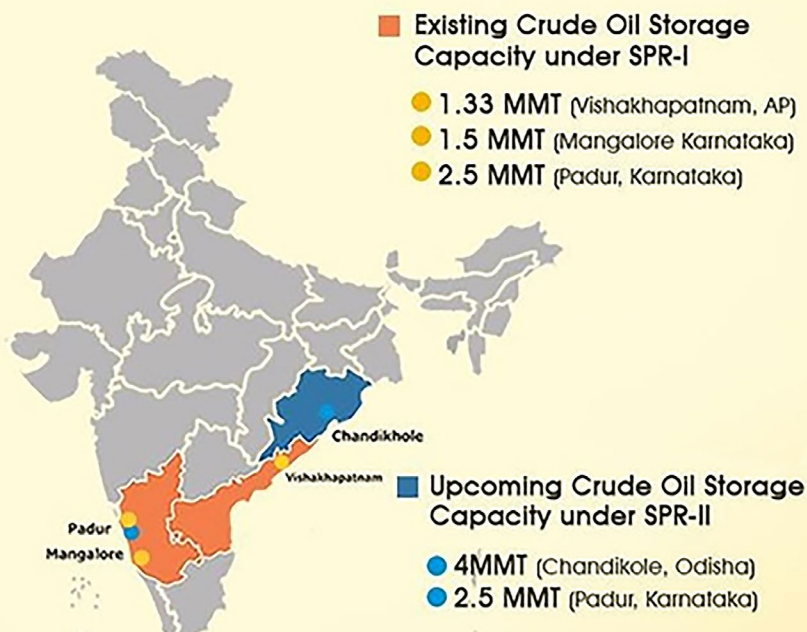
SPR-I has been commissioned and dedicated to the Nation in Feb' 2019

### SPR-II

Another 6.5 MMT of strategic crude reserves is being planned in SPR-II at:

Chandikhole, Odisha

Padur, Karnataka



## Coup in Niger

### Why in News?

Niger is currently in the midst of a political upheaval as a **military coup** has taken control, ousting the democratically elected President.

- The **Sahel region**, home to **Niger, Burkina Faso, Chad, Mali, Mauritania, and Senegal**, has witnessed political instability and ethnic tensions.

- **Weak governance, corruption, and ethnic clashes** led to military interventions under the pretext of restoring stability.

### What are the Key Points About Niger?

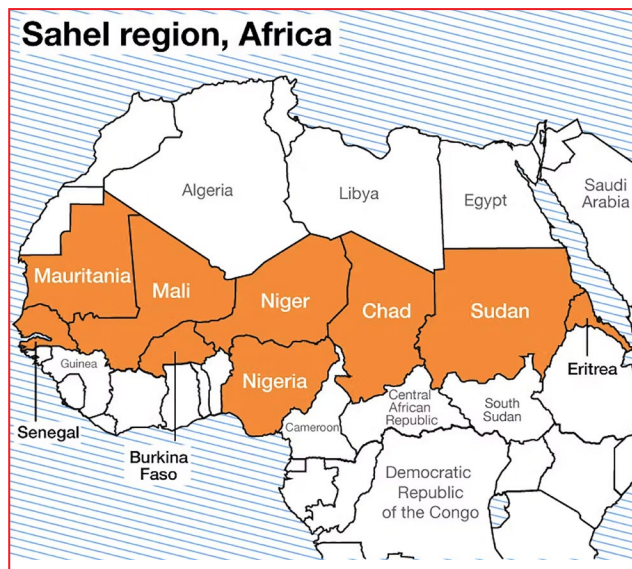
#### ➤ Geography:

- Niger is a landlocked country located in West Africa, bordered by **Algeria, Libya, Chad, Nigeria, Benin, Burkina Faso, and Mali**.
- Niger has more than 80% of its land area lying in the Sahara Desert.

Note:



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- Niger takes its name from the Niger River, which flows through the southwestern part of its territory
- It is the largest country in West Africa and **roughly twice the size of France**.
- Capital city: Niamey.



- **Historical Context:**
  - Niger was a **French colony** until it gained independence in 1960.
  - The country experienced a series of military coups and political instability in the decades following independence.

- **Climate:** Desert, mostly hot, dry, dusty, tropical in extreme south.
- **Economy:** Niger is one of the **world's poorest countries** and faces challenges related to poverty, food security, and underdevelopment.
  - However, it has significant natural resources, including **gold mining reserves** and a **significant share of global uranium production**.
  - The economy is largely agrarian, with a focus on subsistence farming and livestock.
- **Ethnic Groups:** Hausa, Zarma-Songhai, Tuareg, Fulani, Kanuri, Arab, Toubou.
- **Official Language:** French language is recognized as the official language of Niger.

## Henrietta Lacks: HeLa Cells

### Why in News?

Recently, the **Henrietta Lacks**' family settled a lawsuit against a biotech company accused of profiting from her cells without her consent, which revolutionized medicine.

### Who was Henrietta Lacks and Why are Her Cells/HeLa Cells Important?

- Henrietta Lacks was an **African-American woman** who died of **cervical cancer** in 1951 at the age of 31.
- Without her knowledge or consent, doctors took a **sample of her tumour** and sent it to a lab, where it was discovered that **her cells could grow indefinitely in culture**.
- Her cells, known as **HeLa cells**, became the **first immortalized human cell line** and one of the **most widely used in biomedical research**.
- HeLa cells have contributed to many scientific breakthroughs, such as the development of the **polio vaccine**, **gene mapping**, **cancer treatment**, **Acquired Immuno Deficiency Syndrome (AIDS) research**, cloning, stem cell studies, and Covid-19 vaccines.
- The **World Health Organization (WHO)** awarded Henrietta Lacks **posthumously with a WHO Director-General's award** on October 13, 2021. The award acknowledges her story, which is one of **inequity**, and **recognizes her world-changing legacy to science and health**.
  - The WHO Director-General's Award is a prestigious recognition given by the WHO to **individuals or groups who have made outstanding contributions**

Note:



to advancing global health, demonstrated leadership and commitment to regional health issues, and embodied lifelong dedication, relentless advocacy, and selfless service to humanity.

#### Cervical Cancer

- Cervical cancer is cancer that starts in the **cells of the cervix**. The cervix is the **lower, narrow end of the uterus (womb)**.
  - The cervix connects the **uterus to the vagina (birth canal)**.
- Cervical cancer usually develops slowly over time. Before cancer appears in the cervix, the **cells of the cervix go through changes known as dysplasia**, in which **abnormal cells begin to appear in the cervical tissue**. Over time, if not destroyed or removed, the **abnormal cells may become cancer cells** and start to grow and spread more deeply into the cervix and to surrounding areas.
- Almost all **cervical cancer cases (99%) are linked to infection with high-risk Human papillomavirus (HPV)**, an extremely common virus transmitted through sexual contact.

## Palaeo Proxies

### Why in News?

Recently, it was proclaimed that a particular day in July 2023 as the Warmest in over **100,000 Years** is scientifically unfounded.

- This claim is based on temperature **estimates from before the invention of thermometers**, which rely on “**Palaeo Proxies**” that cannot provide daily timescale temperatures.

### What are Palaeo Proxies?

- **About:**
  - Palaeo proxies, short for paleoclimate proxies or paleoenvironmental proxies, are indicators or records used by scientists to **reconstruct past climate and environmental conditions**.
  - These proxies are typically derived from **physical, biological, or chemical processes that respond to changes in temperature** or other climatic factors.
  - Since direct measurements of climate from the distant past are not possible, scientists rely on **these proxy records to understand past climate variations** and long-term trends.

#### Examples:

- **Ice Cores:** Ice cores drilled from glaciers and polar ice sheets contain **trapped air bubbles and isotopic compositions** that provide information about past atmospheric conditions, including temperature and **Greenhouse Gas** concentrations.
- **Tree Rings:** The width, density, and isotopic composition of tree rings can reveal **past climate variations** and growth conditions of trees, serving as a valuable proxy for temperature and precipitation changes.
- **Coral Records:** The growth patterns and **Isotopic Compositions** of corals offer information about **past sea surface temperatures** and ocean conditions.
- **Pollen Records:** The presence and abundance of specific pollen types preserved in **sediment cores** can indicate **past vegetation** and climate changes.

#### Limitations:

- A major assumption required to make the “paleo proxy” technique workable is that the **processes that produced the proxies have operated similarly back then as they do today**.
- However, proxies buried in ocean and lake sediments can **only record temperature anomalies on timescales of centuries or thousands of years**, making daily temperature estimations impossible.
- Temperature proxies provide **only local or regional estimates of historical temperature anomalies** with significant uncertainties.
- Global estimates based on averaging all local proxies have even higher uncertainties, making claims about **daily temperatures at a global scale unreliable**.

### What are the other Methods to

### Estimate Temperature over longer Timescales?

- Some isotopes with known radioactive decay rates can provide estimates of temperature changes over longer timescales like Holocene Epoch.
  - The **Holocene Epoch** is a geological times scale that **began approximately 11,650 years ago** and continues to the present day. It is the current and most recent epoch within the **Quaternary Period**.
- Carbon or lead isotopes with half-lives ranging from 5,000 to over 10 million years can be used to estimate past temperatures.
- Nonetheless, these methods are also limited to longer timescales and cannot provide daily temperature data.

Note:



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# Rapid Fire Current Affairs

## Highlights

- Australia's Strategic Cocos Islands
- Seven Unique Indian Crafts Receive Geographical Indication Tags
- WHO Endorses Polypills for Cardiovascular Disease Prevention
- Tasteless Boiled Water
- The Iberian Wolf
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- Cross-Border Wildfire: Eagle Bluff Threatens Osoyoos and British Columbia
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- India's Defence Ministry Adopts 'Maya' OS for Enhanced Cybersecurity
- Iraq Eliminates Trachoma as a Public Health Problem
- Postal Life Insurance Introduces Direct Incentive Disbursement Program
- Extinction Alert for Vaquita Porpoise
- Norseman Xtreme Triathlon
- India's first-ever Gold Medal at the World Archery Championship
- Ancient Giant Whale: *Perucetus Colossus*
- Chandrayaan-3 Enters Lunar Orbit
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- Purchasing Managers' Index (PMI)
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- African Gene Variant CHD1L: Shield Against HIV Progression
- MASl: Revolutionizing Child Care Institution Oversight
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- Gukesh D Overtakes Viswanathan Anand in FIDE Rankings
- Western Tragopan
- Relief for Displaced School Children Amid Manipur Ethnic Violence
- PM-YASASVI SCHEME
- Rising Psychiatric Cases in CAPFs
- Aadi Perukku 2023

## Australia's Strategic Cocos Islands

Indian Navy and Indian Air Force aircraft recently visited Australia's Cocos (Keeling) Islands (CKI) in the Southern Indian Ocean, strengthening strategic reach and interoperability between India and Australia's militaries in the Indian Ocean.

- The cooperation between India and Australia extends to support for India's Gaganyaan mission with a

ground station at CKI and the planned upgrade of the CKI runway for use as a forward operating base.

- Both countries are also focused on enhancing maritime domain awareness and anti-submarine warfare, and they will participate in the upcoming Malabar multilateral naval exercise with Japan and the U.S. in Australia.
- The military-to-military engagements aim to bolster monitoring and response capabilities in the region, particularly in response to increased Chinese naval presence in the Indian Ocean.

Note:



Read more: **Cocos Island**

## Seven Unique Indian Crafts Receive Geographical Indication Tags

The **Geographical Indications Registry in Chennai** has awarded **Geographical Indication (GI) tags** to seven products from different regions of India, showcasing the country's diverse craftsmanship. New GI Tags for Indian Crafts:

- **'Jalesar Dhatu Shilp'** - a metal craft from Jalesar, Uttar Pradesh, known for decorative metal crafts and brassware.
- Goa's **'Mankurad Mango'**, also called 'Malcorada', represents a unique variety of mangoes.
- **'Goan Bebinca'** - the traditional Indo-Portuguese pudding, known as the 'queen of Goan desserts'.
- Rajasthan's four GI tags:
  - **Udaipur Koftgari Metal Craft**
  - **Bikaner Kashidakari Craft**
  - **Jodhpur Bandhej Craft**
  - **Bikaner Usta Kala Craft**

Read more: **Geographical Indication Tag**

## WHO Endorses Polypills for Cardiovascular Disease Prevention

The **World Health Organization** has included **three fixed-dose combinations of cardiovascular medicines** or polypills in its revised **Model Lists of Essential Medicines (EML) 2023** for primary and secondary prevention of atherosclerotic cardiovascular diseases.

- Polypills are **fixed-dose combination medications** that contain multiple active ingredients in a single pill.
  - Studies conducted by various researchers demonstrated that **polypills reduce the risk of heart attacks and strokes by about 40% to 50%.**
- **Polycap**, a four-drug combination manufactured by Cadila in India, was included in the EML.

Read more: **National List of Essential Medicines (NLEM)**

## Tasteless Boiled Water

- Naturally occurring water contains various **dissolved substances**, including gases like **oxygen** and **carbon dioxide**, sulphates, carbonates of calcium and magnesium, and elements like **iron**, influenced by the soil's composition.
- These constituents contribute to **both the taste and hardness of water**, with **hardness indicating a higher mineral content.**
- Boiling water releases **dissolved gases and reduces hardness.** The process also forms carbonates and hydroxides, which are **insoluble**, and they are deposited on the surfaces and the bottom of the vessel holding the water as a scaly coating.
- The separation of these substances from the water **deprives it of its familiar taste.**

## The Iberian Wolf

A recently released report for the year **2020** by the **Program of Actions for the Conservation of the Iberian Wolf** in Andalusia, conducted under the Government of Andalusia, stated that there was no indication of Iberian wolf presence in Andalusia (an autonomous territory of Spain).

- The **Iberian wolf (*Canis lupus signatus*)**, the species of **gray wolf** native to the **Iberian Peninsula** comprising **Spain and Portugal**, has been extinct in the **historic region of Andalusia, Spain** since 2020.
- **Grey Wolf *Canis lupus*** is listed as **Least Concern** by the **IUCN Red List** of Threatened Species.
- Comprehensive report reveals the absence of wolf presence through **"control" tours and camera trap data.**



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## Mahila Samman Savings Certificate Scheme (MSSC)

The **Mahila Samman Savings Certificate Scheme (MSSC)** is a **small savings scheme** launched by the **Ministry of Finance**, to commemorate the **Azadi Ka Amrit Mahotsav**, aimed at encouraging women investors.

- Women of any **age group**, including **girl children**, can open an **MSSC account** with a **minimum deposit of Rs 1000** and a **maximum deposit of Rs. 2 Lakhs** for a **two-year period** until **March 2025**.
- So far, **14,83,980 accounts** have been opened with total deposits of **Rs 8,630 crore** under the scheme.
- The scheme offers an attractive **interest rate of 7.5% p.a.**, compounded **quarterly**, along with the provision for **partial withdrawal and premature closure** of the account is allowed at **any time after six months of opening** but with the **interest rate reduced by 2%**.

## Cross-Border Wildfire: Eagle Bluff Threatens Osoyoos and British Columbia

Recently, a **wildfire**, initially named '**Lone Pine Creek**' that started in **Washington, USA** crossed the border into the Canadian province of **British Columbia**.

- This rapidly spreading fire, now known as '**Eagle Bluff**' and estimated to cover **885 hectares (2,200 acres)** on the Canadian side and around **2,000 hectares** on the U.S. side.
  - **British Columbia** as well as other parts of **Canada** are already reeling from **drought**, which has **caused several wildfires in the country** in **July 2023**.
- This event also reminded of the **2021 wildfires in British Columbia**, which were blamed on a **heat dome in the Pacific Northwest**.

Read more: **Wildfire, Heat dome**

## MSME CARD

Recently, the **Ministry of Micro Small and Medium Enterprises (MSME)**, in association with the **National Payment Corporation of India (NPCI)** had launched the **MSME RuPay Credit Card** on a pilot basis, pan-India for Udyam registered MSMEs.

- The **MSME RuPay Credit Card** provides a simplified payment mechanism to MSMEs to **meet their business-related operational expenses** like **digital payments**, utility bills payments, tax/statutory payments, etc.
  - MSME borrowers **also take benefit of interest-free credit period** on their business spending as per the bank's policy.
  - **NPCI**, an umbrella organization for operating retail payments and settlement systems in India, is an initiative of the **Reserve Bank of India (RBI)** and **Indian Banks' Association (IBA)** under the provisions of the **Payment and Settlement Systems Act, 2007**, for creating a robust **Payment & Settlement Infrastructure in India**.
- Read more: **Credit Growth for MSMEs**

## MPLADS Fund Allocation for Covid-19 Relief

Recently, the **Ministry of Statistics and Programme Implementation** provided valuable insights into the **Members of Parliament Local Area Development Scheme (MPLADS)** during a written reply in the **Rajya Sabha**.

- **MPLADS scheme** enables the members of parliaments (MPs) to **recommend developmental work in their constituencies** with an emphasis on creating durable community assets based on locally felt needs.
- The annual allotment under the **MPLAD Scheme** has remained **unchanged since the Financial Year 2011-12**.
- However, in response to the Covid-19 pandemic, a total of **Rs. 6,320 crores from MPLADS funds were allocated to the Ministry of Finance** for the Financial Years **2020-21 and 2021-22**.

Read more: **Members of Parliament Local Area Development Scheme**

## National Manuscripts Bill 2023

India's rich cultural heritage is encapsulated in its **ancient manuscripts**, which hold invaluable knowledge and historical significance. However, the **loss and dispersal of many of these manuscripts**, even beyond the country's borders, have raised concerns. In a significant move, the Indian government is gearing up to address this issue through the introduction of the **National Manuscripts Bill, 2023**.

- The primary objectives of the Bill include **documenting and cataloguing Indian heritage texts worldwide**,

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maintaining accurate information, and specifying consultation conditions.

- The bill proposes the establishment of a **10-member National Manuscripts Authority (NMA)**, chaired by the **Culture Minister and including representatives from Culture, Finance, Education, and private agencies**.
  - The NMA will oversee **digitization, conservation, preservation, editing, and publication of manuscripts**.
  - The NMA will possess civil court powers to regulate manuscript access, investigate thefts, and ensure protection against damage or theft.
  - The NMA can acquire manuscripts from private owners based on content importance, with compensation determined by an expert committee.
- Manuscripts is a handwritten composition on materials like palm leaf, paper, cloth, and bark, in Sanskrit and regional languages, dating back at least 75 years.
- India possesses approximately **10 million manuscripts in 80 ancient scripts, with the National Mission for Manuscripts (NMM)** responsible for preservation.
  - The **Bakhshali manuscript**, an ancient mathematical text, showcases the early use of zero and dates back to the third or fourth century A.D.

## India's ODOP Wall

Recently, through a collaborative effort between **One District One Product (ODOP)** and **Deendayal Antyodaya Yojna - National Rural Livelihoods Mission (DAY-NRLM)**, the 'ODOP Wall' has been introduced. This initiative aligns with highlighting India's exceptional craft heritage globally.

- 'ODOP Wall' aims to **showcase India's craft uniqueness worldwide**.
- ODOP initiative focuses on **promoting one unique product from each district, fostering balanced regional development**.
- Diverse range of products covered, including **handlooms, handicrafts, and agricultural products**.
- Collaboration identifies and promotes products with cultural significance and unique qualities.
- **Boosts sales, and supports rural self-help groups (SHGs) and indigenous crafts**.

Read more: **One District One Product (ODOP)**

## The Centrifugal Force

The **centrifugal force**, an **outward force** experienced by an object that is in **motion** along a **curved or circular path**, is not a **true force but a result of inertia**, the tendency for an object to maintain its state of motion.

- This perceived force arises when an object moves along a curved path, **always pointing away from the center of rotation**.
- While not a genuine force like gravity or magnetism, it emerges from **an object's resistance to altering its direction**.
  - This principle finds ingenious applications in various fields. Industries like **pharmaceuticals, dairy, and nuclear energy** utilize centrifuges to exploit this resistance.
    - Washing machine, which dries clothes in the spin cycle by expelling water from them using the centrifugal force.

## Vindhyagiri

On **17<sup>th</sup> August 2023**, the President of India will launch the **Vindhyagiri, a Project 17A Frigate**, at the **Garden Reach Shipbuilders and Engineers Limited in Kolkata**.

- This vessel, the **sixth in the Project 17A Frigate series**, takes its name from the **Karnataka mountain range**.
- These frigates are an evolution of the Project 17 Class Frigates (Shivalik Class), featuring enhanced **stealth capabilities, advanced weaponry, sensors, and platform management systems**.
  - The technologically sophisticated Vindhyagiri pays tribute to its predecessor, the **former INS Vindhyagiri, a Leander Class ASW Frigate**.
- In line with the nation's commitment to self-reliance, a significant **75% of equipment and system orders for the Project 17A ships are from indigenous firms**, including **Micro, Small, and Medium Enterprises (MSMEs)**.

Read more: **Project 17A**

## Integrating NavIC with Aadhaar Enrolment Systems

- The **Department of Space (DoS)** is coordinating the integration of **NavIC (Navigation in Indian**

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**Constellation**), India's indigenous satellite navigation system, with **Aadhaar** enrolment devices.

- NavIC, comprising seven satellites, is India's equivalent of the **American GPS**, providing **positioning and navigation services**.
- NavIC offers **Standard Position Service (SPS)** for civilian use and **Restricted Service (RS)** for strategic applications.
- The NavIC **coverage area** includes India and a region up to **1,500 km beyond the Indian boundary**.
- NavIC has found utility in **disaster management**, aiding agencies like the **National Disaster Management Agency (NDMA)** and the **Indian National Centre for Ocean Information System (INCOIS)** in alert dissemination for natural calamities.
- The move involves adapting **Aadhaar enrolment kits** to work with NavIC, enhancing accuracy and functionality.

Read more: **NavIC**

## Reviving Trilateral Cooperation: India, Japan, and Sri Lanka

- **India, Japan and Sri Lanka** are working towards restarting trilateral cooperation after the **cancellation of a joint India-Japan MoU for the East Container Terminal (ECT)** project in Colombo.
- However, with India and Japan coming to **Sri Lanka's rescue during last year's economic crisis**, and offering assistance with Sri Lanka's debt restructuring process, the three countries are exploring new avenues of cooperation.
- India and Japan share a vision of a **Free Open and Inclusive Indo-Pacific (FOIIP)**.
- India and Japan can work together on renewable energy and grid connectivity projects, the development of **Trincomalee, Sri Lanka** as an **oil pipeline hub, connectivity and people-centric projects** like tourism and education.
- The **Joint Economic Vision Statement** between President Wickremesinghe (Sri Lanka) and the Prime Minister of India outlines catalysing projects with **private sector-led investment and execution**.

Read more: **West Container Terminal Offer to India-Japan: Sri Lanka**

## Exercise 'Zayed Talwar'

- Recently, two ships of the Indian Navy - **INS Visakhapatnam**, and **INS Trikand** - visited **Port Rashid**, Dubai, UAE to conduct bilateral exercise '**Zayed Talwar**'.
- The exercise envisages to **boost the maritime partnership between the two navies** and foster a common understanding of the security challenges in the region.
- **Other bilateral exercises** between the two countries include: **In-UAE BILAT** (bilateral naval exercise), **Desert Eagle-II** (bilateral air force exercise) and **Exercise Desert Flag-VI**.
- India and the UAE **established diplomatic relations in 1972**.
- In the year 2022-23, UAE was **India's 3<sup>rd</sup> largest trading partner** and **2<sup>nd</sup> largest export destination**.



Read More: **India-UAE Relations**

## Havana Syndrome

- Recently, the Central govt has told the Karnataka HC that it will look into the matter of the '**Havana Syndrome**' in India. This was in response to a petition by a Bengaluru resident who had approached the HC requesting a **writ of Mandamus** for an enquiry on Havana Syndrome in India.

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- A Writ of Mandamus is issued to direct a public authority to do its duty.
- Havana Syndrome refers to a set of mental health symptoms including - hearing certain sounds without any outside noise, nausea, vertigo and headaches, memory loss and balance issues.
- Its roots trace back to Havana (Cuba) in late 2016.
  - The causes behind Havana Syndrome were not entirely certain but speculated to be “sonic attacks”.
  - Some US based studies suggest the victims may have been subjected to high-powered microwaves that damaged/interfered with the nervous system.
    - Beams of high-powered microwaves may have been sent through a special gadget - a “microwave weapon”, however there is no conclusive evidence of their existence.

Read More: [Havana Syndrome, Directed Energy Weapons, Writs](#)

## SuSwagatam Portal

Recently, the **Supreme Court (SC)** announced the launch of the portal ‘SuSwagatam’, which would enable advocates, visitors, interns and others to register themselves online and get e-passes to enter the apex court.

- In July 2023, the portal underwent testing as a pilot project and received positive responses from its users.
- It is a web-based and mobile-friendly application that allows users to request for e-passes for various purposes such as attending court hearings, meeting advocates, etc.

Read More: [Initiatives Taken for Improving the Judicial System](#)

## Arunachal Rang Mahotsav

The Arunachal Rang Mahotsav is a four-day festival celebrated across various States in India.

- It aligns with the principles of **Ek Bharat Shreshtha Bharat**.
- The festival is celebrated with the aim of showcasing Arunachal’s history through drama, 4 plays were scheduled to be performed in Delhi, Mumbai, Kolkata and Guwahati.



Read More: [Statehood Day of Arunachal Pradesh](#)

## INS Sahyadri and INS Kolkata in MALABAR 2023

Indian Navy’s indigenous warships, **INS Sahyadri** and **INS Kolkata**, are set to partake in **Exercise MALABAR 2023** that is going to be held near Sydney from August 11 to 21, 2023.

- It will be accompanied by vessels and aircraft from the **US Navy (USN)**, **Japan Maritime Self Defence Force (JMSDF)**, and the **Royal Australian Navy (RAN)**.
  - Originating in 1992 as a bilateral endeavor between the Indian Navy and US Navy, the **MALABAR series of maritime exercises** has evolved remarkably, now encompassing four significant naval forces in the Indo-Pacific Region.

Read more: [MALABAR Exercise](#)

## New Spaceport in Tamil Nadu to Boost India’s Space Sector

India is set to expand its space capabilities with the establishment of a new spaceport in Kulasekarapattinam, Tamil Nadu.

- The spaceport will be used for launching the **Small Satellite Launch Vehicles (SSLV)** developed by the

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**Indian Space Research Organisation (ISRO)**, which are designed to offer low-cost and flexible access to space for small satellites.

- The spaceport will also be open for use by **Non-Government Entities (NGEs)**, subject to technical and safety requirements, as per the **Indian Space Policy 2023**.
  - The Government has also established the **Indian National Space Promotion and Authorization Centre (IN-SPACe)** as a single-window agency for facilitating and authorizing the space activities of NGEs.

**Read more: Indian Space Policy 2023, Small Satellite Launch Vehicles**

## Jeevan Pramaan

- The **Department of Pension & Pensioners' Welfare (DoPPW)** has taken proactive steps to enhance the ease of living for **Central Government pensioners** through the widespread promotion of **Digital Life Certificates (DLC)**, known as **Jeevan Pramaan**.
  - Pensioners must **submit DLC every November** (with a provision for those aged 80 years and above in October) to ensure **continuous pension disbursement**.
- Initially, the submission of DLCs involved **biometric methods**. Subsequently, in collaboration with MeitY, the department introduced a pioneering **Face Authentication technology system linked to the Aadhar database**.
  - This innovation enables pensioners to **generate their Life Certificates via any Android-based smartphone**. This reduces reliance on external biometric devices, rendering the process more accessible and affordable, especially for the broader population.
- To ensure the success of the campaign, detailed guidelines have been issued. These guidelines include :
  - Nodal officers nominated for the campaign.
  - Awareness through banners, posters, and ATMs.
  - Utilization of technology during doorstep banking and branch visits.
  - Camps for easy submission, and home visits for bedridden pensioners.

**Read more: Jeevan Pramaan**

## Amazon Summit by the Amazon Cooperation Treaty Organization

- **Amazon Cooperation Treaty Organization (ACTO)** is an international organization "aimed at the **promotion of sustainable development of the Amazon Basin**".
- Colombia at the Amazon summit proposed that **80% of the Amazon should be protected from deforestation and degradation by 2025** but did not find support from all the members.
  - Scientists have warned for long that if the combined deforestation and degradation of the **Amazon crosses a 20-25% threshold**, the forest could reach an **irreversible tipping point** that may result in the **dieback of the entire ecosystem**.
- **The Belem Declaration** released during the **Amazon Summit recognises Indigenous knowledge** as a condition for biodiversity conservation and calls for ensuring full and effective participation of **Indigenous Peoples in decision-making and public policy formulation processes**.



**Read more: Amazon Rainforest**

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## GeM: Transforming India's Public Procurement Landscape

**Government e-Marketplace (GeM)** marks its **7th Foundation Day** as a landmark in India's procurement landscape.

- The GeM is an online platform launched by the **Ministry of Commerce and Industry**, Government of India in **2016** to facilitate procurement of goods and services by various government departments and organisations.
  - GeM has saved over **₹45,000 crore since 2016**.
- It is open to all government departments, public sector undertakings, autonomous bodies and other organizations.
  - GeM has surpassed the achievements of renowned public procurement platforms such as **South Korea's KONEPS** and **Singapore's GeBIZ**.

Read more: **Government e-Marketplace**

## Conjunctivitis

**Conjunctivitis cases** have been surging in India during the **monsoon season**, as the high **humidity and rainfall** create a favorable environment for the transmission of the infection

- Also known as "**pink eye**," conjunctivitis is an **eye condition characterized by inflammation of the conjunctiva**, the thin membrane that covers the white part of the eye and lines the inner eyelids.
  - It leads to **redness, itching, discharge and pain** in the affected eye.
- It can be caused by **viruses, bacteria, allergens** or other factors.
  - **Viral and bacterial conjunctivitis can spread** through direct contact with contaminated hands or surfaces.
  - **Allergic conjunctivitis is not contagious** and results from exposure to allergens.
- To prevent conjunctivitis, one should wash hands frequently, avoid touching or rubbing eyes, not share personal items with others, wear sunglasses or protective eyewear, and stay away from people who have conjunctivitis.

## World Tribal Day 2023

- The **International Day of the World's Indigenous Peoples**, also known as **World Tribal Day**, is observed annually on **August 9**, as per a resolution by the **UN General Assembly** in December 1994.
- This date commemorates the inaugural meeting of the **UN Sub-Commission on the Promotion and Protection of Human Rights Working Group on Indigenous Populations in 1982**, highlighting its significance in promoting and safeguarding the rights of indigenous populations worldwide.
- The theme of World Tribal Day in 2023 is "**Indigenous Youth as Agents of Change for Self-determination**."
- The day is necessary since indigenous peoples are frequently among the most **underprivileged racial and ethnic groupings in society**.
  - The UN estimates that although **indigenous people** make up less than **5% of the global population**, they are responsible for **15% of the world's poorest people**.

Read more: **World Tribal Day, Particularly Vulnerable Tribal Groups (PVTGs)**

## Quit India Movement Day 2023

- The **Quit India Movement**, also known as the **August Movement** or **Bharat Chodo Andolan**, was a significant **civil disobedience movement** launched by **Mahatma Gandhi** and supported by **Indian National Congress** on **8<sup>th</sup> August 1942** with the aim to **end British colonial rule in India and achieve full independence**.
- The year 2023 marks the **81st anniversary of the Quit India movement**.
- On this day, **August 8th, 1942**, Gandhi gave the famous "**Do or Die**" speech, at the **Gowalia Tank Maidan**, now popularly known as **August Kranti Maidan**.
- The slogan '**Quit India**' was coined by **Yusuf Meherally**, a socialist and trade unionist who also served as Mayor of Mumbai.
  - Meherally had also coined the slogan "**Simon Go Back**".

Read more: **Quit India Movement, Mahatma Gandhi**

Note:



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## Enhanced Transparency in Mahatma Gandhi NREGS through E-Attendance

Recently, the Union Ministry of State for Rural Development provided valuable insights into the E-attendance in **Mahatma Gandhi National Rural Employment Guarantee Scheme** during a written reply in the Lok Sabha.

- To bolster transparency in the scheme's execution across various states and union territories, a mandate has been established requiring the use of the **National Mobile Monitoring System (NMMS) App**.
- This app captures attendance with **geo-tagged, two time-stamped photographs of workers engaged in the scheme's activities**, except for individual beneficiary works.
  - Offline mode enables the capture of morning attendance and photographs, with later uploads when a network connection is available.
- This requirement, effective from **January 1, 2023**, **not only fosters citizen oversight of the program but also expedites payment processing**.
  - The responsibility of recording attendance and photos lies with **worksite supervisors, who employ the NMMS App** for this purpose.

Read more: **Mahatma Gandhi National Rural Employment Guarantee Scheme**

## India's Defence Ministry Adopts 'Maya' OS for Enhanced Cybersecurity

India's Defence Ministry has decided to replace the **Microsoft Operating System (OS)** on internet-connected computers with a **new OS called Maya**, developed locally based on **open-source Ubuntu**.

- The transition to Maya is aimed at bolstering **security without disrupting user experience**, as it offers an interface and functionality similar to Windows.
  - This move comes in response to the escalating incidents of **cyberattacks**.
- Alongside Maya's implementation, a comprehensive **'end point detection and protection system,'**

**Chakravayuh**, is also being introduced to fortify these systems.

Read more: **Rising up to Cyber Security Challenges**

## Iraq Eliminates Trachoma as a Public Health Problem

Recently, Iraq achieved a Milestone in Global Health by **Eliminating Trachoma**, a **neglected tropical disease and the world's leading infectious cause of blindness**.

- **Iraq has joined the league of 17 countries** in eliminating trachoma, according to the **World Health Organization (WHO)**.
- The WHO has recognized Iraq as the **50th country to eliminate at least one neglected tropical disease**.
- Despite substantial progress, trachoma is still endemic in six countries in the WHO's **Eastern Mediterranean Region**.
- Trachoma starts as a **bacterial infection** caused by ***Chlamydia trachomatis*** and can lead to blindness if untreated.
- Disease thrives in **areas with water shortages, poor sanitation, and fly infestations**.
- WHO recommends the **SAFE strategy (Surgery, Antibiotics, Facial cleanliness, and Environmental improvement)** to eliminate trachoma.

Read more: **Global Report on Neglected Tropical Diseases**

## Postal Life Insurance Introduces Direct Incentive Disbursement Program

- **Postal Life Insurance (PLI)** introduces pilot program **"Direct Incentive Disbursement"** in Delhi and Uttarakhand Circles.
- This initiative recognizes the crucial role of its **sales force**, Agents receive their **earned commissions directly in their Post Office Savings Bank (POSB) Accounts**, ensuring swift and secure transactions.
- This streamlined process boosts convenience for agents, **motivating them to deliver optimal performance and strengthen client relationships**.
  - Around two lakh sales force members, including **Gramin Dak Sevaks and Direct Agents**, benefit from secure and instantaneous fund transfers.

Note:



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- **PLI was introduced in 1884.** It started as a welfare scheme for the benefit of **postal employees**.

## Extinction Alert for Vaquita Porpoise

The **International Whaling Commission (IWC)** has sounded a dire warning regarding the **vaquita porpoise's** survival, issuing its **first-ever 'extinction alert'** on **August 7, 2023**.

- With a mere 10 individuals left in the **Gulf of California, Mexico**, the vaquita faces an alarming decline from its population of approximately 570 in 1997.
- Vaquitas are the most **endangered species of porpoise**. They are known for their **distinctive appearance**, characterized by dark rings around their eyes and dark patches on their lips.
- One of the primary threats to vaquita populations is **bycatch**, where they become **unintentionally trapped in gillnets meant for catching another species called totoaba** fish (its **swim bladders** are prized in Chinese cuisine).

Read more: **Vaquita porpoise**

## Norseman Xtreme Triathlon

The 2023 edition of the **Norseman Xtreme Triathlon** took place on **August 5th** at **Norway** with 290 athletes from 35 countries taking part in the race.

- The Norseman Xtreme Triathlon is one of the most challenging and prestigious endurance events in the world. It is a long-distance triathlon that consists of a **3.8 km swim, a 180 km bike ride, and a 42.2 km run**, with a total elevation gain of 5,230 meters.
- The race starts with a jump from a ferry into the cold waters of the **Hardangerfjord**, and ends at the summit of **Mount Gaustatoppen**, one of the highest peaks in Norway.

## India's first-ever Gold Medal at the World Archery Championship

Recently, the Prime Minister extended congratulations to the Indian women's compound team comprising **Jyothi Surekha Vennam, Parneet Kaur, and Aditi Gopichand**

**Swami**, for securing India's inaugural Gold medal at the World Archery Championship in Berlin.

- Aditi Gopichand Swami became the **youngest-ever senior world champion** and the **first Indian to win an individual compound gold medal** at the World Archery Championships at the age of 17.
- World Archery is the **international federation for the Olympic and Paralympic sport of archery**.
- The organization was **founded in 1931** and is responsible for **regulating and promoting archery around the world**.
- World Archery is based in the **Olympic capital of Lausanne, Switzerland**.



## Ancient Giant Whale: Perucetus Colossus

The recent identification of **Perucetus colossus** (the **colossal whale from Peru**), an ancient whale species, has redefined the understanding of **marine giants**. A study published in **Nature** reveals this colossal creature's remarkable features, potentially reshaping the narrative of gigantism in marine mammals.

- The estimated skeletal mass of **P. colossus** **exceeds that of any known mammal or aquatic vertebrate**.
- The partial skeleton includes **13 vertebrae, 4 ribs, and 1 hip bone, found in Southern Peru and believed to be around 39 million years old**.
- With an estimated body mass **ranging between 85 and 340 tonnes and a length of 20 meters (66 feet)**, the newly discovered species **challenges the blue whale's status as the heaviest animal**. Although the blue whale remains longer, reaching over 100 feet (30 meters) in length.
- The species displays the **highest degree of bone mass increase** observed, associated with shallow diving.

Note:



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- The trend towards gigantism in marine mammals might have **originated earlier than previously believed.**



## Chandrayaan-3 Enters Lunar Orbit

**Chandrayaan-3**, India's ambitious lunar mission, has achieved a significant milestone by **entering lunar orbit twenty-three days after its departure from Earth.**

- **Chandrayaan-3** is India's third lunar mission and second attempt at achieving a soft landing on the moon's surface.
  - The mission took off from the **Satish Dhawan Space Center (SDSC)** in Sriharikota on **July 14, 2023**, at 2:35 pm.
- **Orbits:**
  - **Lunar orbit:** The curved path followed by a spacecraft as it revolves around the Moon.
  - **Translunar:** The trajectory that takes a spacecraft from Earth to a point beyond its orbit, en route to the Moon.
  - **Earth orbit:** The elliptical or circular path that a satellite or spacecraft traces around the Earth due to gravitational forces.

Read more: **Chandrayaan-3**

## 9<sup>th</sup> National Handloom Day

**National Handloom Day** is observed across India on **August 7** every year.

- The primary goal of celebrating Handloom Day is to promote the handloom and to recognise the efforts as well as skills of the community of weavers engaged in the sector.
- It was first celebrated on **August 7, 2015**. The date holds historical significance, paying homage to the **Swadeshi Movement** launched on **August 7, 1905**, which championed indigenous industries and, particularly, handloom weavers.

- Theme for National Handloom Day 2023: "Handlooms for Sustainable Fashion"

Read more: **National Handloom Day, Swadeshi Movement**

## Purchasing Managers' Index (PMI)

According to S&P Global, The **Services Purchasing Managers' Index (PMI)** recently reached an **impressive 13-year high of 62.3 in July** after a three-month low in June. Highlights the sector's resilience and its role in driving economic growth.

- PMI is a **survey-based measure** that provides information about **current and future business conditions** to company **decision-makers, analysts, and investors**. It is a survey-based measure
- It is calculated separately for the **manufacturing and services sectors** and then a **composite index** is also constructed. The PMI is a number from 0 to 100.
  - A PMI above 50 indicates expansion, while a PMI below 50 indicates contraction.
- **Bangladesh, Nepal, Sri Lanka and the UAE** emerged as key sources of growth for India's services sector.

Read more: **Purchasing Managers Index**

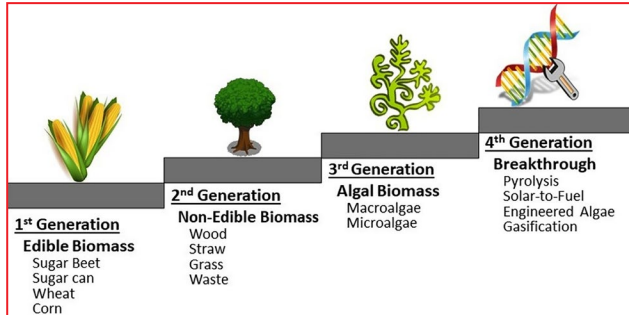
## Pradhan Mantri JI-VAN Yojana

Recently, the **Ministry of Petroleum & Natural Gas** provided valuable insights into the **Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana** in a written reply in the **Lok Sabha**.

- Pradhan Mantri JI-VAN Yojana was launched in March 2019.
  - It focuses on **integrated bio-ethanol projects for Second Generation (2G) ethanol** using **lignocellulosic biomass** and other renewable feedstocks.
  - Total financial allocation: Rs. 1969.50 crore (2018-19 to 2023-24).
- Under this scheme the maximum financial assistance of **Rs.150 crore per project for commercial projects** and **Rs.15 crore per project for demonstration projects** has been prescribed for **enhancing commercial viability, promoting R&D**, and adoption of technologies in the field of production of 2G ethanol.

Note:

- **Key states benefiting:** Punjab, Haryana, Odisha, Assam, Karnataka, Andhra Pradesh.
- Steps beyond PM JI-VAN Yojana to Enhance Bio-ethanol: **Imposition of additional excise duty on non-blended fuels, Ethanol Purchase Agreements (EPA), diversification of feedstock, separate price for 2G ethanol, reduced GST on ethanol for EBP Programme.**



Read more: **Pradhan Mantri JI-VAN Yojana**

## African Gene Variant CHD1L: Shield Against HIV Progression

A recent study published in the journal Nature reveals that certain **individuals of African descent carry a unique gene variant, Chromodomain Helicase DNA Binding Protein 1 Like (CHD1L)**, that plays a pivotal role in moderating the progression of **human immunodeficiency virus (HIV)**.

- This variant of the **CHD1L** gene is exclusively found in the African population and has been linked to **reduced viral loads of the most virulent strain of HIV, HIV-1**.
  - The gene's function involves **coding for proteins that facilitate DNA damage repair**.
- Consequently, their potential to **transmit the virus is diminished**, and the advancement of their own illness is decelerated.
- While **4% to 13% of individuals of African origin might carry this gene variant**, the mechanisms by which it influences viral load are not yet fully understood.

Read more: **Human immunodeficiency virus**

## MASI: Revolutionizing Child Care Institution Oversight

Recently, the **Ministry of Women and Child Development** provided valuable insights into the **MASI Portal** during a written reply in the Rajya Sabha.

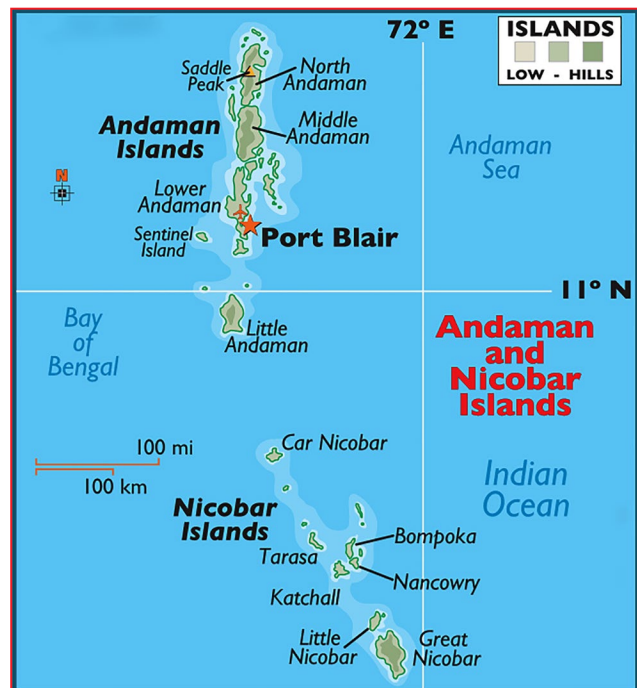
- The **National Commission for Protection of Child Rights (NCPCR)** has introduced an application named '**MASI**' - **Monitoring App for Seamless Inspection**.
- Developed to **enhance the real-time monitoring of Child Care Institutions (CCIs)** and their inspection processes across India, this app has emerged from the need to effectively manage inspections **mandated by the Juvenile Justice Act, 2015**.
- It allows unified inspections by various authorities, including **Child Welfare Committees (CWCs), State Inspection Committees, Juvenile Justice Boards (JJBs), and State Commissions for Protection of Child Rights (SCPCRs)**.

Read more: **National Commission for Protection of Child Rights, Child Care Institutions.**

## Great Nicobar Island Project

The Government's Great Nicobar Project may require the felling of 9.64 lakh trees, higher than the earlier estimate of 8.5 lakh trees. The project has faced challenges from the **National Green Tribunal (NGT)** regarding the issue of **deforestation**.

- The **Great Nicobar Island (GNI) Project** is a mega project to be implemented at the southern end of the **Andaman and Nicobar Islands**.



Note:



- The project includes an international container **transshipment terminal**, a **greenfield international airport**, township development, and a 450 MVA gas and **solar based power plant** over an extent of 16,610 hectares in the island.

Read More: **Great Nicobar Island Project**

## Agriculture Infrastructure Fund (AIF)

Since the launch of the Agriculture Infrastructure Fund (AIF) in 2020, only 15% of the Rs 1 lakh crore aimed at developing post-harvest infrastructure, has been distributed.

- AIF aims to provide all-around financial support to the farmers, agri-entrepreneurs, farmer groups like **Farmer Producer Organisations (FPOs)**, **Self Help Groups (SHGs)**, Joint Liability Groups (JLGs) etc. and many others to create post-harvest management infrastructure and **build community farming assets throughout the country**.
- It provides support of 3% interest subvention, credit guarantee support through the **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme** for loans of up to Rs. 2 crore and facility of convergence with other Central and State Government schemes.

Read More: **Agriculture Infrastructure Fund (AIF) & Post Harvest Management.**

## Gukesh D Overtakes Viswanathan Anand in FIDE Rankings

Gukesh D, a protege of five-time world chess champion Viswanathan Anand, will become the top-ranked Indian in the International Chess Federation (FIDE) monthly rating list for classical chess, surpassing Anand after 36 years. He will also break into the top 10 rankings for the first time, making him the third Indian to achieve this feat.

- He became the youngest player to defeat World No. 1 chess player, Magnus Carlsen.
  - FIDE is the governing body of the sport of chess, and it regulates all international chess competitions. It's constituted as a non-governmental institution.

### Viswanathan Anand

- The most successful Indian chess player, who won the FIDE World Chess Championship in 2000, 2007, 2008, 2010 and 2012.
- He also won the World Rapid Chess Championship in 2003 and 2017, and the World Blitz Chess Championship in 2000 and 2017. He is the only player to have won the world title in all three formats of chess.

Read More: **The Rising Popularity of Chess in India, FIDE**

## Western Tragopan

The Western Tragopan (*Tragopan melanocephalus*), Himachal Pradesh's state bird, has faced habitat loss but has shown a gradual increase in population at the Sarahan pheasantry due to conservation efforts.



- The western tragopan, also known as the western horned tragopan, is amongst the rarest of all living pheasants.
- Due to its beautiful plumage and large size, this bird is locally known as 'jujurana' or 'king of birds'.
- It is endemic to the northwest Himalaya, within north Pakistan through Jammu and Kashmir and Himachal Pradesh, to the western part of Garhwal.
- They feed mostly on leaves, shoots and seeds, but also consumes insects and other invertebrates.

**IUCN Status:** Vulnerable

## Relief for Displaced School Children Amid Manipur Ethnic Violence

The ethnic violence in Manipur has led to the displacement of over 14,000 school children, prompting swift measures by the Ministry of Education to ensure their continued education.

- The ethnic clashes in Manipur were ignited by a 'Tribal Solidarity March' on May 3, 2023, organized as a response to the demand for **Scheduled Tribe (ST)** status by the Meitei community.

Note:



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- The Meitei people are also known as **Manipuri people**.
- Their primary language is the **Meitei language**, which is also called **Manipuri** and is the only official language of Manipur.
- They are predominantly settled in the **Imphal Valley**, although a significant number reside in other Indian states, such as **Assam, Tripura, Nagaland, Meghalaya, and Mizoram**.
- The Meitei people are divided into clans, and members of the same clan do not intermarry.

Read more: **Demand of Meities for ST Status**.

## PM-YASASVI SCHEME

Ministry of Social Justice and Empowerment is implementing an umbrella scheme namely **PM Young Achievers Scholarship Award Scheme for Vibrant India (PM –YASASVI)** for students in the **Other Backward Class (OBC), SC, Denotified, Nomadic and semi-Nomadic Tribe (DNT) and Economically Backward Caste (EBC)** categories.

- The key components of the scheme include
  - **Pre-Matric Scholarship** for OBC, EBC and DNT Students.
  - **Post-Matric Scholarship** for OBC, EBC and DNT Students.
  - **Top Class School Education** for OBC, EBC and DNT Students.
  - **Top Class College Education** for OBC, EBC and DNT Students.
  - **Construction of Hostel** for OBC Boys and Girls.

Read more: **Scholarship Schemes in India**

## Rising Psychiatric Cases in CAPFs

The **Ministry of Home Affairs** recently reported a concerning increase in psychiatric patients within the

**Central Armed Police Forces (CAPFs)**. The number of cases surged from 3,584 in 2020 to 4,940 in 2022, marking a nearly **38% rise in reported psychiatric conditions**.

- Psychiatric cases refer to individuals who are **experiencing mental health disorders** or conditions that require diagnosis, treatment, and care from mental health professionals.
  - These cases encompass a wide range of mental health issues, including but not limited to:
    - **Depression**: Persistent feelings of sadness, hopelessness, and loss of interest in activities.
    - **Bipolar Disorder**: Cycles of extreme mood swings, including manic and depressive episodes.
    - **Schizophrenia**: A severe mental disorder characterized by hallucinations, delusions, and disorganized thinking.
- Also, the rising number of **personnel opting for voluntary retirement in the post-pandemic period** remains a concern. In 2022, a record **11,211 personnel took voluntary retirement**, signaling possible dissatisfaction and burnout among the workforce.

Read more: **Central Armed Police Forces, Issues Related to Mental Health**

## Aadi Perukku 2023

**Aadi Perukku**, also known as **Pathinettam Perukku**, is a significant festival celebrated in **Tamil Nadu** to express gratitude for the **monsoon season** and the life-sustaining properties of water.

- Falling on the **18<sup>th</sup> day of the Aadi month in the Tamil Calendar**, this festival marks the **onset of the monsoon season**, which brings increased water levels to the rivers and benefits sowing and vegetation.
- During Aadi Perukku, people gather near the banks of rivers, especially the **Kaveri River**, to perform rituals and offer prayers.

Read more: **Major Festivals of Different States**



## Key Points

## Details

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## Summary

**Key Points**

**Details**


**Summary**

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